Working Paper Series

Accessibility and inclusivity in remote and low-income reader communities

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Working Paper 6/21
December 2021
Accessibility and inclusivity in remote and low-income reader communities

Library For All (LFA) projects are commonly activated in communities where history, poverty or remoteness prevents access to substantial book collections. LFA has a mission to help boost literacy in remote and low-income communities through provision of books and educational resources, but the impact of this endeavour rests on the assumption that the materials provided are accessible to the readers who need them.

Accessible book production is high on the global publishing agenda, with authorities across disability advocacy, human rights, literacy, copyright and EdTech lending their perspectives to the growing body of research, development and legal reform. The highly influential European Accessibility Act, for example, comes into full effect in 2025, at which time all digital products sold in the EU must be made available in accessible formats.¹ Thus publishers within the EU, along with any producers hoping to sell into that market, must rapidly prepare to adopt accessible publishing practices. Other nations are expected to follow suit.

Currently in Australia, only around 10% of published works are available in multiple accessible formats.² Accessibility has long been viewed as an admirable goal for book creators, but adaptation — such as converting to a Braille edition, for example — is laborious and costly, and many conversion projects survive only on tenuous funding. This situation has put children’s and educational publishing on high alert as Australian states begin moving towards their own sets of publishing equity legislation for the education sector.

As ever, this raises specific concerns for remote and low-income environments. In addition to obvious questions around funding and technology, there are important considerations around the conditions into which books are delivered. For example, why provide Braille books to a community where there is no Braille teacher? These are the situations in which our definition of “accessible publishing” must be contextualised to reduce the risk of merely “ticking boxes” on format creation without specific analysis of user needs.

This Working Paper surveys academic and NGO research activities in support of LFA’s development of accessible books and resources within the challenging conditions of remote and low-income communities. It summarises relevant definitions of “inclusive” and “accessible” publishing, examines recent developments in technology and publishing formats, and highlights some of the ethical and pedagogical considerations that impact the widespread distribution of accessible format materials.

Inclusive vs accessible – definitions for publishers

According to the Accessible Books Consortium, a public–private partnership led by the World Intellectual Property Organization (WIPO), a completely “accessible” product is one that offers “the maximum flexibility of user experience for all readers and allows the content to be accessed and manipulated with ease by those with or without disabilities”. The terms “inclusive” and “accessible” are often conflated in the literature around providing materials for maximum and equitable engagement. Some authorities use them interchangeably while others make a clear distinction. It could be argued that the language is trending towards clearer definitions as activity in the space accelerates. This is a practical and philosophically important step, acknowledging the diversity of access needs that may require attention.

For the purposes of this paper, “inclusivity” will be seen as a thematic factor, while “accessibility” is the practical availability of texts. A memorable example of this was provided by author and activist Kayt Duncan during a virtual seminar on accessible publishing. At a suitable break in proceedings, Duncan offered her participants a platter of snacks. She had considered a range of dietary needs – gluten free, dairy free and vegan. It was a truly inclusive morning tea. However, given that the participants were all on the other side of a Zoom screen, the offering was not accessible to them. Duncan’s provided definition of accessibility was “the provision of an ‘experience’ in this case ‘reading’ in an ‘equitable’ open and usable manner to an individual regardless of ‘ability’”.

The term “inclusive” can also be used in a design sense to suggest a universal design approach. For publishers, this definition suggests implementation of accessibility from the inception of a publishing process, so that the text is “born accessible” rather than being retrofitted with accessibility elements. This is similar to ensuring your business website utilises responsive design elements, making it equally visible online and on mobile without disadvantage to either user group. This is now the default best practice for web designers. Accessible websites have better search results and increased audience reach in addition to equity benefits.

A born-accessible book (or other document, website or educational tool) is one whose entire workflow methodology is designed to counter all reading barriers. A considered, born-accessible process results in a core product that will not require modification to provide an equitable reading experience. For some publishers, this may signify a major overhaul of workflow practices — but the long-term cost and efficiency benefits would be significant.

Implementing inclusive publishing practices, by any definition, is an essential component of ultimately creating accessible books. But being thematically inclusive in publishing, for the disability space, means

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4 “The Future of Inclusive Publishing in Australia.”
6 Duncan.
9 Duncan, “What Is Inclusive Publishing - And Why You Need To Know?”
ensuring visibility and representation of multiple diverse groups in texts and illustrations. Other considerations are avoiding the use of “ableist” language and centring disabled people in narratives, including by providing opportunities for “own voices” storytelling.\textsuperscript{10} 

There are around 4 million Australians with an identified disability,\textsuperscript{11} yet often the stories told about people with disabilities are, in truth, stories about the people around them, such as how siblings or parents cope with a child with a disability. At the other extreme are images that show such people as “brave” or “inspirational” by virtue of doing things that might be common for other people — such as playing sport — despite their disability. Holding people up as heroes for “overcoming” their disability is seen by many as contributing to the marginalisation of those who may never win an Olympic medal, for example, or who would prefer to see their disability normalised and accepted rather than “overcome”.\textsuperscript{12} 

The choices we all make about language have an impact on the way people with disabilities feel and are perceived in society. Inclusivity guidelines advise against many terms often used without consideration of their connotations; “blindly” following advice, going “crazy”, or describing an activity as “lame”, even if said without malice, can be harmful.\textsuperscript{13} The challenges of linguistic and thematic inclusivity in publishing for remote and low-income communities, within conflicting cultural norms, will be discussed at length in a future LFA Working Paper, but it offers one of the easier ways to consider inclusivity right from the manuscript stage of the publishing process.

**Why be accessible?**

Figures suggest there are some 5 million Australians living with a print disability. This means around 22% of Australians cannot read a conventional print-format book.\textsuperscript{14} This includes those with a vision impairment or blindness, but also learning disabilities (such as dyslexia) and physical dexterity impairments (such as arthritis). By this broad definition, print disability might be long term, temporary or situational (like reading in low lighting) and tends to increase with age. Yet the World Blind Union estimates that less than 10% of all published materials can be read by blind or low-vision people.\textsuperscript{15}

So, there is a clear ethical and social imperative to increase equitable provision of reading resources. All the benefits associated with lifting literacy levels in other contexts (such as extreme poverty), including better health outcomes, improved social agency and so on, also apply to literacy challenges driven or exacerbated by a print disability. Importantly for publishers, however, there is also a commercial opportunity.

It may be that a shift in accessibility funding will eventually come from the increasing awareness of a


missed sales market. One estimate suggests that by shifting the book design process towards a comprehensive born-accessible approach, publishers might increase their market share by 3–4 times the current volume.\textsuperscript{16} Globally, purchasing decisions in both K–12 and post-secondary institutions are increasingly contingent on compliance with accessibility standards. Libraries are also beginning to demand accessible eBooks.\textsuperscript{17} In the university sector, a 2018 survey of students showed that while 6.2% said assistive technologies were essential to their studies, an additional 8.5% said they used them because they liked to: listening to audiobooks while commuting, for example, or dictating essays.\textsuperscript{18}

The strongest impetus for change to date, however, has been legislative reform. Anti-discrimination legislation with publishing implications has been commonplace in many global markets for some time. In Australia, the Disability Discrimination Act 1992\textsuperscript{19} makes it illegal to discriminate against a person because of disability when providing goods, services or facilities, or access to public premises. The UN Convention on the Rights of People with Disabilities (CRPD) was adopted in 2006 and has since been ratified by 182 countries. Article 21 of the Convention references the rights of all people to have equal access to communications technology.\textsuperscript{20}

Another key consideration for publishers is copyright. Producing a book in an accessible format may be akin to translation, bringing with it many of the same challenges as moving from one language into another, such as necessary changes to the text or illustrations, raising questions about ownership and permissions. (See LFA WP 4/21 for further information.) Following significant lobbying by the World Blind Union, the World Intellectual Property Organization enacted the Marrakesh Treaty in 2013 to assist in addressing these concerns.\textsuperscript{21} This international agreement on the relaxation of and/or exemption to copyright laws allows for faster production and international transfer of certain specially adapted books for individuals with a print disability.

In practice, this encourages publishers to facilitate activities such as the early provision of books in plain text formats to accessible content producers so that multiple formats can be released on the same date as standard releases. In trade publishing this protocol raises concerns around maintaining the confidentiality of content prior to publication. Even in other forms of mass publishing, there is a risk of edits being missed between handing over an early draft, and the published result of the full editing and layout process, which inevitably involves content changes. However, without the impetus of the treaty, the lengthy processes involved in adaptation would be highly discriminatory, meaning someone with a print disability may not read a best-seller until 6–12 months after the sighted population. Global publishing authorities are continuing to work on the legal troubleshooting in this space. The Australian Inclusive Publishing Initiative, for example, has worked with legal consultants to disseminate guidance.\textsuperscript{22}

\textsuperscript{16} “The Future of Inclusive Publishing in Australia.”
\textsuperscript{18} “The Future of Inclusive Publishing in Australia.”
\textsuperscript{22} Alchin and Ganner, \textit{Inclusive Publishing In Australia. An Introductory Guide}. © Library For All 2021
Real change on the ground remains slow, but with increasing awareness and legislated imperatives, more and more content producers understand that accessibility is no longer merely optional.

**Practical options for low-income and remote environments**

There is increasing awareness that the universal right of every child to read demands a substantial rethink around making accessible formats more widely available. In affluent societies, some impressive advances are in progress with increasing numbers of books released in multiple formats, including fixed or refreshable Braille, audio editions and large print. These adaptations remain costly and cumbersome to create, but research and development projects are driving opportunities for automation. Furthermore, technological advances across all communication platforms are opening a preference for multiple formats for the general reading population (e.g., audiobooks) which may also benefit those with a print disability. Each of the more viable accessible formats, however, comes with specific considerations for delivery in remote and low-income communities.

In affluent communities, readers exist in what Accessible Europe calls a digital publishing ecosystem, whereby actors at all stages of the publishing process play a role in ensuring the creation, cataloguing, distribution and availability of reading materials are signed off as digital at every stage of the publishing process.\(^{23}\) This ecosystem includes not just the mechanisms for creating a book in an accessible format, but all the means by which one might find, purchase, loan or read that material – from appropriate metadata to accessible online libraries. Simply creating an accessible book is not enough. It is important to ensure there is systemic support for that file once it makes its way to the community.\(^{24}\)

**Audio books**

Audio books are commonly enjoyed by readers of all ages and abilities. At its most basic, this format can be created by providing a clean, legible copy of the text to a voice actor with appropriate digital recording equipment. The story can then be played via an app, online platform or on older formats such as CDs depending on the user context. In the education space, audio books are useful in terms of information sharing and comprehension activities, but without supplementary resources and teacher intervention they do little to assist with literacy in the sense of spelling and grammar development.

Additionally, there is a growing understanding that providing an accessible book means replicating the conventional reader experience in as many ways as possible – including such elements as bookmarking, skipping backward or forward and taking notes while reading, which are absent from a standard recorded talking book.

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\(^{24}\) Mussinelli.
The current best practice solution in this kind of accessible production is DAISY format books (Digital Accessible Information System). DAISY works on the same basic principles as a standard audio book, but has some enhanced features:

- Embedded navigation such as search, images/graphics or skip to previous sentence, page or chapter.
- Increased sound quality – digital recording reduces background and white noise, which benefits people who have a hearing impairment. The sound quality will not deteriorate over time.
- The device will bookmark your place and pick up where you left off when you begin to read again.

DAISY books use text-to-speech functionality, rather than fluent recorded audio, so their quality relies heavily on accurate formatting of the original text (for example, a Word document). Clear and consistently marked headings, punctuation, image tags and metadata, following strict templates and grammar conventions, are needed for the DAISY interpreting software to convert the text to audio effectively.

DAISY books, therefore, provide a more comprehensive reader experience, with additional literacy and longer-term educational benefits, but they also require expert preparation and, importantly for low-income communities, a DAISY device — or downloadable DAISY-interpreting software — for use. In Australia, DAISY devices retail for around 600 AUD. There are paid and free software options available, which might be viable solutions in low-income spaces, although there remains a question of device compatibility.

This is one of many ways in which there is a common disconnect between the possibility of accessible formats, including legislating their creation, and actual delivery of books into remote and low-income field programs.

**Braille books**

Another solution available to assist readers with blindness and visual impairment is Braille — a format in which text is represented as a tactile pattern of raised dots that can be read with the fingertips. Braille includes symbols for the letters of the alphabet along with a range of punctuation conventions and contractions for commonly used words (for example, “the” or “and” can be represented as a unique symbol rather than spelled out). Like any language, experienced Braille users can operate in shorthand and abbreviations, while early learners may begin by spelling each word out letter by letter.

Traditional Braille books are provided as bound sheets of embossed pages. Converted from text manually or by machine translation, a standard page of a print book may require several pages of Braille pagination. Long novels and textbooks, for example, will be rendered as several volumes in the

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Braille edition, making them expensive, cumbersome and difficult to transport in any environment, let alone the challenging remote regions in which organisations like Library For All operate.

For children’s books, a popular alternative is Twin Vision books, which begin life as standard print books and have a Braille sheet overlayed onto the pages – either as a transparent sticker, or a rigid plastic insert. These have the advantage of potentially being read simultaneously by sighted and vision-impaired readers, meaning that in a shared reading, early years context, a sighted teacher or parent can read the print alongside a child who is reading in Braille, or vice versa. To create these, in the case of a picture book or class reader, the bound book would be pulled apart, labelled with the stickers, then rebound, usually with spiral binding. This is more economical (depending on the complexity of the story) but no less cumbersome to deliver into schools.

Braille books can also be supplied digitally — known as refreshable Braille. These texts require a reading device with a digital keypad that offers dynamically changing raised dots line by line as the reader makes their way through the book.

Thus Braille conversion offers several feasible solutions for making reading material available to those with a print disability — assuming the recipient can read Braille. When it comes to literacy interventions in remote and low-income communities, this important consideration is sometimes missing from the well-intended program initiations. Without teacher training and support in the field, Braille resources will do little to improve access. Additionally, Braille conversion is not available in every language and certainly unlikely in mother tongue languages spoken by small populations.

ePubs

ePub is becoming the most widespread electronic book format for commercial publishers. ePub 3, specifically, is the most suitable option for meeting accessibility needs thanks to its accommodation of alt text and functional metadata. ePubs can be read on most eReader devices, including ubiquitous computers or tablets, limiting the need for specialist hardware. If ePubs are constructed using an appropriate markup language such as HTML5 and CSS (Cascading Style Sheets) the outputs will conform to a structure that naturally facilitates accessibility, such as consistent structural markup and navigation. ePub 3 also allows inclusion of speech synchronised with text (media overlays) and accessible video. Delivering books in ePub 3 format, therefore, as opposed to PDFs, or other bespoke book formats, helps democratise the availability of the material.  

Library For All’s experience of delivering ePubs into challenging environments with a limited digital publishing ecosystem has been successful against many education benchmarks, but has forced reflection on the inevitable limitations of offering truly accessible reading material. For example, LFA’s tablets supplied to schools within the Spark Digital Education Kit product are deliberately not top-end devices – they are durable, uncomplicated and affordable, with sufficient capacity to deliver a high-quality library of reflowable ePubs. They cannot, however, accommodate all the feasible software (such

28 “Accessible Books Consortium.”
as DAISY readers) or technical upgrade possibilities (such as sophisticated audio) that a higher spec device might facilitate.

A final point to consider for ePub dissemination is that publishers must ensure any Digital Rights Management (DRM) applied to a title does not inhibit accessibility. DRM — the use of technology to control and manage access to copyrighted material — restricts broad, global availability of protected files, therefore potentially inhibiting accessibility features. Lobby groups have fought hard for exemptions in certain rights territories that allow copy protections on ePubs to be circumvented for the sake of accessibility. While this advocacy has been successful, it is often conditional on periodic review, putting the responsibility back on lobby groups to agitate for review and revision of legislations, rather than this becoming a default best practice imperative. For example, the 1998 Digital Millennium Copyright Act was devised to provide legal cover for people to create accessible versions of eBooks, but it requires triennial review by the Library of Congress.

Other readability solutions

A range of other solutions are available to address print disability concerns. Large print books can be of use to those with low vision or low literacy. Specific fonts and typesetting controls can be implemented to maximise the clarity of words on a page. For example, AusAID recommends sans serif fonts between 24 and 32 points, depending on reader age. For dyslexia, there are also specific fonts (such as Dyslexie) that are structured for easier discernment of one letter from the next, along with guidelines for printing, such as placing words against soft coloured backgrounds rather than harsh black on white, and printing on matte rather than gloss papers to prevent glare. Bright colours are often advantageous for dyslexic readers; however, guidelines on colour blindness recommend not relying on colour for differentiation of information across a text (for example, for headings).

For the hearing impaired, who are not also experiencing print disability, publishers must consider the implications of providing audio components to education tools. Best practice would see provision of both print and audio, along with the same clear print conventions for literacy considerations as outlined above. Some book providers are offering sign language videos to accompany books (see, for example, the Global Digital Library), but, again, the effectiveness of this relies on device compatibility, availability of internet access and download capacity.

Perhaps the most important understanding that publishers must gain is that not every book can be everything to everyone. It is vital to consider specific different accessibility modifications for specific reader needs.

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29 “Accessible Books Consortium.”
What can publishers do today?

The Accessible Books Consortium suggests a first step for publishers wishing to move towards best practice accessibility publishing is to conduct an accessibility audit of existing materials.\(^{33}\)

Some basic areas for consideration include:

- **Text access** — for example, can all of the text be read by screen readers? Is there a logical reading order?

- **Image access** — for example, do all the appropriate images have alternative text? Are decorative images marked appropriately?

- **Access to special types of data, such as spreadsheets** — for example, are tables, table headers and data cells marked so that screen readers can announce headers as the user moves between cells?

- **Workflow considerations** — for example, what source materials are used in the production of your files?

Workflow considerations are increasingly prescient as publishers acknowledge that retrofitting content and creating separate workflows and products are not economically viable ways of addressing accessibility. This has been likened to baking a cake, realising you've forgotten the eggs, and then trying to add them in at the last minute.\(^{34}\) A born-accessible publishing practice has both equity benefits and cost savings.

The Accessible Publishing Working Group publishes a Guide to Accessible Publishing which offers publishers a way to create born-accessible content. Publishers who follow the guidelines can streamline their workflows and enhance their content with features that benefit a wider audience. Ultimately, these practices grow the audience for published works, to the benefit of both producers and consumers.\(^{35}\)

There are also some collaborative practices that might benefit individual publishers as well as the wider educational publishing sector, particularly in the not-for-profit space. For example:

- Leading the way on born-accessible publishing workflow implementation and agitating for this to be a consideration in funding programs.

- Embedding international-standard guidelines into published works so materials are in the best state to be picked up and adapted by a variety of users, publishers or disability advocates over time.

- Fostering a willingness to share born-accessible text files with local or international disability advocacy organisations (for free, or at minimum cost) to ensure materials are available to communities whose needs can't be foreseen or met in the short term,

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\(^{33}\)“Accessible Books Consortium.”


\(^{35}\)“Accessible Publishing Working Group.”
- Fostering collaboration with other organisations, including local disability advocacy groups, to get a clear understanding of user needs, existing successful projects, and the locally available technologies and infrastructure opportunities.

The future brings incredible opportunities for improving accessibility across all publishing modes and platforms, including interactive technologies, gamification, and augmented reality. But it’s essential that publishers work to get the basics in place first, by auditing existing collections and closely examining workflows. Furthermore, there is an imperative to work closely with program partners to examine the likely reception options and outcomes for accessible texts, particularly in terms of supporting an ecosystem beyond the texts themselves that facilitates access. This must be coupled with human liaison and training in the field for users to have actual physical and meaningful access to these technologies.
About the Working Paper Series

This Working Paper was published by Library For All as part of our evidence-based approach to the design and delivery of educational resources. Papers in this series showcase the quantitative, qualitative, and speculative research activities that inform our operations, from product development to program delivery. Read more from this series at libraryforall.org.

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Jodie Lea Martire has experience as a writer, editor, translator and bookseller. She also researches how social change and social justice can be achieved in publishing and the book industry, and has studied how small-press publishers work with under-represented authors to amplify their voices and their stories in Australia’s literary sphere.

As the Library For All BookSeeker, Ms Martire looks for and assesses high-quality children's books to incorporate them into LFA’s many collections.
We won’t stop until every child can learn, does learn and enjoys learning.

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