International students' reading digital texts on tablets: experiences and strategies

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Abstract

This multiple case study investigated four university-level international students' reading of digital texts on tablets. The study describes these students' experiences with and strategies for mobile reading. The participants were four international students in the United States, and their first language (L1) was not English. The data were collected through observations, verbal reports, interviews, and field notes. The findings showed that participants had both positive and negative experiences using tablets for reading and that mobile reading facilitated their learning about their lives, language, culture, and technology. The study shows that the participants used six reading strategies: (a) setting up the purpose, (b) deciding what to read, (c) accessing a digital text, (d) dialoguing, (e) making a connection, and (f) using applications and digital literacy skills. The article discusses mobile reading, with a focus on strategies, affordances and processes, as well as cultural learning and empowerment.

Keywords International students · Reading of digital texts · Mobile reading · Strategies · Digital literacy

Introduction

Students today are more likely than ever to read texts on their computers; therefore, it is crucial to understand their experiences and strategies as they read digital texts (Park and Kim 2016, 2017). As devices have become smaller and easier to carry and as their capacity has increased, the technology has become ubiquitous and even more potentially useful for international students reading in English (Viswanathan

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2017). According to the Pew Research Center (2015), 68% of US adults have a smartphone and 45% of US adults have a tablet. Due to the ubiquity and ease of carrying mobile devices, many international students use tablets for diverse purposes. Reading is one of them, and the international students use the technology both to interact with the world and to transform it (Kellner 2010). Since they reside in a place where cultural norms and lifestyles are usually different from their home countries, their activities on these mobile devices may contribute to their cultural adjustment as well as their learning.

Reading is different when done on an electronic device. Digital texts include not only traditional paper-based textual resources but also other semiotic modes: images, audio, video, and electronic games (Mayer 2017; Park 2012, 2017). In order to be fully literate in these technology-enhanced reading contexts, readers need to be aware of multimodality and diverse technological tools, and they need to be able to make meaning from diverse texts (Anstey and Bull 2006). As they do with traditional texts, skillful readers of digital texts also adopt diverse strategies, such as considering the topic, setting up their reading purposes, accessing relevant texts and resources, monitoring their comprehension, planning, etc. (Park 2012; Park and Kim 2011, 2016, 2017).

Many researchers have investigated digital reading practices (Guikema and Williams 2014; Ware et al. 2016) and mobile learning (Tingir et al. 2017). However, few have focused on the mobile reading of international students. In this paper, three researchers address this gap by exploring international students' experiences and strategy use when reading digital texts on tablets. We identify international students as those who came from other countries to pursue university degrees in the United States and whose first languages (L1s) were not English. The term, "international students," rather than "English as a second language (ESL) students" is used because the participants' main purpose in the US was to learn the content not the language. It is necessary to know more about this group, considering the large number of international students in the US and their extensive use of mobile devices in their everyday and academic lives.

Theoretical perspectives: ecology and dialogues

We adopt van Lier's (2004) ecological and Bakhtin's (1981, 1986) dialogic perspectives to gain a comprehensive understanding of international students' experiences. From an ecological perspective, reading is a contextualized process where readers are viewed as active agents who perceive affordances (opportunities for action) in the environment, interpret these, and then take action. Van Lier's ecological perspective is rooted in sociocultural theory and in Bakhtin's dialogic perspective, which define reading as active, social, and dialogic processes of negotiating and interpreting the meanings of texts. Based on these perspectives, we define mobile reading as a dialogic and constructive meaning-making task in which readers actively interact with themselves, others, and texts and/or solve problems using phones, tablets, and other handheld mobile devices. We use *mobile-based reading, mobile reading,* and *reading on tablets* interchangeably throughout the paper. Applying ecological and

Bakhtinian perspectives to international students' reading on tablets allows us to consider both cognitive and social aspects of digital text reading holistically and to illuminate our participants' experiences and strategy use in mobile reading.

Literature review

Digital literacy and mobile reading

Gilster (1997) defines digital literacy as "the ability to access networked computer resources and use them… the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" (p. 1). He also emphasizes the capacity to think critically and evaluate information. Hobbs (2017) defines digital literacy as "the constellation of knowledge, skills, and competencies necessary for thriving in a technology-saturated culture" (p. 6). She stresses personal, social, and professional relationships that one transacts through interactions with social and mass media, as well as people's "ability to access, analyze, create, reflect, and take action using a wide variety of digital tools, forms of expression and communication strategies" (p. 6). The key features of digital literacy are the capacity to interpret digital texts, interaction with available information to assess its truth, credibility, and reliability, together with people's ability and skills in performing these tasks (Lankshear and Knobel 2015). To help teachers become more competent in digital literacy, we should provide more opportunities for them to think about their motivations for using digital media, to implement more collaborative practices and learning components, and to explore how teachers and learners can personalize learning (Hobbs and Coiro 2019).

Reading digital texts on a mobile device is different from both paper-based and computer-based reading. Reading on a mobile device is easier because the device is light, small, and portable. Moreover, readers can easily adjust the font size, and the devices need less memory and space (Shimray et al. 2015). Due to these differences, readers adjust how they read texts in these new reading environments. Literacy activities in new mobile contexts can make reading more flexible and enjoyable (Thornton and Houser 2005). However, the small screens can restrict information transmission, and reading with mobile devices in dark places before sleeping may cause health and sleep problems that disrupt the daily lives of the users (Chen and Lin 2016; Shimray et al. 2015; Wang and Smith 2013).

Despite a number of studies that focus on reading on mobile devices, this topic is still relatively new. The majority of studies use English-dominant participants in K-12 contexts. For example, teaching reading with the help of mobile devices in K-12 has a positive effect on reading performance (McClanahan et al. 2012; Tingir et al. 2017) and increases motivation and engagement in students with special needs (Chai et al. 2015; Crowley et al. 2013). Struggling American middle school students read more with e-readers—devices for reading digital texts—and become more motivated and confident when reading (Miranda et al. 2012). In Anderson's (2012) study, e-readers had a similar positive influence on elementary students who enjoyed reading with Kindles because they could make notes, adjust the font, easily

turn pages, and store many books on one light mobile device. In addition, the use of tablets increased elementary students' volume and frequency of reading.

In second language (L2) studies on mobile reading, English as a foreign language (EFL) elementary school students became more motivated to read and developed their reading skills while using mobile devices (Lan et al. 2007, 2009). Studies with adolescent EFL learners report several benefits of reading in the mobile context, such as increased volume of reading, improved reading performance, and positive perceptions of the use of mobile devices for reading (Hsu et al. 2013; Lin 2014). Notably, adolescent EFL learners prefer reading shorter texts on their phones due to the screen and font size (Huang and Lin 2011). When reading with mobile devices, EFL college students improve their reading comprehension and vocabulary (Chang and Hsu 2011; Thornton and Houser 2005), reading performance and satisfaction (Nasab and Taki 2016), and text comprehension and text participation (Hazaea and Alzubi 2016). In addition, they read more frequently and more in terms of volume (Fraser and Abbott 2016).

Media-based reading strategies

Learners adopt diverse strategies, and these can facilitate effective learning (O'Malley and Chamot 1990; Oxford 1990). Reading is not an exception, and learners use diverse strategies when reading both traditional and digital texts (Cho et al. 2017; Chou 2012; Huang 2013; Park 2012; Park and Kim 2011, 2016, 2017). Digital texts contain unique features, such as nonlinear hyperlinks, multimedia resources, and interactive texts, which can support the process of reading (Coiro 2003). When reading these texts, language learners both transfer paper-based text reading strategies to and develop new strategies for new reading environments. In addition, they use and modify the features of digital texts, navigate and evaluate the texts, personalize their reading patterns, and react to solve problems (Cho et al. 2017; Chou 2012; Huang 2013; Park 2012). As reviewed above, however, much prior research has focused on English-dominant speakers' mobile reading in K-12 contexts or on students of various age groups in language classes. Few studies examine international university students, despite their large presence in the US and abroad. Moreover, students' reading of digital texts outside of classrooms has not been investigated sufficiently. This study will fill these gaps and help educators, researchers, and administrators better serve this student population.

Research questions

To better understand international students' experiences and strategy use when reading digital texts on tablets, we addressed the following two research questions:

1. What are four university-level international students' experiences with and perspectives on reading digital texts on tablets?
2. What strategies do these students use when reading digital texts on tablets?

Methods

We adopted a qualitative multiple case study methodology (Merriam 2009), which allowed us to investigate university-level international students' experiences and strategy use in depth. We emphasized readers' active participation while making meanings in diverse reading contexts. Our methods afforded us insight into the participants' perceptions, experiences, and strategy use over time. We collected and analyzed data from multiple resources, which allowed both data source triangulation and investigator triangulation (Patton 2002).

Research participants and sites

The primary investigator invited international students in undergraduate- and graduate-level English teaching methods classes, which they took in their first semester. In total, 14 students were invited, and four decided to participate in this study. The participants were not enrolled in any of the authors' classes.

We selected undergraduate and graduate international students (a) whose L1s were not English, (b) who passed the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) with intermediate or advanced levels of English language proficiency, as required by the university, (c) who had studied in the US less than a semester, and (d) who were willing to volunteer for the study. For the TOEFL, the minimum test score for the paper-based format was 500, and they had to earn higher than 13 on listening, writing, and reading. For the IELTS, 5.0 on the Academic Test, with no band lower than 4.0, was required. The participants also evaluated their own language proficiency levels. All participants rated their English proficiency as intermediate or advanced. We also recruited students in the first semester in the US to minimize the influences of living experiences in the hosting country.

Based on these criteria, one undergraduate and three graduate international students participated in this study over 8 months. The participants were Jaekyoung, Anh, Asad, and Rachel. They were international students at a large state university in the southeastern area of the US, and they had been in their programs for 2 months when the study began. This was their first visit to the US, and all of them had used mobile devices in their home countries. Table 1 presents an overview of their demographic information. The names of the participants are all pseudonyms.

Jaekyoung was a 21-year-old undergraduate student from South Korea, and she used mobile devices for fun and information. She was an exchange student, and her major in Korea was English Education. Jaekyoung emphasized literacy skills in both Korean and English and valued reading online resources. She did not have any teaching experience, so she wanted to know more about literacy education while studying in the US. She frequently accessed and managed social networking sites and actively used Internet search engines.

Anh was a 24-year-old graduate student from Vietnam. She also used mobile devices for fun and information and often utilized such mobile applications as Google Hangouts and Skype for communication. She was a Master's student in a

Table 1 International students' information as of October 2015

Participant	Age	Academic level	Original nationality and native language	Schooling in the US (months)	Language proficiency levels (self-assessment)	Major
Jaekyoung Song	21	Undergraduate	Korean	2	Intermediate	English education
Anh Nguyen	24	Graduate	Vietnamese	2	Early advanced	TESOL
Asad Hamdi	33	Graduate	Saudi	2	Early advanced	TESOL
Rachel Lee	26	Graduate	Korean	2	Early advanced	English education

Teaching English to Speakers of Other Languages (TESOL) program, and her undergraduate major in Vietnam was English Education. Anh considered literacy skills to be challenging but critical, and she valued computer- and mobile-based reading for language development.

Asad was a 33-year-old graduate student from Saudi Arabia. He was a Master's student in a TESOL program, and his major in Saudi Arabia was English Literature. Asad was knowledgeable about diverse technologies and actively used mobile applications in his everyday life. He served in the Saudi Navy and taught English to Saudi military personnel, and he adopted traditional, teacher-centered, top-down approaches in his teaching. He considered reading an important language skill.

Rachel was a 26-year-old graduate student from South Korea, and she used mobile devices for both fun and information. She was a Master's student in English Education, and her undergraduate major in Korea was the same. She taught English at a private elementary school in Korea. Rachel emphasized literacy skills and thought online reading was very important to language learning.

Data collection

For 8 months in 2015 and 2016, the primary investigator collected data through observations, verbal reports, interviews, and field notes. He observed each participant in a quiet conference room four to five times while the participant read digital texts on a tablet. The primary investigator provided tablets to all participants. If they preferred to use their own mobile devices, they were allowed to do so. Each observation lasted 50 min. In total, he observed Jaekyoung, Anh, and Asad four times and Rachel five times. During each observation, using a concurrent verbal protocol (Ericsson and Simon 1980), the participants reported verbally what they were thinking and doing while reading. The primary investigator did not recommend topics or websites to the participants; instead, participants selected texts, sites, and applications on their own. Before they started reading texts, the primary investigator trained them how to think aloud, and several sample questions were provided. These questions included what they did and thought while reading mobile-based texts and what caused them to act in certain ways. The participants paused periodically while reading the texts on their mobile devices and answered these questions. They described their choices and provided any other information they wanted to share. If they did not pause reading for a while, the primary investigator gave them a signal by asking a question, such as "So, what did you do?" These observations and verbal reports were recorded with digital audio and video recorders.

In addition, the participants recorded on their own how they used the tablets and read mobile-based texts once every 2 or 3 weeks. They sent these 10-min self-reports via email. The primary investigator also interviewed the participants to learn more about their uses of tablets and reading strategies at the end of the data collection process. This was a one-time semi-structured interview with each participant, and it lasted 20–25 min. He wrote field notes about the recording of his thoughts and reflections after the observations, verbal reports, and interviews. Table 2 shows the data sources and descriptions.

Table 2 Data sources

Data sources	Descriptions
Observations and verbal reports	50 min for each observation; 4–5 times in total for each participant
Self-reports	10 min for each report; once every 2 or 3 weeks; 8–12 times in total for each participant
Interview	One semi-structured interview (20–25 min for each participant)
Field notes	Field notes from observations, verbal reports, and interviews

Data analysis

Two investigators analyzed data from multiple sources (observations, verbal reports, interviews, and field notes) using constant comparative analysis to identify important and consistent themes (Glaser and Strauss 1967). After transcribing the verbal reports and interviews, we organized and imported all the data into the data analysis software program, Atlas.ti. We reviewed one set of data together to develop the initial codes. Then we assigned specific instances a code, such as "connecting text to self," "connecting text to text," and "connecting text to world," using the coding capacities of Atlas.ti. We also used the software to refine salient categories and patterns. For data analysis, we modified the analytic procedures that Miles et al. (2014) suggest. These procedures include (a) reviewing one set of data together to develop initial codes; (b) deciding on the criteria for each code; (c) coding all the data; (d) revising the codes through investigators' discussions; (e) developing categories and sub-categories based on semantic relationships and thematic patterns; (f) revising categories and sub-categories; (g) repeating steps (c)–(f) until all the investigators agree on the codes and categories; (h) completing the categories and sub-categories by renaming or relocating them; and (i) conducting further analyses within and across the categories.

After revising categories and sub-categories, we identified three salient categories for experiences and six salient categories for strategies. The categories for experiences were "positive experiences," "negative experiences," and "learning experiences." The categories for strategies were "goal setting," "decision making," "reading digital texts," "dialoguing," "connection," and "technology knowledge." During our analysis, we combined and divided categories after discussing them together. For example, "texts," "images," "audio," video," and "games" were all separate codes and categories at one point, but we decided to combine these into one category—"reading digital texts"—because each code described a type of digital text. We also renamed categories. For example, we changed the last category—technology knowledge—to "using applications and digital literacy skills" to make it more comprehensive and cover the two sub-categories of "using mobile applications" and "using digital literacy skills." We then conducted further analyses within and across categories. For example, we analyzed participants' uses of diverse applications under the category "using applications and digital literacy skills" and made a connection between "digital literacy skills" and "dialoguing" to capture international students' dialogic reactions while reading digital texts on tablets (Table 3).

Table 3 A codebook

	Codes	Themes	Criteria
1	Communicative	Positive experiences	Experiences
2	Authentic		
3	Authentic-place		
4	Ubiquitous-time		
5	Ubiquitous-place		
6	Size-small device		
7	Fun		
8	Informative		
9	Accessible		
10	Pop-up window	Negative experiences	
11	Technology malfunctioning		
12	Internet disconnection		
13	Size-small font		
14	Size-small screen		
15	Size-small menu		
16	Learning-everyday lives	Learning	
17	Learning-academic lives		
18	Learning-language		
19	Learning-culture		
20	Learning-technology		
21	Setting up the purpose-information	Setting up the purpose	Strategies
22	Setting up the purpose-fun		
23	Previewing-informative	Deciding what to read	
24	Previewing-interesting		
25	Previewing-relevant		
26	Previewing-accessible		
27	Previewing-compatible		
28	Previewing-affordable		
29	Accessing a digital a text-textual resource	Accessing a digital text	
30	Accessing a digital a text-an image		
31	Accessing a digital a text-audio		
32	Accessing a digital a text-a video		
33	Accessing a digital a text-an electronic game		
34	Dialoguing-with others	Dialoguing	
35	Dialoguing-with themselves		
36	Dialoguing-with texts		
37	Making a connection-themselves	Making a connection	
38	Making a connection-texts		
39	Making a connection-world knowledge		
40	Using applications	Using applications and digital literacy skills	
41	Using CMC tools		
42	Using search engines		

To facilitate the trustworthiness and transferability of the study, we triangulated our data collection and analysis to identify converging patterns (Lincoln and Guba 1985). Both investigators used diverse data sources—observations, verbal reports, interviews, and field notes—and regularly discussed the analyses to clarify our perceptions. Furthermore, we continued to compare our findings with previous research (Creswell 2007; Merriam 1998). We also conducted member checks through email with the participants to confirm our interpretations of the data.

Findings

The international students had both positive and negative experiences, as well as learning experiences while reading digital texts on tablets. These influenced the participants' perspectives about tablet use and enhanced their development of digital literacy. In addition, the participants used six strategies while reading on tablets. There were other experiences and strategies, but we focused on the most common and significant findings.

Experiences

Positive experiences

The participants appreciated that mobile reading had many useful features. For example, the participants were able to interact with others while reading digital texts. Anh said:

> I used to talk with my friends with my tablet or mobile phone, and I often use Skype for this. It is easy to share some documents, and I can speak to them or chat with them while we read the [texts] together. Pretty awesome tool!

While reading texts on tablets, participants physically or virtually communicated with others in English or in their first language, and they asked questions to themselves to check their progress and comprehension. The participants believed that the opportunities for communication in both languages facilitated their reading.

The availability of authentic topics and materials were also important factors that made mobile reading attractive. The participants read diverse digital texts relevant to their everyday and academic lives on tablets, and these digital literacy practices were meaningful to them. For example, most of the participants searched for and accessed texts on tablets about the weather, maps, music, news, literature, and other relevant topics during observation sessions. Regarding authenticity, Rachel said:

> This [mobile device] is part of my life. I check my calendar on it, buy something, find a recipe of food, check if a restaurant has good reviews or not. Since this [city] is small, mobile devices are essential for living.

Another positive experience that international students had involved the ubiquity. The participants could access websites and applications at any time and in any

place because they carried the devices wherever they went. The compactness of the devices made this possible, and participants found it empowering. For instance, in one of her self-reports, Jaekyoung explained that being able to access information at any time and place was very important when she used a tablet to read. She said, "if I have [a mobile device with] Internet access, I can find whatever I want to know. That's wonderful!" Jaekyoung felt that the accessibility of information through her mobile device enabled her to do more than what she could do without this capacity. She looked for various information, such as definitions of words, local TV listings, how to plant a rose tree, etc. while reading digital texts on a tablet.

Negative experiences

Even though the participants felt that mobile reading was useful and attractive, they also described factors that made reading difficult and inconvenient. One of these involved frequent distractions. Due to the small screen size, there was limited space for text display. Advertisements, pop-up windows, and other distracting elements frequently interrupted the reading process. Anh said, "You know, sometimes, it is hard to click right links because they are tiny. If I click a wrong button, an advertisement or an irrelevant web page pops up. This is bothering, so I can't focus on reading."

In addition, the participants complained that digital texts on tablets were often inaccessible due to technological malfunctions and Internet disconnection. From time to time, the text providers performed maintenance on websites, which restricted participants' access to them. Moreover, participants had to update software to view the texts. For example, when Rachel accessed Naver (http://www.naver.com), a Korean portal site, to read recent news in Korea, several flash videos did not play properly, so she had to install Flash Player. Furthermore, because Internet access was required to read most of the mobile-based texts, an unstable Internet connection and slow speed sometimes impeded the participants' reading on tablets.

Learning experiences

The participants valued their mobile reading and obtained knowledge about their lives, language, culture, and technology. Their learning was not limited to these categories, but the participants, as international students, focused on these topics. The authenticity of materials available through mobile reading facilitated participants' learning about their everyday lives on topics, such as housing, schooling, shopping, cooking, etc. When the participants encountered questions or problems in their everyday lives, they frequently accessed their mobile devices to find the answers or solutions. For example, Asad searched for and read information about English as a second language (ESL) services for his three sons due to their linguistic challenges in U.S. schools. On one occasion, Rachel searched for information about a poem and said:

> In a literature class, I read *Annabel Lee* by Edgar Allan Poe, but I was not sure about the specific details of each line. (opening two websites) These websites contain background information about the poet and the analyses of the poem, so I can understand the deeper meanings of it.

The participants were each taking several courses; therefore, they appreciated that they could access such external academic resources quickly and easily.

All the participants read texts on tablets to build their knowledge about language and culture in their new learning contexts. As they were new to the US, linguistic and cultural barriers were serious concerns. The participants accessed various resources through tablets to solve these problems. For example, Jaekyoung, Anh, and Rachel used more than one online dictionary application and website in order to learn about the meanings, pronunciations, and usages of words. The use of these resources was not limited to a single word; the participants also checked the meanings and usage of slangs, jargon, idioms, and other English expressions that they found confusing. This access to interpretations of unfamiliar expressions significantly helped them. In addition, they accessed culture-related digital texts to gain a better understanding of unfamiliar U.S. culture. For example, Jaekyoung accessed digital texts about American cultural norms when she read about and tried to understand western culture. While accessing a YouTube video called *Asian Culture vs. American Culture*, she said:

> This is interesting. They talk about the differences between Asian culture and American culture. It is funny, but I could learn that people express their emotions in America, but Asian people internalize them. Maybe this is true.

The participants expressed such feelings as excitement, curiosity, confusion, and frustration when they encountered linguistic and cultural barriers because they were not familiar with American culture. The opportunity to access relevant information through mobile devices gave them more confidence.

The participants also learned how to access and use particular technology applications, how to search for, evaluate, and create digital texts, and how to think critically through mobile reading. They did not learn how to use mobile applications in official educational contexts; instead, they learned by using the applications. While doing so, they transferred knowledge and skills from computer-based reading to mobile-based reading contexts. For example, when reading mobile texts, Rachel used the same search engines that she used to read computer-based texts. The participants also created multimedia resources and participated in online communities by taking pictures, editing them, and posting them to social networking sites, such as Instagram and Facebook. Overall, reading digital texts and using technology applications on tablets enabled the participants to learn about relevant everyday and academic topics. In addition, mobile reading helped them quickly access linguistic, cultural, and technological information and resources. These helped the participants feel more confident.

Use of strategies

When reading on tablets, the participants used diverse strategies to make their reading effective. We identified six key strategies based on their frequency of use and their importance for reading. These included (a) setting up the purpose, (b) deciding what to read, (c) accessing a digital text, (d) dialoguing, (e) making a connection, and (f) using applications and digital literacy skills. This list is not exhaustive, but based on the participants' verbal reports and our own observations, we selected these as the most important. We illustrate each strategy in turn.

Setting up the purpose

When reading digital texts on tablets, the participants set up the purpose of their reading. Based on this purpose, the participants decided whether they would read the texts for information or for fun. When they read texts for information, the participants focused on meanings, ideas, and directions (Rosenblatt 1978). During one observation session, for example, Anh decided to search for and read mobile texts about formative assessment, which was a topic in a class that she was taking. While reading information on *Wikipedia*, Anh spent a significant amount of time comprehending the content and taking notes.

Participants also decided to read texts on tablets for fun—taking an aesthetic stance (Park 2017; Rosenblatt 1978)—and accessed diverse blog postings, music, videos, online games, applications, etc. For example, Jaekyoung accessed webtoons at http://comic.naver.com/webtoon/weekday.nhn on her tablet and said, "I like these webtoons. When I have some time and don't have anything to do, I see these. I don't need to make any noise, and loading doesn't take too long. They are fun!" Due to the easy accessibility and various contents, the participants liked to read such texts for fun when they had free time.

Deciding what to read

After setting up the reading purpose, the participants navigated diverse texts and decided which texts to read on their tablets. Due to the large amount of information on the Internet, previewing and evaluating texts were essential for this process. Previewing enabled participants to evaluate the texts and identify if they were informative, interesting, relevant, accessible, and affordable. In addition, they checked if the texts were in their L1s or in English. The participants assessed if the texts had enough information and if the information was important. For example, when searching for information about an ESL program for his sons on the school website, Asad could not find clear information. He was disappointed and said, "Oh, there isn't clear information here. I would rather go to the district website."

The participants also checked if the texts were relevant to their particular needs or interests (Wallace et al. 2000). In addition, the participants considered the accessibility of texts and the loading time. Diverse variables, such as the Internet connection

and the limitations of the tablets, influenced accessibility. For example, when Jaeky-oung tried to access a Korean TV program through an official TV network company, she found that the service was not provided to viewers in the US. In another case, when Anh attempted to access a YouTube video, it took too long, so she decided to look for a different text instead. Internet access was necessary in most cases when the participants read texts on tablets.

The compatibility of the texts also influenced the participants' decisions. Many websites, such as Yahoo (http://www.yahoo.com) and Canvas (https://canvas.instructure.com), offered both web-based and mobile-based views for readers to select. The mobile versions of websites were easier to navigate and easier to read on mobile devices. Affordability was another factor they considered, especially when the participants accessed applications on tablets. They checked to see if the resources were free. In most cases, the participants downloaded free applications to their tablets, but some paid if the applications were high quality and performed important functions. Asad said:

> I didn't like to pay to get an app, but some applications are very good for my children. They love to play the *Toca Cars* and *Mickey's Color and Play!* games, so I can't ignore them. I also bought *ABCMouse.com* for them to study. These are not horribly expensive, which is good.

Even though many of the mobile applications were free, there were in-app purchase options for some functions. Sometimes, due to comparatively low costs, participants were willing to pay.

The participants also considered if the digital texts were written in their L1 s. Although their English proficiency levels were intermediate or advanced, the participants still checked the language. For example, Rachel decided to watch a YouTube video of a Korean sports variety show at https://www.youtube.com/watch?v=wFbnIw9X034 during one observation. She said that she watched these kinds of Korean videos when she missed her family and friends.

Accessing a digital text

After deciding what mobile-based texts to read, the participants accessed them through websites or applications. When accessing texts through web search engines, the participants mostly read them on websites. However, when they already had particular applications installed on their tablets, they used these to access digital texts. For example, during one observation session, Rachel used the Google search engine and looked for running shoes. She scrolled up and down and compared the prices and designs by reviewing several websites. However, she opened the Technology, Entertainment, and Design (TED) application to watch a video called *Do schools kill creativity?* Rachel said, "I love to watch TED talks, so I have the app on my tablet. This makes me access the information more easily and quickly."

The participants accessed diverse texts, including textual resources, images, audio, videos, and electronic games, and they could gain clear and specific information from the textual resources on tablets. For example, Jaekyoung accessed Sparknotes (http://www.sparknotes.com) and read the text to understand the meanings of some expressions and themes in a novel, *The Bell Jar* by Sylvia Plath. Jaekyoung said:

> *The Bell Jar* is a long novel, not a short novel. Because it is a long novel and [English] is not my native language, I can't follow the plot or the key points sometimes. So, I read the summary and analyses… Different from other academic texts, literatures contain a lot of cultural backgrounds, so without proper background knowledge, it's hard to understand them.

Even though the participants preferred multimodal texts, textual resources still provided important information for them.

The participants also accessed images to enhance their mobile reading. They viewed the images that were posted next to the text or searched for them, which provided more visual information. With both web- and application-mediated resources, these multimodal texts were important for mobile reading. For example, when accessing the Wayfair website (http://www.wayfair.com) to search for a writing desk, Rachel paid close attention to images and compared the designs of the furniture. After clicking the images of a red writing desk, she said, "This looks different from what I thought. This red color is much darker than I thought." She found basic information on the desk by reading the descriptions and specifications on the website, but the information about the color or the actual image was different from the idea she had in mind. The images provided clarifying information to her when deciding which desk might be best. In another example, Anh used the Google Maps application to get directions to a local library on her tablet and said, "I'm not very good at finding a place, but when I use this app, I can find it easily." For this digital literacy activity, her ability to read and understand the map and directions was critical.

The participants also listened to audio on their tablets. They downloaded audio files to their tablets and accessed them whenever they wanted. For example, Asad played an electronic storybook, *Friendship Pie* by Morehouse, and said:

> My sons love this story, so I play this when I need to travel with my family. I used to listen to music and some electronic books and lectures. Since I can't read while I'm driving, [listening to electronic books] is a good option.

For audio files and games, they usually saved the content to their tablets instead of accessing it online.

The participants frequently accessed videos as well. They used diverse websites and applications, such as YouTube (http://www.youtube.com), Dailymotion (http://www.dailymotion.com), Youku (http://www.youku.com), and Netflix (http://www.netflix.com) to watch videos. They considered videos to be interesting and important resources that were related to their everyday and academic lives. Rachel said:

If the Internet connection is okay, I like to watch videos on my tablet. Since I can lie and watch them on my bed, they are very good. During the spring break, I brought [the tablet] to my friend's home. It was on Easter, so I searched for the recipe to cook deviled eggs on Google. There were several videos, so we could successfully cook and eat deviled eggs. Videos were good. I was confused when I read the texts about the recipe, but it was clearer and easier to see the cooking process on video.

The participants also downloaded and played mobile games, such as *Dragons World, Ice Age Adventures, Maze King*, and *Tic Tac Toe*, some of which required significant digital literacy. They mostly played games which could be finished quickly.

Dialoguing

Dialoguing was vital when the participants read texts on tablets. They engaged in dialogue with others, themselves, and texts and the authors (Park 2012; Park and Kim 2011). When dialoguing with others, the participants interacted with their family members, friends, and classmates through synchronous or asynchronous computer mediated communication (CMC). They used various formats including blogs, email, and instant messengers to facilitate communication online. For example, when purchasing a new cell phone, Jaekyoung accessed the website and reviewed the plans, models of devices, and specifications; however, she still had questions. She clicked the chat option and communicated with a customer service agent. Jaekyoung said:

The [online chat] option is good. Sometimes, talking with a customer service person over the phone is very tricky and unclear. Sometimes, they talk too fast or too much. Sometimes, their accents are too strong. If I chat with these people, I can express what I exactly want to say, and their explanations are easier to understand. So, I use [this chat option] instead of calling them.

Even though Jaekyoung had reached a certain level of English language proficiency, she still felt that written communications were easier and clearer for her than oral communications. Using CMC helped participants become confident when interacting with others.

The participants also engaged in dialogue with themselves while reading on tablets. During one observation session, Rachel searched for sample lesson plans for her class assignment on Google and typed "how to develop a topic-based syllabus" into the search box. Then she reviewed the suggested websites and said, "This syllabus about hospital situations is very interesting. I was looking for this kind of project… How can I modify these activities for my lessons?" By dialoguing with herself, Rachel selected three appropriate activities for her lesson plan. The participants mostly used a questioning strategy to initiate and continue their dialogues. They also checked their comprehension and evaluated the texts as they read.

Due to the interactive features and decision-making procedures in mobile reading environments, many dialogic interactions with texts occurred when the participants

read on tablets. The dialogue included participants' interactions with authors, such as website developers and audio and video creators, and with technology systems, such as search engines. For example, the participants had to respond to questions from portal sites and search engines while navigating online. Rachel directly responded to a speaker on a video called *Four reasons to learn a new language* (https://www.ted.com/talks/john_mcwhorter_4_reasons_to_learn_a_new_ language). When the speaker of the video asked why we should learn foreign languages like English, Rachel answered, "To become a member of a global community." In addition, when the speaker said, "Our languages have different word orders," Rachel added, "Yes, sure, they do. Korean is different from English." The participants dialogued with the texts and the authors, and these dialogic interactions enabled them to become active, social readers in mobile learning contexts.

These dialogues helped the participants *name the world*, articulating and extending their understandings and enriching their transactions with texts (Bakhtin 1986; Freire 2000; Rosenblatt 1978, 1982). Reading in these mobile environments was not just a transaction between a reader and a text, but it also involved real and imagined others—both virtual and present—whose voices, ideas, and questions international students productively engaged as they read.

Making a connection

While reading texts on tablets, the participants made connections between the texts and themselves, other texts, and world knowledge—in ways that activated their prior knowledge and experiences (Carrell and Eisterhold 1983; Coiro 2011; Park 2017; Rumelhart 1980). To make connections between mobile texts and themselves, the participants reflected on their experiences. For example, when reading her friend's postings about preparing a teacher certification examination in Korea on Facebook, Jaekyoung responded based on her experiences, as shown in the following:

> Friend: Ah, too many things to remember about [teaching] methods.
> Jaekyoung: I know. It took several weeks to cover most topics about methods, but it deserves.
> Friend: I know. :(Any advice?
> Jaekyoung: I liked Youn's blog. He briefly explains several questions every day. This worked for me perfectly.
> Friend: Oh, really? I'll give it a try.
> Jaekyoung: :)

Jaekyoung could understand her friend's utterances and struggles because she had studied similar teaching methods. Furthermore, she could share her experiences and provide other information to help her friend.

The participants also made connections between the texts that they were reading and other texts. This is *intertextuality*; readers connect the texts that they are currently reading (primary endogenous texts), texts that they read before (secondary endogenous texts), as well as texts that are outside the task environments (exogenous texts) (Hartman 1995). Such "other texts… also include non-literary elements, such as film, visual arts, biography and music" (Loeb 2002, p. 44). For example, when

accessing a website at http://www.visitcalifornia.com on her tablet, Jaekyoung read an article, *Gold Medalist Chloe Kim's Secret Weapons*, and said:

> Oh, look at the snow! Mammoth Lakes! I like winter and love to go skiing. Chloe Kim sounds like a Korean name, and she is a [snowboard] champion. (playing a video) Oh, yeah. They are Korean. This is an interesting place that I have never heard about before.

While reading this article, Jaekyoung positioned the images and video as several primary endogenous texts. On the other hand, Asad frequently used secondary endogenous resources. When using an online quiz application, Quizlet (https://quizlet.com), he was not sure how to invite others to view his quizzes. Therefore, Asad accessed the instruction page of the Quizlet website and read the directions to resolve the issue.

The participants also made connections between digital texts and their world knowledge. For instance, while reading a digital text about adopting dogs, Jaekyoung said, "adopting a dog will be helpful because the dog can find a new home, and another dog can find a new shelter, which will save his life for a while." In this way, the participants reflected on their thoughts and experiences in the world.

Using applications and digital literacy skills

When completing digital literacy activities and reading mobile texts, the participants used diverse technology applications along with their digital literacy skills (Galante 2014; Kimbell-Lopez et al. 2016). Since the screens of mobile devices were smaller than those of their desktop and laptop computers, simply opening standard websites on tablets did not work well. The texts were sometimes distorted or too small to read. The participants could enlarge the text size, but this often made navigating around the screen difficult. The participants solved these problems by using applications that optimized texts for tablets. For example, Jaekyoung installed the Canvas application to access her online class modules and check the assignments. She mentioned:

> I need to check this site often, so I like to use this [application] instead of accessing the website. It's hard to read the instruction on the website [on my tablet] because of the tiny fonts, and it's also hard to scroll up and down on the page. I accidentally clicked wrong buttons many times.

Mobile applications provided optimal environments for users to read the texts on portable devices. The font size was flexible, and online contents were usually presented effectively for mobile contexts. In addition, the menus were collapsible so that they did not cover the screen. Table 4 lists the applications that the participants used during the observation sessions.

The participants utilized various applications to practice digital literacy on tablets as in Table 4. These applications enabled them to read, create, and edit documents, and they also created, edited, accessed, and downloaded images, audio, and videos. The built-in microphone and camera, working together with diverse

Table 4 Applications that the international students used during observations

Purposes	Applications	URLs
Creating, reading, and/or editing documents	Adobe Acrobat Reader	https://acrobat.adobe.com/us/en/acrobat/pdf-reader.html
	Google Docs	https://www.google.com/docs/about/
	Google Slides	https://www.google.com/slides/about/
	Microsoft Word	https://play.google.com/store/apps/details?id=com.microsoft.office.word&hl=en_US
	Notepad	https://play.google.com/store/apps/details?id=com.atomczak.notepat&hl=en_US
	PDF Reader	https://play.google.com/store/apps/details?id=com.officetool.pdfreader2018.pdfviewer&hl=en_US
	Type and Speak	https://play.google.com/store/apps/details?id=com.jydacai.root.typespeak&hl=en_US
Creating, viewing, and/or editing multimedia	Camera360	http://www.camera360.com/
	Flickr	https://www.flickr.com/
	Netflix	https://www.netflix.com/
	Photo Editor Pro	https://photoeditor.pro/
	PhotoDirector	https://play.google.com/store/apps/details?id=com.cyberlink.photodirector&hl=en_US
	Photoshop Express	https://www.photoshop.com/products/photoshopexpress
	Smart Voice Recorder	http://recorder.smartmobdev.com/
	Twitch	https://www.twitch.tv/
	Video Editor	https://play.google.com/store/apps/details?id=com.camerasideas.instashot&hl=en_US
	Youku	https://youku.com/
	YouTube	https://www.youtube.com/
Communication	Facebook	https://www.facebook.com/
	Facebook Messenger	https://www.messenger.com/
	Gmail	https://play.google.com/store/apps/details?id=com.google.android.gm&hl=en_US
	Google Hangouts	https://play.google.com/store/apps/details?id=com.google.android.talk&hl=en_US
	Instagram	https://www.instagram.com/

Table 4 (continued)

Purposes	Applications	URLs
	KakaoTalk	https://www.kakaocorp.com/
	Skype	https://www.skype.com/
	Snapchat	https://www.snapchat.com/
	Twitter	https://twitter.com/
	WeeChat	https://weechat.org/
	WhatsApp	https://www.whatsapp.com/
Games	Candy Crush Saga	https://play.google.com/store/apps/details?id=com.king.candycrushsaga&hl=en_US
	Checkers	https://play.google.com/store/apps/details?id=pl.lukok.draughts&hl=en_US
	Pokémon GO	https://www.pokemongo.com
	slither.io	http://slither.io/
Others	ClassDojo	https://www.classdojo.com/
	Friend Locator: Phone Tracker	https://www.locatorprivacy.com/
	Google Maps	https://www.google.com/maps
	Kahoot!	https://kahoot.com/
	Quizlet	https://quizlet.com/
	Waze-GPS	https://www.waze.com/
	Yelp	https://www.yelp.com/

applications, made these multimedia practices easier. Asad emphasized that "[using a tablet] is very easy and efficient. When I take a picture or record a video, I can upload it right away to my social networking." The applications were easy to use and facilitated the participants' mobile-based literacy activities. In addition, the participants used other applications, which were useful in both their academic and everyday lives. The participants' knowledge of and experiences with mobile technology enabled them to engage in many mobile-based literacy practices.

Due to the mobility of tablets and other mobile devices, the participants frequently used CMC tools in Table 4 any time they wanted to communicate with others. For example, Anh used her tablet when she discussed a research project about the waste of food in the US with her friend in a different state. She used Skype to communicate with her friend and shared an article entitled *America Wastes $160 Billion in Food Every Year But Is Too Busy to Stop*, together with other documents. The following was a part of their conversation:

> Anh: I sent the link to you.
> Friend: What?
> Anh: Please check the link. That's the article that I mentioned before.
> Friend: Oh, is this?
> Anh: Yes, I think we can analyze the graph, too. Like in the graph, most people generally feel guilty when they throw away the food, and they also understand that this will influence the environments.
> Friend: Yeah, we can find the situations in other countries like Vietnam.
> Anh: Yes, that's a good idea.

However, the Skype audio was not clear during the conversation, so she switched to Google Hangouts. From time to time they spoke Vietnamese to make their communications clearer or when they could not hear each other well. Through mobile CMC tools, the participants could see the other person's face, which enabled them to communicate and collaborate with others more effectively. They could also share documents and multimodal resources to enhance their communication and collaboration.

Diverse Internet search engines and applications were critical for finding texts and answering questions about digital literacy. The participants' questions ranged from an inquiry about the address of a local restaurant to an academic one about the history of English. Jaekyoung stated, "[The tablet] is like a dictionary and encyclopedia. [It] has all the answers for any question. Good. Whenever I have something unfamiliar or uncertain, it gives me several possible, although not perfect, answers. It makes me more intelligent." She appreciated the accessibility of information and believed that this would facilitate her performance on diverse tasks. Due to their activities in this new literacy learning environment, the participants were able to interpret diverse texts and do both academic and personal work effectively.

Discussion and implications

This study investigated four university-level international students' experiences with mobile reading, as well as the strategies they used to read on tablets. The findings contribute to research on digital literacy and reading with mobile devices by filling two gaps. We have shown how international students whose L1 s were not English read on mobile devices. In addition, we have described how various features of mobile reading and digital literacy combined with international students' reading strategies to make their literacy practices more effective. In this section, we discuss international students' (a) mobile reading, with a focus on affordances and processes, (b) mobile reading strategies, and (c) cultural learning and empowerment.

Mobile reading: affordances and processes

Mobile devices provided international students with a number of affordances for their everyday activities and academic learning, allowing them to access information easily, effectively, and dynamically. These affordances, such as using mobile devices at any time, searching and locating authentic resources, and reading mobile texts collaboratively in L1s and L2s, can be summarized under such categories as ubiquity, authenticity, communication, and collaboration. The findings of this study align with prior research in describing participants' appreciation of the ubiquity of mobile devices (Shimray et al. 2015). However, authenticity, communication, and collaboration in mobile reading contexts have not been discussed frequently in the research. The international students in this study perceived mobile devices as tools that provide easy access to authentic resources and information, as well as a means for communication and collaboration through CMC applications in both L1s and L2s. While computers also afford access to authenticity, communication, and collaboration for international students, it is the combination of these, together with their ubiquity, that makes mobile reading especially valuable for international students who often need immediate access to various authentic resources. The ubiquity of mobile devices also enhances international students' communication and collaboration in ways that facilitate the learning of their everyday and academic lives, language, culture, and technology.

International students' mobile reading was dynamic. The participants often read multiple texts simultaneously and dialogued with themselves, multimodal texts, aspects of context, other agents in the physical context or online, and with other applications. For example, Anh read texts using her tablet or phone, shared the texts with her friends, and collaboratively worked on a project while discussing several topics in English and Vietnamese, via Skype and Google Hangouts. Jaekyoung described how she engaged in multimedia literacy practices using applications, such as Instagram and Facebook. According to our participants, reading on tablets was a part of collaborative multimodal digital literacy practices in which sharing, communication, and creation were essential elements. We describe the nature of reading with tablets further in the following section where we discuss reading strategies.

Mobile devices afford diverse and sometimes unique learning activities. The small size and portability of the devices promote easy access to meaningful, authentic information relevant to their everyday and academic lives. Interestingly, our participants also acquired digital literacy skills and transferred some skills from the computer to the mobile context. Rachel and Jaekyoung, for example, learned how to use various applications on their own by transferring their computer skills and experimenting with applications in the mobile context. This finding about the transfer of skills and strategies from computer to mobile contexts has not been discussed often in prior studies, so it will contribute to the research on L2 reading in digital contexts.

Mobile reading strategies

The international students actively used six reading strategies when reading digital texts on tablets: (a) setting up the purpose; (b) deciding what to read; (c) accessing a digital text; (d) dialoguing; (e) making a connection; and (f) using applications and digital literacy skills. Even though all the international students used the six strategies while reading texts on tablets, the sources and particular usage of these strategies varied. Four of the reading strategies were directly adopted from strategies typically used to read printed texts. These were "setting up the purpose," "deciding what to read," "dialoguing," and "making a connection" (Keene and Zimmermann 1997; Park 2012; Park and Kim 2016). Two reading strategies were adopted and modified from computer-based reading strategies (Park and Kim 2011, 2016). These were "accessing a digital text" and "using applications and technology skills." As Park and Kim (2011) described, readers often transfer their paper-based reading strategies to computer-based reading environments. In addition, participants in this study developed some unique strategies in the new reading contexts. International students modified these hybrid reading strategies (Park and Kim 2011), extending both paper- and computer-based reading strategies to suit the mobile setting. This sort of modification was especially present in "using applications and digital literacy skills." As Jaekyoung's and Anh's cases showed, the participants used diverse applications to communicate with others, and they were flexible depending on the situation. They also practiced digital literacy skills through mobile applications. The mobile-based digital literacy tasks were efficient, ubiquitous, and flexible. Instead of using larger devices, such as desktop or laptop computers, mobile devices made the literacy tasks easier and more efficient. Furthermore, the diverse functions of mobile devices and applications enabled the participants to become active and flexible readers. For example, when the audio was not clear during a conversation with her friend via Skype, Anh switched to Google Hangouts, which was another compatible CMC tool. These features made mobile reading and strategy use distinctive and effective. The international students' creation and modification of these hybrid reading strategies showed significant engagement and creativity (Park and Kim 2016).

As reported in previous studies (Coiro 2003; Park 2012, 2017; Park and Kim 2011, 2016, 2017), the readers in this study played active roles and regulated themselves in mobile-based literacy activities. The international students tailored their

actions to the setting and goals. They investigated what technology applications and resources would be available and who could help with their reading in a given context. All participants frequently accessed textual resources, images, audio, videos, and electronic games. Since reading tasks in this study were informal, they did not have restrictions on accessing videos and electronic games. The participants could access most digital texts. Their dialogues with texts also enabled the international students to read digital texts more effectively than when they read alone. As Rachel's case showed, searching for information about the poem *Annabel Lee* on the Internet enabled her to understand the text in ways she could not have understood when reading it alone. Diverse multimedia resources enabled her to have a better understanding about the culturally distant text while reading (Park 2012, 2017). Participants also sought help from more capable peers (Bakhtin 1986; Vygotsky 1978) and from digital texts themselves. The participants actively dialogued with others and themselves to complete various literacy activities and solve problems. The diverse technological tools and applications provided more opportunities for the readers to dialogue with others both synchronously and asynchronously.

Since they could carry the tablets easily, the participants were able to position themselves as more capable individuals who knew where and how to find relevant information throughout their daily lives. Thus, they felt more confident and could play more active roles when reading texts on tablets and interacting with others. This empowered them. In addition, due to the higher incidence of autonomous and self-initiated strategies in mobile reading contexts, the international students were active, took risks, and became more independent readers as they worked on tablets.

Cultural learning and empowerment

The international students were engaged in mobile reading to learn more about their lives, language, culture, and technology. All these experiences were meaningful to them, but they learned a lot about the culture of the country where they were living. For example, Jaekyoung could learn about different cultural norms in expressing emotion using her digital literacy skills. In addition, as Asad's and Rachel's cases showed, the participants searched for information about their everyday lives, which helped them learn about culture and adjust their behaviors and expectations accordingly.

Since the cultural differences and lack of awareness of these differences could be important barriers as international students adapted to their new environments, their ability to learn about culture through mobile reading was crucial. Sometimes, the international students thought of themselves as an "other," either consciously or unconsciously (Gu et al. 2010). Mobile reading helped them deal with this feeling and improved their intercultural understanding and competence with the diverse social expectations and opportunities in the host culture (Gu et al. 2010; Kim 2005). Through their use of digital literacy in mobile reading contexts, the international students could access diverse information and multimedia resources about cultural differences and expectations at almost any time and place.

The international students' learning about cultural topics, as well as their lives, language, and digital literacy, empowered them to be more engaged, confident, and capable readers. "Empowerment" refers to "a process whereby school participants develop the competence to take charge of their own growth and resolve their own problems" (Short et al. 1994, p. 38). As a "strategy for individuals to retain control of key aspects of their lives" (Cunningham et al. 1996, p. 144), this empowerment was critical for international students' lives and learning. Through their ubiquitous reading of mobile-based texts, the international students could dialogue with the texts and with others to create solutions when they encountered questions or problems. The mobile-based literacy tasks made them feel more confident and capable. This confidence enabled the international students to be more engaged in tasks and to control their own learning more effectively. In mobile-based literacy contexts, the international students were active meaning-makers and confident problem-solvers rather than struggling and passive readers.

Conclusions

This study described four university-level international students' mobile reading experiences and six strategies they used to make meanings from diverse texts on tablets. The international students had both positive and negative experiences while reading mobile texts, but overall they appreciated mobile reading as a means to learn about issues relevant to their lives, language, culture, and technology. Since they could carry the tablets with them, their learning occurred anytime and anywhere. In addition, the participants felt like more capable individuals because they were able to solve problems on their own. This encouraged them to read more on tablets. To make their mobile reading effective, the participants navigated digital texts online in accordance with their reading purposes and decided which texts to read. Their reading was dialogic, and they connected the digital texts with themselves, with other texts, and with world knowledge. In addition to adopting these traditional strategies, the participants accessed digital texts and applications and used their digital literacy skills and knowledge to facilitate reading and learning on tablets.

This study shows the educational potential of mobile reading for international students and their active learning outside classroom contexts. However, they did not receive enough support for using mobile tools to facilitate their literacy practices effectively. Instructors and educational administrators need to guide their reading and strategy uses on mobile devices more intentionally and effectively. This would help international students become more active and autonomous learners.

Our aim was not to generalize findings from the cases, but to provide a rich description and in-depth insight into the experiences and strategies of international students so that other researchers, educators, and administrators can explore our findings in their contexts (Lincoln and Guba 1985). In this study we did not investigate participants' mobile reading in classroom contexts. Further research might include either undergraduate- or graduate-level students' use of mobile devices both inside and outside the classroom. It would also be useful to investigate the roles that international students' linguistic and cultural identities play in their mobile reading.

Given the ubiquity of mobile devices, further research on international students using this platform should be a high priority.

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