



[www.ijtes.net](http://www.ijtes.net)

## Technology-enhanced or Technology-exhausted Learning in Adult Migrant Literacy Education in Finland: Exploring Teachers' Experiences and Views in Pre-pandemic and Pandemic Times

Eva Malessa   
University of Jyväskylä, Finland

### To cite this article:

Malessa, E. (2023). Technology-enhanced or technology-exhausted learning in adult migrant literacy education in Finland: Exploring teachers' experiences and views in pre-pandemic and pandemic times. *International Journal of Technology in Education and Science (IJTES)*, 7(2), 104-128. <https://doi.org/10.46328/ijtes.437>

The International Journal of Technology in Education and Science (IJTES) is a peer-reviewed scholarly online journal. This article may be used for research, teaching, and private study purposes. Authors alone are responsible for the contents of their articles. The journal owns the copyright of the articles. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of the research material. All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations regarding the submitted work.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

# Technology-enhanced or Technology-exhausted Learning in Adult Migrant Literacy Education in Finland: Exploring Teachers' Experiences and Views in Pre-pandemic and Pandemic Times

Eva Malessa

---

## Article Info

### Article History

Received:

20 January 2023

Accepted:

14 April 2023

---

### Keywords

Migrant education

Adult learners with limited

or interrupted formal

education

Late L2 literacy

Educational technology

Emergency remote Teaching

---

## Abstract

This exploratory mixed data study investigated the role of technology in adult migrant language and late literacy education in Finland. In addition to an online pre-pandemic survey targeted at Finnish language and literacy teachers, four in-service teachers were interviewed during the COVID-19 pandemic in late 2020. With means of qualitative content analysis an account of teachers' individual experiences and views of technology-equipped language and literacy learning was generated. Problematic issues were the use of devices for educational purposes, lacking user experience, inadequate provision of suitable devices, IT courses, and insufficient support for learners and teachers, causing inequality. Teachers reported of various ways to ensure and enable device access and learning opportunities, resulting particularly during pandemic times in high workloads. The emergency remote teaching circumstances during this global health crisis posed an enormous additional challenge for teachers and students. Findings raise questions about the pedagogical cost of the pandemic for adult migrant literacy education in Finland and call for discussions on post-pandemic changes on a national and international level.

---

## Introduction

### Adult Late Literacy Education in Finland

Adult late literacy learners are at the core of this study, exploring digital and mobile learning practices, (im)practicalities, (im)possibilities and problems expressed by teachers before and during the COVID-19 pandemic. For adult migrants simultaneously learning second language (L2) and alphabetic literacy skills, the Finnish education system offers three main educational paths, namely basic education, liberal education, and integration training. Basic education and integration training are regulated by binding curricula, whereas non-binding guidelines direct liberal education. Basic education is targeted at learners with limited formal education experience who need language and literacy skills to pursue future studies and gain employment (see FNAE, 2017b). Late literacy learners who cannot commit to full-time studies (stay-at-home parents, elderly or special needs learners), but want to gain functional, everyday life skills are the target group of liberal education (see FNAE, 2017a). Finally, learners with educational experience, mostly speakers of non-alphabetic languages who need to practice alphabetic literacy skills, are potential participants of integration training offered to unemployed

migrants (see FNAE, 2022). Multiliteracy, including digital literacy is a key competence area in both basic and liberal adult education (FNAE, 2017a, p. 28; 2017b, p. 28) and consequently the ability to use digital technology is a main learning objective highlighting the necessity of practice “in both traditional learning environments and in multimedia learning environments that make diverse use of technology” (FNAE, 2017a, p. 28; 2017b, p. 15). Similarly, learning objectives in integration training have a strong focus on digital skills and mobile device user competences (FNAE, 2022, p. 29) to support adult migrants’ active participation in the highly literate and digital society of Finland. In today’s age of digitalization, with technology impacting most areas of daily life, including living, working, and studying conditions, acquiring adequate digital user and literacy skills is vital for adults with emerging literacy and limited/interrupted formal education (Malessa, 2021; Vanek & Harris, 2020; Zelezny-Green et al., 2018).

## **Paucity and Progress of Relevant Research**

### **LESLLA and TEL(L) Research on a National and International Scale**

Adult L2 and literacy learners with limited/interrupted formal education backgrounds are in this article referred to as LESLLA learners. SLIFE (students with limited or interrupted formal education) is another acronym used, but King and Bigelow (2018, p. 466) warn of a stigmatization and racialisation risk for learners, due to the descriptor’s problematic definition and interpretation. The LESLLA acronym was coined by the Literacy Education and Second Language Learning for Adults (LESLLA) research community. Sharing its advocative, empowering vision, the author prefers the asset-oriented LESLLA acronym. Compared to other learner populations, the LESLLA population has, until recently, been of relatively little scholarly interest for applied linguistics, educational or literacy scholars (see Bigelow & Tarone, 2004; Tarone, 2010; Young-Scholten, 2015).

In Finland, ranked the world’s most literate nation (Miller & McKenna, 2016), a dearth of relevant research can partly be explained by the fact that adult late literacy is a relatively new phenomenon (Tammelin-Laine, 2011). Adult migrant literacy education is consequently a recent educational sector evolved to meet the need of a new learner population. In 2015, Finland saw an unprecedented influx of over 32,000 humanitarian refugees (FIS, 2022). Arriving from countries such as Iraq, Afghanistan, Somalia, and Syria with little or fragmented educational experiences, many had only emerging literacy skills in their home languages. The Finnish adult migrant education system has subsequently been reformed resulting in a revised basic education and learner-specific literacy training, including non-formal training at liberal education institutions, entering into force in early 2018 (FNAE, 2019, p. 20).

Most recently, the integration training’s curriculum (FNBE, 2012) was reviewed, and a recent version ratified in early 2022 (FNAE, 2022). Concurrently to these educational reforms, responding to practitioners’ and learners’ needs, practice related LESLLA research has evolved in Finland (Malessa, 2018). Recently, a positive research trend focusing on technology-equipped language learning (TELL) has become noticeable in Finland, with nascent research on mobile-assisted language learning (MALL) of LESLLA learners (Ahola & Hartikainen, 2022; Eilola & Lilja, 2021; Tammelin-Laine et al., 2020). The author suggests the term technology-equipped learning (TEL), highlighting the use of technology, to replace the traditional term technology-enhanced learning (TEL), presuming

a positive pedagogical effect.

Due to the efforts of the LESLLA community, research on, with and for this special population of learners has since its establishment in 2005 gained momentum (see Kreeft Peyton & Young-Scholten, 2020; Shapiro et al., 2018; Tarone et al., 2009; van de Craats et al., 2006) and a growing body of topical research on technology-mediated L2 and late literacy training and teaching of LESLLA learners has been continuously growing including learning material and (assessment) methods (see Hooft et al., 2021; Sokolowsky, 2017). The European ‘Digital Literacy Instructor’ (DigLin) project provided the impetus for developing and investigating a multilingual, digital language and literacy learning platform specifically designed for LESLLA learners (see Cucchiarini et al., 2015; Malessa & Filimban, 2017; UNESCO, 2021; van de Craats & Young-Scholten, 2015).

While there is still a scarcity of TEL(L) research on adult migrants with little formal education, relevant research on MALL (see Bradley et al., 2017; Kukulska-Hulme et al., 2015) and adult migrants’ digital (literacy) practices in and outside classrooms (see Norlund Shaswar, 2021; Vollmer, 2020) has steadily been emerging during the last decade. Furthermore, the importance of digital skills and innovative learner-specific technology for a refugee and migrant learner population has been increasingly emphasized (Smyser, 2019) and internationally recognized (UNESCO, 2022a, 2022b). The Council of Europe recently published a reference guide on literacy and L2 acquisition for the linguistic integration of adult migrants (LASLLIAM), providing descriptive scales regarding learners’ progression in digital skills (see Council of Europe, 2022, p. 30, pp. 82–85). Yet, to establish a more comprehensive and adequate research base, more LESLLA focused research is needed (Tarone & Bigelow, 2012; Young-Scholten, 2021), particularly regarding the potential benefits and issues relating to the implementation of innovative digital solutions in LESLLA education. The COVID-19 pandemic, thoroughly challenging education stakeholders and systems worldwide and adult basic education in particular (see Boeren et al., 2020; Hoenig & Molzberger, 2021; Käpplinger & Lichte, 2020; Stanistreet et al., 2020), has crystallized the necessity of ensuring and enhancing the digital inclusion of adult learners and their teachers.

### **Adult Basic Education in the Grip of a Global Pandemic**

In Mid-March 2020 the World Health Organization (WHO) declared the global outbreak of coronavirus as a pandemic, known as the COVID-19 pandemic (WHO, 2023). Faced with an unparalleled global health crisis caused by the rapid spread of the SARS-CoV-2 virus, most adult basic education programs were forced to discontinue in-person teaching and had to swiftly implement distance learning. *Emergency remote learning and teaching* solutions were introduced on short notice with little previous experience and preparation time. Hodges et al. (2020) introduced the term emergency remote teaching (ERT), interchangeably used with the emergency remote learning (ERL) term in literature (see Bissessar, 2021; Khlaif et al., 2021). Differing significantly from established, well-planned online teaching, ERT has been described as “a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances”, during which its main objective “is not to re-create a robust educational ecosystem but rather to provide temporary access to instruction and instructional supports in a manner that is quick to set up and is reliably available during an emergency or crisis” (Hodges et al., 2020).

The rapid transition to ERT was indeed one of the most impactful pandemic challenges in adult basic education (Kaiser & McKenna, 2021). The pandemic as a forced educational experiment had a severe impact specifically on adult literacy education, as many learners and teachers were already pre-pandemically grappling with social, economic, and educational vulnerabilities and inequalities (Boeren et al., 2020), including limited and insufficient digital access and support (see K pplinger & Lichte, 2020, p. 783), as well as adequate training and professional development opportunities for teachers (see Young-Scholten, 2021). While LESLLA research specifically focusing on the COVID-19 pandemic is currently very limited and/or has not been disseminated yet (J. Rillera Kempster, personal communication, January 13, 2023), some relevant reports on practitioners' experiences during COVID-19 in adult education programs in North America have been published (Belzer et al. 2020, 2022; Lotas, 2021; Smythe et al., 2021). To contribute to the research body on migrant adult literacy education in this often scientifically neglected and underfunded field of adult basic education, the current study investigated the role of technology, its pedagogical, practical benefits, and problems, focusing specifically on pandemic effects on relevant systems and stakeholders. Teachers' perceptions and perspectives captured in an online survey and interviews before and during the COVID-19 pandemic were explored, as they have a profound potential to inform educational practice (Kalaja & Ferreira Barcelos, 2006; Pajares, 1992).

## **Methods and Data Collection**

In a co-design focused, participatory approach, using a slightly adapted model of the use-oriented design circle based on Bratteteig et al., (2013), the current study functioned as one of two sub-studies to test, evaluate, and re-design an existing serious game with adult language and literacy in-service teachers (see Malessa, in press). This first independent sub-study was conducted prior to the testing phase to investigate the real life problem situation, understand practice, and identify stakeholders' needs and wishes (see Bratteteig et al., 2013, p. 128). Due to its explorative nature, teachers' views, considered experiential and contextually situated (see Kalaja & Ferreira Barcelos, 2006), were qualitatively examined in a data-driven approach without a pre-defined theoretical framework.

The following multi-layered research question (RQ) was adopted:

RQ: Regarding the use of technology in/for L2 late literacy learning and teaching in pre-pandemic and pandemic times, what challenges and solutions are LESLLA teachers in Finland reporting?

Two data sets, complimentary not comparative in nature, were produced. Data set 1 contains 53 survey responses to five open-ended questions (Q1—Q5) in a pre-pandemic online questionnaire (see Appendix 1). Data set 2 consists of five interviews, four interview transcripts and the author's notes from the first interview in late 2020. Data excerpts presented in this article were translated by the author (see Appendix 2 for transcription conventions).

The online teacher survey, conducted in late 2019, was motivated to create an indicative overview of the current situation of LESLLA education in Finland. The survey's main interests were the (practical) use of technical equipment in teaching as well as the (pedagogical) use of digital methods and applications. Survey participants were recruited by a snowball system, employing both personal contacts as well as professional online platforms.

In total, thirty-two teachers, working in various educational facilities (see Figure 1), responded in Finnish to this anonymous online survey. All participants stated to have previous teaching experience, yet, as Figure 2 shows, most teachers (60%) had less than three years of LESLLA experience, while only 15% of participants reported to have substantial adult late literacy teaching experience of seven years or more. Most teachers (38%) reported to be qualified teachers of Finnish as a first language, compared to a minority of self-reported Finnish as a second language teachers (6%). While 19% of the participants reported not to have Finnish language teaching qualifications, 13% stated to be qualified primary school teachers, who are trained to provide foundational Finnish language and literacy skills to children. Figure 3, below, illustrates this high degree of heterogeneity of the teachers' self-reported educational backgrounds.

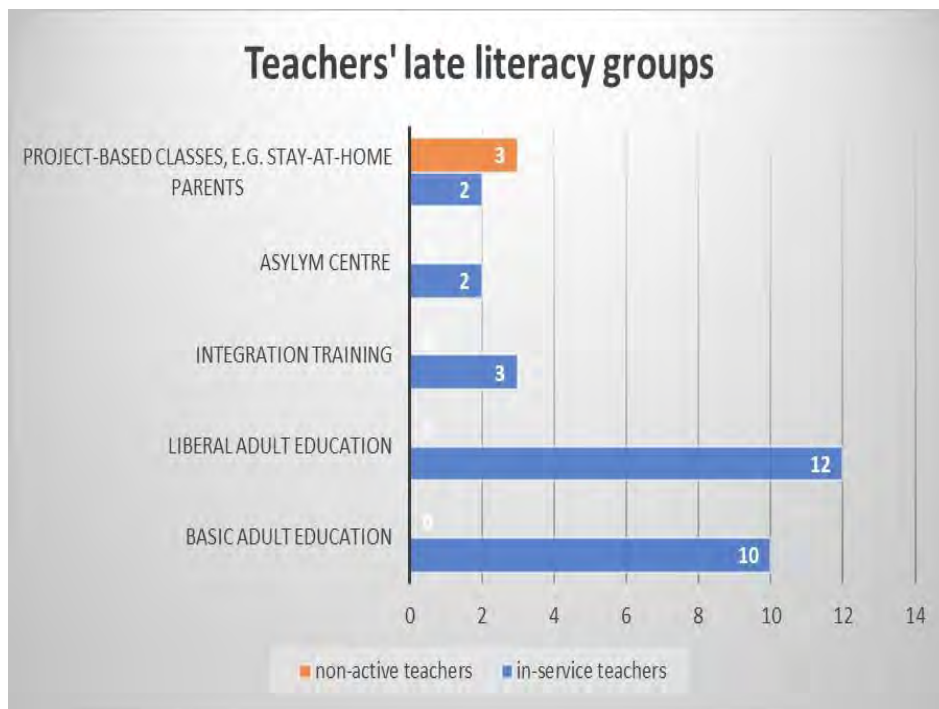


Figure 1. Teachers' Educational Settings

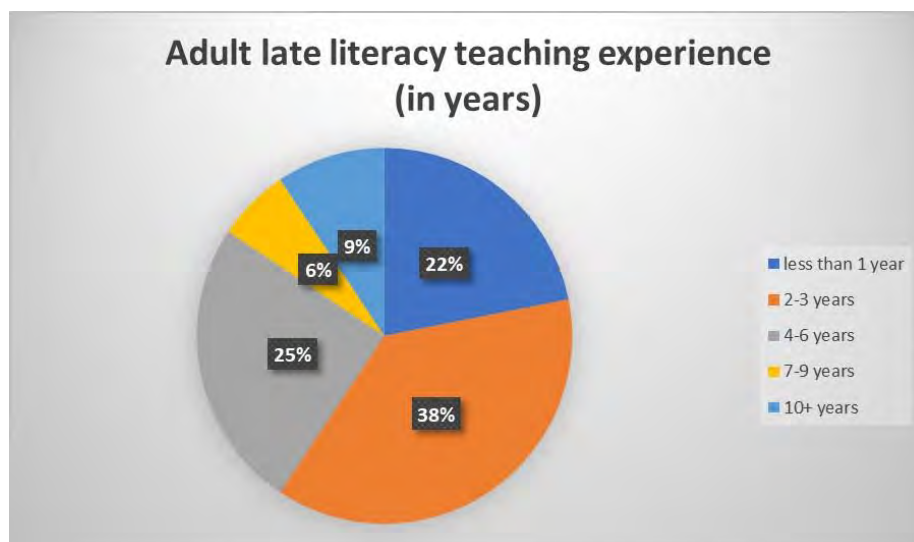


Figure 2. Teachers' Teaching Experiences

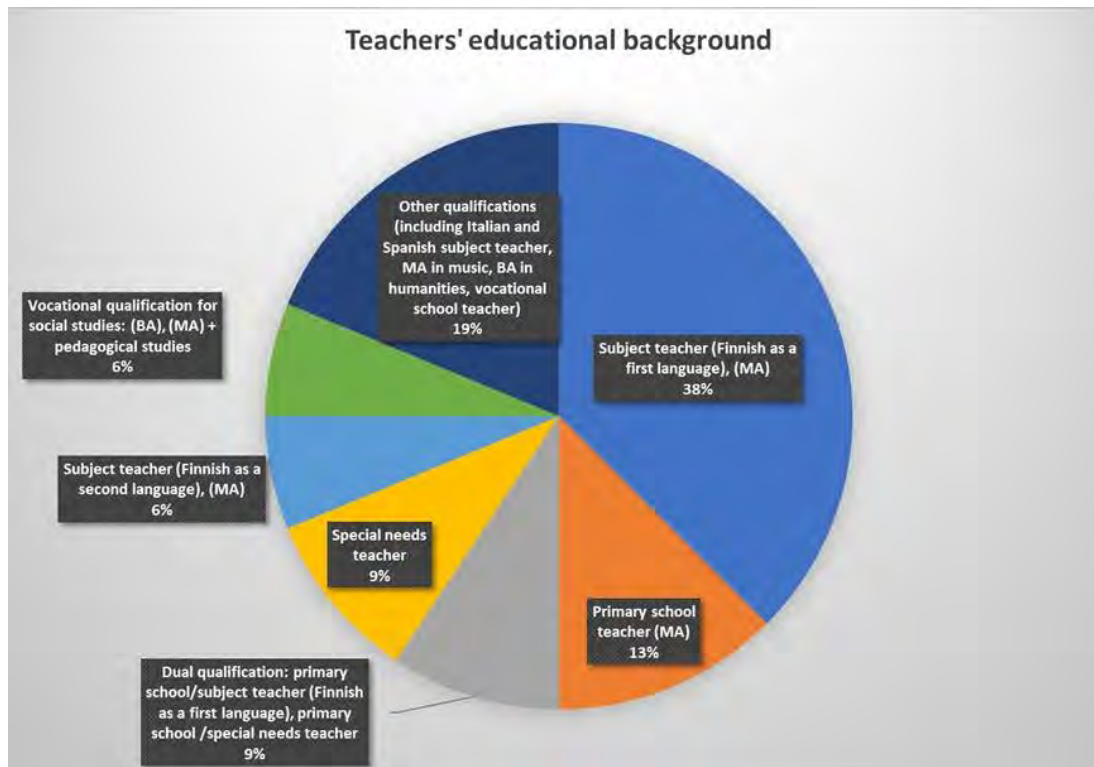


Figure 3. Teachers' Educational Backgrounds

Interview data was produced during the first COVID-19 year (September–October 2020). The interviewees Kuura, Ilo, Eeri, and Outa (pseudonyms), in-service teachers in adult migrant literacy training (see Table 1), were all teaching in the capital region. Outa had previously completed the survey, therefore in sum, a total of thirty-five literacy teachers participated. Five unstructured, conversational interviews were remotely conducted in Finnish, via Zoom. Each interview lasted 33 to 60 minutes (with a mean duration of 50 min). Prior to videorecording the teachers were orally asked for recording permission. The interviews' aim was to brief participating teachers on the next sub-study, a user study involving the testing, evaluation, and re-design of an existing literacy support app. During the interviews teachers were able to ask questions, discuss concerns or technical issues. Kuura was the first teacher to start testing the serious game app and was thus interviewed twice. Unfortunately, she was not able to continue participation in sub-study 2. Eeri, Ilo and Outa participated also in sub-study 2. Apart from Kuura's first interview, all interviews were videorecorded and transcribed verbatim, yielding 19,420 words in total.

Kuura and Ilo were novice LESLLA teachers (cf. Figure 2), who had just started teaching their first LESLLA group in 2020, while Outa had extensive late literacy teaching expertise of almost 10 years (see Table 1). The interviewees' educational backgrounds also differed (cf. Figure 1); while all four had completed postgraduate studies at Finnish universities, only Eeri and Ilo had a teaching qualification, and none had majored in Finnish language (cf. Figure 3). In Finland, there is currently no official teacher qualification requirement for adult migrant language and literacy courses. However, interested teachers can take part in professional development courses and both Eeri and Kuura reported participation in such a course.

All interviewees were given a research notification and personal data privacy notice and provided informed consent in written documentable form. Participants could withdraw consent and terminate their voluntary participation at any time. The study was conducted adhering to the Finnish ethical principles of research with human participants (FNBRITENK, 2019), which are in line with the *Ethical Guidelines for Educational Research* published by the British Educational Research Association (see BERA, 2018).

Table 1. Interviewees' Background Information

	EERI	KUURA	ILO	OUTA
Learner group at time of participation	integration training, strengthening alphabetic skills module	adult basic education, literacy phase	adult basic education, literacy phase	adult basic education, literacy phase
Teaching experience as an adult literacy teacher	3 years	1 year	1 year 15 years of primary school experience	almost 10 years (not continuously)
Educational background	Finnish postgraduate university degree -major: French language & literature, -minors: English, Finnish language & literature	Finnish postgraduate university degree in language studies	Finnish postgraduate university degree	Finnish postgraduate university degree -major: English language & literature -minor subject: Finnish language & literature
Teacher qualification	subject teacher qualification	no	primary school teacher qualification	no

## Results

### LESLLA Teachers on Technology Use in Pre-pandemic and Pandemic Finland

This study relied on a systematic mixed-data exploration by applying Schreier's (2012) qualitative content analysis approach. In a first data-driven coding cycle, the adopted research question (RQ: Regarding the use of technology in/for L2 late literacy learning and teaching in pre-pandemic and pandemic times, what challenges and solutions are LESLLA teachers in Finland reporting?) was employed to create a coding frame. The development, iterative evaluation, refinement, and reduction of the initial coding frame resulted in the main coding frame. The main category (A), created for both data sets 1 and 2, included the two sub-categories *challenges* and *solutions*. Data set 2 was additionally analyzed for dimensions of pandemic-induced challenges and solutions (B), see Table 2 below. Following Table 2, details of the coding frame's dimensions are presented in more detail.



Table 2. Main Coding Frame and Results

Categories	A		B	
	Technology use in pre-pandemic and pandemic LESLLA teaching		Technology use under pandemic circumstances	
<b>Challenges</b>	Devices	Digital Skills	Pandemic-induced	
	Availability, Functionality Variety	Lack of User Experience, insufficient/inadequate Provision of IT Courses, Support and Learning material	Impacting teachers' workload and commitments	Pedagogical implications
<b>Solutions</b>	Devices	Digital Skills	Pandemic-induced	
	Ensuring Access and Accessibility	Providing suitable Training and Learning Material	Enabling and adapting learning opportunities	

### Challenging Issues in Pre-pandemic and Pandemic LESLLA Teaching in Finland

*Devices: Availability, Functionality and Variety*

Device availability posed a significant problem, as teachers reported a lack of school computers and inadequate access to computer clusters. Even though basic adult education is regulated in Finland by the basic education law, postulating free learner equipment (see §46 in Finlex, n.d.), and device availability should thus theoretically be self-evident, in practice this might not necessarily be the case and obtaining devices required teachers' additional endeavor and intervention, even in larger educational institutions:

We are equally bound by the Basic Education Act, which is exactly the same law that applies to the basic education of Finnish children, where it is said that all instruments are free and the school provides them, but well, is this fulfilled anywhere? (...) even we who are like a big educational institution in the capital region and certainly in a completely different economic situation compared to a small Christian college in Ostrobothnia, even we have to fight that the school agrees, we now have over 200 students, and I can fuss about machines for all, machines for all, but for them it's not justified, or no one else buys them [devices] (Outa)

Contrary to adult basic education, liberal and integration education are by law not required to provide devices. The inadequate access to devices caused teachers to rely on students' devices which was in some cases complicated by the students' unwillingness to use their own mobiles and the lack of own devices such as headphones. Another issue reported was the resulting unequal access to learning possibilities: "if students have to use their own smartphones as a learning tool, owners of bad devices will be at a disadvantage" (Q5/4).

The prevailing lack of equipment resulting in unequal access to necessary learning tools was elaborated on by Ilo and Outa. Teaching at a basic adult education institution, Ilo described the prioritization of more advanced learners

being provided with school devices, while beginning literacy course students were not provided with devices, some students in the following literacy phase got devices and some did not. Similarly, Outa pointed to balancing needs and necessities, with final year students being prioritized over beginning students whose device dependency was conflicting with financial reality:

The school has been able to give all final year students devices, of course they have totally different objectives as they have biology and physics and other subjects, as they pass upper secondary in one year, with English and Swedish and everything, so of course they need [devices] more I can understand that. But the beginning students haven't even seen a computer yet and they are dependent on the school's devices (Outa)

In addition to the lack of available devices, teachers highlighted a lack of functioning school devices. Reasons for the impaired functionality included inadequate device maintenance resulting in log-in problems and a lack of technical support for teachers. School device settings were also seen as a major source of inconvenience. Outa explained that learning apps could not be downloaded to individual school devices: 'that's a bit of a problem, you just cannot have it for all because it would be a data security problem, so they don't want it.' Likewise, Ilo described that they were not able to use or find educational apps nor to download anything on their work phones:

When I tried to tell students about this app with which to practice the time, my work phone did not even find it, so there is clearly some kind of, there is clearly some filtering put in from a higher level that nothing can be downloaded (Ilo)

As Ilo's account demonstrates, the pedagogical functionality of teachers' professional devices was compromised. The device variety was further seen to hinder the use of technical equipment in adult literacy courses. Due to the abundance of different devices and models, it was difficult for teachers to be familiar with all devices and operating systems:

I think there are Chromebooks and then there are laptops and maybe some iPads or tablets, so the hardware varies a bit (...) now I'm not 100% quite sure, because we didn't have a chance to use them [the school's new chrome books] yet, but I think they're Android based (Ilo)

The device variety impacted the accessibility of certain essential applications such as Wilma, an online service used for teacher-parent communication in various educational institutions: "Web store is a bit different, for example there was no Wilma app I tried to find it and I couldn't" (Outa). By employing students' devices, teaching practices and the provision of individual support was further complicated due to the diversity of devices and operating systems.

#### *Digital Skills: Lack of User Experience; Insufficient/inadequate Provision of IT Courses, Support and Learning Material*

"The learners' weak digital skills" (Q5/3) were repeatedly listed as a major challenge regarding the use of technology with LESLLA learners who "are not used to using the computer" (Q5/2). One teacher stressed that "some literacy learners had never used a computer" (Q1/7), thus unsurprisingly learners were struggling, "using

computers is just not possible” (Q5/3). The motoric use of a computer mouse (clicking and dragging) was described as challenging, with the experience-based observation that while the use of a separate mouse makes it a lot more difficult, “a laptop mouse works somehow” (Q5/14). One teacher highlighted that students’ concentration was hampered by not being able to control an external mouse. While the learners’ inexperience with specific technological devices explains the absence of user skills, learners were also noted to struggle using their own smart phones, which were reported to be used only for (video)calls.

Learning to use technological devices was reported to be not only challenging, but also time-consuming for LESLLA learners. Due to the students’ divergent technical skills, one teacher stressed that basic IT skills needed to be trained, even though some learners might already have had IT training. Kuura’s following report also highlights the considerable need for students’ digital skill training:

This week we had a computer lesson learning how to copy a text, so yes you could see that at least about half of them had never typed anything on the computer, having no idea about uppercase and lowercase letters and spaces (Kuura)

In addition to the students’ heterogenous skills, student absences were mentioned as a reason for a constant need for digital skill support: “with the whole group, it was almost impossible to work in a computer class, as the majority would need help all the time all the time. We were often in the computer class when many were away” (Q5/13). Indeed, the heterogeneity of students’ digital skills influenced planning and implementing digital learning opportunities:

Of course there are those who clearly have a lot more of these [digital] skills and some are able to search some local public transport maps and look what the ticket costs (...) and are able to search some games and other things online. I would say that maybe about half and half, the other half has very very little [digital] skills at this point (Kuura)

Outa questioned the current situation in which students desperately need IT skills but are not able to gain them due to the insufficient provision of IT courses, as there is no official obligation for educational institutions to organize IT courses in adult basic education, with the curriculum only including a recommendation (FNAE, 2017b, p. 84):

Do the institutions organize these courses, as they are not compulsory, if not, how do they try to meet [the curriculum] then, because the curriculum includes these transversal competences and ITC competence is an area of expertise, it has been put there that you need to support their learning in this field, but when there are no such courses then I don't know how to do it (...) But on the other hand, when it is quite clearly defined as such an objective area, area of expertise, it must be done somehow (Outa)

Outa highlighted the situation’s paradoxicality: “especially if people do not have equipment, then it cannot be integrated into other teaching either.” This contradictory situation is further aggravated by the fact that despite a lack of training and support, there are high expectations as stated by Outa: “yes this is quite something, that there are very high demands that a person has to know how to do everything but who helps them in doing so is another

question.” Outa did not specify whether “a person” was referring to learners or teachers. During the interview, the researcher understood the lack of support to refer to learners, yet this could also be interpreted to include teachers facing high demands and little support.

Reasons for the insufficient provision of IT courses were seen to involve also limited funding and time allowance for unemployed LESLLA learners, not allowing for the completion of more non-compulsory courses (see FNAE, 2017b, p. 16), even though the students would benefit from them:

Of course there is always time and money stopping, that when these people (get?) from the unemployment office a certain amount of time to complete school and it is usually if you start as completely non-literates then it is at most 4 years (...) and you can't include an impossible amounts of elective studies and then again there are those compulsory courses (Outa)

In Outa's educational institution, LESLLA learners were working with digital tutors, data processing students at vocational schools. However, their collaboration was not a fruitful one, as the tutors can't communicate with the learners (...) you need the skills and Easy Language and also an understanding of what the other one can do and how they generally understand the world, it is not enough to tell that, hiya, you just have to share your internet with your phone, you can say this to some Finnish person, but you need some other skills [for the learners] (Outa).

Hence with support staff not being aware of the LESLLA target group's special needs, their tuition is not only inadequate, but might even be a source of “mutual frustration” (Outa) and thus counterproductive and demoralising.

Restricted access to learning material was frequently named as a negative factor impacting technology-equipped learning. Practice-based experiences included lack of internet or poor internet connections: “just when, for example, the VR's [railway company] pages are finally open and you are practicing booking a ticket, the connection is lost” (Q5/6). Teachers employing students' own devices for educational purposes pointed out that students did not have internet allowances, nor were they not able to download apps.

Digital learning material's accessibility was further reported to be compromised by log-in procedures. Creating and using passwords and usernames was regarded as a key obstacle to access material with LESLLA learners, who had also difficulties remembering log-in details. Beginning literacy learners struggle with log-in procedures that require specific letter-symbol password combinations that neither pedagogically nor technically consider the users' abilities: “because occasionally literacy learners are so slow to write [type] that the machine shuts down, because every single letter has to be checked individually” (Outa).

While teachers highlighted the general lack of pedagogically sound digital learning material targeted at the LESLLA population, the use of certain literacy support applications was restricted due to cost factors: “I would also like to use the LUE-app, it seems good, but it's not free of charge and I can't download it to all school iPads” (Q4/2). The use of available material was also limited by the teachers' time and workload resources: “you can't learn to use a new program all the time either, because that too takes time and energy” (Q4/2). Not only learners

need encouragement and training to enhance their digital tool skills, but also their teachers. Kuura openly referred to their own (perceived) incompetence regarding IT skills: “I wouldn’t necessarily know myself just like that, if there were no [instructions], I’m no guru myself”.

### **Solutions in Pre-pandemic and Pandemic Times**

#### *Devices: Ensuring Access and Accessibility*

Teachers tried to provide digital learning opportunities by ensuring device access through various means, such as utilizing existing computer clusters at their educational facilities or planning intensive daily school device training sessions. Project participation was listed by Ilo as one potential way to gain access to new devices: “I have been promised that my group will be one of those who will then get equipment for students when we take part.” However, it seems clear that these strategies increase teachers’ workloads, while easy access to devices should be guaranteed by the educational institutions.

In lack of available, functioning, and/or suitable devices, using learners’ devices was one successful experience-based strategy in specific learning activities or individual groups, for example when students “want to use their own smart phones for gaming in class” (Q5/4). Given the students’ willingness to use own devices, their familiarity with their own smart phones is often beneficial and teachers recognize their students’ mobile device skills: “many young students can use their smart phone very well” (Q5/3), one reason being that the “touch screen makes using devices easier” (Q5/14). Furthermore, providing access to various devices might be beneficial, as learners’ preferences and abilities vary and being able to choose a device according to one’s personal taste might boost motivation: “playing with the phone motivates some, others prefer a tablet or computer” (Q5/5). In some instances, though, the most suitable solution might not pedagogically be the best, but the least time-consuming, thus most practical, and user-friendly solution: “it would be best to always use school laptops in lessons” (Q5/4).

Regarding technical and digital skill support, teachers mentioned support staff: “if the group did not have an assistant, it would be almost impossible to work with the whole group in the computer class, as the majority needs help all the time” (Q5/13) as well as other teachers’ mutual collegial help. While collegial support is indeed desirable, it is also problematic, as it reveals the insufficient provision of IT support for teachers and in turn most likely increases their workload. While some teachers benefit from technical support staff: “fortunately, schools usually have usually a staff member to download it” (Q5/4), it seems that availability is very much school-specific, depending on institutional resources.

#### *Digital Skills: Providing Suitable Training and Learning Material*

The provision of voluntary IT courses in the school’s local curriculum was mentioned by Outa as a theoretical solution to provide students with the opportunity to practice their IT skills. However, in practice the implementation of local curriculum’s recommendations might not be feasible:

There are two IT courses in our local curriculum and then in the final stage there are as many as five courses and usually I do not teach but the first two but still they are included at least in the local

curriculum, so it is that it is possible (Outa)

Accordingly, Outa calls for students' instantaneous digital skill training and support at the beginning of their literacy training:

It would be ideal if they all started at the beginning of the literacy foundation stage to familiarize themselves with computers and routines like logging in and not forgetting the username and password every other day, but really being able to log in without the machine shutting down, (...) if they practice slowly during the first year, this will become a normal procedure, (...) after that it would be a totally different thing to start the literacy phase (Outa)

A variety of digital learning material was reported to be employed to activate students and suit their needs. Teachers pointed out that suitable learning material needs to be accessible and easy to access: "simple links and homepages that do not require log in work best" (Q5/10). One example mentioned was the "communicative" Kahoot (Q4/2). One teacher reported to encourage students to actively make use of digital learning opportunities outside the classroom, by sharing information about suitable and learner-friendly online learning material with them.

### **Pandemic-Induced Challenges**

#### *Impacting Teachers' Workload and Commitments*

The lack of necessary resources was a key issue, particularly a lack of time to prepare for the emergency remote teaching situation. Ilo reported of the hasty move to remote teaching: "today [Thursday] is quite a buzz, with the risk that from Monday we will switch completely to distance learning, so today we had to make all the preparations and arrangements as there is no teaching tomorrow." Similarly, Kuura highlighted how pandemic preparations affected their workload: "fortunately the autumn break is coming so I have time during the break for more arrangements, preparations. It should be a vacation, but it won't."

As device availability was aggravated by this unprecedented health crisis, the emergency procurement of devices at the onset of the COVID-19 pandemic led teachers to contact municipalities' social services asking for support that was in Outa's case denied:

In spring we have of course called the social services, if they could buy them [the students] computers and then they very angrily replied that for heaven's sake they really don't get anybody a computer as we fall under the basic education law, and they can of course also read the law so that's quite a situation (Outa)

During pandemic times, internet availability posed a major practical issue, resulting in learners' financial problems and a dilemma for teachers not able to ensure adequate learning opportunities:

People don't even understand the difference between 4G and Wi-Fi and many got payment issues because they didn't have Wi-Fi and there was no data allowance in their basic package and then they were in Teams classes the whole day and in a couple of hours their data allowance was gone (...) and then again,

I, the IT teacher, can't visit everyone at home and check whether they have Wi-Fi (Outa)

In addition to device and internet availability issues, the remote teaching feasibility was further affected by the variety of available devices, different account, and language settings:

But I also cannot instruct them [remotely], because every phone has a different word for *loading* and even now when we gave them devices, if they have to share internet with their phone, in some phones it says *hotspot*, in others *mobile support network* or *share internet*, the phone can be in any language as its settings (Outa)

Quickly changing regulations were also reported to affect teachers' workload. Teachers described how they had to prepare on short notice teaching schemes and learning material: "today we had to distribute as much material as possible for the next three weeks so in case the situation stays like this until Christmas" (Ilo). Further the prolonged uncertainty about the duration of pandemic-affected teaching conditions was voiced: "all the time this COVID-situation is getting worse, so that of course there is a possibility that there will be some stricter restrictions" (Kuura). Given the circumstances, ensuring students have access to learning meant a paramount effort and involvement: "somehow it feels like the remote teaching in spring has been double the work compared to what I have done before" (Outa).

### *Pedagogical Implications*

The COVID-19 pandemic had clearly pedagogical implications, expressed in Kuura's doubts about successful remote teaching: "this is very challenging especially when you don't know what they can really do remotely and independently and how this is going to work". Kuura stressed the importance of traditional printed learning material:

At least I cannot imagine them to do a pen and paper exercise without having the exercises on paper in front of them. Of course, we use videos and audio material a lot, but it is nevertheless a literacy course (Kuura)

MALL was seen critically by Kuura, possibly due to the learners' low self-regulation and motivation levels: "for some it [sending an audio message] is extremely unpleasant, repulsive as they feel that they are not yet that it is too difficult", and their inadequate digital and technical skills for remote learning: "there are students who have no idea how to work with the phone they have, because someone else in the family has been in charge of it all [downloading apps etc.]". These reflections show that a lack of positive experiences relating to digital materials most likely influenced Kuura in adopting a traditional pen-and-paper approach as a base for a remote hybrid teaching approach.

According to Outa, the curriculum's objectives could not be met with MALL, as students' own devices were deemed unsuitable for remote learning:

That's just it. They did not really study at all. There is the smart phone, but you cannot study word processing with the smart phone. But there are objectives in the curriculum like writing documents with

a word processing program and the phone is not enough for this (Outa)

The small screen of smart phones was one factor impacting device suitability. Another factor affecting accessibility was the fact that prior to remote teaching teachers could not provide students adequate orientation to ensure they were able to work independently: “we have downloaded Zoom now for all students (...) it is new for all of us (...) we had doubts that everyone could (...) control it so that they could turn on the microphone and be able to participate” (Kuura). Teachers highlighted the difficulty to teach remotely without direct demonstration, as most of their learners did not have sufficient oral Finnish skills, nor did the teachers have the necessary linguistic resources to aid their remote teaching: “it is different in class, you can show that this button is enter and this is space [bar] but you can’t do this when they are at home” (Outa).

There are those who do not yet have any oral language skills at all, so with them you are not able to communicate at all if there is not an interpreter or if you can’t show that this is how it is done, take a book, take a pen and so on (Kuura)

Particularly specific practical subjects requiring motor skill practice were difficult to teach remotely:

The problem in maths is that you should do a lot by hand and works does not stretch for this, to count, it is very hard with the special characters and maybe the teacher can do it, but the student can’t (Outa)

The following account by Outa encompasses their perceived helplessness and inability to provide real learning opportunities in this demanding situation: “I haven’t really found that kind of magic potion that I could use to teach remotely information technology to non-literate adults, this is maybe a bit like extreme sports.” However, despite the challenging circumstances, understandably occupying the teachers’ thoughts, interviewees also reported on positive aspects and potential solutions to the challenges in question, as the following section demonstrates.

## **Positive Aspects and Solutions in Pandemic Times**

### *Enabling and Adapting Learning Opportunities*

Specific MALL tools, such as WhatsApp, were reported to be used for student communication, via audio messages and photographs. Another solution proposed by the teachers was a hybrid teaching approach focusing on printed material combined with technology-equipped tools: “I usually have about nine people attending in person and eight are at home (...) and then I start the Teams conference where they join, some in class and some at home” (Outa). To aid homework, students were provided with traditional paper booklets: “also those at home can participate, they see my slides and can do the homework according to the booklet that they have, that’s how the Finnish classes work” (Outa).

Concerning device availability, Ilo stated that students were able to borrow school devices and while students did not have computers nor laptops at their disposal, Outa reported that mobile device (Chromebook) procurement speeded up. In October 2020, Kuura reported of attaining the head teacher’s permission to meet students once a



week in person: “if this situation doesn't get worse now or there will be some instructions from the government that we should under no conditions meet”. In November 2020, Ilo stressed that in their educational facility basic literacy learners were due to their needs and vulnerable position prioritized to remain in contact teaching. Despite the unexpected and hasty change in learning environments and practices, the new and challenging experience was also perceived as a promising opportunity:

A big change has happened somehow, both in students as well as in teachers, as we had to get used to this [digital] thing and I believe that this will be quite a far-reaching [thing], what we have learnt during this year will then later benefit us (Outa)

Kuura illustrated this positive aspect with a practical example showing how new learning opportunities were born out of necessity adhering to the remote teaching situation: “it’s probably getting to the point where everyone can send a voice message, but this was also difficult for some at the beginning (...) now it seems to me that everyone knows how to do it”.

## **Discussion and Conclusion**

### **Technology-Enhanced or Technology-Exhausted Learning?**

This study engaged in exploration and interpretation of individual teachers’ accounts of their experiences and views of technology use in pre-pandemic and pandemic LESLLA teaching in Finland, to initiate thought and talk about how to enhance technology-equipped learning practices post-pandemically. Teachers reported various examples of external barriers regarding availability, functionality, variety and accessibility of school and learner devices. Due to the lack of computers, mobile devices were used. Their suitability was, however, for several reasons considered inadequate, e.g., due to the devices’ small screens and limited possibilities for digital skill enhancement (see Correa et al., 2020). Problems were similar in nature to technical, skill-related and logistic issues presented by Norlund Shaswar (2021). The main focus was on external not internal barriers teachers experienced regarding the use of digital technologies in adult second language and literacy classes (cf. Eickelmann & Vennemann, 2017). The pandemic crisis aggravated existing problems further. The emergency remote learning situation illustrated device dependency and the persisting lack of suitable devices, impacting the provision of adequate instruction and supervision. The resulting inequality of learners was further exacerbated by internet access issues posing financial strains for learners. The remote teaching feasibility was further affected by the variety of available devices, their features and settings, the difficulty to teach remotely without means of direct demonstration or linguistic resources to aid teacher-learner communication. Several pandemic-induced challenges affecting teachers’ workload were highlighted.

This study’s results are consistent with previous studies exploring pandemic barriers and boosters in adult literacy education programs in the US (Belzer, et al., 2020, 2022; Lotas, 2021; Mortrude, 2021) and Canada (Smythe et al., 2021). Similar access and capacity issues were reported, widening in turn the pre-pandemical digital divide. Previous findings reporting on pandemic challenges also included the lack of access to (functioning, accessible) devices and internet connections, the heterogeneous use of tools, varied user skills amongst learners and teachers, intensified learner support in combination with a lack of staff support negatively impacting workload and

emotional well-being of teachers and are in line with this study's findings. While this study's participants predominantly reported on the negative impact of the pandemic, they also reflected on how they enabled and adapted learning practices with the help of technology and described solutions to ensure device access and availability, a particularly challenging issue in pandemic times. Similarly, previous findings on challenges outweighed findings on positive aspects, yet benefits of distance learning and the resilience of both staff and learners were considered silver linings of the COVID-19 pandemic (Belzer et al., 2020, pp. 23–24).

This study's results suggest that technology-equipped learning can both enhance and exhaust learning, depending on the given context and resources. While faced with high expectations regarding TEL, learners and teachers were reported to be often left to their own devices if they did not have the required digital skills. Teachers emphasized their students' need for IT classes and suggested adequate foundational training and suitable learning material as potential solutions to enhance digital skill acquisition. Due to learners' slow learning pace, basic IT courses at the start of the literacy phase were reported as one solution to enable emerging adult readers to gain simultaneously digital, language, and literacy skills (see also Mäkinen & Sihvonen, 2016).

### **Pandemic-Induced Impact and Need for Change**

This article postulates that the pandemic outbreak has not only illuminated LESLLA learners' and teachers' pressing need for digital skill support and suitable TELL material, but also exposed and intensified educational inequalities. Niemi and Kousa (2020, p. 353) emphasize that the leading principle of the Finnish educational system is equity and hence call for more attention to growing inequalities in distance learning. Käßlinger and Lichte (2020, p. 778) warn indeed of forced digitalization, expecting a further rise in digital learning, changes in funding priorities, and increased inequality resulting from COVID-19. Correspondingly Smythe et al. (2021, p. 27) share their concern about the future of adult education "in the wake of social isolation, digital exclusion and endless videoconferencing." This unprecedented educational emergency caused by the COVID-19 pandemic highlighted the importance of preventative action, providing essential training for teachers and learners to create positive, empowering digital experiences. A global health crisis was not the ideal backdrop for developing sustainable TEL(L) practices for LESLLA teaching. How pedagogically sound pandemic solutions were remains to be seen.

There is indeed a danger of self-complacency, of imposing neither pedagogically sound nor practical digital learning methods, of promoting online teaching as a panacea, whereas the use of technology does not automatically equate learning (see Warschauer, 2011), but in fact requires appropriate resources, especially with LESLLA learners. Providing access to digital devices and learning platforms is necessary, but not sufficient to guarantee digital equality. Adequate funding will be necessary to ensure not only equitable access to digital devices but also digital skill training opportunities and support for learners and particularly LESLLA teachers, as working with refugee/immigrant workers requires a strong expertise in target-group specific digital tools and pedagogical solutions (see Kessler, 2016). The unparalleled pandemic experience underlines the necessity for investment in simultaneous design of innovative learning technology and development of user skills in adult education.

Despite the disrupting and demanding challenges, the pandemic also provided digital education opportunities and *pandemic pedagogies* that have the potential to “contribute to more equitable and inclusive socio-technology relationships in a post-pandemic future” (Smythe et al., 2021, p. 9). Smythe (2022, p. 52) promotes digital justice as a post-pandemic approach, pointing out the importance of “how educators, learners and technologies together can create equitable and productive learning experiences that are responsive to context and learning needs”. Calling for preventive post-pandemic action, Sahlberg (2020, pp. 16–17) presents the following three practical principles to make education systems more equitable: 1. Addressing inequalities early, 2. Trusting teachers as professionals, and 3. Building self-directedness. Hansman (2022, p. 16) emphasizes that “pandemic and political and social justice issues demand that empathy, kindness, and affirmation must be entrenched in learning contexts, and online learning, in particular.” Likewise, Lotas (2021, p. 53) advocates educative spaces “fostering the growth of human potential” as the most valuable post-pandemic adult literacy education objective. The response to the COVID-19 pandemic has shown that large-scale swift and significant changes are possible. In the face of ongoing global crises threatening human, non-human and planetary wellbeing, crisis-oriented reflections, preventative interventions, and proactive large-scale action are undeniably vital to change current unsustainable educational practices (see Kaukko, et al., 2021).

The current study set out to gain an understanding of the complex and at times controversial role of technology use and technology-equipped learning and teaching in adult migrant literacy education in Finland. By providing insight into individual teachers’ views and experiences, this qualitative study intends to engage in a discussion on post-pandemic education possibilities (see also European Centre for Modern Languages, n.d.). Based on this case study’s small sample of self-selected participants’ individual accounts no generalizations can be made nor transferred. To provide a deeper, more detailed understanding of the teachers’ pandemic practices following the conducted interviews in 2020 and to investigate potential changes in practices, views, and perceptions follow-up interviews should have been conducted (see Belzer et al.’s (2022) follow-up study), ideally in combination with observations (see Colliander et al.’s (2018) explorative study on LESLLA teachers’ teaching practices in Sweden). Furthermore, a large-scale survey focusing on pandemic reflections of specific details (such as digital skill support, training, and practices) in different education settings and institutions could have provided a more holistic overview of migrant adult literacy education in times of crisis. In addition to teachers’ views, it would have been beneficial to capture learners’ pandemic experiences (see Szelei et al., 2022; Tulaskar & Turunen, 2022) enabling a more holistic and complementary view of pandemic practices, problems, and possibilities in adult migrant literacy education. To develop a profound understanding of the digital dimension in LESLLA contexts and how digital devices and their users could enable and enhance digital L2 and late literacy learning, this study calls for more LESLLA-specific empirical and experimental studies on technology-equipped learning and teaching.

## **Acknowledgements**

I would like to express my gratitude to Mari Honko and Heidi Vaarala for providing constructive and concise feedback during the final stages of revision, as well as Lea Nieminen and Tanja Seppälä for providing valuable feedback on an early manuscript version. Further, I would like to acknowledge the reviewers’ for providing their indispensable time and insightful comments to develop this paper. Finally, I am extremely grateful for the

participating teachers, for sharing their invaluable expertise and unique experiences, going the extra mile and stretching even a bit further in pressing pandemic times. *Kiitos!* Thank you!

## References

- Ahola, M., & Hartikainen, A. (2022). Lessons learned of tablet course for semi-literate immigrants. *Human Interaction & Emerging Technologies* (IHJET-AI 2022). <http://doi.org/10.54941/ahfe100844>
- Belzer, A., Leon, T., Patterson, M., Rhodes, C., Salas-Isnardi, F., Vanek, J., Webb, C., & Willson-Toso, B. (2020). *COVID-19 rapid response report from the field*. ProLiteracy. <https://www.proliteracy.org/Portals/0/pdf/Research/COVID-19/COVID-19-Report.pdf?ver=2020-07-31-090141-130>
- Belzer, A., Leon, T., Patterson, M., Salas-Isnardi, F., Vanek, J., & Webb, C. (2022). From rapid emergency response to scaling and sustaining innovation: Adult foundational education in the time of COVID-19. *New Directions for Adult and Continuing Education*, 2022(173-174), 81–91. <https://doi.org/10.1002/ace.20454>
- BERA. (2018). *Ethical guidelines for educational research, fourth edition*. <https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2018>
- Bigelow, M., & Tarone, E. (2004). The role of literacy level in second language acquisition: Doesn't who we study determine what we know? *TESOL Quarterly*, 38(4), 689–699. <https://doi.org/10.2307/3588285>
- Bissessar, C. (Ed.) (2021). *Emergency Remote Learning, Teaching and Leading: Global Perspectives*. Springer. <https://doi.org/10.1007/978-3-030-76591-0>
- Bradley, L., Berbyuk Lindström, N., & Sofkova Hashemi, S. (2017). Integration and language learning of newly arrived migrants using mobile technology. *Journal of Interactive Media in Education*, 3(1), 1–9, <https://doi.org/10.5334/jime.434>
- Bratteteig, T., Bødker, K., Dittrich, Y., Mogensen, P. H., & Simonsen, J. (2013). Methods: Organising principles and general guidelines for Participatory Design projects. In J. Simonsen & T. Robertson (Eds.), *Routledge International Handbook of Participatory Design* (pp. 117–144). Routledge. <https://doi.org/10.4324/9780203108543>
- Colliander, H., Ahn, S. E., & Andersson, P. (2018). Actions and Conceptions: Exploring Initial Literacy Teaching Practice for Adults. *Journal of Language, Identity & Education*, 17(5), 306–319. <https://doi.org/10.1080/15348458.2018.1465344>
- Correa, T., Pavez, I., & Contreras, J. (2020). Digital inclusion through mobile phones?: A comparison between mobile-only and computer users in internet access, skills and use. *Information, Communication & Society*, 23(7), 1074–1091. <https://doi.org/10.1080/1369118X.2018.1555270>
- Council of Europe. (2022). *Literacy and second language acquisition for the linguistic integration of adult migrants Reference guide*. <https://rm.coe.int/prems-008922-eng-2518-literacy-and-second-language-learning-couv-texte/1680a70e18>
- Cucchiari, C., Dawidowicz, M., Filimban, E., Tammelin-Laine, T., van de Craats, I., & Strik, H. (2015). The digital literacy instructor: Developing automatic speech recognition and selecting learning material for opaque and transparent orthographies. In I. van de Craats, J. Kurvers & R. van Hout (Eds.), *Adult literacy*,

- second language and cognition* (pp. 251–278). Centre for Language Studies (CLS).
- Eickelmann, B., & Vennemann, M. (2017). Teachers' attitudes and beliefs regarding ICT in teaching and learning in European countries. *European Educational Research Journal*, 16(6), 733–761. <https://doi.org/10.1177/1474904117725899>
- Eilola, L. E., & Lilja, N. S. (2021). The smartphone as a personal cognitive artifact supporting participation in interaction. *The Modern Language Journal*, 105(1), 294–316. <https://doi.org/10.1111/modl.12697>
- European Centre for Modern Languages. (n.d.). *A guide to language education in pandemic situations – and beyond*. <https://www.ecml.at/Portals/1/6MTP/future-of-language-education/leaflet-future-pandemia-EN.pdf>
- Finlex. (n.d.). *Perusopetuslaki 21.8.1998/628* [Basic Education Act 21.8.1998/628]. <https://www.finlex.fi/fi/laki/ajantasa/1998/19980628>
- FIS (Finnish immigration service.) (2022). *Asylum applications, Applications 1/2015 - 12/2015*. <https://tilastot.migri.fi/index.html#applications/23330?l=en&start=540&end=551>
- FNAE (Finnish National Agency for Education.) (2017a). *Curriculum guidelines for literacy training in liberal adult education 2017. Regulations and guidelines 2018:2c*. [https://www.oph.fi/sites/default/files/documents/curriculum\\_guidelines\\_for\\_literacy\\_training\\_in\\_liberal\\_adult\\_education\\_2017\\_0.pdf](https://www.oph.fi/sites/default/files/documents/curriculum_guidelines_for_literacy_training_in_liberal_adult_education_2017_0.pdf)
- FNAE (Finnish National Agency for Education.) (2017b). *National Core Curriculum for Basic Education for Adults 2017. Literacy training phase and introductory phase. Regulations and guidelines 2017:9c*. [https://www.oph.fi/sites/default/files/documents/national\\_core\\_curriculum\\_for\\_basic\\_education\\_for\\_adults\\_2017.pdf](https://www.oph.fi/sites/default/files/documents/national_core_curriculum_for_basic_education_for_adults_2017.pdf)
- FNAE (Finnish National Agency for Education.) (2019). *Maahanmuuttajien koulutuspolut ja integrointi. Kipupisteet ja toimenpide-esitykset III* [Educational paths and integration of immigrants. Sore points and plans for action III]. [https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161285/OKM\\_1\\_2019\\_Maahanmuuttajien%20koulutuspolut.pdf](https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/161285/OKM_1_2019_Maahanmuuttajien%20koulutuspolut.pdf)
- FNAE (Finnish National Agency for Education.) (2022). *Kotoutumiskoulutuksen opetussuunnitelman perusteet 2022. Määräykset ja ohjeet 2022:1a* [Core curriculum for integration training. Regulations and guidelines 2022:1a.]. [https://www.oph.fi/sites/default/files/documents/Kotoutumiskoulutuksen\\_opetussuunnitelman\\_perusteet\\_2022\\_0\\_0.pdf](https://www.oph.fi/sites/default/files/documents/Kotoutumiskoulutuksen_opetussuunnitelman_perusteet_2022_0_0.pdf)
- FNBE (Finnish National Board of Education.) (2012). *National core curriculum for integration training for adult migrants 2012. Publications 2012:6*. [https://languageforwork.ecml.at/Portals/48/documents/140755\\_national\\_core\\_curriculum\\_for\\_integration\\_training\\_for\\_adult\\_immigrants\\_2012.pdf](https://languageforwork.ecml.at/Portals/48/documents/140755_national_core_curriculum_for_integration_training_for_adult_immigrants_2012.pdf)
- FNBR (Finnish National Board on Research Integrity) TENK. (2019). *The ethical principles of research with human participants and ethical review in the human sciences in Finland. TENK guidelines 2019* (2nd, revised edition). [https://tenk.fi/sites/default/files/2021-01/Ethical\\_review\\_in\\_human\\_sciences\\_2020.pdf](https://tenk.fi/sites/default/files/2021-01/Ethical_review_in_human_sciences_2020.pdf)
- Hansman, C. A. (2022). “We're all in this together”? Reflections on inequity during tumultuous times. *New Directions for Adult and Continuing Education*, 2022, 9–19. <https://doi.org/10.1002/ace.20448>
- Hodges, C., Moore, S., Lockee, B., Trust, T. & Bond, A. (2020). *The difference between emergency remote teaching and online learning*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Hoening, K., & Molzberger, G. (2021). *Erwachsenen- und Weiterbildung unter Pandemiebedingungen*.

- Herausforderungen und Perspektiven. *Zeitschrift für Weiterbildungsforschung* 44, 155–159. <https://doi.org/10.1007/s40955-021-00197-0>
- Hooft, H., Schiepers, M., & Vandommele, G. (2021). Developing and Validating a Multilingual Literacy Test for Asylum Seekers. *Language Assessment Quarterly*, 18(5), 530–546. <https://doi.org/10.1080/15434303.2021.1931230>
- Kalaja, P., & Ferreira Barcelos, A. M. (2006). *Beliefs about SLA: new research approaches*. Springer.
- Kaukko, M., Kemmis, S., Heikkinen, H. L. T., Kiilakoski, T., & Haswell, N. (2021). Learning to survive amidst nested crises: can the coronavirus pandemic help us change educational practices to prepare for the impending eco-crisis? *Environmental Education Research*, 27(11), 1559–1573. <https://doi.org/10.1080/13504622.2021.1962809>
- Kessler, G. (2016). Technology standards for language teacher preparation. In F. Farr & L. Murray (Eds.), *The Routledge Handbook of Language Learning and Technology* (pp. 57–70). Routledge. <https://doi.org/10.4324/9781315657899>
- Khlaif, Z. N., Salha, S., & Kouraichi, B. (2021). Emergency remote learning during COVID-19 crisis: Students' engagement. *Education and Information Technologies*, 27, 7033–7055. <https://doi.org/10.1007/s10639-021-10566-4>
- King, K. A., & Bigelow, M. (2018). Multilingual education policy, superdiversity and educational equity. In A. Creese & A. Blackledge (Eds.), *The Routledge Handbook of Language and Superdiversity* (pp. 459–472). Routledge. <https://doi.org/10.4324/9781315696010>
- Kreeft Peyton, J., & Young-Scholten, M. (2020). *Teaching Adult Immigrants with Limited Formal Education: Theory, Research and Practice*. Multilingual Matters.
- Kukulka-Hulme, A., Gaved, M., Paletta, L., Scanlon, E., Jones, A., & Brasher, A. (2015). Mobile incidental learning to support the inclusion of recent immigrants. *Ubiquitous Learning: an international journal*, 7(2), 9–21. <https://doi.org/10.18848/1835-9795/CGP/v07i02/58070>
- Käpplinger B., & Lichte N. (2020). “The lockdown of physical co-operation touches the heart of adult education”: A Delphi study on immediate and expected effects of COVID-19. *International Review of Education* 66, 777–795. <https://doi.org/10.1007/s11159-020-09871-w>
- Lotas, S. V. (2021). The COVID-19 pandemic from an adult literacy practitioner-scholar perspective: where we were, where we are, and where we should be going. *Adult literacy education*, 3(2), 50–54. <http://doi.org/10.35847/SLotas.3.2.50>
- Malessa, E. (2018). Learning to read for the first time as adult immigrants in Finland: Reviewing pertinent research of low-literate or non-literate learners' literacy acquisition and computer-assisted literacy training. *Journal of Applied Language Studies*, 12(1), 25–54. <https://doi.org/10.17011/apples/urn.201804051932>
- Malessa, E. (2021). From computer-assisted to technology-enhanced learning: Lessons learnt and fast forward toward (digital) literacy of LESLLA learners. In M. D'Agostino & E. Mocciaro (Eds.), *Languages and literacy in new migrations. Research, practice and policy. Selected papers from the 14th Annual Meeting of LESLLA (Literacy Education and Second Language Learning for Adults)* (pp. 327–345). UniPa Press. [https://drive.google.com/drive/folders/123g10kpgbjtRAuOuKDwbnfTtBS\\_fokcA](https://drive.google.com/drive/folders/123g10kpgbjtRAuOuKDwbnfTtBS_fokcA)
- Malessa, E. (in press). How COVID-19 intruded and improved my applied LESLLA research in progress: Reflections on research-design and research ethics of an empirical serious game study on L2 literacy

support of adult migrants in Finland.

- Malessa, E., & Filimban, E. (2017). Exploring what log files can reveal about LESLLA learners' behaviour in an online CALL environment. In M. Sosiński (Ed.), *Alfabetización y aprendizaje de idiomas por adultos: Investigación, política educativa y práctica docente. Literacy education and second language learning by adults: Research, policy and practice* (pp. 149–160). Universidad de Granada. <https://drive.google.com/drive/folders/19qizknzcmjjcFQYmxudXiopQ530DtumR>
- Miller, J.W., & McKenna, M. C. (2016). *World literacy: how countries rank and why it matters*. Routledge.
- Mortrude, J. (2021). Adult Education—Facing the Future. *Adult Literacy Education: The International Journal of Literacy, Language, and Numeracy*, 3(2), 55–60. <https://doi.org/10.35847/JMortrude.3.2.55>
- Mäkinen, M., & Sihvonon, M. (2016). Tietoteknisten taitojen puutteet maahanmuuttajien kotoutumisen haasteena [Lack of IT skills as a challenge for the integration of immigrants]. *Aikuiskasvatus*, 36(4), 279–287. <https://doi.org/10.33336/aik.88513>
- Niemi, H. M., & Kousa, P. (2020). A case study of students' and teachers' perceptions in a Finnish high school during the COVID pandemic. *International Journal of Technology in Education and Science (IJTES)*, 4(4), 352–369. <https://doi.org/10.46328/ijtes.v4i4.167>
- Norlund Shaswar, A. (2021). Digital literacy practices in everyday life and in the adult L2 classroom: the case of basic literacy education in Swedish. In G.S. Levine & D. Mallows (Eds.), *Language learning of adult migrants in Europe*. EDUL, 53. Springer. [https://doi.org/10.1007/978-3-030-79237-4\\_8](https://doi.org/10.1007/978-3-030-79237-4_8)
- Pajares, M. F. (1992). Teachers' Beliefs and Educational Research: Cleaning up a Messy Construct. *Review of Educational Research*, 62(3), 307–332. <https://doi.org/10.2307/1170741>
- Sahlberg, P. (2021). Does the pandemic help us make education more equitable? *Educational Research for Policy and Practice*, 20(1), 11–18. <https://doi.org/10.1007/s10671-020-09284-4>
- Schreier, M. (2012). *Qualitative Content Analysis in Practice*. Sage.
- Shapiro, S., Farrelly, R., & Curry, M. J. (2018). *Educating refugee-background students. Critical issues and dynamic contexts*. Multilingual Matters.
- Smyser, H. (2019). Adaptation of conventional technologies with refugee language learners: An overview of possibilities. In E. Sengupta & P. Blessinger (Eds.), *Language, teaching, and pedagogy for refugee education* (pp. 125–139). Emerald.
- Smythe, S. (2022). Beyond crisis, toward justice: New technologies in community-based adult learning. *Adult Literacy Education: The International Journal of Literacy, Language, and Numeracy*, 4(1), 50–55. <http://doi.org/10.35847/SSmythe.4.1.50>
- Smythe, S., Wilbur, A., & Hunter, E. (2021). Inventive pedagogies and social solidarity: The work of community-based adult educators during COVID-19 in British Columbia, Canada. *International Review of Education*, 67, 9–29. <https://doi.org/10.1007/s11159-021-09882-1>
- Sokolowsky, C. (2017). 'Einstieg Deutsch' – A German language learning app for refugees. In M. Sosiński (Ed.), *Alfabetización y aprendizaje de idiomas por adultos: Investigación, política educativa y práctica docente. Literacy education and second language learning by adults: Research, policy and practice* (pp. 219–230). Universidad de Granada. <https://drive.google.com/drive/folders/19qizknzcmjjcFQYmxudXiopQ530DtumR>
- Stanistreet, P., Elfert, M., & Atchoarena, D. (2020). Education in the age of COVID-19: Understanding the

- consequences. *International Review of Education*, 66, 627–633. <https://doi.org/10.1007/s11159-020-09880-9>
- Szelei, N., Devlieger, I., Verelst, A., Spaas, C., Smith Jervelund, S., Langer Primdahl, N., Skovdal, M., Opaas, M., Durbeej, N., Osman, F., Soye, E., Colpin, H., De Haene, L., Aalto, S., Kankaanpää, R., Peltonen, K., Andersen, A. J., Hilden, P. K., Watters, C., & Derluyn, I. (2022). Migrant students’ sense of belonging and the Covid-19 pandemic: Implications for educational inclusion. *Social Inclusion*, 10(2), 172–184. <https://doi.org/10.17645/si.v10i2.5106>
- Tammelin-Laine, T. (2011). Non-literate immigrants—A new group of adults in Finland. In C. Schöneberger, I. van de Craats, & J. Kurvers (Eds.), *Proceedings of the 6th LESLLA symposium Cologne 2010* (pp. 67–78). Centre for Language Studies (CLS). Nijmegen. [https://drive.google.com/drive/folders/1B\\_nZ\\_9MKy1xQXpJZ5B36KrsPP6Jr1\\_3a](https://drive.google.com/drive/folders/1B_nZ_9MKy1xQXpJZ5B36KrsPP6Jr1_3a)
- Tammelin-Laine, T., Vaarala, H., Savolainen, J., & Bogdanoff, M. (2020). Technology-supported L2 learning in LESLLA classes: Two case studies from Finland. In N. Pettitt, R. Farrelly & A. Elson (Eds.), *Literacy Education and Second Language Learning for Adults (LESLLA): Bridging Theory and Practice* (pp. 86–107). <https://drive.google.com/drive/folders/1iST4hHYTrB5yWfW8kSwJ0NBOFpsarL>
- Tarone, E. (2010). Second language acquisition by low-literate learners: An understudied population. *Language Teaching*, 43, 75–83.
- Tarone, E., & Bigelow, M. (2012). A research agenda for second language acquisition of pre-literate and low-literate adult and adolescent learners. In P. Vinogradov & M. Bigelow (Eds.), *Proceedings from the 7th annual LESLLA symposium 2011* (pp. 5–26). University of Minnesota. <https://drive.google.com/drive/folders/1rCwYF-RXy3YgczYDjrifVmeVmg7pJZul>
- Tarone, E., Bigelow, M., & Hansen, K. (2009). *Literacy and second language oracy*. Oxford University Press.
- Tulaskar, R., & Turunen, M. (2022). What students want? Experiences, challenges, and engagement during Emergency Remote Learning amidst COVIS-19 crisis. *Education and Information Technologies*, 27, 551–587. <https://doi.org/10.1007/s10639-021-10747-1>
- UNESCO Institute for Lifelong Learning. (2021). *DigLin: The Digital Literacy Instructor*. <https://uil.unesco.org/case-study/effective-practices-database-litbase-0/diglin-digital-literacy-instructor>
- UNESCO Institute for Lifelong Learning. (2022a). *From radio to artificial intelligence: Review of innovative technology in literacy and education for refugees, migrants and internally displaced persons*. <https://unesdoc.unesco.org/ark:/48223/pf0000382627>
- UNESCO Institute for Lifelong Learning. (2022b). *Leveraging innovative technology in literacy and education programmes for refugees, migrants and internally displaced persons*. <https://unesdoc.unesco.org/ark:/48223/pf0000382626>
- van de Craats, I., & Young-Scholten, M. (2015). Developing technology- enhanced literacy learning for LESLLA learners. In M. G. Santos & A. Whiteside (Eds.), *Low Educated Second Language and Literacy Acquisition. Proceedings of the 9th Symposium* (pp. 129–150). Lulu Publishing Services. <https://drive.google.com/drive/folders/1uKhexkRKFgo-KdP0A7w0SSu9nL7Kluun>
- van de Craats, I., Kurvers, J., & Young-Scholten, M. (2006). Research on Low-Educated Second Language and Literacy Acquisition. In I. van de Craats, J. Kurvers & M. Young-Scholten (Eds.), *Low-educated second language and literacy acquisition: Proceedings from the inaugural symposium Tilburg 2005* (pp. 7–24).




- LOT. [https://drive.google.com/drive/folders/1Mpkk-zpp-24e3EqHfsP0BGKzwSFcQ\\_4D](https://drive.google.com/drive/folders/1Mpkk-zpp-24e3EqHfsP0BGKzwSFcQ_4D)
- Vanek, J., & Harris, K. (2020). *Digital literacy and technology integration in adult basic skills education: A review of the research*. ProLiteracy. [https://www.proliteracy.org/Portals/0/pdf/Research/Briefs/ProLiteracy-Research-Brief-02\\_Technology-2020-06.pdf](https://www.proliteracy.org/Portals/0/pdf/Research/Briefs/ProLiteracy-Research-Brief-02_Technology-2020-06.pdf)
- Vollmer, S. (2020). *The digital literacy practices of newly arrived Syrian refugees: a spatio-visual linguistic ethnography* [Doctoral dissertation, University of Leeds]. <https://etheses.whiterose.ac.uk/27877/>
- Warschauer, M. (2011). Foreword. In M. Thomas (Ed.), *Digital Education: Opportunities for Social Collaboration* (pp. xi–xii). Palgrave Macmillan.
- WHO (2023). *Coronavirus disease (COVID-19) pandemic*. <https://www.who.int/europe/emergencies/situations/covid-19>
- Young-Scholten, M. (2015). Who are adolescents and adults who develop literacy for the first time in an L2, and why are they of research interest? *Writing Systems Research*, 7(1), 1–3. <https://doi.org/10.1080/17586801.2015.998443>
- Young-Scholten, M. (2021). Second language linguistic competence and literacy of adult migrants with little or no home language literacy. In H. Mohebbi & C. Coombe (Eds.), *Research questions in language education and applied linguistics*. SPTE. Springer. [https://doi.org/10.1007/978-3-030-79143-8\\_46](https://doi.org/10.1007/978-3-030-79143-8_46)
- Zelezny-Green, R., Vosloo, S., & Conole, G. (2018). *Digital inclusion for low-skilled and low-literate people: A landscape review*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000261791>

---

### Author Information

---

**Eva Malessa**

 <https://orcid.org/0000-0003-2344-7553>

University of Jyväskylä

Finland

Contact e-mail: [eva.i.malessa@jyu.fi](mailto:eva.i.malessa@jyu.fi)

---

## Appendix 1. Online Teacher Survey Questions

What is your experience with *Ekapeli* [a literacy support app designed for children], ...

Q1. ... what are your reasons why you do not use it?

Q2. ... what are your reasons why you use it?

Q3. What do students think of Ekapeli?

Q4. What digital applications, games, or learning environments do you use in your classes? (optional)

Q5. What do you think promotes or hinders the use of technical equipment in adult literacy courses? (optional)

## Appendix 2. Transcription Conventions in Presented Excerpts

(...)            indicating excerpt is only partially presented

[devices]        information added by interviewer to aid context comprehension

(get?)            ? indicating transcriber's doubt about what was said