Evaluating the effectiveness of the Citizen Literacy taster app as a literacy development tool for beginner adult literacy learners

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Contents

Executive summary

Citizen Literacy is the community engagement arm of the adult literacy programme and development activities operated by the City of Glasgow College and its partners: ccConsultancy Ltd; ReachWill Ltd; Micro-phonics Ltd; Scottish TUC Union Learn; That Reading Thing.

The purpose of this report is to share findings and recommendations from our evaluation of Citizen Literacy's 'Citizen Literacy Taster', which was awarded funding through Nesta and Department for Education's CareerTech Challenge Fund. We sought to build on our work to develop a freely-accessible app that supports adults who are beginner readers and writers to develop their literacy skills.

The overarching aim of the Citizen Literacy project is to:

- Support adult beginner readers and writers to develop their basic literacy skills;
- Support adult beginner readers and writers to improve and develop their digital literacy skills;
- Develop an accessible digital tool for adults that is grounded in effective, evidence-based practices for literacy learning;
- Contribute valuable knowledge and understanding regarding how appropriate use of technology can help adult beginner readers and writers to develop their literacy skills;
- Further understand the impact of improved literacy skills; for employers, for educators, and for adult literacy learners in their everyday lives and practices.

Key findings from the evaluation include:

- Literacy difficulties restrict learners' everyday activities, movements and routines. Using the app helped reduce these restrictions for some learners, as accessing learning in safe, familiar spaces led to increases in confidence, renewed interest in attending adult literacy provision and/ or renewed interest in literacy-based tasks previously avoided at work;
- Opportunity to engage in low-stakes, bite-sized literacy learning is appreciated by beginner literacy learners, many of whom reported improvements in confidence, self-esteem and mental health and wellbeing after using the Citizen Literacy app.
- Flexible opportunities for adults to continuously practise and develop their literacy skills are welcomed by learners, and teachers are able to utilise learners' enthusiasm for the app to devise and in some instances, co-create blended learning opportunities, leading potentially to increased feelings of self-efficacy for some learners;
- There is an immediate and urgent need for age-appropriate adult literacy resources, a need that the app helps to meet;

- The role of advocates to support and encourage adult beginner literacy learners to engage in learning is critical (e.g., trusted friends/ family members, teachers, community support workers, union project workers and others). This seems particularly important when introducing independent learning tools such as the Citizen Literacy app;
- The importance of acknowledging beginner adult literacy learners' needs when undertaking an evaluation (unsupported text-based questionnaires are not appropriate for example). Teachers and advocates also have a key role to play in brokering learner engagement in evaluation activities, as well sharing their own perspectives regarding learners' experiences.

Next steps and recommendations include:

- Continued development of age-appropriate resources for adult literacy learners;
- Further research and investigation into beginner adult literacy learners' everyday literacy practices and strategies;
- Further exploration with regards to improvements in self-efficacy as a result of having an app with which to develop basic literacy practices;
- Further exploration in relation to learner engagement with the Citizen Literacy app and their reported improvements in mental health and wellbeing;
- Take forward the creative value of working as a small, multi-disciplinary team that facilitates collaborative and innovative approaches to educational app design and development.

Introduction and background

Imagine living in a world of written words you do not understand? That is the daily reality for many people in the UK. According to the government's own figures, about 15% of the working age population has very low levels of literacy, this equates to about 6 million people (Department for Business, Innovation and Skills, 2012). Other developed countries face similar challenges, but, in 2016, the UK was the only developed country where the literacy levels of 16–24-year-olds was lower than that of people who had retired (OECD 2016). Many of this age group are now in the labour market (aged 21 - 29) and still facing difficulties with literacy-mediated tasks. Literacy difficulties have a negative effect on individuals, families, communities and businesses, which is why this project has been an important innovation for the CareerTech Challenge. Potentially, this intervention could have a significant positive affect on people in work, who are not able to keep or progress due to literacy barriers, as well as the wider population of adults, outside the remit of this project but who need to develop their literacy abilities in order to find and sustain employment.

Initial scoping exercises with adult literacy learners at Glasgow City College also suggests that there are some stereotypes about adult literacy that we need to dispel. Many learners accessing adult literacy classes are in employment, and most of them own a smartphone. Adults with basic literacy development needs also employ ingenious strategies for managing the literate world (e.g., by using the 'talk to text' function on their phone). Beginner adult literacy learners have to be resilient in daily life, and the challenges that difficulties with reading and writing present. Most are keen to learn, so they can read with their children or grandchildren, so they can enter or sustain employment, so they can engage more actively in the world around them.

Our experience as literacy specialists working with adult learners has revealed **there is a real lack of age-appropriate resource for adult literacy learners, particularly for beginner adult literacy learners.** Many resources are designed for children, which can feel patronising and frustrating for adult learners, who bring with them a wealth of knowledge and experience of the world around them (Moss, Duncan, Harmey and Muñoz-Chereau, 2018). According to the National Literacy Trust (2017), *'one of the most important aspects of supporting adults with low literacy levels is to increase their self-esteem and persuade them of the benefits of improving their reading and writing.'* This is very important, as approximately 1 in 6 adults in England struggle with their everyday literacy (National Literacy Trust, 2017). Difficulties with reading and writing can create a ripple effect within many areas of people's lives, potentially affecting confidence, wellbeing, employment status and economic prosperity. The Citizen Literacy app was conceptualised and developed to help fill this gap, bringing technology and literacy learning together in a freely accessible app for adults to use either in addition to their face-to-face literacy classes, or as a standalone literacy development programme for those who are not able, or do not feel ready, to access face-to-face learning.

The aim of the Citizen Literacy app is to provide adult beginner literacy learners (many of whom may never have disclosed their specific difficulties with reading and writing) **with a non-threatening starting point for literacy learning** that is grounded in evidence-informed practice and that encourages a (future or present) connection with local adult learning services. The team have produced a [**White Paper**](#) (Citizen Literacy, 2020), outlining the nature and scale of the adult literacy challenge in the UK, and describing their ideas, activities and approaches to contribute towards a solution. **The hope for the app is that it can be used by beginner literacy learners as a standalone learning tool, or in conjunction with more formal literacy learning** (e.g., between face-to-face sessions with an adult learning service).

The Citizen Literacy app is primarily focussed on improving adult literacy for those who are already fluent speakers of English, as opposed to supporting the development of English for Speakers of Other Languages (ESOL). This is an important distinction to make; the educational
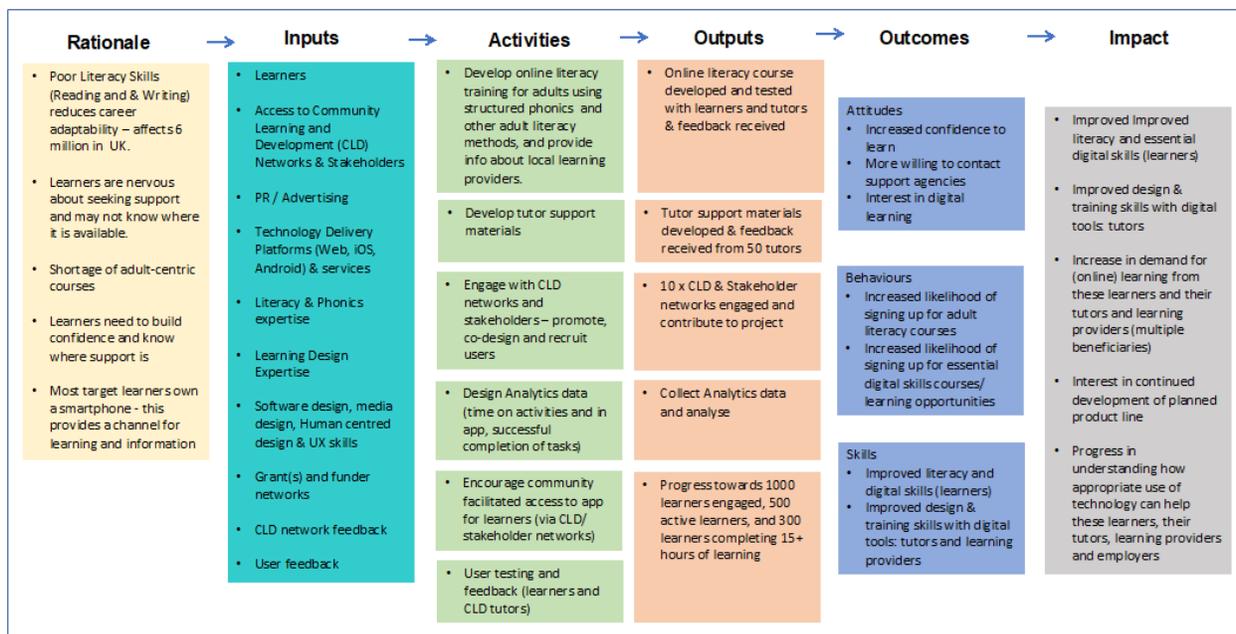
task of teaching an adult who already speaks English to improve their reading and writing abilities is a very different one from teaching ESOL, although it can be hard to distinguish an ESOL learner from an adult literacy learner (e.g., If someone was brought up in an English-speaking country but speaks another language in the home). Nevertheless, ESOL learners may also benefit from some of the tools and resources that have been produced by the team.

The specific focus of the Citizen Literacy Taster project has been to build upon our work to develop and pilot the Citizen Literacy app, using voice and handwriting recognition to help adult literacy learners practise reading and writing. This is in line with the CareerTech Challenge Fund aims, which were to integrate new and innovative technology to support the success of the app and improve employment outcomes for adults in England aged between 24 to 65 years old; educated below degree level; and adults who work in insecure roles. These workers may be employed, furloughed or recently made redundant due to rapid labour market change, but should not be long-term unemployed. The team were therefore keen to understand:

- The effectiveness of the app as a practice tool for adults to use between their face-to-face adult literacy sessions,
- How the app might be accessed and used as a 'taster' for learners who had not yet entered (and, for various reasons, may not be willing or able to enter) adult literacy provision.
- How the use of chatbots, embedded tutor videos and artificial intelligence (AI) might raise awareness of the support available for adult beginner readers and writers, as well as support adults to gain confidence and (potentially) join a face-to-face class.

- How developing literacy skills through an adult-centric app supports adult beginner literacy learners both at work and within their everyday lives.

Drawing on the **Theory of Change** (generated by the Citizen Literacy Team as part of the CareerTech Challenge), key questions addressed during this evaluation include:

a. To what extent does the Citizen Literacy app meet the needs of beginner literacy learners?
b. What impact has the Citizen Literacy app had upon literacy learners' everyday lives and circumstances?
c. How effective is the Citizen Literacy app at supporting the development of literacy learning?

Rationale	Inputs	Activities	Outputs	Outcomes	Impact
• Poor Literacy Skills (Reading and & Writing) reduces career adaptability – affects 6 million in UK.	• Learners	• Develop online literacy training for adults using structured phonics and other adult literacy methods, and provide info about local learning providers.	• Online literacy course developed and tested with learners and tutors & feedback received	**Attitudes** • Increased confidence to learn • More willing to contact support agencies • Interest in digital learning	• Improved Improved literacy and essential digital skills (learners)
• Learners are nervous about seeking support and may not know where it is available.	• Access to Community Learning and Development (CLD) Networks & Stakeholders				• Improved design & training skills with digital tools: tutors
• Shortage of adult-centric courses	• PR / Advertising	• Develop tutor support materials	• Tutor support materials developed & feedback received from 50 tutors		• Increase in demand for (online) learning from these learners and their tutors and learning providers (multiple beneficiaries)
• Learners need to build confidence and know where support is	• Technology Delivery Platforms (Web, iOS, Android) & services	• Engage with CLD networks and stakeholders – promote, co-design and recruit users	• 10 x CLD & Stakeholder networks engaged and contribute to project	**Behaviours** • Increased likelihood of signing up for adult literacy courses • Increased likelihood of signing up for essential digital skills courses/ learning opportunities	
• Most target learners own a smartphone - this provides a channel for learning and information	• Literacy & Phonics expertise				• Interest in continued development of planned product line
	• Learning Design Expertise	• Design Analytics data (time on activities and in app, successful completion of tasks)	• Collect Analytics data and analyse		• Progress in understanding how appropriate use of technology can help these learners, their tutors, learning providers and employers
	• Software design, media design, Human centred design & UX skills			**Skills** • Improved literacy and digital skills (learners) • Improved design & training skills with digital tools: tutors and learning providers	
	• Grant(s) and funder networks	• Encourage community facilitated access to app for learners (via CLD/ stakeholder networks)	• Progress towards 1000 learners engaged, 500 active learners, and 300 learners completing 15+ hours of learning		
	• CLD network feedback	• User testing and feedback (learners and CLD tutors)			
	• User feedback				

Image credit: Theory of change, taken from Citizen Literacy Evaluation Plan, August 2020.

The overarching aim of this evaluation is to understand the effect and emerging impact of the Citizen Literacy app on beginner readers and writers, from the perspectives of adults using the app, as well as those of teachers and advocates trialling the app and introducing it to their learners, friends and colleagues. The evaluation process is participatory in so far as the evaluation team has active involvement in other aspects of Citizen Literacy's work and we act as critical friends, as opposed to standing completely outside the process. To our collective knowledge (within the Citizen Literacy team and as a result of our preparatory reading and previous experience in the adult learning and skills sector), an app of this kind has not been developed or tested before. A rigorous evaluation, of both process and outcome, is therefore important; to draw out key learning, to understand the potential effectiveness of this approach for adult beginner literacy learners, and to help build a knowledge base for the future.

The themes and learning outlined in this evaluation report draw on both quantitative and qualitative learner, teacher and advocate data and present key findings about the effectiveness and impact of the app for beginner literacy learners.

Approach and methodology

The stories of adult beginner literacy learners are seldom heard. Due to the stigma that adult literacy learners may face, people develop ingenious ways to manage and mask the challenges they face, at work and within their everyday lives and practices (Citizen Literacy, 2020). To help ensure the app could reach beginner adult literacy learners (especially those not already known to local adult learning services), the team were reliant on support from advocates, to introduce potential learners to the app, and to support the testing and feedback process. The Citizen Literacy team are deeply enmeshed within adult literacy networks across the UK, thus were able to draw upon these networks for support. The app was also advertised; a call out for testers was posted on the Citizen Literacy website and via various social media channels. In total, 76 teachers and advocates completed an initial expression of interest, to test and offer feedback on the app, and to share the app with adult beginner literacy learners.

Image credit: Pinned tweet from @citizen_phonics, (2020)

This combined process and outcomes evaluation **evaluates the journey of the Citizen Literacy app and its impact on adults who are beginner literacy learners.** Specifically, we evaluate the extent to which the Citizen Literacy app meets its intended aim, to provide an app-based literacy programme that supports and encourages beginner adult literacy learners to engage in, and make progress with, their literacy learning.

In order to evaluate the above, we sought to understand how learner engagement in the app supported attitudinal and behavioural changes, as well as skills development. We were also interested to discover the (emerging, short term) impact of the upon literacy teaching and

learning more broadly, especially in relation to the use of digital technologies for literacy learning, and the use of phonic-based approaches to literacy development.

Finally, we were interested in exploring how the Citizen Literacy team's professional make up, (including their specialist knowledges and shared practices during the everyday running of the project) supported and aided creative and innovative design and development work (see Appendix 12 for more information on the makeup of the Citizen Literacy Team).

Findings from our evaluation have been thematically analysed and structured according to:

- The specific needs of beginner adult literacy learners
- Marketing, recruitment and learner engagement with the app
- Learner experience of the app
- Facilitators to learning in the app
- Learner outcomes
- Suggestions for improvements in design and delivery of the app

Data collection

We captured data relating to the points in Table One below through a mixture of in-app generated data, learner, teacher and advocate questionnaire responses and in-depth interviews with learners, teachers and advocates. 6 learners and 19 teachers and advocates completed questionnaires and 8 in-depth interviews were carried out with learners, teachers and advocates. Demographic information has been captured (when agreed and provided) for those completing questionnaires and for those participating in in-depth interviews (Appendix 9). This information has helped us gain an idea of the background and circumstances of adult beginner literacy learners who are accessing and trialling the app, as well as providing contextual insight into how teachers and advocates are introducing and using the app with beginner literacy learners.

Teachers and advocates spoke from their own perspectives, but it should be noted that they also often amplified the voices of learners as they described their experiences, contributing valuable data regarding learner engagement and experience. One learner (Halim) also acted as an advocate, reporting their own views and those of others within their community group.

Table One: Outcomes measured and method of data collection

Attitudinal Differences	Evaluation Method
Increased confidence to learn	Questionnaires and in-depth interviews with learners, advocates and teachers
Increased willingness to contact adult literacy support agencies	Questionnaires and in-depth interviews with learners, advocates and teachers
Increased interest in digital learning	Questionnaires and in-depth interviews with learners, advocates and teachers
Behavioural Differences	**Evaluation Method**
Increased access to digital information using 'essential digital skills' (England) = digital literacies	Questionnaires and in-depth interviews with learners, advocates and teachers
Increased likelihood of signing up for adult literacy courses	Questionnaires and in-depth interviews with learners, advocates and teachers
Increased likelihood of signing up for essential digital skills courses/ learning opportunities	Questionnaires and in-depth interviews with learners, advocates and teachers
Skills Development	**Evaluation Method**
Improved literacy and essential digital skills (beginner adult literacy learners)	Questionnaires and in-depth interviews with learners, advocates and teachers
Ongoing engagement with the app (completion of individual lessons; amount of time spent on each task; attempts made at each task)	In-app reporting (MI data), plus questionnaires and in-depth interviews with learners
Improved session design and training skills using digital tools	Questionnaires and in-depth interviews with teachers
Improved advocate skills (to talk about adult literacy in a 'non-deficit' manner)	Questionnaires and in-depth interviews with advocates

Data collected to understand the journey of the Citizen Literacy app, and the day-to-day operational work of the Citizen Literacy team.

To evaluate the effectiveness of the day-to-day processes and workings of the Citizen Literacy team, we regularly attended Citizen Literacy Team meetings; reviewed documents produced; trialled initial iterations of the app and made recommendations; contributed knowledge and expertise in relation to adult literacy learning. We also ran a focus group with core team members, supporting them to reflect upon the journey of the app, from its inception to its current iteration, including hopes and ideas for future development. Enabling team members to reflect together and draw upon their specific area of expertise (e.g., as a literacy specialist or as an ed-tech specialist), helped us illuminate the strengths of a multi-disciplinary approach to literacy learning. Regular group discussion also helped support the team's innovative approaches to educational app design and development.

Data analysis

Qualitative and quantitative data has been analysed side-by-side through a process of 'constant comparison' (Charmaz, 2014) and thematic coding (Braun and Clarke, 2013). Quantitative data (drawn from the questionnaires and from the MI database) has also been collated to aid the identification of common responses and to cross-reference responses against other factors, such as the demographic profile of learners. The data collected was triangulated, blending conventional and less conventional data sources together (Mateos-Garcia, 2014) in a rigorous and robust manner to help us understand the effectiveness and initial impact of the Citizen Literacy app from multiple perspectives. By asking adult literacy learners to reflect upon their experiences before, during and after using the Citizen Literacy app, we have also been able to begin to gain a nuanced understanding of the impact of the app upon beginner literacy learners' literacy learning, upon their everyday literacy practices, and upon their digital skills development, for learning and for everyday life.

It is important to note that this evaluation focuses on Lesson 1 (and its 30 activities). The full, app store version of the app now contains 5 lessons, each with approximately 30 activities. The rationale for focusing on Lesson 1 specifically lies in the team's grounded approach to app development and design; learning from the process of designing, developing and testing Level 1 through the Beta site directly fed into the design, development and testing of Lessons 2, 3, 4 and 5. The team were also conscious that asking learners, teachers and advocates to reflect upon the app in its entirety may feel overwhelming. By instead asking testers to focus their attention on the first lesson, we were able to ascertain more in-depth, detailed feedback in relation to the questions we were posing. The feedback on Lesson 1 was then able to be immediately reflected and acted upon, helping the team refine and amend the design and content of Lessons 2, 3, 4, and 5.

Limitations and challenges

Due to the impact of Covid-19 upon face-to-face learning and advocacy work, fewer learners, teachers and advocates have been involved in providing direct feedback (through questionnaires and/ or through in-depth interviews) than we had previously envisioned. The reduced sample size reported on within this evaluation must therefore be seen as a limitation. Nevertheless, those who have shared their reflections and responses to the app have in many cases provided rich and detailed information, enabling us to draw out some interesting and important findings.

Due to the ethical considerations outlined in appendix 1, It is important to note that **our in-app MI data does not capture learner demographics** (aside from location so that learners can be signposted through the app to their local adult and community learning service, or other adult literacy provider).

Control and counterfactual groups were deemed inappropriate for this project, as this was felt to be impractical, due to small sample sizes and the freely-available nature of the app, and unethical, given the context of Citizen Literacy's work and the nature of our intended audience. This means that the outcomes identified in this report cannot be wholly attributable to the app itself.

Findings

This chapter shares findings drawn from our process and outcome evaluation activities that highlight the effect and emerging impact of the Citizen Literacy app upon adult beginner readers and writers. **Part A focuses on beginner adult literacy learners' lived realities, and how their accounts supported and informed the design and development of the Citizen Literacy app**, offering important comparative data from learners regarding their experiences before and after engaging with the app. **Part B focuses on the Citizen Literacy app itself**, **and its impact upon literacy learning**, helping us evaluate the effectiveness of the app, as well as identify potential areas for further development.

Part A: The specific needs of beginner adult literacy learners

This section shares learners' experiences of literacy learning, including everyday challenges, and how the Citizen Literacy app was designed, developed and marketed to respond to learner need. We also include statistics pertaining to learner engagement with the app.

A1. Lived realities and common issues for adult beginner literacy learners.

Learners feel restricted within their everyday lives due to their literacy skills

Participants discussed some of the restrictions they (or those they are working with) face due to literacy difficulties, and the impact this has upon adult's everyday lives and practices, at home, at work and within their communities. Stephanie likened not being able to read and write to being 'small' and 'in a box':

> *'When you can't read and write you feel always small in a box and you put yourself in the box forevermore...it's very difficult to come out and climb out and say 'ok I'm gonna do this'* (Stephanie, Learner).

Participants also stressed the need for routine and familiarity, strategies that helped them navigate or mask challenges at work, as well as relying on others for support:

> *'Because there's only two buses here we can catch...[bus numbers] so I know buses...so I can get around but if I had to go to a different place I panic then, but...shopping I do everyday so its like a routine you know so I don't mind, it doesn't get me that way'* (Stephanie, Learner)

> *'At work it's quite difficult because what it is is I'm a duty manager so...if there's any complaints we've gotta write that down so like it's difficult for me cos what I do I use my phone so the words that I don't know how to spell I use my phone'* (Ben, Learner)

Learners' accounts reflect how literacy issues have the potential to keep people confined within their locales (to avoid panic) and how they rely on technology to support them. Some learners highlight the use of technology (such as voice recognition on their phones) as a means of 'getting by'. This helps us understand how adults may use technology in a variety of innovative ways; to support them in their daily lives but also (potentially) to mask the extent of the difficulties they face. 'Getting by' via assistive technology may place additional stress and pressure on adults in the workplace, and potentially restrict opportunities for beginner adult literacy learners to perform their working roles to their full potential. Learners also highlight how they rely on others to assist them with literacy-related tasks, and how they would like to be able to do this independently. Reliance on others has potential ramifications: for learners' self-esteem and confidence. Learners may also feel ill-equipped or unable to realise their potential, particularly in their working lives.

Missed opportunities for support during statutory schooling compound literacy difficulties

Ben for example described how he experienced a missed dyslexia diagnosis at school, which led to him 'mucking about' to disguise the difficulties he was facing.

Intersecting challenges to literacy learning for English as a second language (ESOL) learners

Halim noted the significant challenges people face learning to read and write in English, due to the numerous sounds that can be made with a limited alphabet. Although the primary aim of the Citizen Literacy app is to support native English speakers to develop their literacy skills, Halim's experiences and feedback highlight some of the specific and complex challenges faced by beginner literacy learners who do not have English as a first language.

The importance of early intervention to reduce fear and stigma

Learners, teachers and advocates shared their views on how to best meet the needs of beginner literacy learners. Early intervention, to reduce the fear and stigma surrounding literacy learning in adulthood, was commonly cited:

> *'The department have just commissioned a piece of research with the public so erm people we don't know who they are, 5000, one of those big surveys, 42% of people don't get help because of fear and stigma. So the biggest thing that can help the public...[is] awareness, promotion and outreach'* (Sally, Advocate)

Teachers and advocates also describe the lengths people will go to to hide literacy struggles, showing the lived effect of the stigma surrounding not being able to read and write:

> *'I had a student...who couldn't read and write...people create all these kind of pretences like she would forget her glasses, or her wrist was sore one week...it wasn't until maybe 3 or 4 weeks down the line I realised she only knew [how to write] her name, and I didn't know as a literacy tutor and an ESOL tutor I didn't know what to do'* (Blair, Teacher).

These considerations were taken into account during the design and development phase of the Citizen Literacy app, helping the team develop a resource that could reach adults at their point of need, without requiring them to be already participating in official adult literacy classes:

> *'The app is versatile in that it can be used to compliment classroom learning for those already accessing support, but it can also be used informally, perhaps introduced by a friend, relative or colleague... there is no pressure to attend an actual class, although we can support and signpost people through the app with this too.'* (Literacy Specialist 2, Citizen Literacy Team).

> *'What's most definitely needed is something that can reach people before they have the confidence to walk through the doors of our service and join an adult literacy class.'* (Literacy Specialist 1, Citizen Literacy Team).

Many beginner literacy learners aspire to develop their literacy skills
Learners indicated how improving their literacy skills would benefit them. Learners' aspirations often reflect everyday practices for work and life; practices often taken for granted by more confident readers and writers (e.g., completing work tasks, taking part in everyday activities and feeling connected to family members, friends and colleagues):

'I want to sit down... with a book reading to my grandkids, that would be beautiful that would' (Stephanie, Learner).

'I would love to write say what's on TV programmes like EastEnders and all that, I would love to write to them and tell them what good characters there are' (Louise, Learner)

'Work related things...writing up planning things' (Rosie, Learner)

Despite some of the educational difficulties and challenges adults who are beginner literacy learners may have faced/ may continue to face, we found that **many are keen to develop their literacy skills and can see the benefit of the fresh approach to literacy learning that is being offered through the Citizen Literacy app:**

'I like this one because again there's nothing out there out this you know and like how can I put it it's refreshing to have something like that' (Ben, Learner).

'So many times I've wanted to learn to read and write and so many times I've stopped it, I didn't want to go anymore, but this one, even if I feel ill or got a headache I still gotta do it' (Stephanie, Learner).

A2. Marketing, recruitment and learner engagement with the app

The primary aim of the Citizen Literacy app is to support beginner adult literacy learners to develop their literacy skills. Reaching adults in this group is not without challenge; the stigma surrounding adult literacy learning may prevent people from disclosing their difficulties or seeking support, for literacy learning or within other areas of their lives, affecting mental health and wellbeing (Easten, Entwistle and Williams, 2013). The cessation of many face-to-face support services due to Covid 19 intensified some of these challenges, complexifying initial reach and recruitment of app testers during the project. In addition to marketing the app through the Citizen Literacy website and social media channels, the team were reliant upon a

network of literacy teachers and advocates, who play a critical role introducing learners to the app and supporting them through the testing and feedback process.

> *'This is reaching out to people who really need it, it's providing something that's free, no adverts, no personal data captured so this is really nice to do'* (Project Manager, Citizen Literacy Team).

> *'We are just entering, opening a door, and we want to prove that this can help at different levels, rather than just getting an app on the app store. So that's the main challenge and it will continually be a challenge'* (App designer 2, Citizen Literacy Team).

The reach of the project has been further extended through opportunities to discuss the app at network events and conferences, as well as being featured in nationwide publications such as the Times Educational Supplement (Belgutay, 2020). These opportunities have helped the team recruit new advocates and allies, who have helped us market the app (e.g., through retweets) and/ or introduce the app to new learners. Our Union Learn representative and literacy specialists have also marketed the app to union partners and representatives, via a series of advocate training days. This has been an important aspect of the marketing process, helping introduce the app to various employers and upskilling advocates so they are better equipped to adopt a holistic, strengths-based approach to encouraging and promoting literacy learning with beginner adult literacy learners within their organisations.

Despite the challenges discussed above, user engagement with the Citizen Literacy app has been promising. The data below refers to **learners accessing the Beta testing pages in England** between 1 September 2020 and 21 March 2021 - see appendix 5 for a full breakdown of Management Information (MI) stats for the Beta testing page (after which we have been monitoring users who have downloaded the app from the App Store or Google Play and have added this data up to the 22 May 2021 – see below).

- Users: 787
- Pages views: 21450 pages over 1605 sessions
- Average time spent/ session: 6:46 min per session looking at c.13.4 pages per session
- Total Engagement: 1605* 6:46 = 181 hours

181 hours of learning have been recorded on the Beta testing site in England, with learners returning on multiple occasions to complete small pockets of learning with an average visiting times of 6 minutes and 46 seconds. The top 500 most engaged learners have accessed the app between 2 and 66 times, logging between them (at the time of writing) 349.3 hours of learning (please see appendix 11 for further details). This information, coupled with **a consistently low bounce rate, suggests that beginner adult literacy learners are engaging in bite-sized learning, building a small but significant amount of literacy learning into their everyday routines.** This is

a promising finding, as it could indicate that **learners feel able to persist from task to task, and that the app is suitably intuitive in the support and guidance it is providing**. It is hard to determine whether the length of time learners spend on the app is consistent with time spent by learners on other educational apps. This is due to the unique context of our work with beginner adult literacy learners, coupled with a dearth of existing apps designed specifically for this cohort. Nevertheless, early signs are promising, with learners repeatedly accessing the app to work through the lessons, which cumulatively provide in excess of 15 hours of learning.

The data below refers to learners accessing the the updated full 5 lessons of the Citizen Literacy App **between the dates of 20 April 2021– 21 May 2021.** This is after incorporating changes made in the light of feedback from the users of the beta web App. Figures are for England.

App Store versions - Custom analytics for 20 April 2021– 21 May 2021.

- 101 android – installs

- 98 IOS – installs

The users have been spending up to 6 minutes in a session using the app with 27,000 interactions, with 61.5 hours of engagement across Android, iOS and the web app.

Engagement by platform:

- iOS = 990 mins = 16.5 hours

- Android = 1977 mins = 33 hours

WEB APP: Google analytics for 20 April 2021– 21 May 2021.

- 199 users England,

- 10,408 page views

- 343 sessions

- User engagement ranges up to 49 visits from the same user

- Web App engagement times = 726 mins = 12 hours

The number of app store installs of the app is almost evenly split between Android and Apple. The high proportion of Apple devices may be surprising at first sight, as they are generally more expensive than Android phones and we tend to have a mental model of low literacy learners being on low incomes. We think the proportion of Apple phones reflects several important underlying factors which we summarise here:

- In the UK and some other developed nations sales of [Apple phones](#) have a much higher market share than in the [developing world](#). Sales in the UK are strongly driven by powerful marketing campaigns – promoting the perception of an Apple phone as a status symbol – with the attendant cultural drivers for children and teenagers to demand their parents purchase them. As these phones are upgraded the older Apple phones tend to be cascaded down to the older members of the family. Our own experience has seen older adults using older Apple phones for this reason with younger learners using the more modern Apple phones.

The almost even split between Apple and Android installs of the app vindicates our decision to develop an app for both platforms.

For the Android phones the user engagement times and low bounce rates are very similar to the figures for the beta web app. This is encouraging and suggests we have got the design structure of the app about right by splitting lessons up into bite-sized activities that learners can choose how much time they want to commit in each session, to fit into their daily routines.

The user engagement times for the Apple phones are shorter, we need to further investigate why this might be in further user research.

The use of a web app version of the app remains highly popular. We think this is for several reasons. First and foremost a link to the web app works straight away in a chrome web browser – there is no need to go to an app store and do an install, this is attractive for teachers. Teachers tend to use a web app to evaluate it and in a teaching context – both in a classroom via a projector / whiteboard and increasingly online via video conferencing tools like Zoom and Teams. The web app also shows the increasing global reach of Citizen literacy. In addition to the 199 English users there were another 541 international users in this time period.

Teacher feedback since the latest versions of the app were launched has been very positive and we are seeing increasing hits on the Citizen Literacy web site and the apps store pages. As we release more lessons in the app, we expect interest and users to continue to grow.

The grounded approach to app design that the team have adopted (with user experience at the forefront) has supported engagement, with learners reporting they appreciate the opportunity to engage in learning at a time, place and pace that suits them:

> *'It's good to keep practising while I'm not in college'* (Rosie, Learner)

Part B: Learner experience of the app

In this section, learners, advocates and teachers share their experiences of using the app, including their likes, dislikes, any challenges they faced as they tested the app and any insights shared regarding the app's general usability.

1.The adult-centric nature of the app is welcomed

Because the Citizen Literacy app is designed specifically for adults, it enables learners to engage with and make progress through a resource directly tailored to their needs. Participants appreciated different aspects of the app's adult-centric nature, from its grown-up content, to the choice of voices and activities:

> *'[The] app it's like for grown-ups so it's much more better'* (Ben, Learner)

That the app was adult-centric was also a huge facilitator to learning. This is discussed in more detail in sections 4b and 4c.

2.The use of voice supports engagement

Learners comment on the use of voice within the app as a key part of their experience. They like that the app incorporates spoken instructions, and also comment specifically on the tone of the voices. A teacher outlines how the app is enabling a learner she is supporting to engage with content of this nature for the first time, as he has previously had difficulty understanding the spoken content of other apps:

> *'So he almost heard the sound differently [on a previous app] but what he found with the Citizen Literacy app is he found it easy to use and that's not been a problem for him so it's encouraged him to keep using it'* (Emma, Teacher)

The use of voice is important as it relieves learners from having to engage with large quantities of written text. By using voice to remove this barrier, adult beginner literacy learners are better equipped to autonomously engage in learning.

3.The digital nature of the app helps make literacy learning accessible

Learners like that the app is digital, because it is easily accessible between classroom contact time and because they have more control over when they choose to engage with content. Learners can also use the app to facilitate their learning quickly when needed (e.g., when at work and needing support with spelling or word pronunciation). One learner comments that the app provides them with a place to practise phonics, which is unique:

> *'Previously there had been no place for him to practise phonics and, for this reason, the app was very helpful'* (Interviewer's notes from interview with Halim, Learner)

Learners place significant importance on being able to work through the app independently, and in their own time. Such considerations are imperative when designing learning opportunities for adults, many of whom are managing their learning alongside their family, work and community commitments:

> *'[The app] makes you think and you can always go back you can say 'alrite I don't wanna know today I'll go back tomorrow' you can go back to it all the time... you can stay there all day if you want to because it will tell you what to do'* (Stephanie, Learner)

3i. Teachers, advocates and learners appreciate the app's 'stand-out' digital features

Teachers and advocates comment on 'stand out' features of the app. When asked what they like the most, the most favourable response amongst teachers is the grapheme recognition tasks, and amongst advocates, the range of activities. This may reflect differing priorities, with teachers being more likely to report the literacy skills tasks (e.g., grapheme recognition and blending tasks) as something they liked, and advocates thinking about the holistic nature of the app, and how it can be used to enthuse and engage adults during their leisure time. A number of teachers and advocates also like that the app builds in momentum for learners:

> *'I think all the activities are clear and easy to use. They build on each skill effectively'.* (Adult Literacy Teacher 1)

> *'The fact that it began very simply and incrementally...it gathered momentum as you were going on so it was building, I liked the building blocks piece to it'* (Sally, Advocate)

One teacher highlights how the app provides instant feedback to learners, and how, as a quicker response than traditional paper-based methods involving teachers manually marking learners' work, this may increase learners' confidence:

> *'One of the best things about it is they are getting instant feedback on what they are doing...so that's going to be really powerful for tutors and comforting for students and confidence building'* (Blair, Teacher)

Learners also shared some of the stand out digital features that they particularly appreciated. Aside from the use of voice (discussed above), they liked that the app provided clear instructions, which supported engagement and persistence:

> *'So you can go in and say oh I fancy going into the app, you go into the app, you can stay there all day if you want to because it will tell you what to do.'* (Stephanie, Learner)

4. Using the Citizen Literacy app; facilitators that support learning

Learners, teachers and advocates share some of the facilitators to learning provided through the app. The digital nature of the app underpins many of these highlighted facilitators.

4a. Being able to learn continuously

The theme of 'continuous learning' was apparent within interviews and questionnaires. This could be understood within two broad subthemes; spaced repetition and blended learning.

4ai. Spaced repetition

To improve literacy skills, participants feel learners need to be engaging with learning continually and repetitively. This engagement was demonstrated through learner questionnaire responses, with half of the respondents stating they use the app daily or almost daily and all but one respondent reporting that they used the app regularly (multiple times each month). An important finding is that many learners are using the app in-between classroom sessions to continue their learning, as the app backed up what they were learning in class. Participants describe below how regular engagement enables learners to embed their learning and feel more knowledgeable:

> *'It was useful that you could keep going so it didn't have a cut off and throw you off one piece because sometimes people do need to repeat things and you know get that engrained into their mind'* (Sally, Advocate)

> *'I feel more knowledgeable, I feel that, because I'm learning every week, I can turn the app on and I can start doing it...it helps you cos we only go to college once a week so the app when you got into it you've got it there every day'* (Stephanie, Learner)

> *'What I do is I do it all and then I go back to it again … I'll go over it it's good cos of the sounds so I can remember the sounds and all that'* (Ben, Learner)

Our findings suggest that being able to use the app when needed and to repeat information helps learners feel that they are gaining knowledge, as well as consolidating classroom learning. Our findings also indicate that learners who are already attending adult learning provision are taking responsibility for their learning between classroom input; a development that was embraced by teachers and advocates who suggested learners would gain 'confidence through repetition' (Adult Literacy Teacher 1) and have got used to 'the routine of it' (Emma, Teacher). Learners also highlight the importance of repetition to help them to retain information. The emphasis on the importance of 'spaced repetition', or 'interleaving' reflects evidence-based practice suggesting these methods help learners commit information more effectively to their long-term memories (Tsabet, 2018).

4aii. Blended learning

Teachers and advocates appreciated how the Citizen Literacy app can be used within and away from formal learning spaces, and how the app lends itself to the development of blended learning opportunities (a mix of face-to-face and self-guided learning). Teachers and advocates report that blended learning has numerous benefits for learners, such as enabling them to work independently and at their own pace. Some teachers also mention the app as a way to complement and diversify their practice, with the app increasing 'portability':

> *'This has given me the ability to diversify greatly, using this new resource as a classroom and homework resource'* (Adult Literacy Teacher 6)

Blended learning approaches using the app to practise skills between taught sessions are also appreciated by learners, who feel that classroom learning and the app are a *'good combination'* (Ben, Learner), and help to ingrain what tutors are teaching in the classroom. Stephanie highlights how the app and tutor-led learning strike a balance that is sensitive to her needs; something a previous college experience did not offer:

> *'I used to go to college in [city] when I was there but I still got the paperwork and it's like full up of little words inside of words but if you don't know them words… so I think this app is better, it's suited for us put it that way'* (Stephanie, Learner)

The comments above highlight how the Citizen Literacy Taster app can be instrumental in developing blended learning opportunities for adults who are beginner literacy learners. Research on the effectiveness of blended learning is especially limited in relation to adult literacy learners, nevertheless, some higher education-based studies have suggested that when teachers embed blended learning effectively, there are positive gains in relation to learner engagement, retention and progress (Boyer and Chambers, 2017).

4b. A 'grown up' approach to literacy learning

Another consistently important narrative arising from both interview and questionnaire data is the importance of the Citizen Literacy app being aimed at adults. Respondents feel that existing mechanisms aimed to help people to learn phonics are childish (e.g., songs being used and childlike imagery). In contrast, learners describe how the Citizen Literacy app allows them to feel 'grown up', as it is designed for adults. Ben describes his experience of learning literacy as an adult as having to use aforementioned childlike methods (such as videos on YouTube aimed at children), as there was nothing available for adults. Using the 'adult-focused' app and reaping the benefits has prevented adults from feeling infantilised:

> *'He showed me the app and its really good, I like it…it's kind of hard for me saying the sounds so what I did I went on YouTube and I saw a video cos it was like for kids… there's nothing for adults…so it sang the words out…but this app it's like for grownups so it's much more better…it's refreshing'* (Ben, Learner)

'I don't think there's anything childish about [the app] at all I think it's just straight in there... [learner] doesn't see it as something that's been designed for kids that he needs to look at because of the level that he's working at at the moment, it's just a resource that he can tap into and that he finds useful' (Emma, Teacher)

Learner and teacher accounts emphasise the critical need for adult-specific literacy learning resources, especially for beginner literacy learners. Adult-specific literacy materials enable learners to initiate and utilise their schematic knowledge (Moss, Duncan, Harmey and Muñoz-Chereau, 2018), and contextualise their learning in relation to their everyday experiences. Materials developed especially for adults may also help break down feelings of shame that may cause a reluctance to engage in literacy learning. This was alluded to by an Adult Literacy and Numeracy Support Worker, who explained it may be 'less embarrassing' for learners to use the adult-focused Citizen Literacy app to practise the basics of literacy.

4c. An app that is aimed at adult beginner literacy learners

Linking to the previous theme, the Citizen Literacy app is unique because it focuses on developing literacy skills for adults who are at the very beginning of their literacy learning journeys. Other digital (and many paper-based) interventions aimed at adult literacy learners tend to miss out the first critical stages of literacy learning (such as grapheme recognition and the blending of sounds). Having access to an app that is directly focused on the needs of adults to develop knowledge of the English language 'code' (phonics) is welcomed by teachers and advocates:

'[The app] actually parachutes you right in to someone has studied this, someone has worked out these are the blends and these are the sounds you need at the very beginning…a really nice, simple tool that developed everything it needed to for somebody trying to learn those initial sounds and blends' (Sally, advocate)

'Great to have an app to start at the beginner level' (Advocate 3)

Another teacher emphasises the importance of the app in its demystification of phonic-based approaches to teaching and learning: *'it has swept the phonics fog away'* (Adult Literacy Teacher 6). This is another important finding, with literacy teachers in England currently being advised to embed phonics within their teaching practices as part of the reformed Functional Skills English qualifications (Department for Education, 2018).

Finally, teachers describe the profound effect that using the app has on beginner literacy learners who previously had not been offered opportunities to improve their literacy skills, such as those with dyslexia and those told by others that they will *'never get anywhere'*:

'It works with people who need help to get to their work, and it works for people who have been lost by society, who have been forgotten about. I think it's great cause we're

saying you're not forgotten about and here's an opportunity...it's opened up a world that didn't exist for loads of people' (Blair, Teacher)

4d. A pedagogically sound, structured approach to literacy learning

Teachers and advocates appreciate that the app is grounded in evidence-based, effective pedagogy. Areas specifically highlighted include that the app: offers a structured way of learning; has lessons to work through in order; offers a systematic programme of phonics instruction; enables adults to take ownership of their own learning:

'You could see there was an awful lot of pedagogy and thought process and really it came from a really hugely strong base' (Sally, Advocate)

'What phonics does is it offers a structure...there's an instant kind of relaxation in students when if they know...the sound in the middle and they knew the two sounds at the end...it's a structure and they know how to blend the sounds together in order to create words' (Blair, Teacher)

'I think having that step-by-step process it allows the learners to identify if there's any gap…so letting them work through it in that methodological way allows them to identify any of that and then work on developing it' (Emma, Teacher)

5. Learner outcomes

Learners, teachers and advocates outlined numerous changes in the lives and literacy skills of learners following use of the app. These changes can be viewed within two broad themes: **Empowerment since using the app** and **Improving reading and writing**.

5a. Empowerment since using the app

Threaded through participants' narratives is a theme of feeling empowered as a result of using the app. This empowerment is related to a number of different functions of the app and permeates different areas of learners' lives, described below:

5ai. Motivation to learn

Our findings suggest that learners enjoy the process of learning. Prior to using the app, some learners felt a lack of motivation to learn. After using the app, learners indicate they feel empowered, motivated and engaged with learning. Learner motivation is underpinned by perseverance and repetition, e.g., going over mistakes *'a few times'* (Stephanie, Learner).

Learners' narratives emphasise the app's ability to support them to persist with independent learning, even when they make a mistake. This is critically important, as adult learning tools need to be pitched in an effective and meaningful way that captures interest, supports skills

development and encourages a positive 'growth mindset' for learning that sees failure reframed as 'not yet' (Dweck, 2006). The digital nature of the app specifically allows learners to repeat activities and make mistakes before trying again; something far more difficult on paper.

All learners who completed questionnaires report that the app keeps them interested in learning and all but one learner report they would like to go on to attend an adult literacy class since using the app, suggesting the app may boost motivation for further learning. Learners, teachers and advocates recognises the app as an important stepping stone in encouraging learners to attend an adult literacy class. This finding emphasises the dual role of the Citizen Literacy app; as a tool for adult beginner literacy learners to use between taught sessions and as a bridge to formal literacy learning.

5aii. Increase in confidence

Prior to using the app, some learners completing questionnaires stated they often felt anxious when learning and that learning something new evoked these feelings. Nonetheless, the same learners agreed they enjoyed learning, recognised that education can lead to new opportunities and experiences in life and felt they would like to participate in learning and learn something new. This suggests that even those learners who felt anxious about learning were still keen to learn. Overall, prior to using the app learners reported a range of attitudinal barriers to learning including lack of confidence, feeling scared, and experiencing literacy as a struggle. After using the app, learners say they feel more confident about literacy learning and feel that continuing learning will help them to feel better about themselves. Most also feel more hopeful about developing their literacy skills, reflected in teacher, advocate and learner interviews:

> 'I think my confidence has increased and I know if I need to ask for help I can ask for help in work' (Rosie, Learner)

> '[The app] would definitely be beneficial for those at the beginning of their learning journey. The confidence they would gain would be excellent' (Lecturer)

Increased confidence is a positive indicator that participants will continue to engage with the app, especially when they can see changes within their lives. Positive benefits such as the app contributing to 'leaps in confidence' and 'taking my mind off things' suggest the app is positively influencing leaner lives. Some participants attribute increased learner confidence to the positive and regular feedback that the app provides. This indicates the important role feedback can play in supporting learner outcomes:

> 'I liked the encouraging feedback of the 'well done you're doing great' I think learners really need to hear that especially if they're doing it on their own' (Emma, Teacher)

'I done [the question] and it said it was right and I felt so relieved so happy inside' (Stephanie, Learner)

As well as feelings of improved confidence, the accounts learners share suggest a potential link between beginner literacy learners' engagement in adult-centred literacy learning applications and their wider well-being (e.g., in relation to feelings of increased happiness, taking their mind away from other things and feeling able to ask for help). This is an area for further and future exploration.

5aiii. (Re)claiming independence and taking ownership of own learning

Linked to increases in confidence, participants describe how using the app has helped them to become more independent and take ownership of their learning. We have called this theme (re)claiming independence, to highlight how for some participants, they are claiming back some of the independence they have lost by not being able to read and write, whereas for others they are feeling independent for the first time. Learners describe having the confidence to work independently (for example, to try and spell a word themselves before looking up the answer on their phone), suggesting a breaking of reliance on previous methods and the potential of the app to connect with what Bloom (1956) describes as the 'affective domain' (e.g., a willingness to engage in learning and/ or to work something out for yourself):

'If I find I want to spell something I won't go straight to my phone what I do is I try to spell it...and if I think it's not right then I go to my phone' (Ben, Learner)

'[I'm] not having to rely on people as much...not having to reply on colleagues as much...reading I will give it a go' (Rosie, Learner)

Rosie's experience is highlighted by teachers, who explain how the app is enabling learners to work independently:

'It gave him some ownership as well he was able to say 'well this is what I thought about it'...it didn't always feel the way it can do in a class group setting where they are looking to you for the answers all the time' (Emma, Teacher)

'She says 'if I don't get it right I just try again... so she's learning she's actually learning on her own there's autonomy there's independence rather than waiting on someone else to do it for them or to show them what to do' (Blair, Teacher)

As well as developing independence, learners explain how the app helped them to persist in their learning. Prior to using the app, Stephanie's experience of not being able to read or write was one of feeling *'small in a box'.* She describes how to app has helped her commit to learning to read and write, when in the past she has given up. Stephanie's persistence resulted in her

being able to blend letters to spell out and pronounce the name of a shop she frequently visits; a deeply contextual achievement that enabled her to feel *'so good inside'.*

Stephanie's example highlights how the spoken, written and letter recognition tasks within the app are enabling learners to progress their literacy skills. Additionally, reclaiming independence in the way Stephanie describes is significant in terms of learners' self-efficacy. This is an important consideration for adults of working age, with research suggesting that the development of personal resources such as confidence and self-efficacy support positive engagement and productivity within the workplace (Bakker, 2011).

5b. Improving reading and writing

A key focus of this evaluation is to understand the effectiveness of the Citizen Literacy Taster app in supporting adults to develop their literacy skills. Specific indicators of literacy development, from the perspectives of learners, teachers and advocates, are now explored.

5bi. Indicators of literacy development

All fifteen teachers and advocates who had used the app with learners feel that learners find it easy to use, engaging and that it is supporting their literacy development. When asked what the potential benefits for learners would be, teachers recognise three elements: improved ability to recognise written sounds, improved self-confidence and improved ability to spell everyday words. Advocates identify improved ability to spell everyday words and improved self-confidence as the two most beneficial aspects. Learners also feel that the app is helping them to improve their reading and writing skills, and outline improvements in pronunciation of words, reading, and using sounds to spell words. They emphasise feelings of security in being able to make mistakes and try again, and feel hopeful about developing their skills further due to the app:

> *'I've got a lot better on that app by using it. I can make mistakes on it'* (Louise, Learner)

Teachers and advocates also comment on the positive digital aspects of the app; for example, that it is easy to use through online conferencing platforms such as Zoom and that it would aid independent learning due to being on a smart phone, leading to an increase in engagement. Teachers describe how learners' digital development was an added bonus for learners who did not think they would (or could) develop these skills. Teachers and advocates also give examples of how learners' literacy development has improved due to the app. One teacher describes how a learner they work with uses the techniques within the app to blend words together, and suggest ideas for their own learning:

> *'They create their own learning, they blend the words together, they create their own sentences they create their own questions as well and anything to do with independence of learning... its opened up opportunities for students to do more digital stuff but also*

just to create and to be able to create and personalise their own work is it's a big tick academically, if they're creating their own learning it's brilliant (Blair, Teacher)

Blair's account indicates that learners are doing far more than working passively through the app, with learners inspired to craft and develop their own contextualised learning opportunities. By using the app as a springboard, it seems that some learners have been able to focus their attention on aspects of literacy development that are especially meaningful to them (e.g., being able to read and pronounce the names of their local shop). This is an extremely promising finding, as it suggests engagement with adult-specific literacy learning tools may support learners to conceptualise and develop their own learning, particularly when they have support and guidance from literacy specialist teachers or advocates. These findings also suggest increased learner confidence regarding co-creation of literacy learning, which may help reduce stigma and reframe adult literacy learners as valid holders of knowledge and expertise.

6.Suggestions for improvements in design and delivery of the app

To develop teaching practice and advocacy support further, teachers, advocates and learners suggested how the app could be improved. Gaining feedback regarding improvements has been a vital aspect of the testing and evaluation process, supporting the team to revise and redevelop particular aspects of the app to aid its useability and (as far as possible) safeguard learners from becoming disheartened by inaccuracies in handwriting or voice recognition. This is still a work in progress, and the team are continually improving the app's responsiveness and receptiveness to different accents, pronunciations and handwriting techniques.

6a. Accuracy, consistency and clarity

Whilst teachers and advocates trialled the app before sharing it with their learners, they noted some glitches within the app, relating to accuracy, consistency and clarity. Teachers and advocates made suggestions to improve the app in the context of learners having a positive user experience, so that learners do not feel *'annoyed'* or *'frustrated'* whilst using the app. Suggestions were made as to how the app could be improved:

- Make recordings of sounds clearer and check voice recognition
- Audio prompts to guide the learner if they are stuck
- Check consistency e.g., that capital letters are always/never accepted
- Writing practise – check incorrect graphemes are not recognised as correct
- Greater discrepancy is required between the *'m'* and *'n'* sounds

6b. Ensure learning is fun

The app as an engaging tool to complement classroom learning is a theme that became apparent during interviews. As discussed, respondents like that the app is adult-centric, and that it includes engaging and interesting activities. In order for the app to be improved further, there were suggestions that learning continued to be fun, for example, by including an element of adult-centric gamification, discussed in the example below:

Ben explained how he used his phone to play games and how further gamification would be a welcome aspect of the app. *'I play games on my phone... if you do like a couple games and see the scores that you've got and what you've gotta do is you've gotta try beat the score so just make it like fun but adult more adult games'* (Ben, Learner). Ben's suggestions were incorporated into future lesson design, helping retain the adult-centric nature of the app, whilst also keeping the content fresh and engaging. The screenshot opposite shows how the team built on Ben's ideas to incorporate gamification into the lesson design.	 Screenshot of Citizen Literacy Lesson 4.17

Creating learning that is engaging for adults is integral to support beginner literacy learners to make progress and develop their skills. If adult-centric gaming activities with elements of competition (against themselves) were included within the app, this could allow more learners to engage continuously in order to try and improve their scores. This 'learning whilst being entertained' emerged as a crucial way to ensure learner engagement on an ongoing basis.

6c. Differentiation

Though participants like that the app is aimed at beginner literacy learners, there was suggestion to ensure that the app is suitable for literacy learners who are starting at different

levels, in order to meet need and prevent boredom. Participants suggested that the app could be developed to move people onto a level that meets their needs, ensuring they were not *'getting stuck and defeated or finding it too easy and getting bored'* (Education Co-ordinator). Initial testing focused on the first of five lessons offered through the app, which increase in difficulty as a learner progresses through them. Being able to start learning at the point of need (by selecting which lesson to begin) may alleviate these concerns.

Additionally, some teachers and advocates suggest that the app could be tailored for learners who are using it with or without tutor support. Suggestions include being able to click an option when loading the app that takes the learner to a different version depending on whether the app is being used in conjunction with classroom provision or alone, having an initial optional explanatory video about how the app has been designed and signposting to local literacy support. One teacher highlights the need for any support offered to be accessible – stating that when they input their postcode, the nearest provision was 86 miles away. This concern is not an easy fix, as it highlights the fragmented nature of adult literacy provision (availability of adult learning provision is continually changing and is not currently mapped across the UK). However, the suggestion regarding differentiation for learners depending on whether they are using the app independently or as an aspect of their formal literacy learning is invaluable, helping the team consider and devise innovative approaches to further progress the app in the future.

Summary of findings

Overall, learners indicate they are feeling engaged and motivated by the Citizen Literacy app, and that it is assisting them to develop their literacy skills. Most learners also felt motivated to attend an adult learning class after using the app. At the current time, it is difficult to assess the impact of the app on learners' literacy development, as they have only been using the app for a short while. However, our early findings are promising, particularly in relation to learners becoming more autonomous and using the app as a springboard to co-construct learning.

Most learners we spoke to had been introduced to the Citizen Literacy app by an advocate or teacher, who supported and encouraged them to give it a go. Our finding emphasises the critical role teachers and advocates play, in building learners' confidence and self-esteem, in de-stigmatising literacy learning and in supporting adults who are beginner literacy learners to engage in learning.

> *'The learner who will really benefit from the app needs somebody to make the introduction…we've talked about having a significant other person who doesn't need to be a teacher with a capital T, it could be a friend or a partner or a child... as far as first steps it'll have to be someone who's got someone they trust come along and say 'what do you think of this?'* (Literacy Specialist, Citizen Literacy Team).

'Advocates have such a crucial role in how successful this app will be. They are so important to introduce the app to potential app users and support them to engage with the app. Another aspect for us on the project is in relation to helping learners feel confident to share their feedback and for them to know how important their contributions are... what they tell us is shaping the app for the future so it can be the best version possible for learners' (Programme Manager, Citizen Literacy Team).

Returning to our **Theory of Change**, and the three key questions this evaluation asks:

- To what extent does the Citizen Literacy app meet the needs of beginner literacy learners?
- What impact has the Citizen Literacy app had upon literacy learners' everyday lives and circumstances?
- How effective is the Citizen Literacy app at supporting the development of literacy learning?

Our evaluation has found the following:

Attitudinal Differences	Outcomes
Increased confidence to learn	Learners report their confidence has increased as a result of using the app.
Increased willingness to contact adult literacy support agencies	Some learners feel more willing to contact adult literacy support agencies. Other learners testing the app were already actively engaged with these services and had been introduced to the app through them.
Increased interest in digital learning	Learners report enjoying the digital aspect of the app, as well as suggesting ways of further building digital skills and engagement (e.g., through further gamification).
Behavioural Differences	**Outcomes**
Increased access to digital information using 'essential digital skills' (England) = digital literacies	Some learners reported that the app is helping them use their phones in new ways (e.g., to access and engage in learning). Some teachers and advocates highlighted the opportunity the app provides for learners to develop both their literacy *and* essential digital skills.

Increased likelihood of signing up for adult literacy courses	Some learners said they would feel more confident to sign up for adult literacy courses, whereas others appreciated that the app could be used in 'known' places where they felt safe and secure (e.g., their home environment). Several learners were already attending adult literacy courses and the app was complimenting their studies.
Increased likelihood of signing up for essential digital skills courses/ learning opportunities	Learners did not specifically allude to an increased likelihood of signing up for essential digital skills courses as a result of accessing the app. Some teachers mentioned that learners' increased confidence may support their engagement in more formal learning opportunities.
Skills Development	**Outcomes**
Improved literacy and essential digital skills (beginner adult literacy learners)	Learners overwhelmingly reported that they felt they were developing their literacy skills through using the app and many also shared how the app as supporting them to develop essential digital skills (eg., through the purposeful use of technology to progress learning through the app and in some instances, design and develop independent learning activities).
Ongoing engagement with the app (completion of individual lessons; amount of time spent on each task; attempts made at each task)	In app data and learner, teacher and advocate testimony show that learners are returning to the app on numerous occasions to engage in bite-sized learning. Time spent on each task suggests that learners are not giving up but persisting with tasks so they can move through the app.
Improved session design and training skills using digital tools	Several teachers report that they are either integrating, or intend to integrate the Citizen Literacy programme within their everyday teaching practices. Teachers suggested different ways of doing this, including through using the app to facilitate blended learning, to compliment face to face teaching and learning and as an in-class activity.
Improved advocate skills (to talk about adult literacy in a 'non-deficit' manner)	The team recorded an introductory video for advocates, sharing Citizen Literacy's vision and our theoretical framework for adult literacy learning, which advocates strengths-based, person-centred and socially just approaches to support. The team were also able to

| | offer training opportunities for Union Learn colleagues, further equipping advocates to talk about adult literacy in a non-deficit manner. |

Conclusions and lessons learned

The Career Tech Challenge Fund has provided an excellent opportunity for the Citizen Literacy team to develop and trial the Citizen Literacy app with beginner adult literacy learners, their teachers and their advocates. Some important lessons have been learnt over the life-course of the project, which are described below. We also consider in this section some key recommendations and next steps for adult literacy learning, and for ed-tech design and development. Finally, we reflect on the joys and challenges of undertaking this evaluation, and lessons learnt for future projects.

Opportunity to engage in low-stakes, bite-sized literacy learning was appreciated by beginner literacy learners.

Learners appreciated being able to access an app that is '*always with you*'; they did not have to wait until their next literacy class (if they were attending one), and they could assimilate using the app within their daily routine. Teachers and advocates reported that a benefit of the app was that it offered 'bite-size' learning opportunities, which could be used by learners in their own time and/or as a way to improve and develop skills in-between face-to-face learning.

Flexible opportunities for adults to continuously practise and develop their literacy skills were particularly welcomed by learners, and teachers were able to utilise learners' enthusiasm for the app to devise and in some instances, co-create blended learning opportunities

The low-stakes element of the Citizen Literacy taster app provided opportunities for learners to develop their literacy skills in their own time, and without the pressure of learning new routes and routines (e.g., having to find their way to an adult literacy class). For learners who were already engaged in formal learning, the app offered an excellent opportunity for the development (and in some instances co-creation) of blended learning, with learners sharing and discussing their learning from the app as part of their teacher facilitated sessions.

Literacy difficulties restrict learners' everyday activities, movements and routines

Some learners described their difficulties with literacy as being *'stuck in a box'.* Not being able to read and write often trapped learners within the immediate boundaries of their locales, as fear of getting on the wrong bus or catching the wrong train prevented and restricted travel. All learners described their frustration with the barriers their difficulties with reading and writing presented; in relation to engaging with family and friends, in relation to work and employment opportunities, and in relation to their active participation in everyday activities.

There is an immediate and urgent need for age-appropriate adult literacy resources

Learners, teachers and advocates universally appreciated the age-appropriate style and content of the Citizen Literacy taster app. By drawing on adult's existing schematic knowledge, the app was viewed as a welcome surprise from the 'cat sat on the mat' phonic-approaches that have been designed predominantly for children.

The critical role of advocates in literacy learning

Initially, we had hoped to interview a larger sample of learners, teachers and advocates, and we had also hoped for higher engagement in the completion of advocate, teacher and learner questionnaires. However, the impact of Covid-19, which, for the duration of this project, has stripped away almost all face-to-face contact between adult literacy learners and their teachers and/ or their advocates, has meant that questionnaire return and engagement in interview has been significantly reduced. This is an important finding in itself in relation to working with beginner adult literacy learners; it highlights the importance of a trusting and caring relationship with a teacher or advocate, and the critical role they play during face-to-face work in building learners' confidence and self-esteem - to engage in literacy learning opportunities but also to share their views and opinions about their learning.

The Citizen Literacy app roll out has also provided an excellent opportunity to upskill intermediaries and advocates, especially in relation to how we speak about literacy learning (e.g., discouraging deficit interpretations and encouraging literacy learning and development through a social justice lens).

The importance of establishing trusting relationships

The theme of trust cuts through this project in its entirety, from the establishment of the Citizen Literacy Team (and the positive harnessing of our diverse professional backgrounds, perspectives and experiences to develop a meaningful, learner-centred literacy development app), to the trust built between beginner literacy learners and their teachers and advocates. Trust between those promoting the app with their learners, colleagues and friends and with us, the Citizen Literacy team, was also paramount; the relationships we have developed through many years working in the FE and post-16 sector as educators, ed-tech specialists and app designers, supported teachers and advocates to enthusiastically promote, trial and offer feedback on the app.

Recommendations and next steps

Finally, we share our recommendations and next steps that have arisen during the life course of the project.

For adult literacy learning

- Continued development of age-appropriate resources for adult literacy learners;
- Further research and investigation into beginner adult literacy learners' everyday literacy practices and strategies;
- Further exploration with regards to improvements in self-efficacy as a result of having an app with which to develop basic literacy practices.

For employers

- There is a need for employers to either provide direct access or actively signpost to literacy development opportunities. Adults need to be able to access learning opportunities discretely, with literacy learning available via their workplaces as an option for continuous professional development;
- Employers should consider the accessibility of their reading materials, and where necessary, provide readily accessible assistive technologies that support adults to engage effectively with day-to-day tasks in the workplace. Such considerations may reduce stress and build confidence, aiding productivity and supporting adults to fulfil their potential at work.

For ed-tech design and development

- Further exploration in relation to learner engagement with adult-centric learning apps and reported improvements in mental health and wellbeing;
- Opportunities for ed-tech designers and specialist teachers to form working partnerships to develop resources grounded in effective practice.

For innovators

- Take forward the creative value of working as a small, multi-disciplinary team that facilitates collaborative and innovative approaches to educational app design and development.

Appendices

Appendices to this report can be accessed by clicking this link.[1]

1. Ethical considerations (abridged)
2. Topic Guide – In depth learner interviews
3. Topic Guide – Teacher/ advocate questionnaires and interviews
4. Topic Guide – Learner Questionnaires
5. MI snapshot data (Beta test pages)
   a. Appendix 5a - MI snapshot data (Beta test pages) – 1.9.2020 - 21.3.2021 ENGLAND
   b. Appendix 5b - MI snapshot data (Beta test pages) – 1.9.2020 - 21.3.2021 REST OF WORLD
6. MI snapshot data (Beta test pages) – Learner Journey
7. Anonymised demographic information, learner, teacher and advocate questionnaires and in-depth interviews
8. Ethical considerations (full version)

9. Top 500 users' analytics

10. The Citizen Literacy Team

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[1] Full link: https://app.box.com/s/4kdvu219kn62xo8e7wifqj3409xct1vl

References and further reading

Bakker, A. (2011). An Evidence-Based Model of Work Engagement. *Current Directions in Psychological Science.* 20 (4): 265 – 269.

Belgutay, J. (2020). Phonics adult literacy app launched. Times Educational Supplement. Available at: https://www.tes.com/news/phonics-adult-literacy-app-launched [accessed 18.3.21].

Bennett, T. (2017). Creating a Culture. How School Leaders Can Optimise Behaviour. Department for Education: London. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/602487/Tom_Bennett_Independent_Review_of_Behaviour_in_Schools.pdf [accessed 12.3.21].

Bloom, B.S. (1956). Taxonomy of Educational Objectives, Handbook: The Cognitive Domain. David McKay: New York.

Boyer, J., and Chambers, L. (2017). Evaluating blended learning, bringing the elements together. 'Research matters: a Cambridge assessment publication'. Issue 23 (Spring). Available at: https://www.cambridgeassessment.org.uk/Images/375446-evaluating-blended-learning-bringing-the-elements-together.pdf [accessed 3.3.21].

Braun, V and Clarke, V., (2013). Successful qualitative research: a practical guide for beginners. Sage: London.

Charmaz, K., (2014). *Constructing Grounded Theory*. Sage: Los Angeles.

Citizen Literacy, (2019). *Citizen Literacy: Reading and writing for everyone*. Available at: https://citizenliteracy.com/ [accessed 16.2.21].

Citizen Literacy, (2020). *White Paper*. Available at: https://citizenliteracy.com/white-paper/ [accessed 1.2.21].

Department for Business, Innovation and Skills, (2012). The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England. BIS RESEARCH PAPER NUMBER 81. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf [accessed 1.2.21].

Department for Education, (2018). Guidance: Functional Skills subject content at entry levels, level 1 and level 2. Available at: https://www.gov.uk/government/publications/functional-skills-subject-content-english [accessed 3.3.21].

Dweck, C. S. (2006). Mindset: The new psychology of success. New York: Random House.

Easton, P., Entwistle, V., and Williams, B., (2013). How the stigma of low literacy can impair patient-professional spoken interactions and affect health: Insights from a qualitative investigation. *BMC health services research.* 13. 319. 10.1186/1472-6963-13-319.

Mateos-Garcia, (2014). Unconventional data and worldly wisdom (in a 2 by 2 matrix). Nesta. Available at: https://www.nesta.org.uk/blog/unconventional-data-and-worldly-wisdom-in-a-2-by-2-matrix/ [accessed 12.2.21].

Moss, G., Duncan, S., Harmey, S., and Muñoz –Chereau, B., (2018). Current practice in using a system of phonics with post-16 learners. UCL and the Education and Training Foundation: London. Available at: https://repository.excellencegateway.org.uk/ETF18002_PHONICS_REPORT_80PP_FINAL_AW.pdf [accessed 14.2.21].

National literacy Trust, (2017). *Adult Literacy: Information on adult literacy in the UK and our Books Unlocked programme.* Available at: https://literacytrust.org.uk/parents-and-families/adult-literacy/ [accessed 2.2.21].

OECD Skills Studies, (2016). *Building skills for all, a review of England. Policy insights from the survey of adult skills.* Available at: https://www.oecd.org/unitedkingdom/building-skills-for-all-review-of-england.pdf [accessed 2.2.21].

Tsabet, L. (2018). Why an 'interleaving' curriculum could improve knowledge retention. Available at: *https://www.tes.com/news/why-interleaving-curriculum-could-improve-knowledge-retention* [accessed 3.3.21].