



Affordances and limitations of ‘the digital’ for adult migrants with limited or interrupted formal education

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Abstract

Digital technology has become essential for daily life, creating a complex challenge for adult migrants with limited or interrupted formal education who must simultaneously develop digital literacy, additional language, and basic literacy skills. This study examines how different groups of Students with Limited or Interrupted Formal Education (SLIFE) engage with digital tools, revealing a critical disconnect between digital access and genuine language acquisition. Through video-recorded classroom observations and interviews, three learner groups were identified: pre-literacy learners who rely heavily on speech-to-text features but struggle to develop independent skills; learners with some first language literacy who show more sophisticated tool use but often engage in what we term “translation without transformation”, and extended literacy learners who demonstrate strategic tool use but lack opportunities for authentic language production. Using van Lier’s (1996) concepts of awareness, autonomy, and authenticity, we analyse how the affordances of digital tools vary across these groups. While digital tools provide immediate solutions to communication challenges, their current use often bypasses rather than supports genuine language learning processes. Our findings point to the need for differentiated pedagogical approaches that build on learners’ existing digital practices, integrate linguistic and digital knowledge development, and create opportunities for authentic language use through principled teacher-learner interaction.

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Publication

Received: 31 August 2025
Revision: 25 September 2025
Accepted: 30 September 2025
Published: 29 October 2025

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Keywords: *Adult SLIFE; affordances; digital literacy; language learning; pedagogy.*

Introduction

Digital technology has become an essential mediator of daily life, fundamentally reshaping how people access vital services and participate in society. For adult migrants who may be trying to learn the language of a new host country, this digital imperative creates a complex burden – they must develop digital literacy skills while simultaneously acquiring basic language and literacy competencies in the language of their host country. Some adult migrants, termed Students with Limited or Interrupted Formal Education (SLIFE), may also have limited experiences of schooling, low but developing literacy skills in their first language, and limited exposure to print-based literacy traditions (Slaughter & Choi, 2024; Tour et al., 2023b). Limited print literacy skills can hinder both educators' and learners' capacity to use common strategies for language acquisition, for literacy development and for the development of digital literacy skills (Blackmer & Hayes-Harb, 2016; Slaughter & Choi, 2024; Tour et al., 2022a, 2023b).

Developing proficiency in print literacy and in digital technologies is vital as those with limited language and literacy skills can face substantial challenges in securing employment and in integrating into society more broadly (Auer, 2018; Jenkinson et al., 2016). In Australia, for example, newly arrived migrants must navigate government-operated social services such as myGov, Centrelink, Medicare, and child support through digital platforms. Failure to effectively engage with these systems can result in serious consequences, including financial penalties (Australian Tax Office, 2024; Department of Employment and Workplace Relations, 2022; Scanlon Institute, 2019; Slaughter & Choi, 2024; Tour et al., 2023b).

When newly arrived migrants and refugees from non-English speaking backgrounds arrive in Australia, they are provided with access to the Adult Migrant English Program (AMEP) and unlimited hours of English language instruction up to vocational English level. Instruction is often accessed in connection with welfare and employment support programs. In recognising the critical importance of digital literacies as part of the language learning and resettlement journey, several Australian government initiatives offer opportunities that support the development of digital skills for adult learners of English, including AMEP online learning modules (Tour et al., 2023b). In addition, the research-led *AMEP digital literacies framework and guidelines* (Tour et al., 2022b) provides support for teachers to teach digital literacy skills in adult English language learning contexts (Tour et al., 2023a).

Alongside this resource development, a growing body of research is also investigating the everyday digital literacy practices of refugees and migrants and barriers to digital inclusion (e.g., Alam & Imran, 2015; Bletscher, 2020; Tour et al., 2022a ; Tour et al., 2023b; Tran et al., 2022), including the use of digital technologies in language learning more broadly (e.g., Bigelow et al., 2017; Norlund Shaswar, 2021; Tour et al., 2022a). Less attention, however, has been paid to how SLIFE's specific needs and capabilities shape their use of digital tools for language acquisition in the language learning classroom. That is, research that asks the very specific questions of "What do learners do with technology in the classroom?" and "How do these digital literacy skills correlate with literacy and language learning pathways?"

(Symser, 2019). This information is critical to understand not just how SLIFE use technology, but how their use of technology intersects with, and hinders or fosters language learning, ultimately contributing to research-led pedagogical guidance for educators.

This research project is underpinned by a commitment to participatory research methods where research is undertaken with teachers rather than on the practice of teachers. To this end, this collaborative research project was undertaken by two university-based language teacher educators and three practicing TESOL educators teaching beginner adult learners in an adult education centre in Australia. The data includes video recordings of learners' use of technology in the classroom, collected over a ten-week long semester, documenting the complex ways learners use digital applications on their mobile phones to access information and to make meaning. While digital tools appear to offer convenient solutions for language barriers – through translation apps, speech-to-text features, and multilingual interfaces – our research reveals a critical disconnect between digital access and genuine language acquisition. Through detailed analysis of classroom observations, we find that different groups of learners engage with digital tools in distinctly different ways, dependent on their level of literacy and language proficiency (pre-literacy learners, learners with some first language literacy and extended literacy learners). Our analysis and categorisation of learners and their digital practices reveal a crucial insight: while digital tools provide immediate access to information, they may sometimes hinder rather than help actual language acquisition. As one learner articulated, “Me... I need something like spell. Learn me... spelling”, expressing a fundamental need to develop language skills that go beyond mere access to digital translations or AI supported generation of text.

Our study examines such tensions through van Lier's (1996) concepts of awareness, autonomy, and authenticity in language learning. We analyse how SLIFE's current digital practices either support or potentially obstruct these crucial elements of language acquisition. Our findings point to the need for more nuanced approaches to digital literacy instruction that recognise learners' existing multilingual and multimodal practices while providing appropriate scaffolding for genuine language development. In what follows, we first outline our theoretical framework and research method, then present a detailed analysis of how each learner group engages with digital tools. We conclude by discussing implications for teacher training and program design, emphasising the need for principled pedagogical approaches that can help learners move beyond simple digital access to genuine language acquisition.

Theoretical framework: Digital affordances and language learning

Understanding affordances in digital language learning

To analyse how digital tools support or potentially hinder SLIFE's language development, we draw on van Lier's (1996) concept of affordances and his AAA curriculum framework (Awareness, Autonomy, and Authenticity). The concept of affordances was developed by psychologist James Gibson in 1979, informed by a biological or ecological perspective, to

describe the reciprocal relationship between an organism and its environment. An affordance refers to properties inherent in the ecosystem and the opportunities they provide for organisms active in the environment (Gibson, 2015). An affordance suggests potential actions, but its relevance is determined by the organism's needs, capabilities, and goals. van Lier (2000) illustrates this concept through the example of a leaf and the affordances it offers different organisms. A leaf, for example,

can offer crawling on for a tree frog, cutting for an ant, food for a caterpillar, shade for a spider, medicine for a shaman, and so on. In all cases the leaf is the same: its properties do not change; it is just that different properties are perceived and acted upon by different organisms. (van Lier, 2000, p. 252)

van Lier (2004) argues that the concept of affordance can be readily applied to language and language learning as an engaged and active language learner has the potential to recognise and capitalise on linguistic opportunities. That is, they can identify language affordances and leverage them to make meaning material. An affordance, therefore, refers to “what is available to the person to do something with” (van Lier, 2004, p. 91), and through guidance, such affordances can lead to “higher, more complex levels of activity” (2004, p. 62).

van Lier (1996) argues that affordances are compiled of three concepts – Awareness, Autonomy and Authenticity, collectively referred to as the AAA framework. Van Lier refers to these concepts as “constants” that serve as the basis of an AAA language education curriculum. Curriculum, van Lier (1996) stresses, does not relate to a fixed set of predetermined topics or items to study but rather, refers to a practice or process that assists teaching and learning. The three principles are “amalgams of knowledge and values” (van Lier, 1996, p. 3) that underpin the development of a curriculum. That is, the curriculum is underpinned by our understanding of cognitive development and knowledge acquisition, which includes an understanding of the context, including educational goals and values, and the learner themselves. van Lier (1996) also emphasises the importance of a theory of learning in the development of any curriculum since it guides pedagogical instruction. The developmental work of Vygotsky (1978) underpins van Lier's concept of the AAA curriculum, with social interaction seen as a crucial mechanism for learning. Here, van Lier stresses the importance of interaction in its various forms, that is, the exchanges between teachers and learners, pedagogical designs that provide optimal learning opportunities, and the wider social processes and conditions of the social interaction for learning.

The AAA Framework and digital SLIFE learning

In the context of digital language learning tools, we must examine not just what features digital applications offer, but how learners perceive and engage with these features based on their existing capabilities. For example, while a translation app might offer sophisticated grammar explanations, these may not constitute real affordances for pre-literacy learners who cannot yet read in any language or are not yet familiar with the grammatical constructs at

play. Similarly, speech-to-text features might offer immediate communication solutions but may not afford actual language learning if learners do not engage with the underlying linguistic patterns. To interrogate this challenge, we employ van Lier's (1996) AAA framework and the three interrelated lenses of Awareness, Autonomy and Authenticity to analyse whether and how digital tools can create genuine affordances for language learning.

Awareness.

Within van Lier's AAA framework, "Awareness" implies "paying attention". That is, "focusing one's consciousness, or pointing one's perceptual powers in the right direction, and making mental 'energy' available for processing" (van Lier, 1996, p. 11). In language learning, this involves consciously directing attention to language patterns and actively processing linguistic input. For SLIFE using digital tools, awareness becomes critical yet challenging. While tools like Google Translate provide immediate answers, they may bypass the essential cognitive engagement that leads to actual learning. For example, when pre-literacy learners use speech-to-text for quick translations, they may miss opportunities to notice sound-letter relationships or word patterns. Similarly, copying translated text without analysing its structure could prevent learners from developing metacognitive awareness of how the target language works. Meaningful language acquisition requires guided attention to form, meaning, and use (Ellis, 2016; Loewen, 2020; Sato & Loewen, 2019; Van Patten et al., 2020). For SLIFE engaging with digital tools, this raises crucial questions around awareness, including,

- Does quick access to translations promote or bypass conscious engagement with language?
- How do different levels of literacy affect learners' ability to notice and process linguistic patterns?
- What kinds of scaffolding might help learners move from passive tool use to active language awareness?

Autonomy.

"Autonomy" in van Lier's (1996) framework refers to learners' ability to make meaningful choices about their learning process and take responsibility for their language development. Key features of autonomy are "choice" and "responsibility" whereby students are provided with a variety of language elements and the autonomy to choose what they need. van Lier (1996, p. 27) argues that "so long as adequate opportunities are available" and that learners have choices, then they are responsible for their own learning or their lack of learning. The degree of autonomy that language learners exhibit is also shaped by their motivation to learn. If they are passive recipients, their ability to sustain attention and the high level of cognitive effort needed for complex learning will be weak. Intrinsic motivation, however, can lead to curiosity and a spirit of exploration, which can be powerful motivators in language learning.

Regardless of whether the motivation is extrinsic or intrinsic, learners must invest effort, including cognitive, emotional, and physical investment, to process language.

For SLIFE, digital tools present a paradox: while they appear to enable independent action (like using translation apps), they may inadvertently create dependence. Meaningful autonomy requires not just access to tools, but the ability to select and use them strategically for learning. When learners rely solely on translations for immediate communication needs, they may struggle to advance the independent problem-solving strategies and decision-making capabilities that characterise autonomous language learning. Effective autonomy requires structured support to help learners move from tool dependence to strategic tool use. In the digital context, key considerations include asking,

- How do different literacy levels affect learners' ability to make informed choices about tool use?
- When do digital tools support independent learning versus creating tool dependency?
- What balance of structure and freedom best supports SLIFE learners' development?

Authenticity.

The principle of “Authenticity” in van Lier’s (1996) framework refers to a process of “authentication, a validation of classroom events and language, and an endorsement of the relevance of the things said and done, and of the ways in which they are said and done” between teachers and learners (van Lier, 1996, p. 133). In other words, what is considered authentic or inauthentic, relevant or irrelevant, and what speakers genuinely wish to express in contexts of language learning are matters for teachers and learners to validate and is dependent on their engagements.

For SLIFE, digital tools can either support or hinder authentic language use. While tools enable learners to engage with real-world texts and communications (like government services or medical information), simply translating these materials may bypass opportunities for meaningful language engagement. Authenticity would be enacted when learners and teachers work together to create contexts where digital tools support rather than substitute for genuine communication. This requires moving beyond translation to situations where learners actively construct and negotiate meaning through language, even if imperfectly. For digital SLIFE learning, critical questions include,

- How can digital tools support meaningful communication rather than just translation?
- What makes learning activities authentic for different SLIFE groups?
- How can teachers help authenticate digital tool use for genuine language development?

The AAA framework, with its constants of awareness, autonomy and authenticity, provides the structure for helping us to understand how digital affordances vary across our three identified SLIFE groups: pre-literacy learners, learners with some L1 literacy, and extended

literacy learners, as was explored in this research project. In the sections that follow, we apply this framework to analyse our empirical observations of how different SLIFE groups engage with digital tools in their language learning journey.

Materials and methods

This research employs a qualitative case study approach with ethnographic elements to investigate how different groups of SLIFE engage with digital tools in their language learning journey. This methodological approach enables deep understanding of learners' digital practices within their classrooms, while acknowledging the complex interplay of cultural, linguistic, and educational factors that shape their learning experiences. Multiple data sources were collected across this research project, including video recordings of the use of digital tools in the language classroom, audio recordings, classroom artifacts, and naturalistic observations. Over a ten-week period, we captured both planned activities and spontaneous interactions that revealed how learners navigate digital tools in their language learning. The ethnographic elements allow us to consider the broader social and cultural contexts that influence learners' digital practices, while the case study framework helps us maintain focus on the bounded system of the community centre and its participants. This approach aligns with van Lier's (1996) theoretical framework, allowing us to examine how awareness, autonomy, and authenticity manifest in learners' engagement with digital tools across different literacy levels.

Research context and participants

This study was conducted at a non-profit Registered Training Organization (RTO) in Melbourne, Australia, which provides government-funded English language services for new and long-term adult migrants. The three TESOL teachers who were co-researchers in this project were all qualified primary school or secondary school teachers and held post graduate educational qualifications in TESOL. Qualifications ranged from a graduate diploma to Masters-level certifications. Despite their comprehensive training, all three teachers reported that their formal training had not specifically prepared them for teaching adults with low literacy levels – a gap commonly reported in the adult TESOL sector (e.g., Custodio & O'Loughlin, 2022; DeCapua et al., 2018; Grierson, 2010; Slaughter et al., 2020). Consequently, they viewed this research project as a valuable opportunity for professional development in this area.

Forty-six students across three Foundation-level (beginner) classes participated in the study and came from diverse educational, cultural and linguistic backgrounds. The participants ranged in age from 32 to 65 years old, with an average age of around 50. The vast majority, over 90 percent of participants, were female. While several participants did not have knowledge of when or where they were born, or their visa status, a majority of participants had arrived in Australia on a refugee visa, coming from African and Middle eastern countries

including, Iran, Ethiopia, Somalia, South Sudan, and Sudan, as well as from across the Asian continent including China (inc. the Chinese mainland, the special administrative region of Hong Kong and the autonomous region of Tibet), Cambodia, Vietnam, and East Timor.

Length of residency in Australia varied from between one to 45 years, averaging 16 years in Australia. Experiences of schooling prior to arrival in Australia varied, with some students having attended secondary schooling, some students receiving only primary schooling, while others had limited to no experience of schooling at all. The students had been attending the Foundation (beginner) classes at the RTO for between one to four years, but on an average of two years. While all participants emphasised the importance of learning English, many reported that the classes provided their only opportunity for English practice due to the limited need for English in their daily lives.

Ethics approval (Project ID no. 1853251) was provided by the University of Melbourne Human Ethics committee and English language plain language statements and consent forms were translated into Chinese (Mandarin), Oromo, Somali, Tibetan, and Vietnamese, and explained orally by multicultural education aides where needed.

Learner categories

Based on input from the teachers and initial observations, we identified three broad but distinct categories of SLIFE learners, which became central to our analysis. Table 1 provides an overview of the typical characteristics of learners within each group. It should be noted that learners did not necessarily belong exclusively to one group but that, in general, their patterns of digital technology use fitted into these categories.

Table 1. Categories of SLIFE and their key characteristics in relation to their use of digital technology.

Category	Educational Background	Key Characteristics
Pre-literacy learners	Minimal formal education	• Strong oral skills in first language(s) • Limited literacy in any language with emerging basic reading and writing skills • Some self-identification of dyslexia • Common experiences of trauma • Heavy reliance on audio/visual digital tools
Learners with some L1 literacy	Completed primary school education	• Ability to read and write in first language • Ability to read and write the English alphabet, although some struggle with sound-symbol correspondence • Ability to use basic digital translation tools • Developing awareness of language patterns
Extended literacy learners	Completed secondary education	• Strong L1 literacy skills

Data collection

Data collection focused on capturing how learners from each category engaged with digital tools during classroom activities. Primary data sources included video recordings taken with GoPro cameras on student desks, mobile phone recordings by students, teachers, and researchers, and through a stationary video recorder placed in a far corner or in the back of the classroom. The data collected involved just over 500 minutes of recordings. Classroom activities were also collected including a language portrait activity undertaken by learners whereby they used a silhouette of a body to map their linguistic repertoires, and whole-group word-splash activities about phone use. The word splash activity was guided by questions such as,

- Can you show me how you use it?
- Did you download the app yourself?
- What are your three favourite apps?
- When and why do you use them?

The classroom activities were designed, in part, to help identify participants' linguistic backgrounds, revealing connections to 12 countries and 16 languages, with Vietnamese, Mandarin, Cantonese, Arabic, and Dinka being the most prevalent. Pseudonyms have been used for participants in this research article.

Data collection limitations

Several factors affected our ability to gather comprehensive data. These include variable attendance patterns by students due to funding eligibilities and personal circumstances, challenges in obtaining precise profiles from pre-literacy learners, with some learners having no knowledge of their date or place of birth, and difficulty capturing all aspects of learners' digital tool use outside the classroom. Despite these limitations, the rich classroom data provided substantial insights into how different SLIFE groups engage with digital tools in their language learning journey.

Data analysis

A thematic analysis (Saldaña, 2021, 2024) with elements of multimodal interaction analysis (Norris, 2004) was employed to examine the rich dataset of video recordings, classroom artifacts, and field notes. The analysis proceeded through several phases, beginning with multiple reviews of video recordings to identify and code instances of digital tool use, including both verbal exchanges and non-verbal behaviours around digital devices. Through an iterative process of theme development, we mapped emerging patterns against van Lier's (1996) AAA framework. In particular, we paid attention to patterns of tool use across learner categories, moments of success and struggle with digital tools, and interactions between digital tool use and language learning. Given the complex nature of digital interactions, our

multimodal analysis examined screen interactions, physical positioning and gestures around devices, and transitions between digital and non-digital resources. Cross-case analysis across the three learner groups helped identify distinctive patterns of digital tool use and demonstrated how awareness, autonomy, and authenticity manifested differently at various literacy levels. To ensure trustworthiness, we engaged in regular peer debriefing between researchers, maintained detailed analytical memos, triangulated findings across multiple data sources, and conducted member checking with participating teachers. This analytical approach allowed us to develop a nuanced understanding of how different SLIFE groups engage with digital tools while maintaining sensitivity to the complex social, linguistic, and educational factors shaping their learning experiences.

Findings: Digital practices across SLIFE categories

Pre-literacy learners: Digital tools as communication bridges

Pre-literacy learners in the project primarily engaged with digital tools through speech-to-text features and basic translation tools to meet immediate communication needs. Their digital practices centred on using Google Translate's speech function for basic word translations, watching multilingual video content on platforms like Facebook, accessing religious content through audio apps, and sending voice messages via WhatsApp. Students within this group identified the importance of apps such as the Centrelink app and while some did have the app on their phones, those that did talk about their use of the app stated that they did not use it themselves but had family members help them use it. In other instances, they reported logging in in response to a message stating that they had a notification but did not know how to read or interpret the information, simply following the instruction to "look" at the notification. The classroom practices of another student, Bifani, also illustrates how a lack of literacy and digital literacy skills impact on learning. Bifani sent voice messages in Oromo to her husband, asking for translations of English words, as she did not have the skills to use translation and dictionary tools or to type her questions in a text message (See Figure 1).



[Name] *dhiifama Salaatarraan turee bar*
[Sorry XXX, I was at prayer.]

Kam feeta mee? [Which ones do you want?]

Happy :- *Gammachuu*

Cold :- *Qabbana*

Angry :- *Aaruu/Dallanuu*

Excited :- *hedduu fedhuu*

Hot :- *Oowwa*

Worried :- *Yaaddaa'u*

Nervous :- *Wanti hin yaanne sirra ga'uu*

Confused :- *Yaanni walitti si duraa makamuu, Jeeqamuu*

Figure 1. Bifani's use of voice messages to her husband and his text responses.

The focus on this group of learners also enabled us to observe their most prominent use of apps in the class, which was the use of Google Translate for assistance with spelling, and the challenges students faced when using the app. As a first example, Amal's use of Google Translate exemplifies the typical patterns and limitations of this group's digital engagement. While she demonstrated strategic use of Google Translate's speech function for basic word translations, her attempts to use the app to find out the spelling of proper nouns revealed both the possibilities and constraints of digital tool use, particularly when Amal's accented English proved problematic for the program. As two examples, Amal tried using Google Translate to get the spelling of "Khartoum" and of "Guba" and despite repeated attempts, she knew that the output provided were not correct. The way in which Amal was framing her queries also impacted what the app produced as it translates exactly what is being said and does not interpret requests as questions, as she had presumed. For example, in trying to determine the spelling of Khartoum, Amal used the speech to text function to input "Spelling Khartoum" which resulted in an output of "Beiling cartoon", and "Spelling Guba, Spelling Guba", resulted in an output of "Woolloongabba". Although she could recognise when translations were incorrect, she lacked strategies beyond repeated attempts with the speech function to resolve the errors.

In another example, Aluel asked a fellow student sitting next to her, Akech, how to use the speech function to find the spelling of words. Akech showed Aluel the Google Translate app and used the speech to text function to ask "Spell English" which the app was able to produce. When Aluel tried inputting "Spell Dinka" as a follow up, the app was not able to produce a correct response. Both Aluel and Akech continued inputting "Spell Dinka" for a further eight minutes, with Aluel continuing for a total of 10 minutes, before giving up. The

teacher was attending to other students at the time, and the event was identified when the researchers were reviewing the GoPro recordings from the lesson.

For the pre-literacy learners, digital tools offer important affordances, including immediate access to basic word translations, facilitation of written task participation through digital mediation, and maintenance of social connections through voice and video features. However, significant limitations emerge in their use: learners often become dependent on digital tools without paying attention or developing awareness to language and language learning skills. They may engage superficially with language through copying practices from digital tools to handwritten texts on paper that bypass crucial learning processes, and lack alternative strategies when digital tools fail, losing autonomy. These patterns suggest that while digital tools provide essential communication bridges for pre-literacy learners, their current use may inadvertently hinder the development of foundational language skills.

Learners with some L1 literacy: Bridging language systems

Learners with some L1 literacy demonstrated more sophisticated digital tool use, leveraging their existing literacy skills to access a broader range of features and applications. These learners employed multiple strategies in their digital practices, including various input methods (speech, text, handwriting) and cross-referencing between translation apps, while developing language-specific approaches based on their L1 background. For instance, the students who were Vietnamese speakers and who were able to read Vietnamese explained that they predominantly relied on speech input due to the complexity of typing diacritics. Chinese language users, on the other hand, alternated between character writing and pinyin input when using digital tools depending on their familiarity with the different writing systems. Our classroom observations revealed how these learners strategically navigate these linguistic challenges. For example, one Vietnamese-speaking learner regularly copied and pasted entire texts from utility companies into Google Translate, while a Chinese-speaking learner used a translation app that presents information in their preferred format (pinyin or simplified characters), with clear demarcation of the English translation for enhanced readability.

The affordances of digital tools for this group also included their ability to leverage L1 literacy for new language learning, more strategic tool selection based on specific needs, and greater autonomy in information seeking. However, significant challenges included struggling with transfer issues between languages, tending to over-rely on translation without processing meaning, and showing limited independent language production. For example, in the writing of one student, Mei, we noted that she used Chinese characters and their sounds to annotate English pronunciation (writing 伯是特 [pronounced as bai shi te] for “best”). 伯是特 is not a recognised word in Chinese, but the sounds roughly align with “best” in English. Likewise, Mei also used 呢切 (ne qie) to approximate the sound for the English word “nature” (see Figure 2). This approach demonstrates both innovation in learning strategies and potential limitations, as such cross-linguistic approximations hindering effective

communication. The student is demonstrating awareness and autonomy, but comprehensible pronunciation may not be achieved if students are purely relying on digital tools and aural skills to support pronunciation and not, for example, learning how to use the international phonetic alphabet, which students were taught, to assist with pronunciation.

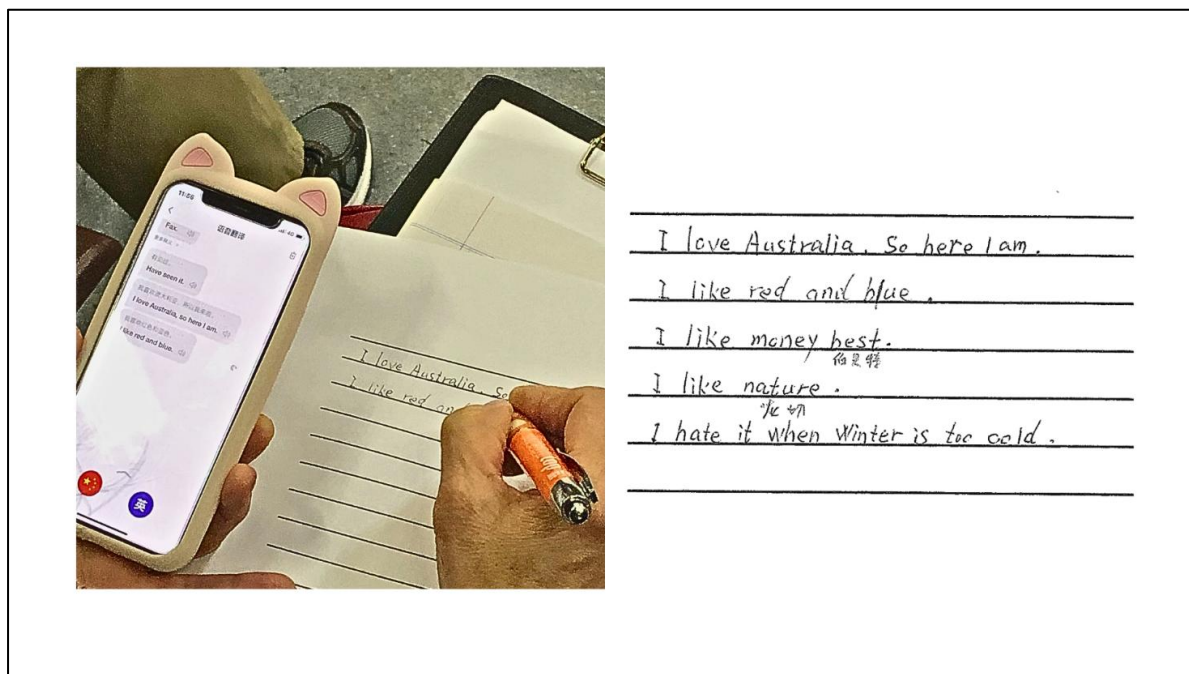


Figure 2. Mei's use of digital tools to support learning of literacy and pronunciation skills.

Extended literacy learners: Towards strategic digital learning

Extended literacy learners, although still learning at Foundation level, demonstrated the most sophisticated digital practices among SLIFE, employing a range of reference tools including dictionaries, corpus tools, and multiple translation applications to support their language learning. These students often had higher levels of oral proficiency but were still developing their writing and literacy skills. These learners showed greater metacognitive awareness in their tool use, as exemplified by Hana who specifically chose an app called *Wenquxing* for its corpus-like features, allowing her to analyse word usage patterns and collocations. Her explanation that “Sometimes Cantonese and Mandarin is different. Writing in Cantonese is more direct to English” reveals sophisticated understanding of language differences and strategic tool selection (see Figure 3).

	Teacher: What do you use to learn English? Hana: I use wenquixing. If you write down the English [on the board], I type in here like this [types in “freedom”]. This all come up [App shows list of phrases/expressions frequently used with the words and their translations]. It explain the whole sentence.
	Hana: And I also use this one [Google Translate] because I can write to it. Sometimes Cantonese and Mandarin is different. If Cantonese, I write on it. It is more direct to English. Because my pronunciation is not good. So I write Chinese and I can correct there I am right or not. Sometimes, maybe, I am short of one character, so they correct it.
	Teacher: What is there was an English word you didn't know, like the word “paternity” we have on the board? Hana: So I will go to the English and it will give me the word in Chinese. They help me.

Figure 3. Hana's use of various dictionary and translation applications.

This group's approach to digital translation also demonstrated more nuanced engagement showing potential for moving beyond mere translation to active meaning-making. Jing's language portrait activity (see Figure 4) illustrates this point. In an earlier task when Jing was asked to write about her language portrait, she copied a basic translated text describing the colours, “Orange is mandarin, because very easy and interesting” onto the worksheet. She

then worked independently to rewrite her ideas into a final written text, writing, “These two colours are warm colours. He represents my mood”. In this final version, we can see how Jing moves beyond the initial translated text to independently express a more sophisticated idea about colours. Such examples show how digital tools can support awareness and autonomy rather than just translation as substitution for genuine language production.

However, despite these advanced practices, extended literacy learners still faced significant challenges including lacking opportunities for authentic communication, remaining hesitant despite strong skills, and struggling to effectively integrate digital learning with classroom activities. These findings suggest that while extended literacy learners possess the metacognitive skills for more sophisticated digital tool use, they still need structured support to fully leverage these tools for language development.

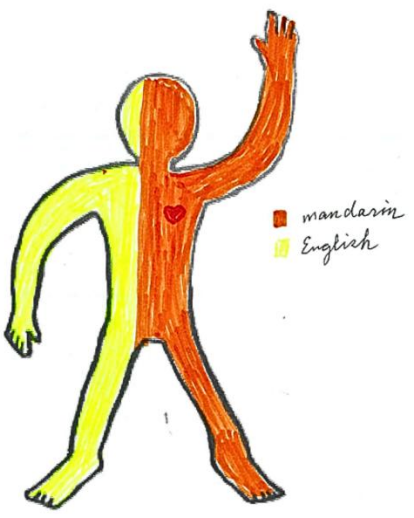
 Orange is mandarin, because very easy and interesting. Yellow is English, because have different language experience, I'm very happy. can understanding the world. I ... speak mandarin in home, ... speak English in school.	' These two colours are warm colours. He represents my mood. I like diferent language learning. I must learn English more. The English can help me better understanding of the world. [These two colours are warm colours. He represents my mood. I like diferent language learning. I must learn English more. The English can help me better understanding of the world.]
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Figure 4. Text development for extended literacy learner Jing.

Common themes

Across all three SLIFE groups, several significant patterns emerged in relation to their engagement with digital tools and language learning. In terms of tool selection, we observed a consistent preference for simple translation tools across all groups, even when learners have the capability to use more sophisticated tools. This tendency toward basic tools appears alongside limited awareness of more advanced features of apps that might better support language learning, while social media emerged as a crucial platform for maintaining

community connections across all groups. Learning behaviours across the groups reveal a strong inclination toward immediate solutions rather than engagement with language learning processes. This manifests in limited integration of digital tools with traditional learning methods and a persistent reliance on copying rather than original production, regardless of literacy level. Teacher-student dynamics also reinforced these patterns, including the teachers frequently providing direct answers rather than learning strategies, offering limited guidance on effective digital tool use, and struggling to create opportunities for authentic language practice which connected to their lives and their digital learning needs.

From digital access to language learning – A critical disconnect

Our findings reveal a fundamental tension in SLIFE's use of digital tools that manifests differently across learner groups but points to a common challenge – the gap between digital access and actual language acquisition. For pre-literacy learners, digital tools offer a crucial communication bridge but may inadvertently hinder foundational skill development, as seen when Amal repeatedly attempted to find the spelling for “Khartoum” through speech input. While the tool provides immediate access to needed information, their use can bypass the conscious attention to language patterns that genuine learning requires, thus failing to engage with van Lier's (1996) concept of awareness. Learners with some L1 literacy demonstrated what we have termed “transfer without transformation” – moving content between languages without deeply processing it. This challenges the development of autonomy in van Lier's (1996) framework, as learners become dependent on translation rather than developing independent language learning capabilities. Even among extended literacy learners, who show the most sophisticated tool use through strategic selection of resources and attempts at meaning-making, we see untapped potential for authentic language learning. Though these learners can navigate multiple digital resources, they often lacked opportunities to move beyond translation to genuine language production and communication. This pattern across all groups suggests that while digital tools provide essential scaffolding for immediate communication needs, their use often created a form of digital dependence rather than supporting the development of genuine language competence.

Towards a new pedagogical framework

Based on our analysis of how different SLIFE groups engage with digital tools, we propose three essential underpinnings for effective digital literacy pedagogy in SLIFE contexts. First, teachers need a detailed understanding of learners' current digital practices, including their existing linguistic and literacy resources, their strategies with digital tools or learning or simply translation strategies, and barriers to effective tool use. This understanding must go beyond simple categorisation to recognise how learners like Hana strategically select tools based on language-specific needs, or how pre-literacy learners develop workarounds for their limited reading abilities. Such understandings provide a foundation for teachers to develop

differentiated scaffolding approaches to meet learners' needs. Second, effective instruction must simultaneously develop basic literacy skills, digital tool competence, language awareness, and learning strategies rather than treating these as separate domains. This integration is crucial, as demonstrated by the limitations of current approaches where learners like Amal can use translation tools effectively but fail to develop underlying language skills. Finally, authentic teacher-learner interaction must move beyond providing direct answers to developing strategies for independent learning. This was evident in classroom observations where teachers often resolved immediate communication needs but missed opportunities to build long-term learning capabilities. This framework suggests that effective SLIFE instruction requires a fundamental shift from viewing digital tools as simple solutions to seeing them as part of a broader pedagogical approach that supports genuine language development through carefully scaffolded learning experiences.

Systemic challenges, opportunities, and further research

The current adult migrant education landscape presents a complex mix of challenges and opportunities that directly impact SLIFE digital literacy development. Key challenges include limited teacher training for SLIFE contexts (Custodio & O'Loughlin, 2022), with our participating teachers noting the absence of specialised preparation in their formal education programs. This gap in professional preparation is exacerbated by systemic pressures for quick results over deep learning, as evidenced in our observations of teachers providing immediate solutions rather than developing learning strategies. Teachers must also learn to integrate digital tools purposefully within learning activities, creating opportunities for authentic communication that builds on learners' existing digital practices. Program administrators face the challenge of providing specialised SLIFE training and supporting professional development in digital pedagogy while creating opportunities for teacher collaboration. They must design programs that allow time for strategy development, the balancing of immediate needs with long-term learning, and invest in appropriate digital resources – all while developing assessment measures that capture learning processes rather than just outcomes.

At the policy level, there is a pressing need to acknowledge SLIFE-specific needs through funding for specialised teacher training and support for innovative program development. However, narrow competency-based and compliance-focused curriculum and assessment frameworks complicate the situation, often prioritising measurable outcomes over meaningful language development, while resource constraints limit opportunities for innovative program development. Policy makers therefore need to develop assessment frameworks that consider digital literacy development while balancing accountability requirements with actual learning needs.

However, significant opportunities exist alongside these challenges. Our findings reveal learners' rich multilingual resources and sophisticated digital practices, particularly among extended literacy learners who demonstrate strategic tool use for meaningful communication.

The increasing sophistication of digital tools offers new possibilities for language learning, though these need to be thoughtfully integrated into pedagogical approaches. Growing recognition of SLIFE-specific needs, as reflected in recent policy discussions and research attention (e.g., Tour et al., 2023a; Tour et al., 2023b; Social Compass, 2019), creates potential for systemic change. These contrasting challenges and opportunities suggest that while the path forward requires addressing significant systemic barriers, there is also real potential for developing innovative pedagogical approaches that can better serve SLIFE's needs.

Further research is also needed to evaluate the effectiveness of different scaffolding approaches and to support the development of assessment tools that capture digital literacy development, to understand how different SLIFE groups progress in language learning, and to investigate the long-term impact of different digital integration strategies. The challenge ahead lies not in limiting digital tool use but in designing principled pedagogical approaches that help SLIFE move from digital dependence to genuine language competence, a shift that requires coordinated effort across all levels of the education system.

Conclusion: Beyond digital access to language learning

This study has revealed a crucial gap between digital access and genuine language acquisition in adult migrant SLIFE education, demonstrating how digital tools can simultaneously enable immediate communication while potentially hindering long-term language development. Through detailed analysis of three distinct learner groups – pre-literacy learners, those with some L1 literacy, and extended literacy learners – we have shown how digital practices and learning needs vary significantly across literacy levels. Pre-literacy learners rely heavily on speech-to-text features without developing underlying language skills, learners with some L1 literacy engage in “translation without transformation”, while even extended literacy learners, despite their sophisticated tool use, often lack opportunities for authentic language production. van Lier's (1996) concepts of awareness, autonomy, and authenticity have helped illuminate how digital tools' affordances vary across these groups, pointing to the need for more nuanced pedagogical approaches. Our findings suggest that effective SLIFE instruction requires moving beyond viewing digital tools as simple solutions to seeing them as part of a broader pedagogical approach that integrates linguistic, literacy, and digital knowledge development. As captured in one learner's request – “Me... I need something like spell. Learn me... spelling” – the challenge lies not in providing quick digital solutions but in supporting genuine language development. This requires coordinated effort across all levels of the education system, from classroom practice to policy making, to help learners progress from digital dependence to true communicative competence in their new language. In an increasingly digital world, such integrated approaches become ever more crucial for supporting adult migrants' full participation in their new communities.

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