
Title 'Because I'm always moving': A mobile ethnography study of adolescent girls' everyday print and digital reading practices
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**“Because I’m always moving”: a mobile ethnography study of adolescent girls’
everyday print and digital reading practices**

Abstract

With increased access to technologies for reading, more understanding is needed about how adolescents traverse print and digital reading across in- and out-of-school contexts. In this study, mobile ethnography was used to document the everyday print and digital reading practices of twelve adolescent girls from one high-achieving all-girls’ school. The students responded to real-time researcher prompts about their reading across various timings, locations, and devices over four days. Photo-elicitation follow-up interviews examined their reasons and explanations for their reading practices. Findings showed that as students moved between locations, they also transited across devices, platforms, and formats, making use of different print and digital resources for varied ways of reading. These students traversed physical and digital boundaries, crossed varied textual terrains, and blended their in-school and out-of-school reading practices with ease. Their ability to “style-shift” flexibly across the boundaries of school and personal spaces, various devices and platforms allowed them to independently optimise reading as a resource for their everyday leisure, information seeking and learning purposes. Insights, implications, and challenges for learning in a post-pandemic digital age are discussed.

Keywords: literacy, technology, reading, mobile ethnography, secondary school, adolescents

Introduction

Our young people are growing up in a media-saturated world, where they move seamlessly between physical and online spaces daily (Leander & McKim, 2003). While many teenagers had had existing relations with and use of devices for reading, learning and play, the onset of the COVID-19 pandemic in 2020 resulting in country lockdowns and school closures expedited reliance on technology for day-to-day interactions and activities. In countries with high connectivity, the conversation about access to technologies for learning has shifted from issues of access to devices and Wi-Fi access to concerns with students' access to digital literacy skills (Roswell et al., 2017; Schleicher, 2011; Selwyn, 2009). At the same time, improvement in technologies, software and platforms have resulted in a greater variety of ways for adolescents to access reading materials online, whether in the form of e-books, subscription-based magazines, webtoons, fanfiction or social media sites. In such a multimodal environment, students require both traditional print and new digital reading literacies to navigate their physical and virtual worlds. However, little is known about the everyday reading practices of students, particularly adolescents who often have greater access to devices compared to younger children.

This ease of access to digital worlds of reading has blurred the boundaries between school and out-of-school learning. Therefore, we seek to understand how adolescents are traversing the different forms of reading as everyday practice across their school and out-of-school contexts, particularly in a post-pandemic blended learning context where adolescents have near-constant access to the internet. Within Singapore, there is 100% household smartphone access and 98.4% household internet access (Infocomm Media Development Authority, 2019). In a survey study of 5,732 students from six schools, Loh & Sun (2022) found that 95.2% have their own smartphones. Responding to pandemic exigencies for an expedited move to blended learning, the Singapore Ministry of Education (MOE) initiated a

policy that all secondary school students (aged 13 to 17) would have a Personal Learning Device (PLD), whether a laptop or tablet, from 2021 (MOE, 2020), providing a unique situation for understanding how technologically connected youths use both print and digital resources for their reading and learning.

Although Singapore students score highly on international literacy tests such as the Programme for International Student Assessment (PISA) (OECD, 2019), there is a distinction amongst students within the education system. Streaming occurs within the Singapore secondary schooling system, and students are streamed into Express, Normal Academic (NA) or Normal Technical (NT) streams based on their results from the Primary School Leaving Examination (PSLE). Express students take a 4-year route to the GCE O-Level Examination whereas NA students take a 5-year route to the GCE O-Level Examination. The Normal Technical course prepares students for vocational training. Integrated Programme (IP) schools take in the top students in each cohort and the assumption is that students from IP schools are slated for university education. A student's stream can be broadly used as an indicator of academic achievement¹.

This study examines the everyday reading practices of 12 high-achieving adolescent girls from one all-girls secondary school, documenting their print and digital reading materials over four days to understand their choice and usage of reading materials, devices, and platforms to understand how access to technologies shape adolescent reading identities; and correspondingly, how reading identities shape the use of technologies for reading. By providing a “thick description” (Ryle, 1949 in Geertz, 1973, p. 312) that interprets action within specific social contexts, the ethnographic case allows insight into social interactions

¹ The streaming system will be abolished by 2024 (Chia, 2018).

within one cultural group. While limited to female students, this study serves as a beginning point for exploration into the print and digital reading practices of other sub-groups.

For this study, we adopt a broad definition of reading to include the reading of short form (e.g., social media posts, emails) and long-form (e.g., novels, newspaper articles) in print and digitally (Baron & Mangen, 2021). Adopting the definition by Singer and Alexander (2017), we make a distinction between reading digitally, “where traditional texts are simply delivered via hypermedia with few enhancements” and digital reading, “where the ability to function within the internet world instigates new cognitive processes or processing skills for navigating the many elements and features on websites, including texts” (p. 1031). We demonstrate in this article how these students acquire proficiency and fluency in the literacy practices of print and digital reading as they traversed physical and digital boundaries, crossed varied textual terrains, and moved with ease between their in-school and out-of-school reading practices. In their everyday worlds of reading, the boundaries between print and their various digital devices, between school and personal settings, between physical and online worlds are porous (Potter & McDougall, 2017), and the adolescent girls demonstrate expertise in the way they transit seamlessly between content, platforms, devices, and locations, whether for entertainment, for work or for information.

Adolescents’ Everyday Literacy Practices

We adopt a New Literacy Studies perspective that literacy learning is plural and there are many kinds of reading(s) that are differently valued in different contexts (Barton et al., 2000; New London Group, 1996; Street, 1984). What counts as knowledge or a valued literacy practice depends on where you live, whom you hang out with and how much your skill is valued in your context. The ability to read, as well as the kinds of materials read, are ways that individuals come to identify themselves and accord value (Bartlett & Holland, 2002).

However, adolescents from different socio-economic statuses (SES) or home backgrounds come to school differently equipped (Hicks, 2002; Khan, 2012) in terms of their literacy skills and dispositions. In our earlier study of middle-class adolescents' print reading, we found that their parents engaged in practices of "intensive immersion", supporting their children's reading through book purchases, library visits, being role models of reading themselves and managing their children's time for reading and teaching their children to read (Loh & Sun, 2020). Differential access to material and relational resources can enhance or constraint the literacy possibilities of individuals (Roswell, et al., 2017; Selwyn, 2009). In a case study of two adolescent boys from different SES, Darvin (2018) showed that although the two students had access to their own phones and computers, the "material conditions of home" as well as their parents' educational background and technological engagement "structured their tastes, interests, and sense of agency, which in turn shaped their digital practices" (p. 41).

With improvement in reading technologies and platforms, adolescents have increased access to e-books through online purchases, app subscriptions or library e-book loans. However, studies suggest that adolescents still prefer to read in print (Loh & Sun, 2019; Merga, 2014), though they read more online as they get older (Loh & Sun, 2019). They prefer to read the news online (Lowenstein-Barkai & Lev-on, 2021) and often read online-only reading materials such as fanfiction (Pianzola et al., 2020), interactive reading apps (Hall, 2019), Japanese manga (Jonsson & Muhonen, 2014) and Korean manhwa (Hyung-Gu, 2014; Jang & Song, 2017). Ito et al.'s (2010) study of teens highlights how adolescents as actors in their own social world make use of multiple digital tools and resources available to them to construct identities, participate in various social worlds and contribute to their own learning. Youths participate in "friendship-driven" spaces such as those provided by instant messaging apps or "interest-driven" networks such as online fandoms and gaming, using new media to

extend offline relationships and build new networks respectively. The kinds of reading they choose to do are supported by the networks they participate in. Ito et al. (2013) propose a research agenda for a broadened understanding of learning that is socially embedded and interest driven, arguing that such ‘connected learning’ can bring about gains in academic achievement, career success, and civic engagement when the “young person pursues a personal interest or passion with the support of friends and caring adults” (Ito et al., 2013: 6)

Social media apps such as Instagram, and Twitter are also reading resources for entertainment, communication, and information (Scolari, 2020), though studies suggest that only the reading of long-form texts such as novels is correlated to adolescents’ reading proficiency (Jerrim & Moss, 2019; Lupu et al., 2017; McKenna et al., 2012; Moje et al., 2008; Zebroff & Kaufman, 2017). In a study of 93 students between the ages of 15- to 17-years-old, Zebroff and Kaufman (2017) found that adolescents with high literacy levels spent more time reading books/ articles in hard copy, electronically or online compared to adolescents with low or average literacy levels. On the other hand, there was no significant relationship found between adolescents’ messaging frequency and literacy level. Studies of adolescents’ reading attitudes also found that students who read on or above grade levels showed more positive attitudes towards recreational print (e.g., books and magazines), academic print (e.g., doing school research using print material) and academic digital texts (e.g., looking up information online for class), and that girls generally had more positive attitudes towards recreational print reading and academic print and digital reading than boys (Lupu, 2017; McKenna et al., 2012). Given the reportedly different reading habits and practices of boys and girls, focused exploration of individual gender practices might yield specific insight. Furthermore, since the reading practices of gender are often compounded with social class (Reay, 2006), isolating this study to one gender allows for a more nuanced understanding of one group of girls in a high-achieving girls’ school.

While the abovementioned survey studies show broad trends, little is known about the process by which adolescents make choices about their reading materials, devices, or platforms. As such, this study adopted a mobile ethnography method to elicit deeper understanding of female adolescent students' reading practices. We ask the following research questions:

1. What are the everyday print and digital reading materials of twelve adolescent girls?
2. What reasons do they give for their choice and usage of reading materials, devices, and platforms?

Mobile Ethnography as Method

Mobile ethnography is a relatively new method of research, arising out of the development of smartphone technologies that support this form of intensive data collection. In terms of its roots, it draws from participatory approaches such as time diaries (Bartlett & Milligan, 2015) and photo-elicitation studies (Meo, 2010). Participants are actively engaged as co-investigators in collecting the data (Muskat, 2013), using visual (Rose, 2016) and time diary (Bartlett & Milligan, 2015) methods. Time-diaries allow in-depth study of culturally specific practices within individual cultural contexts (Gracia et al., 2020) and real-time capturing of participants' lived experiences outside of school time (Paolisso & Hames, 2010). Online app collection methods have also been shown to result in better quality responses compared to pen and paper time diaries. In a study by Chatzitheochari et al. (2018), they noted that web and app modes tended to yield a higher proportion of diary entries with complete activity and contextual information compared to pen and paper entries.

Mobile ethnography methods have been used to inform policy and consumer studies, for example, in the study of museum visitorship (Muskat, 2013) and hospital case studies (Bjorner & Shchroder, 2019). In Bjorner & Shchroder's (2019) hospital study, WhatsApp

allowed them to collect contextual data via participants' self-tracking of *in situ* documentation (via text, photos, or videos) of their day-to-day operations and feelings. In Saltzman et al.'s (2021) description of the protocol for web-based phenomenological study of social work students' ability to cope with changes during the COVID-19 pandemic, they noted that such methods can be implemented quickly, allow rapid real-time data collection, reduce errors of memory, improve participant and researcher safety, and facilitate collection of both qualitative and quantitative data. With proper planning, mobile ethnography can offer richer understandings of adolescent home-school literacy practices for insight into their in-school and out-of-school reading lives.

Method

The School Context

Meadows Girls' School (pseudonym used) is an all-female secondary school (ages 13-16), serving high-achieving students with strong academic performance. All students were issued a Chromebook as their PLD as part of the nation-wide PLD initiative. Even prior to that, the students were well-resourced, with 96.7% either reporting that they have access to a second laptop and/or tablet (either personal or shared) at home. A school-wide reading survey conducted in March 2021 showed that 83.2% of Meadows students like to read and 96.4% of them have their own smartphone. As the researchers were working with the school on a school library improvement study (see Loh et al., 2021), the school agreed to participate in the mobile ethnography study so they could learn from the findings how better to support their students.

Sampling

As mentioned in the introduction, the school had students in both the IP and Express streams. To ensure variation, participants were recruited from the IP and Express streams.

Students were also further subdivided by levels, with students from Secondary 2 (14-years-old) and Secondary 3 (15-year-olds) (Table 1). The choice of two levels allowed us to capture possible changes in reading practices as students became busier with preparation for high-stakes examinations, projects, and co-curricular activities in Secondary 3.

Table 1. Student-Participants from Meadows Girls' Secondary.

Group	Level	Stream	Number of Students	Total
A1	Secondary 2	Express	3	12
A2	Secondary 2	IP	3	
B1	Secondary 3	Express	3	
B2	Secondary 3	IP	3	

Table 2 presents the device ownership for the 12 participants. All participants possessed their own smartphones and PLDs. Of the 12 students, six had access to another individual laptop and another six had access to a shared laptop. Two students did not have access to an individual or shared tablet and three students reported that they had an e-reader.

Table 2. Device ownership

	Smartphone (N=12)	MOE issued PLD	Computer/laptop (N=12)	Tablet (N=12)	E-reader (N=12)
No	0	0	0	2	9
Yes	12	12	6	7	2
Yes, but it is shared	0	0	6	3	1

Data Collection

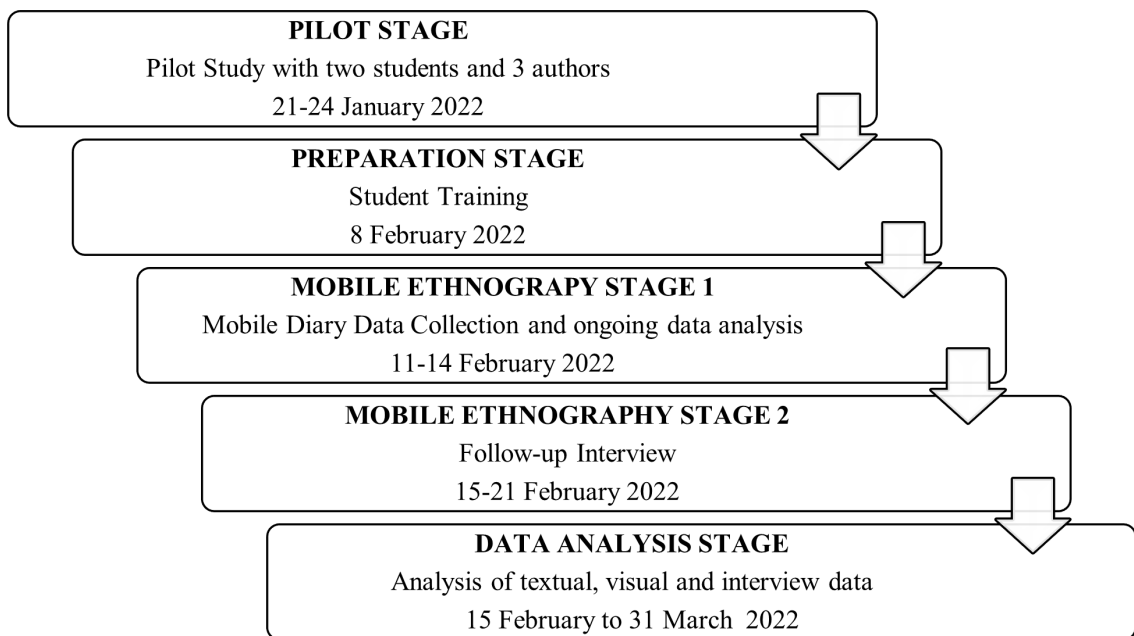
Data Collection Overview and Protocol

The research team shortlisted three apps and chose to use *dscout* as it was the most intuitive for users. *Dscout* is a mobile ethnography app that allows users to log in and respond to questions about the topic being studied. Notifications remind participants to input their entries. Daily reporting over four days enabled the researchers to get a sense of the students' real-time practices (Bartlett & Milligan, 2015).

Parent and child consent were obtained. To protect students’ privacy, geographic information system (GIS) data was disabled, and pseudonyms chosen by the students were used within the app. Furthermore, it was confirmed with *dscout* that the information would be deleted after the research team downloaded the data. A pilot study was conducted with two students and tested by the authors prior to the study. They confirmed that the app was easy to use, and timings and prompts were tweaked based on the pilot. Participants reported that they were able to respond when they were in school, at home or on the go (in the car or on public transportation).

A 30-minute training session allowed participants to explore the app and ask questions prior to the start of data collection. Participants were reminded not to deviate from their regular reading routines. A SGD20 (about USD15) drinks voucher was given as a token of appreciation.

Figure 1. Sequence of pilot, preparation, data collection and analysis.



Stage 1: Collecting Mobile Ethnography Data

Over four days, each student collected data using the *dscout* app, responding to 10 prompts that centred around their reading practices and how they used different technologies

to facilitate their reading, except for prompt 3 which asked them to share about their books at home (see Appendix for detailed prompts). Students were tasked to explain where, when, and why they used the devices and who they were with (Figure 2). They also completed two short 5-minute descriptive surveys. The researchers were able to see the students' entries live on *dscout* (Figure 3) and could send real-time Learning queries via the chat. During data collection, field notes were kept and a narrative vignette of each student was written before the interview.

Figure 2. Sample view of instructions and entries (students' view).

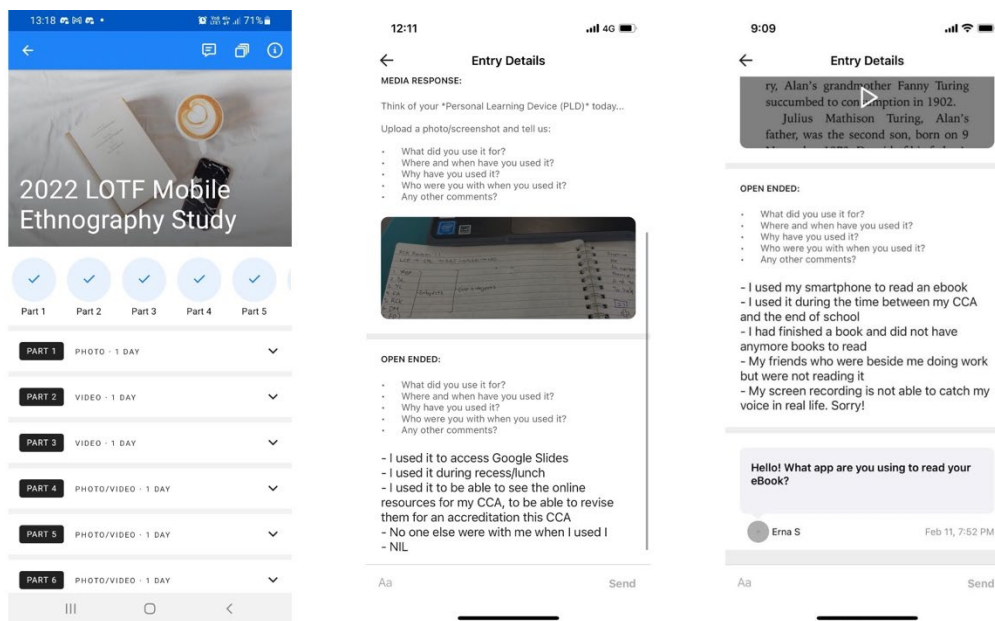
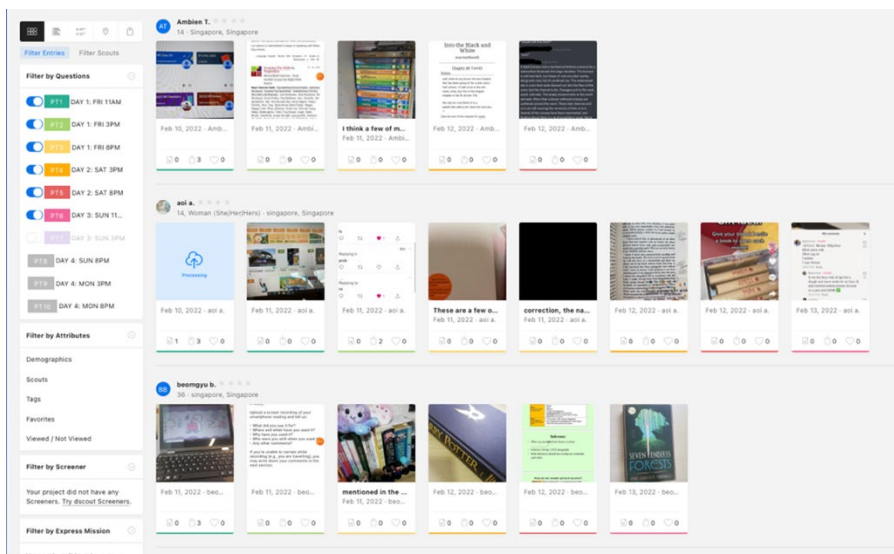


Figure 3. Sample view of activities in the first two days (researchers' view).



Stage 2: Follow-Up Interviews

The first author conducted follow-up interviews. Following photo-elicitation methods (Meo, 2010; Rose, 2016) where photographs are used to generate discussion around the topic under exploration, students were prompted to talk about their entries, explain specific aspects of their usage and elaborate on their reading practices. One student felt that she read a little more than usual during the study, but others felt that their reading was typical.

Data Analysis

The first author and a research assistant made use of the coding function within the app to structurally code (Saldana, 2021) students' print and digital reading materials that were reported via *dscout*. Thereafter, the entries were categorized using an adapted version of McKenna et al.'s (2012) definition of recreational print, academic print, recreational digital and academic digital reading resources. We extended McKenna et al.'s (2012) operationalisation of recreational digital (which had only included only short form reading such as emails, instant messages, and social media websites) to include all leisure materials read online, including long-form texts. To distinguish different kinds of online reading materials, we adopted Baron and Mangen's (2021) definition of long-form texts:

- (1) "short long-form" (e.g., newspaper articles, generally in the range of 800 – 2,000 words),
- (2) "medium long-form" (e.g., book chapters or journal articles, typically 5,000 – 10,000 words), and
- (3) "long long-form" (e.g., novels or nonfiction books).

Table 3 provides the categories created for subsequent coding. Finally, concept coding (Saldana, 2021) was applied to the textual, visual and interview data to surface the emergent codes that form the discussion section.

Table 3. Coding categories for reading materials.

Categories	Description
Category 1: (Traditional) Recreational Print and Digital Texts	Items coded in this section belong to the “long long-form reading” category. They include fiction and non-fiction books, in print or in digital format. Print newspapers are included in this category.
Category 2: Print and Digital Academic Texts	Items coded here relate to schoolwork or tuition homework allocated to the students. They include textbooks, PowerPoint slides and online assessments.
Category 3: Digital Recreational Texts	<p>Items coded in this section belong to the ‘new literacies’ category and can only be accessed via the online mode. While there may be offline equivalents (e.g., fanzines, noticeboard advertisements, newspapers), the online mode allows amplification, may work differently and is the main source of access for these students.</p> <p>This section is further subdivided into digital long-form (lengthier articles such as blogs, news and fanfiction requiring some form of sustained reading) and digital social (social media such as Instagram and WhatsApp).</p>

What Print and Digital Materials Do Adolescent Girls Read and Why?

We found that the adolescent girls in our study read a wide range of materials over the four days, whether in print or digitally. The smartphone was the most used digital device for recreational digital reading and occasional work and the laptop was most used for academic digital reading. Table 4 provides an overview of the materials read in print and digitally reported by the students over four days.

Table 4. List of Materials Read in Print and Digitally over four days.

Categories		Reading Resources (counts in parenthesis)	Total Count
(Traditional) Recreational Print and Digital Texts	Recreational Print Text	<ul style="list-style-type: none"> • Fiction (10) • non-fiction (6) • news (2) 	18
	Recreational Digital Text	<ul style="list-style-type: none"> • Fiction (5) • Non-fiction (1) 	6
Print and Digital Academic Texts	Print Academic Texts	<ul style="list-style-type: none"> • Textbooks (3) • Worksheets/ Notes (8) 	11
	Digital Academic Texts	<ul style="list-style-type: none"> • Google Classroom (12) • Slides/ Notes (2) 	32

		<ul style="list-style-type: none"> • Weighted Assessments (5) • Homework (1) • Online Resources Provided by Teachers (2) • Research (2) • Revision (6) • Email (2) 	
Digital Recreational Texts	Digital Recreational Long-form Text	<ul style="list-style-type: none"> • News (12) • Reddit (2) • Quora (1) • Wattpad (2) • AO3 (2) • Webtoon (9) • Manhwa (Korean comics) (2) • Webnovels (1) • Blogs (5) • Other articles (3) 	39
	Digital Social Text	<ul style="list-style-type: none"> • Telegram (2) • Whatsapp (2) • Instagram (8) • Twitter (2) • Fan-related reading (2) • Games (3) • Tiktok (3) 	22

“I like flipping the pages and moving the book”: Preference for Reading Recreational Print Text over Recreational Digital Text

Reading print novels was a frequent occurrence for these students. Eight out of the 12 students reported reading a fiction or non-fiction print book over the four days. Although four students did not read traditional recreational print or digital texts during the mobile ethnography, they showed they had many print books at home which they could easily obtain, when sharing about their bookshelves and books at home.

Figure 4 provides a visual compilation of some of the books read by the students, mostly over the weekend. Most books were personal copies. *Lemon* had been borrowed from the public library and *IT* and *Anne Frank* from the school library. One student borrowed

Better than the Movies e-book from the National Library Board (NLB), through the Libby app, which is an app for borrowing and reading e-books.

Figure 4. Images of print and digital books read.



Despite their ease of access to e-books through the public library, most students expressed a preference for print rather than digital medium when reading fiction or non-fiction novels for their leisure reading, consistent with findings from an earlier study (Loh & Sun, 2019). Iris, who read *Better than the Movies* by Lynn Painter on her smartphone explained that it was more “convenient” for her to obtain the book through the NLB Libby app, but that she prefers print. On the same weekend, she read her personal copy of *The Heroes of Olympus: The Mark of Athena* by Rick Riordan, which brought her “joy”. Similarly, Katheryn used her smartphone to read an eBook purchased from Apple store because she “finished a book and did not have anymore books to read” but prefers print books. She borrowed *The Diary of*

Anne Frank from the school library to read over the weekend. Aoi shared that turning the pages of the physical book helped her to follow the story and keep track of her reading.

One major reason the students expressed for reading books was that they found reading relaxing and enjoyable. This may explain Zebroff & Kaufman's (2017) findings where adolescents with higher literacy levels tend spend more time reading books, whether in print or digitally. As the students are proficient readers, they are able to gain pleasure from the reading experience. Beomgyu's quote below showed that reading is good for her mental wellbeing, a view which is supported by various studies (Clark & Teravainen-Goff, 2018; Hu & Mu, 2020).

"today i read Harry Potter and the Cursed Child by J.K. Rowling. i read it because i wanted to do some science revision, but after waking up my head is always really fuzzy so i thought reading a few pages of a book would help! it actually did help :)" - Beomgyu

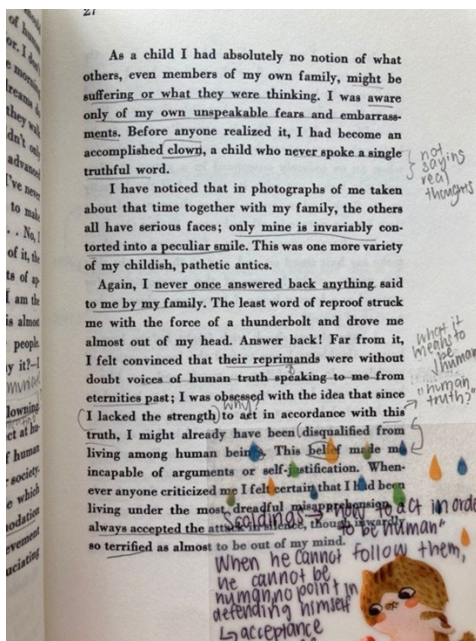
For these wide readers who read both "popcorn" books for entertainment and "serious" books to stretch themselves (Katheryn's definition), reading for leisure and reading to learn are very much interconnected. Ambien Toast's quote highlights how reading stories based on Greek and Norse mythologies was pleasurable for both entertainment and learning.

"I think a few of my favourite books are The Song of Achilles by Madeline Miller... I just truly enjoy learning and reading about mythology, especially Greek and Norse. Circe by Madeline Miller is also notable but Tsoa was more notable for me, and I recently found out it is a modern classic! Which made it cooler for me. "- Ambien Toast

The pleasure derived from reading highlights the affective nature of learning that take place in out-of-school spaces.

An important finding is that schooled-based literacy practices influenced students' recreational reading practices. Aoi, who had been encouraged to pick up *No Longer Human* by Japanese writer Osamu Dazai after watching BookTok videos online, reported reading the book in between other lighter readings such as the Young Adult crime thriller, *One of Us is Lying*, by Karen McManus. For her, reading *No Longer Human* was difficult philosophical work. Her deep engagement with the text is evidenced by her annotating the text (see Figure 5), a literacy practice that might seem more suited to the study of a school-mandated literature text than a self-chosen leisure reading text. The boundaries between the reading practices of school and out-of-school practices were blurred in Aoi's leisure reading practices as she applied school-based literacy practices to her leisure reading.

Figure 5. Aoi's annotation of *No Longer Human*.



“I study using my laptop, my textbook and my notes”: Fluency with Print and Digital Texts for Academic Reading

While print was preferred for reading traditional long-form texts, the students demonstrated more flexibility in shifting between print and digital resources for their academic work. Often, they made use of both at the same time (e.g., reading printed notes

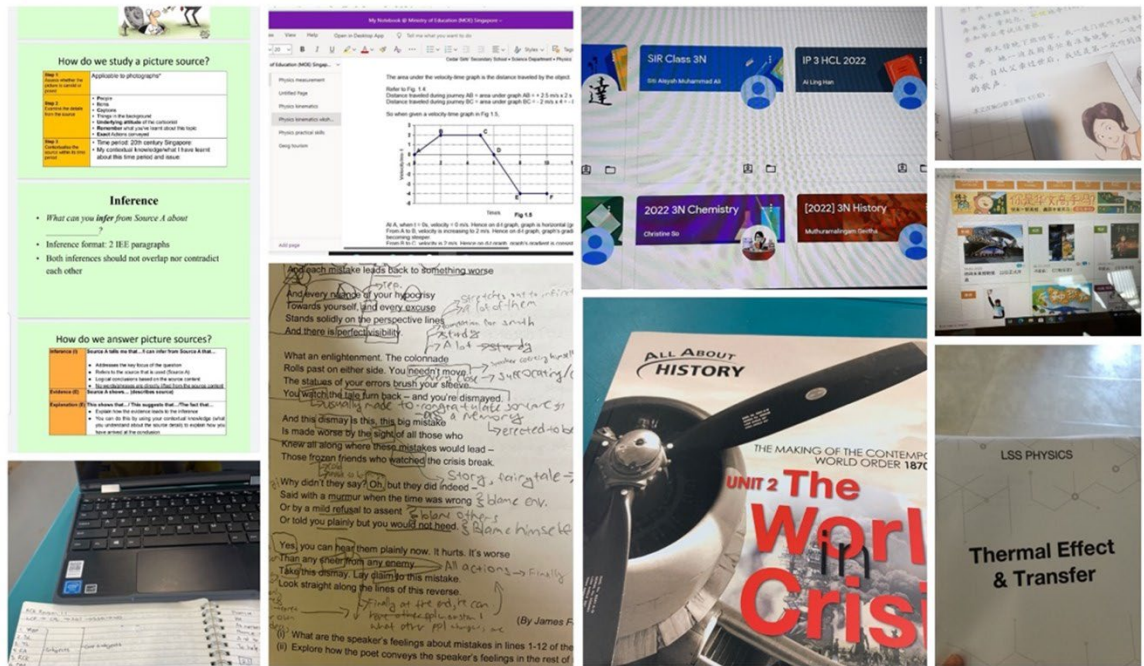
while referring to slides online). Some students, like LWT, would print the slides and notes for revision, whereas Ambien Toast preferred revising from online materials. Sometimes work was done in print (e.g., analysis of a poem) because homework was given on a worksheet; at other times, students went into Google Classroom and made use of the structured online materials to complete their schoolwork. All students engaged with long-form academic print and digital reading over the four days.

Figure 6 illustrates students' use of their PLDs and print materials for their academic reading. Students became familiar with navigating Google Classroom and online materials as their teachers used them regularly. In one entry, Aoi shared a screenshot of an online platform for reading Chinese (her Mother Tongue language) newspapers and magazines, explaining later in the interview that they were tasked to write a report on a self-selected article.

"I used it for Chinese class. We were given time to look through this website for online newspapers and magazines..." - Aoi

News reading, though categorised as digital recreational texts rather than academic texts, was utilised in the school context as a way for students to become more informed and literate citizens, demonstrating once again the bridging of school and out-of-school literacies. Reflecting research elsewhere (Lowenstein-Barkai & Lev-on, 2021), these adolescents mostly obtained their news through online means. These habits of news reading were learnt not just from school but from home, with students such reporting that parents would send them news articles via their smartphone to read. The participants sought out news too, by subscribing to news channels via Telegram or Instagram or downloaded news apps.

Figure 6. Students' print and digital academic reading materials.



The girls were also fluent with using print and digital resources for their research work and for revision. Over the weekend, there were many instances of the students doing their homework, revising, or doing research, whether in print or online. For example, Katheryn reported feeling “stressed” at not understanding how to analyse a piece of poetry but “proud” that she “was finally able to put it into words later” on a Saturday afternoon. Mat explains how she conducted research on a Sunday afternoon for her history assessment, mostly using the oral history resources introduced to her by her teachers.

"Yeah, so my history assessment is coming up soon. We've been given a task sheet and we're supposed use four sources that we find based on a community that we've chosen... I've been looking through transcripts of oral history interviews this afternoon, trying to find sources I can use for my paragraphs. And I've actually finished just deciding what to use and the parts." - Mat.

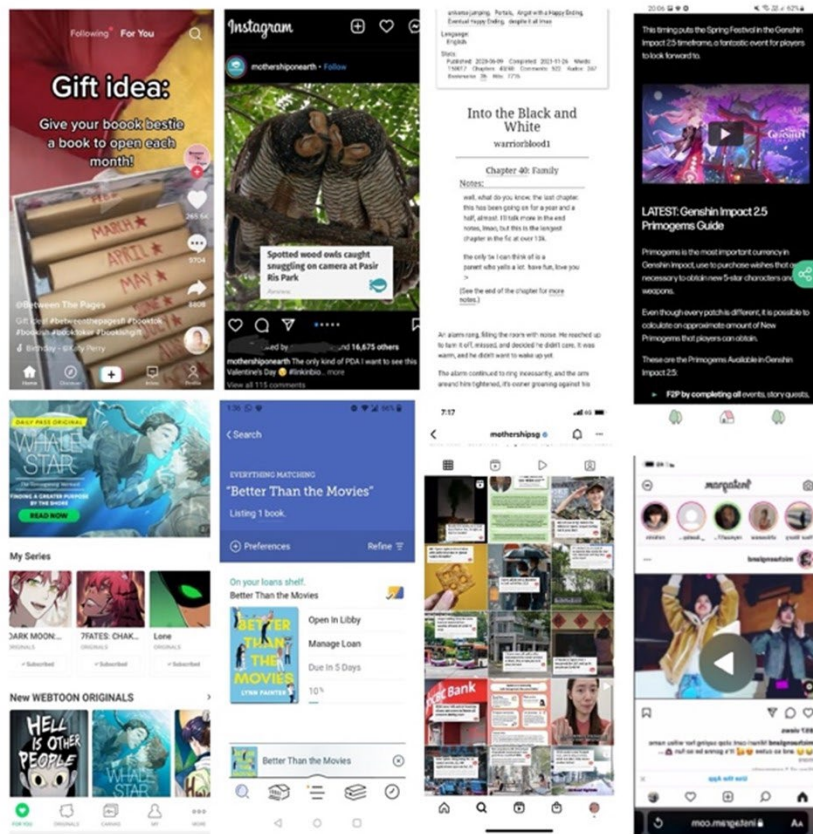
The girls demonstrated flexibility in shifting across different sources for studying and research, though unlike their leisure reading on their smartphones, the range reported was narrower and more likely to be directed by teachers.

“I read when I see something interesting on my phone”: Seeking Digital Recreational Reading on Smartphones

All students in our study had a smartphone with internet access and most reported using their smartphones for at least 3-4 hours a day for entertainment, information, and communication. Koala Bear sums up the adolescents’ sentiment about smartphones: [the smartphone is] “always in [my] hands”. Figure 7 shows the range of reading materials that the girls used their smartphones to read, from fan-media to the news and e-books and online comics. While it was primarily used for leisure based on students’ reported usage, students also occasionally used it for academic purposes (e.g., checking Google Classroom, revising slides, using learning apps such as Pleco, a Chinese dictionary app) because it allowed them quick anytime access, as the quote by Smiley shows.

"i use my phone to read sometimes, like libby or wattpad, and i have instagram (and no tiktok) but i don't really check it often. i use it for helping myself with chinese homework (oops) and studying, using the app quizlet. - Smiley

Figure 7. Students' smartphone digital reading materials.



The girls' smartphones allowed them to plug into their social worlds, both local and global. For example, Instagram was a way to see what their friends were doing but also a way to plug into global communities sharing the same interests (Ito, 2010; Scolari et al., 2020). It helped that the phone was always with them and allowed them to read “while waiting for something” (Koala Bear), “because [I] was bored and had nothing much to do” (Beomgyu), to “take a break from studying” (Katheryn) or “on the way back home from school” (Aoi). Social media apps such as Instagram and Twitter facilitated scrolling, where students with an “always-on lifestyle” (Boyd, 2012) could dip in and out for quick snippets of information.

"I browsed Instagram and social media platforms using my mobile phone. I read it as I check Instagram on a daily basis just to be updated on what my friends are doing and for entertainment. "- Ganyu

Contrary to the perception that adolescents only consume social media online, the girls made use of social media to find new reads, including online-only reading that could not be found in print. Two girls in the study purchased the hard copy of *No Longer Human* because they encountered positive BookTok reviews which piqued their interest in the book. BookToks and other social media forms can be ways into literacy engagement, serving as affinity spaces for digital multimodal engagement (Jerasa & Boffone, 2021). Katheryn used Reddit, a discussion forum, and followed a subreddit that used humor to comment on news articles” as she found it “funny”. Koala Bear liked to read “life blogs especially those written by students”. During the weekend of the mobile ethnography, she read a blog by “this medical student who studies in New York” and writes about “how he copes with school, residency and personal life” and found it “pretty cool”. YY read “some news on Mothership for some updates”, just to “keep up”. Through their online reading, they were able to broaden their understanding of how other people in other parts of the world thought or behaved.

Online-only fiction was popular. In recent years, the increasing variety of online comics and novels, fuelled by technological improvements, content explosion and translation communities, has made it easier for adolescents to obtain free high-quality resources online. For example, Korean Manhwa and online fanfiction are designed for online reading, with scrolling rather than page turning as the default hand and eye movement required for continuous engagement. These user-friendly platforms are also designed to help readers find new reads, with stories categorised into genres and serialised weekly launches. Ganyu shared that she “has been waiting” for her favourite Korean webtoon, *Omniscient Reader’s Viewpoint*, to “update a few chapters before continuing to read it.” However, not all students like to read online. For example, Aoi found that she “got the sequence wrong” when reading comics online and it became “kind of confusing” for her, reminding educators that digital

reading skills are required for readers to negotiate the visuals and texts (Allen & Ingulsrud, 2005; Lim & Toh, 2020).

Students who read fanfiction did not just engage in habits of consumption but also participated in fanfiction communities by writing. Jenkins (1992) observes that fanfiction serves as “an important training ground for professional writers... to develop skills, styles... [and] self-confidence before entering the commercial workplace” (p. 40).

"Yah so this app [Wattpad], is a reading app and it can also be used to write stories...for example I'm writing my own story now, ok not story, but I'm writing my own book now. It's not like those serious writing like writing novels and stuff but I'm just writing for fun, yeah. "- Beomgyu

We also noted many instances of cross-media engagement where students read the book, viewed the movie, and engaged in fanfiction around the book. Ambien Toast explained in her interview that her fascination with the Hatchedfield universe began with her mother introducing her to *Les Misérables*, the musical movie. As a result of watching the movie, she read the book and began to watch fan-created musicals online. The book thus functions as one of the various transmedia (Scolari et al. 2020) to entertain (Fuller & Sedo, 2013) as well as deepen engagement and learning within like-minded communities.

Discussion

As these adolescent girls move between locations, they transit between devices, platforms, and formats, making use of different resources for varied ways of reading. These new ways of reading require “new ways of thinking, interacting, and valuing” (Potter & McDougall, 2017, p. 38) and are bound up with the adolescents’ identities, connections, and visions of learning, that were made possible through their access to different technologies for reading. Reading is central to the students’ identity formation, and new technologies have

expanded their reading possibilities and networks. The themes that emerged from our findings on traversing physical and digital media, crossing textual terrains, and blending of in-school and out-of-school literacies point to the ways which the adolescents viewed themselves as learners that are not confined by their identities as students in a school. This was evidenced in their ability to “style-shift” flexibly across the boundaries of school and personal spaces, as well as across devices and platforms.

Traversing Physical and Digital Media

The findings in the study provide a nuanced understanding of high-achieving adolescent girls’ use of technology for reading. Across the data, the students’ traversed both physical and digital media with ease through their savvy use of print and digital devices, depending on factors such as convenience (easy access), content (whether the material is available on the platform), comfort (tactile feel of books, difficulty of navigating online, small, or big). The girls found it easy to navigate both print and digital platforms to look for more reading materials. They were familiar with book purchasing from physical and online bookstores, knew how to make use of the public library’s physical and e-resources as well as other online-only reading materials to amplify their reading possibilities.

In terms of their academic reading, the students made use of both physical and digital media, depending on their needs and preferences. They are “schooled” into using technology for learning with teachers introducing them to reading of Chinese magazines and news reading online, which translate into the independent reading practices, which they seek to make “natural” by integrating it into their everyday practices, subscribing to news channels or dutifully reading the news sent to them. Practices learnt at school or in the home habitus (Loh & Sun, 2020) are internalised as part of their identities as readers, and they shift easily between reading for entertainment, information, or work, using whatever resources or devices are at hand.

For these students, technology is not a distractor from reading; rather it serves to amplify their reading by providing even more options online (Loh & Sun, 2022). They could read even when they did not have print as they could immediately use their smartphones to look for reading materials in between classes, when travelling by car or public transport, or when they were at home. The smartphone, like the book, is a material object symbolic of the girls' always-on access to global and local communities of reading, whether on Reddit or webtoon. The act of scrolling and the fast movement of the eyes, so contrary to slow, solitary reading represented by books, is as much a form of recreation and a new literacy to gain knowledge, and students need to engage with both media. For students who may be less inclined to identify themselves as readers, knowing how both the physical and digital media provide access to different reading resources can be a way for educators to get their students to plug into reading across devices.

Crossing Textual Terrains

Our findings also show that the students were crossing various textual terrains in their reading practices. They easily plugged into their school literature texts, print fiction and non-fiction, online comics, and social media sites with ease. In earlier quantitative studies (Lupo, 2017; McKenna et al., 2012; Zebroff & Kaufman, 2017), digital recreational reading tended to be limited to short form texts such as social media, text messaging and email, perhaps reflective of the capacity of smartphones then as well as the limited reading resources online. However, this study revealed that the students often engaged in reading “short long-form” (e.g., newspaper articles, generally in the range of 800 – 2,000 words) online as well as short form reading on social media, demonstrating their dexterity at moving between different kinds of content and platforms.

These high-achieving adolescent girls read widely, and the digital universe provided sources of reading materials such as blogs, fanfiction, discussion forums and webtoons, that

would not be otherwise available in the same variety or mode in print. They were becoming “cultural omnivores” (Khan, 2012; Peterson & Kern, 1996) who were able to cross over the boundaries of high culture and popular culture. They could be talking about K-pop one moment and reading poetry in another, though the individual girls had very distinct tastes and preferences. Their involvement in global high and popular culture position them as flexible readers (Loh, 2013) who can “style-shift” their ways of reading at will across a wide range of texts. Their ability to activate these cultural codes through continual participation is what allows them to plug into multiple worlds through textual means (Potter and McDougall, 2017) and to connect with global flows of media and information.

In a world of widening inequality (Horowitz & Samuels, 2017; Reardon, 2013), it is crucial to recognise that this ease and flexibility with reading for these high academic ability students are influenced by their habitus of “intensive immersion” (Loh & Sun, 2020) in books. All but one student reported having more than 50 books at home, and all reported extensive early home reading support, encouraging the development of their positive attitudes towards books and reading, which correlates to their reading proficiency (Martin-Chang et al., 2020). Even in their adolescence, parents continued to influence their reading by sending them news articles and recommending books to read.

Being aware of students’ practices of reading out of school, as well as their histories of reading various texts, may help educators understand how students come to gain reading proficiency through in-school and out-of-school reading practices over time. Knowing that print is preferred for long long-form reading means that school libraries, crucial for encouraging students’ independent reading (Clark & Teravainen-Goff, 2018), must continue to build up their print collection. Understanding that adolescents can be exposed to a range of online-only reading materials means that teachers can design classes to help less advantaged or proficient readers to discover online sites, topics or resources that are connected to their

personal interests. Essentially, educators should see print and digital resources as complementary resources to cultivate opportunities for adolescent positive experiences of reading.

Blending In-School and Out-of-School Literacies

Beyond working fluently across media and texts, the adolescents were also blending both in-school and out-of-school literacies in their reading practices. While reading was an activity they engaged in for leisure, there was a strong sense that the boundaries between reading for leisure and learning that was associated with school literacies was porous (Potter and McDougall, 2017). Although the adolescent girls acquired disciplinary literacy in school (for example, learning to think historically or critically in their history and literature classes or learning another language in school), they did not confine these ways of thinking to school. There was also a “spillover effect” with students bringing critical ways of thinking learnt in school out of school, as in the case of Aoi annotating her personal reading of *No Longer Human* or students choosing to integrate news reading or other critical information seeking attitudes and behaviours into their everyday reading practices.

Much of education tends to be premised on the concept of school as a container (Leander et al., 2010) but the findings show that the students’ visions of learning were not limited to school. Rather, their out-of-school readings allowed them to deepen their knowledge and become experts in their own areas of interest. For example, the avid fanfiction readers did not just consume fanfiction but were active producers of texts within their communities. The girls also made use of various social media platforms such as Instagram and Tiktok to explore diverse “reading formations” and connect with global reading communities through a form of distributed readership (Thomas, 2021). Their online explorations were ultimately driven by their interests (in K-pop, anime, other countries, musicals, cooking, humour), sometimes fleeting but oftentimes, enduring. Having easy access

to devices, subscriptions, and knowledge about where to look for resources, both physical and online, allowed them to engage in their self-directed learning. Such blending of in-school and out-of-school literacies invite educators to explore bringing texts, such as fanfiction, from the students' out-of-school literacy experiences into the classroom. The valuing of a wider range of texts for reading in schools can bring about a more responsive and culturally relevant literacy curriculum that reflects the zeitgeist of our times.

Conclusion

Moving beyond dichotomies of either print or digital reading, this article traces adolescent girls' actual reading practices in print and using their devices, in their liminal in-school and out-of-school spaces (Potter & McDougall, 2017). The girls are literally on the move, with their busy schedule, and metaphorically moving towards greater proficiencies and ways of acquiring dispositions and knowledge through reading.

Our study is limited in focusing only on high-achieving adolescent girls. Writing about boys and academic achievement, Reay (2006) points out that discussions of gender often neglect the class aspect. These girls, who mainly come from middle-class homes with literacy rich homes filled with books and reading role models (Buckingham, 2015; Loh & Sun, 2020) have had strong support for developing basic reading proficiencies and identities that are valued in schooling and global economic contexts. They can easily access technologies for learning and are continually learning, whether in school, at home or on the go. In a study of the 2009 Programme for International Student Assessment (PISA) data, Notten and Becker (2017) found that the digital information literacy skills of students were correlated to having rich literacy environments in their early years. By detailing the students' daily formal and informal reading practices across physical and technological materialities, offline and online spaces, this study reveals how these daily practices of reading, mostly self-

directed and others instructed (by teachers or parents), contribute to the daily reading volume and practice that shape the girls' mobile reading identities.

For reading to happen, the findings highlight that access to hardware and software as well as basic reading proficiencies and skills to find reading resources are necessary for engagement in meaningful everyday reading practices. The study foregrounds the relational nature of reading, where it is the combination of

content + device + platform + location

that contributes to the students' enjoyment of reading or purpose of reading. Providing students with a device does not necessarily solve issues of access to learning if students do not know what content to read or which platform to utilise. In considering issues such as the digital divide, we need more nuanced approaches to consider how proficiencies, class and gender are intertwined with issues of access to devices and knowledge. Educators and researchers need to contemplate what kinds of reading skills are necessarily for young people's participation in global flows of reading and how they can access it, given their different starting points. They also need to move toward a greater understanding of how both the print and digital work together to shape reading and learning across physical and online environments in both school and out-of-school learning. This includes recognising both the similarities and differences in the literacies involved in print and digital reading and how these can be intentionally cultivated (Breso-Grancha et al, 2022; Lim & Toh, 2020). For example, students can be taught how to use different technologies and platforms for reading (Loh & Sun, 2022), and be exposed to the diverse reading resources online.

This article pushes methodological boundaries by utilizing a mobile ethnography method as a way to give voice to adolescents by documenting their actual day-to-day reading practices. It is an example of how participatory research can be used to deepen understanding of adolescents' everyday lived experiences of reading. Beyond post-pandemic exigencies

requiring use of online methods of data collection, mobile ethnography allowed the researchers to gaze into the reading lives of these adolescent students in contexts otherwise inaccessible, raising new insights, implications, and challenges for learning in a post-pandemic digital age. The recent rapid advancements in artificial intelligence and machine learning have made it possible to process and analyse large amounts of data in real time, which allows future mobile ethnographic studies to recruit participants from different geographic locations and engage a more varied and larger sample size. Furthermore, combining such mobile ethnography methods with real time physical observations of students, and possibly, through longitudinal studies, may yield more complex insights into adolescents' in school and out-of-school learning.

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