

From zero to hero – the journey of a timeline from text heavy to interactive: creating more inclusive websites

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ABSTRACT

In the minds of many, dense text and limited photos equals boring—yet numerous libraries and content providers use this format to present the valuable information that is burrowed away in their databases and catalogues. Innovative new methods of information dissemination are required to pique public interest, capture attention, and enticing people to engage with content. Digital humanities tools can make content go from zero to hero, just by changing the aesthetic.

The Find & Connect web resource (Commonwealth of Australia, 2011 - 2017) is a government-funded initiative, which provides information for individuals raised in Australian out-of-home care from the beginning of the last century. Anecdotal feedback, and formal usability testing, regarding the site suggested it relied too heavily on text to deliver the content. To alter this perception, the pre-existing plain text hyperlinked timeline was transformed into a visually engaging and interactive experience for the user—using TimelineJS software by Knight Lab (Northwestern University, 2015). The new format brings together otherwise disperse content into an easily navigable, intuitive interface.

Modifying the timeline code template to create a well-referenced robust tool, that was also visually appealing, was not always simple and required the resolution of several broader issues. A fundamental shift in the design process involved moving away from the Google Spreadsheet provided, and into JSON files. In addition, the hosting of the timeline was relocated to internal servers to remove the reliance on external providers.

Large images, limited text, and interaction are three points of variation of the newly created timeline on the Find & Connect web resource. Initial feedback suggests this timeline version vastly improves user experience. The new timeline engages the user, encourages exploration of the content on the site, and showcases certain elements of the collection reviving a story that was otherwise lost and forgotten.

PAPER

The notion that 'a picture is worth a thousand words' is more than a century old, but the sentiment remains relevant today. In the early stages of the internet, webpages displayed few images and content was routinely presented in a standard font using black and white text. Today, the most engaging sites include large images or videos, provide minimal information through text and use a variety of formats and font. The increasing popularity of social media and blogging highlights the shift in communications driven by technological improvements. This shift can present ongoing challenges for information dense websites such as the Find & Connect web resource (www.findandconnect.gov.au), requiring us to look to new and emerging technologies to find the answers.

Many digital humanities tools have embraced the power of images, and improved on the original expression to include interaction between the user and the content as a key component. One of the outputs from digital humanities is the transformation from text-based content into more visually appealing multimedia content. The resultant multimedia formatted content increases users' interest and engagement. Few read essays, theses, and large text blocks, but presenting the same data visually, through mapping, timeline, story map, network analysis software, or similar broadens the audience appeal.

To be successful, the content must be converted or created in a meaningful and useful format and the technology must be sustainable and accessible. While this

process is not always simple, it is vital to the longevity of the content accessibility and, therefore, the long-term success of the project.

The information profession continues to use text heavy styles of information delivery including library and museum catalogues and archival finding aids. This paper will use the example of the child welfare timeline on the Find & Connect web resource to explore the importance and challenges of embracing digital humanities tools to revitalise content and continue to generate user interest.

The Find & Connect website is a resource for Forgotten Australians, Former Child Migrants and anyone interested in the history of child welfare in Australia. For the purposes of this paper, the term “Care Leaver” will be used to refer to both Forgotten Australians and Former Child Migrants, however the authors acknowledge this terminology is the subject of dispute. Find & Connect publishes over 16,000 web pages describing legislation, events, records, orphanages and children’s homes, and contain links to thousands of publications and photographs. Developed with the purpose of helping Care Leavers better understand their past and the historical context of child welfare (Commonwealth of Australia, 2011), the primary audience of the Find & Connect website is individuals who, as children, spent time in Australian out-of-home care.

To gain a better understanding of Care Leavers needs and their interaction with the website, the Find & Connect web resource team undertook several rounds of usability testing in 2011 and 2012. While the testing was not specifically focused on aesthetics, the results emphasised user’s preference for the inclusion of more

images on the site. Some key quotes from the usability rounds on this issue included:

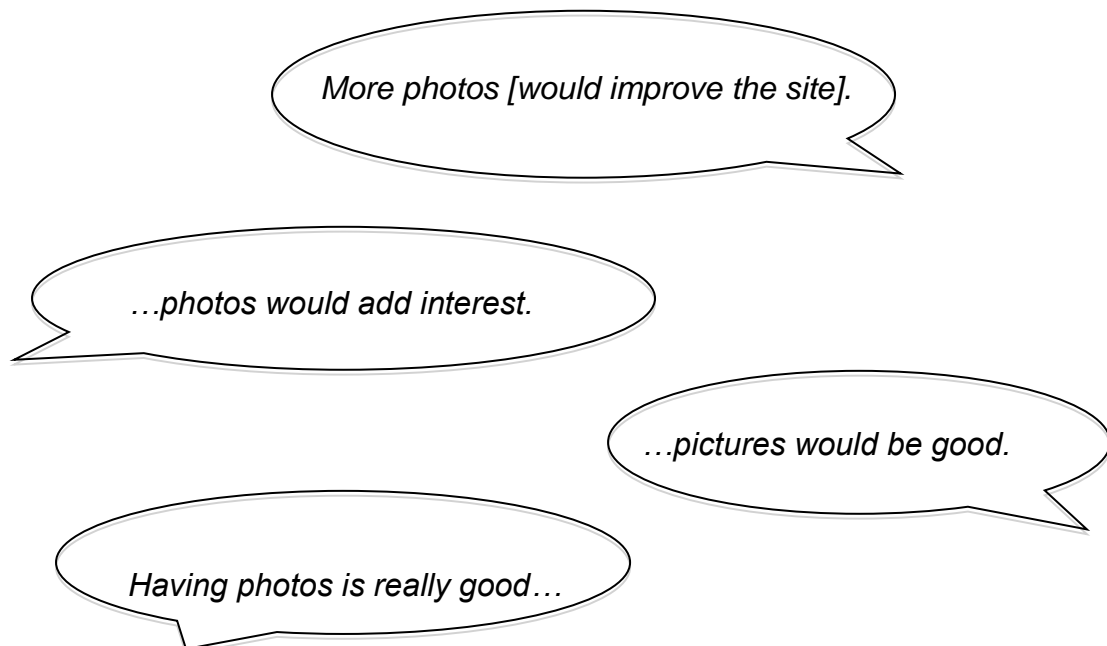


Figure 1 - Find & Connect usability feedback from Care Leavers

Anecdotal feedback regarding the site also supported this evidence, implying that the website relied too heavily on text to deliver the content. Combined, this information suggested that while the web resource is incredibly well used, the site does not always best meet Care Leavers' needs. Responding to the specific computer literacy needs of Care Leavers' remains an area of continual improvement for Find & Connect.

Many Care Leavers received low levels of education while in care and were often provided with only minimum schooling requirements before being placed into the workforce. The negligible education levels have continued to affect Care Leavers throughout their adult lives. *The Forgotten Australians - A report on Australians who experienced institutional or out-of-home care as children* (Senate Community Affairs References Committee Secretariat, 2004, pg. 320-321) highlighted the need for adult

literacy services to support Care Leavers in adulthood. This information emphasises that, as a group, Care Leavers have explicit needs when it comes to literacy, and therefore they have specific requirements of the Find & Connect web resource.

Care Leavers are not the sole audience of Find & Connect but they are the primary audience. Other significant users include the Find & Connect Support Services, who assist Care Leavers in family tracing, provide counselling services and support the process of Care Leaver's accessing their records. The Support Services use the web resource daily to provide contextual information to Care Leavers about the children's homes they spent time growing up in, to investigate the existence of records, and to help establish the reasons the person may have been placed in care. Researchers, particularly historians and archivists, also use Find & Connect, however the website's audience remains niche. Another important facet of the web resource is its role in promoting the history of child welfare in Australia to a broader audience. The website provides an avenue to reach beyond those who already know much of the history, thus ensuring this important history will never be forgotten.

Finding new tools and technologies to improve content accessibility is not always an easy or straightforward task. The website is made up of many interoperable components including Word Press pages, HTML pages created from nine Microsoft Access databases and app pages, therefore a heavy reliance on text presents the most straight-forward solution, though not the only solution.



Figure 2 - Original Find & Connect text based timeline

With more than 16,000 pages of content it can be hard to know where to start. The child welfare timeline was created to draw together the major events and key pieces of legislation in the history of child welfare in Australia.

The original version of the timeline featured hyperlinked text with items organised in chronological order with

decades as headings. Simplistically, the content was curated into a more

findable format, drawing approximately 30 entries out from the website onto a single page in a linear format. The aesthetic of the timeline did little to encourage engagement by the user and was a large mass of linked text, which was not user friendly, particularly for Care Leavers.

The Find & Connect web resource is one of the largest Australian government funded digital history projects to date, and is hosted in partnership with the University of Melbourne. As a result, the Project Archivist on Find & Connect was able to attend the University's 'Digital Fabulists' series of workshops. The series was aimed at researchers with the concept of the series to make humanities information more engaging, more fun and therefore more accessible and more public. Many digital humanities tools were showcased as part of the workshops, including the open source software TimelineJS by Knight Lab.

Large images, limited text and interaction were three appealing characteristics of timelines created using TimelineJS. The tool itself was easy and intuitive, and the output relatively versatile with different options for including links to other web based content. Journalists are the target market for Knight Lab products and to enable their rapid creation of timelines, a Google Spreadsheet template is provided for easy population of new timeline metadata. Once the Spreadsheet has been populated, a timeline can be embedded in a web page, by adding approximately 5 lines of JavaScript code to the webpage, and a link to the populated Spreadsheet. A proof of concept for Find & Connect was rapidly created using Google Spreadsheet, transforming the text-heavy child welfare timeline into an exciting, visually engaging, and interactive experience for the user.



Figure 3 - Find & Connect timeline, utilising TimelineJS

The proof of concept timeline was well received, with the timeline engaging users and encouraging them to explore the more detailed content on the site. The timeline helped showcase certain elements of the collection, retelling a story that had otherwise been lost and forgotten in the dense and unappealing text version.

Presenting the timeline with TimelineJS exposed gaps requiring expansion in the timeline narrative, should the timeline have continued being represented textually this unintended side effect would otherwise have gone unnoticed. The visual timeline also improved the impact of the content on end-users, with the large images supporting the text and adding weight to the story the timeline tells. The decision was made to include the timeline on the website, however to enable its inclusion required the resolution of many issues.

The speed and ease of timeline creation is among the most enticing features of TimelineJS. The TimelineJS home page (Northwestern University, 2015b) displays an example, where a timeline can be created in 4 quick steps. The 4-step example utilises a TimelineJS template Google Spreadsheet, media embedded on external sites, and TimelineJS code stored on a content distribution network. Despite the express solution for creating and prototyping timelines the default example method provides, this method lacks the necessary capabilities required for resilience. The risks involved in hosting timeline data on other hosts include:

- A loss of access to the Google account that hosts the Google Spreadsheet would result in loss of access to the timeline metadata;
- A change in the Google Spreadsheet Application Programming Interface (API), resulting in incompatibility with TimelineJS;
- Externally hosted content, linked to by the timeline, either being moved, or taken offline by the external host;
- Privacy concerns (Northwestern University, 2015a): external content hosts have the visibility of the IP address, browser details, and other possibly

identifying information of timeline users, as well as the referring page from Find & Connect, indicating the specific page that the timeline user is viewing.

On many websites, the loss of externally hosted content may be considered as a temporary annoyance, or simply as one of the unavoidable pitfalls of running a website, and website users may accept broken links as frustrating and time wasting (Laurent, 2016a). In this case, however, the usability testing on the Find & Connect web resource resulted in user feedback indicating the significant impact that broken links had on site users. Users reported that broken links had the potential to cause them to be re-traumatised, and triggered them to question the trustworthiness of the Find & Connect web resource (Laurent, 2016b).

In the case of the Find & Connect timeline, the risks related to relying on external providers for hosting content were realised in February 2016, when, during Trove's three day upgrade to version 7 (Drake, 2016), all content hosted by Trove was unavailable. During this time, none of the images provided by Trove in Find & Connect's timeline were visible and the URLs included as the sources for images from Trove displayed error pages when clicked on.

To ensure that the Find & Connect timeline was as resilient—in terms of reducing the chances of broken links—and self-contained as possible, several steps were taken:

- The timeline metadata was migrated from a Google Spreadsheet into a JSON (JavaScript Object Notation) file, hosted by Find & Connect;
- Multimedia and thumbnails displayed in the timeline were copied from the original source site and linked to and hosted by Find & Connect; and
- Timeline JavaScript source and libraries became hosted by Find & Connect.

Using JSON files instead of Google Spreadsheets was observed to be quite unforgiving. While JSON is considered a 'human readable' format, there is a significant amount of punctuation and parentheses in JSON files. If, during the creation of the timeline JSON file, punctuation or parentheses were 'unbalanced', the timeline would not display on screen; and there would be no display of an error pointing to the source problem in the JSON file. Sublime Text editor was used to assist with creating a syntactically correct JSON file, owing to its ability to highlight each matched set of punctuation and parentheses.

In the case of the Find & Connect child welfare timeline, the overhead of managing self-hosted assets, and ensuring that the assets are stored in a cogent structure, are minor drawbacks of self-hosting TimelineJS and all of the timeline assets. The multimedia assets presented in the Find & Connect timeline are either licensed by Creative Commons, or in the public domain. It would be unlikely sites relying on externally located, copyright protected, assets could emulate the Find & Connect self-hosted timeline regime. Additionally, a limitation of TimelineJS is the inability to self-host video and sound content; videos and sounds must be linked to content on services such as YouTube, Vimeo and SoundCloud (Northwestern University, 2015c).

The Find & Connect web resource timeline solves one accessibility challenge, yet creates two additional accessibility challenges. By reducing the reliance on written language, and presenting information through imagery, the timeline increases accessibility to those Care Leavers that have low literacy levels. Conversely, the timeline diminishes accessibility by creating barriers for the visually disabled, such as

those who have screen readers. When comparing the timeline with the W3C Web Content Accessibility Guidelines (WCAG), online testers found the timeline failed to conform. To maximise timeline accessibility, a link to the text-based legacy timeline remains at the top of Find & Connect's child welfare TimelineJS webpage.

Browser compatibility provides a further challenge to the accessibility of the Find & Connect timeline. The TimelineJS tool is a new innovation that includes built in responsive design; ensuring users can interact with the timeline whether on a phone, tablet or computer. However the primary development and testing browser is Google Chrome (Northwestern University, 2015e), and the tool offers limited functionality with old web browser versions, particularly Internet Explorer. This was a significant challenge to overcome when adding the timeline to the website as users of Find & Connect are known to favour Internet Explorer and many do not use the most recent versions of browsers. To ensure people did and do not follow the timeline link and end up with an error, or a page that never loads the timeline, code was included on the page to automatically detect browser type and versions and when relevant redirect users with older browsers to the legacy timeline. An explanatory sentence about why the user is not reaching the interactive timeline is provided to ensure user trust is kept.



Figure 4 Final TimelineJS timeline for Find & Connect

Despite the challenges, feedback has shown that new version of the timeline vastly improves user experience. Although the content remained the same, the new visually dynamic timeline has already received significantly more visits than the original hyperlinked text timeline during a six-month period. This continues to emphasise the importance our audience places on images and how an engaging use of the same content can capture a broader audience.

While the new timeline has not yet undergone usability testing, feedback was sought from the Find & Connect Support Services prior to its inclusion on the website. The response was universally positive, with high levels of enthusiasm for the updated version and subsequent requests for individual state based timelines to complement the child welfare timeline. Support Services foresaw the ability to explain the broader

history of child welfare using the interactive timeline in a simplified and engaging manner to Care Leavers and their families.

Comparing the Find & Connect TimelineJS product to traditional library and information accessibility is analogous to comparing traditional web-based cataloguing systems to the Amazon model. Even comparing the small thumbnails between the traditional library catalogue on the right, and Amazon below, one can elicit that the traditional library catalogue presents a text heavy page that solely presents information about the requested item with text-based links. In contrast, the image on the right has user provided content and image-based links to similar content, encouraging the user to become engaged with the site and its content, and giving the site user the confidence to explore other items on the site.

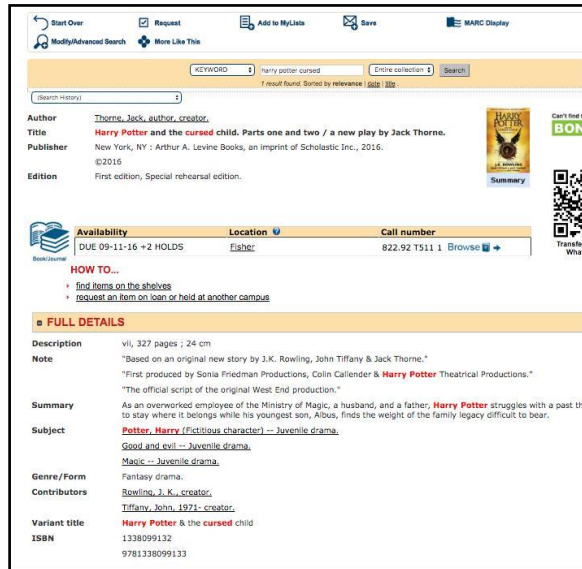


Figure 5 - Example rendition of a traditional electronic library catalogue

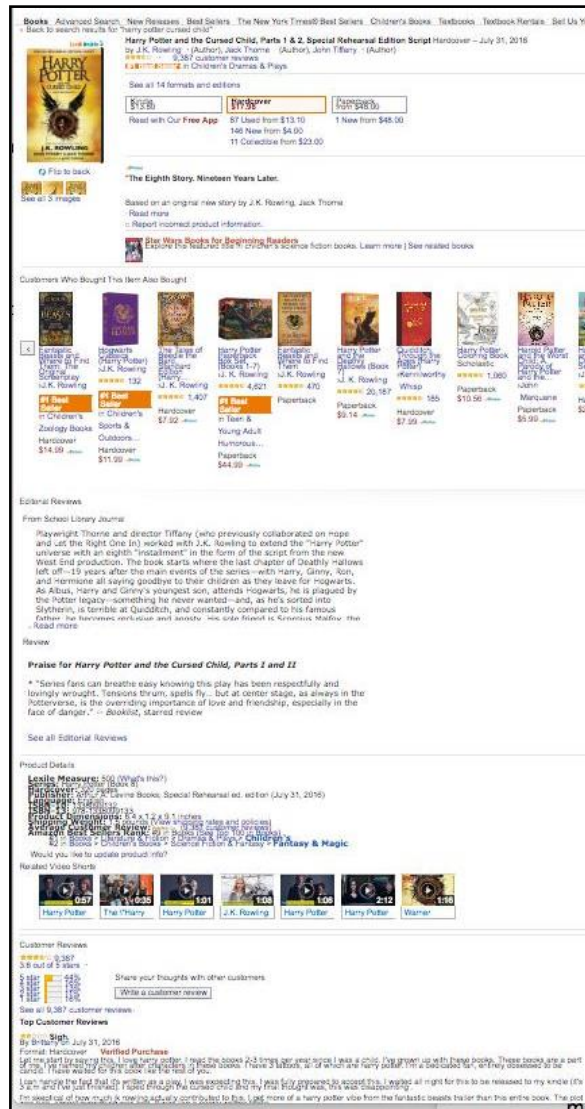


Figure 6 - Example rendition of an Amazon page

The child welfare timeline has been showcased at various events and consistently receives high praise. It engages new audiences, who were previously unaware of Find & Connect and child welfare issues, by encouraging the new users to interact with the timeline and, via its internal links, with the web resource. Users want to experiment with the timeline and explore all its features. This highlights the value digital humanities tools can have in broadening the audience of a site and its content and providing means of advocacy, in this case, for Care Leavers and their history.

This paper is not advocating for text-based content to disappear from public knowledge sites. Instead we see digital humanities tools as providing supplementary access points to the same information or as a way to feature a story that might otherwise not be discovered. Utilising the TimelineJS tool as an alternative way to tell the story found in the historical notes section of archival finding aids could be one way of opening up the content usually buried in pages of text.

During the timeline creation, three separate challenges were discovered, which could be considered under the domain of accessibility; these were, browser compatibility, readability, and enabling people with disabilities to use the timeline. While the new timeline resolved accessibility from the readability perspective, the original timeline could not be jettisoned completely from Find & Connect, as it continues to resolve the two novel accessibility challenges the visual timeline created. The need to have two forms of the same content to meet accessibility needs should not be seen as a failure of the project. Instead by providing both options it acknowledges an awareness of the needs of different audience groups.

Creation of the interactive timeline also provides a significant reminder of the importance of sustainability of websites and the content on them. While the simple and easy set up process of a digital humanities tool might be attractive, there is often a need to go beyond and take ownership of what you are creating by self-hosting and removing reliance on external parties to ensure continued ongoing success.

Despite the efforts required, the benefits of adopting the timeline far outweigh the challenges, and this serves to reinforce the overall benefit of digital humanities tools.

TIMELINE OF A TIMELINE

Using the expertise and skills available within the University of Melbourne at Digital Fabulists, Research Platforms to respond to the needs of the Find & Connect audience.

Usability testing

"More photos [would improve the site]"

"...photos add interest"

"...pictures would be good"

"Having photos is really good..."

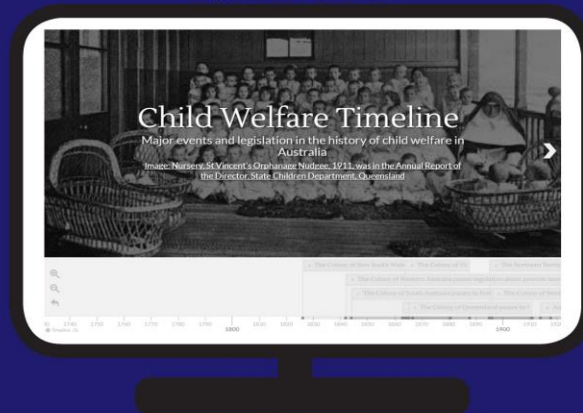
Training & support



Digital Fabulists took us from text heavy...



...to interactive



 **FIND & CONNECT**
Funded by the Australian Government

Find & Connect (www.findandconnect.gov.au) is a web resource for Forgotten Australians, Former Child Migrants and anyone interested in the history of child welfare in Australia.

Figure 6 - Published poster summarising the evolution of the Find & Connect timeline

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