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Online library accessibility support: a case study within the Open University Library

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Online library accessibility support: a case study within the Open University Library

The Open University (OU) is the UK's largest distance education provider and has a large and growing disabled student population. Disabled user support presents particular challenges for an online Library service in the distance learning environment. The OU introduced guidelines for working with non-OU authored content (external content) in 2011 which fundamentally altered the focus of library support from on-demand conversions to pre-emptive identification – and where necessary, conversion - of essential content. This case study describes Library Services' learning journey through its support for one particular module with lots of external content, the resultant benefits to its support services, and considers areas for future development.

Keywords: higher education, library services, case study, disability, distance learning, Open University, Alternative format

Introduction

The Open University (OU) is the UK's largest distance education provider and has a large and growing disabled student population. Disabled user support presents particular challenges for an online library service in the distance learning environment. The OU introduced guidelines for working with non-OU authored content (external content) in 2011 which fundamentally altered the focus of library support from on-demand conversions to pre-emptive identification – and where necessary, conversion - of essential content. This case study outlines the learning journey undertaken by Library Services whilst supporting the production of a third level history module, *Europe 1914 – 1989: war, peace, modernity*, hereafter referred to by the module code A327. The credit system used by the OU is aligned to the national Credit Accumulation and Transfer Scheme (CATS), and students studying A327 earn 60 CATS points, which is equivalent to half a traditional study year. A327 was one of the first modules to be produced after the introduction of the University

accessibility guidelines on working with third party [external] content (Securing Greater Accessibility [SeGA], 2013). As provider of a large percentage of external licensed content used by the OU community, Library Services is responsible for ensuring the accessibility of those materials, and procuring alternatives where necessary. We describe the accessibility support services provided in 2011, the year A327 production began, and how our support adapted in response to the particular challenges that this module presented. We summarise the positive benefits stemming from support for A327, including streamlined processes, and improved awareness of learning design implications for disabled users. We outline implications for future service development including the opportunities for collaborative working with other higher education (HE) institutions and publishers in the light of new UK Government legislation (Intellectual Property Office, 2014)

Library support for accessibility

The OU is no longer the sole provider of distance education in the UK and the challenges we face in supporting distance learners with special needs are shared by other HE libraries. Historically and in accordance with its mission to widen access to education, the OU has a proud record of providing materials in different formats to accommodate a range of user needs. In an increasingly online environment the main focus of library support for disabled users centres on those with visual impairments. Library Services' focus is on anticipatory supply of alternative accessible content so that a disabled student's workflow is not interrupted. What this means in practice is that we identify, during production, all instances where external content is essential to the learning outcomes of the module, and then convert them in readiness for a request to supply. Working with production teams of academics creating modules, our librarians are part of the pedagogic process, identifying accessibility issues in external

3

content early on in the writing, and working with them to produce alternatives. This also helps us better manage our staffing resource, so that when a visually impaired (VI) user needs further conversion work to make content available to them, we are better able to respond to their needs.

The Special Needs Development Group (SNDG) within Library Services is responsible for developing the services offered to disabled students and ensuring the accessibility of online library content used within modules. The group is led by a Library Services Manager and includes three librarians and one library assistant from the Learning and Teaching team. Staff within the Learning and Teaching team support students via the library helpdesk and liaise with academics to embed library resources and digital and information literacy skills into modules. The SNDG also includes a representative from the Content and Licensing team. The Content and Licensing team negotiate with publishers and manage contracts and licences for library content.

At the start of 2011, the year that A327 began production, the SNDG within the Library was providing the following services:

- A postal loan service of physical material held in the OU Library to housebound students.
- Accessibility checking of existing online resources, to provide advice and guidance to disabled users on their use, via specialist disabled support pages on the Library website. The advice was aimed at VI and keyboard-only users but had the additional advantage of helping those with dyslexia, which may be undisclosed.

- A mediated literature searching service of inaccessible databases, which was aimed at any disabled student who needed it, including those with concentration issues. This service was provided in consultation with the relevant module team to ensure that learning outcomes were still achieved.

- An ad hoc conversion service of inaccessible journal articles for VI students. Publisher agreements were obtained for this service and they did not cover ebooks. At this time, the SNDG were in the process of formulating a policy to deal with inaccessible ebooks (Smith, 2011).

- Advocacy work within the University by raising awareness of issues around the use of Library subscription resources and of Library specialist support services.

In addition to the above, the SNDG played a strategic role by providing publishers with feedback on the accessibility of their platforms for VI, keyboard-only, colour blind and dyslexic users. This feedback sometimes goes via Jisc TechDis the national JIBS User Group, which includes bringing '…matters of concern to the attention of the data suppliers and the data service providers' (JIBS, 2014) as one of its principal aims. This advocacy work has the added benefit of improving database accessibility for all users because not all students declare their disabilities.

In 2011, direct student support was geared towards a reactive, on-demand service. This reflected the needs of students at the time, who were following modules written, in some cases, a few years previously, with optional, rather than core, Library materials.

What was different about A327?

Library support for the production of A327 needed to accommodate new

requirements:

(1) A327 was written using a new learning design model which divided students' study time between 60% directed study and 40% independent study.

(2) The A327 team planned "Significantly increased use of online" (The Open University, 2011, p. 5) non-OU authored (external) content some of which students are required to find themselves. Online working normally requires a student to access their distance learning materials from OU websites in the first instance; after which they may often work offline or with different mobile devices. A327 was ground-breaking in the extent to which students were expected to work online on a weekly basis.

(3) A327 was one of the first Arts modules to begin production under the new SeGA guidelines framing accessibility support (SeGA, 2013).

Independent study

The A327 team planned to use online sources to deliver a significant amount of supported independent study; supporting students through teaching the skills of using these online sources, enabling them to progress to independent scholarship by the end of the module. Working with the new Arts faculty model of learning design for level three, they envisaged the breakdown of student workload in a typical study week as follows:

- ten hours directed study using a mix of both print and online resources
- two to three hours on an independent study task
- two more hours reading one or two of the suggestions for further reading – a mix of online and print materials.

6

Independence implies an element of student choice so many weeks provided options within independent study tasks. Tasks were often based around the use of online content, either secondary resources or, more often, the rich online content within primary source databases for the subject.

Use of external content

Twentieth century European history is particularly well represented within both freely available online content and Library subscription resources. Materials such as the Pathé News film archive, newspaper reports, the Mass Observation surveys, official documents, personal manuscript diaries, maps and image databases all help to bring the century alive in a way that printed text cannot. The A327 team were keen to exploit the relatively new availability of ebooks to help them deliver further reading options for each study week. They wanted not simply to enrich module materials with this material, but to use it to deliver core learning outcomes; so that external content was integrated to an unprecedented extent within the module.

SeGA guidelines on accessibility

The internal document 'SeGA Guidance Document – Using Third Party Content and Websites in Modules' (SeGA, 2013) outlines module obligations in the use of external content. Module teams need to consider the following questions:

(1) What are the learning outcomes?

(2) How are disabled users impeded from meeting them?

(3) How do we mitigate the impedance?

Table 1 shows the three levels of content integration requiring different responses and table 2 shows how Library Services responds to these different categorisations.

Table 1: SeGA guidance for external content (SeGA, 2013, p. 7)

Optional	Recommended	Essential
Learning outcomes can be met in full without accessing this content	Learning outcomes can only be met by accessing some of this content	Learning outcomes can only be met by accessing this content
Content should be made accessible in response to requests as a minimum	There must be enough accessible options	The same accessibility standards for OU-developed content should be achieved

Table 2: How Library Services responds to these different categorisations

Optional	Recommended	Essential
Helpdesk provides conversion service on demand	All recommended materials tested for accessibility, those accessible identified. A selection of original materials converted, or	Sources tested for accessibility, converted where necessary or alternative activities provided

	additional alternative materials identified and tested where original choices are inaccessible	

This was the first module that really tested our accessibility support service after the adoption of the SeGA guidance across the University; this was because of the planned level of integration of Library subscription resources and the diversity of the content to be used. The challenge to both the module team and the Library was to ensure that students with impairments would be able to access these online materials wherever possible, both to benefit from access to the content, and to learn the independent study skills of searching, selection and critical engagement with that content. Where the database platform testing carried out by SNDG proved that would not be possible for users with impairment, we needed to devise alternative sources of content, or, more rarely, alternative learning activities. This was a very challenging task, not simply because of the range of new databases that required testing for accessibility both in terms of their general use and in terms of the specific tasks set within A327, but because of the complexity of the copyright relationships between online content provider and original copyright holder in those cases where materials were inaccessible.

What happens when a database is accessibility tested?

It is worth explaining the process of checking a collection for accessibility. There are two elements to any database; the content and the platform, i.e. the screens used to

enter searches and display results. Library assistants check the content, while platform

checking is carried out by a librarian. At the start of the production support for A327,

this platform checking had two separate aims; to provide technical development

feedback to suppliers to help them make their databases more accessible, and to

provide guidance for disabled users on the use of library content.

The checklist in appendix 1 shows the various checks that are carried out,

some of them using a screen reader. Screen reading applications typically allow a

visually impaired user to work with online text using keyboard commands, and

produce text to speech conversion.

It can often be the case that a platform is accessible, as in the case of some

newspaper archival or manuscript collections, and yet the scanned image of the full

text is not. As digitisation techniques have improved over time, older online issues of

a particular journal may be inaccessible, while newer content may be readable with a

screen reader. Article content will also sometimes render a document unreadable

within an otherwise accessible format. For example, tables can be inaccessible,

figures can have inadequate descriptions, there can be mathematical notation which

cannot be read by a screen reader, or extensive footnotes which interrupt the flow of

an argument.

This means in practice that all content should be checked for accessibility,

even where previous testing proves that a platform and its content is usually

accessible.

Different resources: the evolution of different approaches

It very quickly became apparent to the librarian supporting module production, that

the accessibility checking sheets used for feeding back development requests to

database suppliers were not very helpful for a non-specialist trying to assess the accessibility of a resource for students. The sheets provided in-depth analyses of search screens and unpicked the process of working through results lists and form field descriptions, listing colour contrasts, ability to change font size among other options; all really important for technical development feedback but hard for a non-specialist to understand. What the sheets did not explain was whether students would be able to do the activities requested of them in simple, jargon free terms. The Learning and Teaching Librarian liaising with the module frequently had to go back to testers to check whether search screens were accessible, results lists scrollable, and if students could actually get to the content using either a keyboard or screen reading software; if platforms were inaccessible, whether workarounds using direct links would allow access to content.

This particular problem was solved by including details of the specific task that was requested of the students when requesting a platform accessibility check, so that the tester could provide the general supplier feedback, write some generic accessibility guidance about using the database to sit on the Library website, and then check whether disabled students would be able to carry out the A327 activity.

Different types of material needed to be checked, converted and supplied in slightly different ways according to the nature of the licence terms agreed with suppliers, the type of material involved, and the nature of a particular task.

Ejournals

In 2011, the head of the Content and Licensing team negotiated agreements with a selection of our major journal suppliers to allow us to convert inaccessible journal articles as required and provide access to them via password-protected module

websites.

Integrated journal articles are checked for accessibility by library assistants and inaccessible articles are converted in advance of module presentation. The process is described in more detail below:

(1) Librarian identifies a journal article that is integrated into a module.

(2) Librarian requests that the article be checked for accessibility by adding it to a central spreadsheet. Articles may not need testing if we already know they are on a platform where none of the full text is accessible.

(3) If the students are required to find the article themselves, then the journal platform is checked for accessibility. This is done by a Librarian in the SNDG using appendix 1.

(4) Library assistant checks the accessibility of the full text using the template in appendix 2.

(5) If an article is not accessible the librarian liaises with the author of the teaching material to ascertain which non accessible elements are essential and obtain any figure descriptions.

(6) The inaccessible article is converted by the library assistant into a screen reader accessible word document. This may involve using OCR software.

(7) The converted article is uploaded to a dedicated space on the module website.

Individual students may request conversions of other journal articles which are not integrated providing they are for module related study.

Ebooks

The checking and converting is identical to the ejournal article process. However,

there are some major differences which make integrating ebooks into modules more complicated and problematic.

Firstly, unlike with ejournal articles, there is often no specific permission granted within ebook licences to convert inaccessible items; agreement must be obtained from publishers for each conversion. This is largely due to the different commercial considerations about ebooks which are more likely to be available for purchase by individuals than journals that are only available on subscription. On occasion, no conversion is needed because the publisher supplies an accessible copy.

Secondly, publishers will not allow ebook conversions to be uploaded onto the module website owing to a lack of Digital Rights Management (DRM) in this environment. Instead, disabled students must contact the library helpdesk to request a conversion, which is then sourced from a secure environment. When the conversion is sent out to the requester, the following statement is included: "This accessible document has been created for your sole use for educational purposes. You are therefore not permitted to copy or distribute it to anyone else."

Primary source databases

Within this group of collections we include original source materials that have not been altered or edited. Historians use primary sources perhaps more heavily than other subject disciplines.

Primary source content poses a wide range of problems. Some collections are relatively simple in that they hold one type of material which may be handled in a particular way. Others hold a variety of content which pose different problems. The *First World War Personal Experiences* database holds interactive maps, photographs, manuscript diary entries; all of which pose different difficulties to a user with special

needs and require different solutions. In this case we provided alternative text for the interactive maps used in an activity, we converted manuscripts and were forced to accept that image descriptions, whilst providing fundamental information, are a pale substitute for 360 degree image rotations. We were fortunate that many primary sources in the History subject discipline hold materials that are out of Copyright so that we were only had to ask for conversion permissions from the digital rights holders, not the creators of original works.

This is not always the case with primary sources: music databases can hold, for instance, a similarly diverse range of content. A CD within a music database can contain separate creative elements, a score, the recorded individual performance of that score, the sleeve design of the CD, and liner notes. These elements can have different intellectual property rights and therefore individual permissions for conversions may be needed.

What this meant for A327 students

Where external content was required for directed study the material was checked, workaround guidance provided or converted documents made available.

Where materials were provided as part of independent study we gave options wherever possible. In practice this often meant disabled users had fewer choices in their use of materials.

For instance, within chapter three independent study, the primary source database *First World War Personal Experiences* is inaccessible within the bounds of the suggested activity, so screen reader and keyboard users are able to choose from a range of journal articles to consider the second of the independent study options, shown below. The extent of the guidance provided for students here shows the level

of detailed checking required; Oxford Journals database platform was checked and different workaround guidance provided for keyboard users and screen reader users to navigate the results list. For the second of the optional journal titles both database platforms providing this content were checked; specific workaround guidance is provided for the accessible database.

Independent study chapter three: accessibility advice and guidance

> Option A
> First World War personal experiences database is not accessible so you will need to choose Option B.
> Option B
> Read one of the following articles on shell shock:
> Tracey Loughran (2009) 'Shell-shock and psychological medicine in First World War Britain', *Social History of Medicine*, vol. 22, pp. 79–95.
> This is on Oxford Journals database. Use the search function to find article. Keyboard users will need to tab down to the top of the results list. To access results with a screen reader, list form fields instead of links and you will be able to read article titles. HTML article content is accessible.
> *Journal of Contemporary History* 35 (2000) special issue on shell-shock, includes relevant articles by Lerner, Merriman, Bourke, Mosse. This journal is available on either the Sage or JSTOR databases; you will need to use the JSTOR database as Sage is not accessible to screen readers. Use the search function on the JSTOR database to find the articles listed below, as the browse function does not work with screen readers. (The Open University, 2013a)

In the independent study for chapter six students are expected to search historical newspaper archives, the element of choice comes for the subject they can choose to research, not the source databases used. Accessibility advice and guidance suggests the following approach:

Independent study chapter six: accessibility advice and guidance

> You are asked to search *The Times* and the *Guardian* newspaper archives for evidence of changes in the role of women in British society in the first half of the twentieth century; taking a particular theme and researching it in more detail. Because *The Times* is inaccessible we have provided a selection of converted articles on different themes below. If you wish to extend your search to the *Guardian*, you may search the database following <u>guidance</u> on the Library website, then request article conversions from the <u>Library helpdesk</u>. (The Open University, 2013b)

In the above example the two newspaper archival databases present slightly different problems: the first database, The Times Digital Archive was deemed inaccessible at the time, as both its search screens and the scanned page images of its content were inaccessible to keyboard or screen reader users. In this case chapter authors were requested to identify key articles which best exemplified the suggested topics for research, these were then converted and made available via the module website accessibility pages. The Guardian newspaper may however be searched by keyboard and screen reader users, and although the returned scanned page images are inaccessible, results listings may still be read, so fulfilling the learning outcomes of this learning activity; that of learning how to search historic newspaper databases, considering the selection of search terms and limiting the range of results by key dates.

In the case of the Guardian database, students are then requested to contact the Library helpdesk to use the on-demand conversion service.

Providing options within independent study

Whilst we were keen to provide as much content as possible to users with impairment we had to balance workloads. In some cases this meant providing accessible

alternatives to some independent study tasks, in others this meant planning our response to a possible future conversion request, without actually doing the work. This approach was all the more important where chapter authors were not central academics, but, as in the case of chapter five, consultant authors who would not be contactable once the module was in presentation. In chapter five students have three options for independent study; options one and two are both accessible, but the third option – searching for and then scanning the front pages of *The Blackshirt* as part of a textual and visual analysis of the British Union of Fascists' (BUF) official newspaper - could well prove popular with students. We agreed with the chapter author the extent of conversion needed for students to get an essence of the front page experience; this would include article headlines, some bylines, adverts, a description of the BUF graphic and slogan, key bullet points where they would have stood out more than the rest of the text, but not necessarily the entire content of the page.

To ease study workflows we decided to place all accessibility advice and guidance in one place on the module website; students were told about this within the module guide and tutors were encouraged to send students with additional needs from within their tutor groups to these advice pages.

What this meant for Library Services

As a direct result of A327 production support we have now introduced the following changes in our accessibility support services:

(1) We have improved processes to deal with increased volume of work; When the service was introduced accessibility checking requests had been emailed to library assistants via a shared mailbox. Even though these had included a

deadline date, library assistants now needed an easier way to identify priority work.

(2) The current solution is to prioritise using two spreadsheets, one for ejournals and one for ebooks. By entering test deadlines, conversion deadlines and any special requirements regarding tables and figures it has streamlined the communications process. The ability to sort by a variety of criteria helps to identify priorities.

(3) We have introduced a streamlined communications process with academic authors, asking them to identify key tables and figures in advance of accessibility testing.

(4) Our platform testing procedure has evolved to provide three clear outcomes in all cases:

- General accessibility advice for the library website, linked from the databases lists and displayed on the databases accessibility issues pages
- Technical development feedback for suppliers
- Advice for specific module-based tasks.

Because of workload issues we have changed the amount of ebook content we will pre-emptively convert. Early in the A327 production cycle, we were asked to convert one or two whole books, but because of the time taken to do this it was decided that only one chapter or the equivalent could be converted; by the end of the production cycle authors were encouraged to select one or two key chapters for pre-emptive conversion. Students are then recommended to contact the Library helpdesk to request further converted material.

Our content buying is now more influenced by accessibility issues; where material is requested specifically to provide essential module content, accessibility testing takes place during the trial. If materials are inaccessible they will not be bought, and suppliers are informed of the reasons.

The involvement of staff across the teams has meant there has been a huge increase in disability awareness. Staff are more used to approaching a database from the point of view of a disabled user, and are better able to support users contacting the Library helpdesk.

Our collaboration with academic and editorial colleagues has improved. In order to ensure equality of access Learning and Teaching Librarians are becoming involved earlier within the writing process, testing materials, sourcing alternative content or suggesting different approaches where Library materials are inaccessible. Reviewing Library content for its accessibility requires an understanding of the intended learning outcomes for a particular task, so has improved our knowledge of module content and our understanding of the pedagogy behind its inclusion.

Where next?

As one of the first modules to be wholly produced after the SeGA guidelines were introduced; A327 was a pilot in all but name. Supporting this module through production has helped us understand the resource requirements of such an intensive service. We are now reviewing Library Services policy and procedures in the light of those requirements and recent changes to digital copyright legislation. These new exceptions to copyright for disabled people, which came into force on June 1st 2014 (Intellectual Property Office, 2014), will enable all educational establishments to reproduce all types of copyright material for disabled students without purchasing a

licence as long as a copy is not already commercially available in an accessible format.

The challenge for Library Services is to develop exciting and relevant collections to support the University's mission, whilst ensuring access to those collections for as wide a range of OU students as possible and managing an ever increasing workload within limited resource. The new legislation is good news for disabled students but puts the onus on educational institutions to resource this work. We will be working at a strategic level to directly influence publishers to use our accessibility guidelines and with other national groups e.g. Jisc TechDis, SCONUL, to investigate collaborative ways of working which may help us efficiently share the workload.

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Appendix 1: Resource accessibility review checklist

Colour and text size

- Can colour and text size be changed?

- Is there sufficient colour contrast?

- Is colour alone used to convey information?

Keyboard access

- Can you tab through links and forms in a logical order and see where you are

  on the page? (Is there a skip to content link)

- Are there keyboard short cuts and do they work?

- Can you conduct a basic and advanced search and access the results?

  (including, can you change the options in drop down boxes?)

- Can the database be browsed?

Hearing impairment

- Are alternatives provided for audio content?

Screen magnification

- Is text embedded in images?

- Are items right aligned?

Screen reader access

- Is access direct, or do you choose from a list of databases and if so, how easy

  is this?

- Are links intuitive?

- Are there text equivalents for important graphics?

- Are search boxes and other forms labelled helpfully?

- If search terms are automatically generated when you start typing in a search

  box, can you still search using JAWS?

- Do drop down boxes automatically refresh the screen when you arrow up or down them?

- Can the results be navigated easily? Are links or headings used to indicate article or book titles?

- Are frames used and if so are they labelled correctly?

- Can the database be browsed?

Accessing full text

- Which format is used to provide full text?

- If videos, podcasts, music etc. are provided can these be accessed?

- Are buttons for controlling videos etc. correctly labelled?

Guidance for using database in modules

- Basic search

- Advanced search

- Browsing

- Results page

- Full text

- Any other comments

Appendix 2: Article or ebook accessibility full text checklist

What format is the article/book in? (PDF, HTML, other)

If the format is PDF:

- Does the search tool work?

- Does the text make sense when saved as a text document?

- Does the text make sense when read with Read Out Loud?

- Can you enlarge the text?

- Can you copy and paste sections of text into a Word doc?

Additionally if it is a book:

- Is each chapter a separate PDF?

- Alternatively, does each page have to be converted separately?

Margin notes

- Are margin notes included?

- If yes, when are they read out i.e. mid paragraph?

Tables and columns, graphs, pictures

- Are there any tables?

- Are tables accessible to a screen reader?

- Do the tables interrupt the flow of text?

- Are there any graphs, pictures etc?

- Are any figure descriptions provided?

Mathematical and other non standard notation

- Is any mathematical or other non standard notation included?