

Captivating Open University students with online literature search tutorials created using screen capture software

Tim Wales and Penny Robertson

Authors

Tim Wales, Learning and Teaching Librarian Team Leader (Business & Technology), Open University Library, Milton Keynes, UK. E-mail: t.b.wales@open.ac.uk

Penny Robertson, Learning and Teaching Librarian (Extended Hours), Open University Library. Email: p.a.robertson@open.ac.uk

Article category: Case study

Purpose: To share the experiences and challenges faced by the Open University Library (OUL) in using screen capture software to develop online literature search tutorials.

Design/methodology/approach: A summary of information literacy support at the OUL is provided as background information to explain the decision to experiment with screen capture software with particular subjects. A detailed consideration of the design, development and implementation stages of a literature search tutorial in information and communication technology is given before a critical appraisal of the problems encountered.

Findings: Highlights the challenges in writing and designing self-guided online learning materials in a subject context. Considers the strengths and weaknesses of the particular screen capture software used, especially with regard to accessibility.

Practical implications: Of interest not only to other academic libraries but any organisation seeking to publish online help or learning materials for different audiences.

Originality/value: This paper is the first to document use of screen capture software for information literacy purposes in a UK academic library and distance learning context.

Keywords: Information literacy; Subject guides; Academic libraries; Distance learning; Screen capture software; Adobe Captivate

Word count: 7,188 words

1. Introduction

This article describes the creation of an online literature search tutorial for information and communication technology (ICT) students on undergraduate project courses at the Open University (OU) in the UK. Although essentially a case study we do offer practical advice for others contemplating developing such tutorials. We also record some thoughts regarding the future direction of information literacy in the Open University Virtual Learning Environment (VLE).

The Open University is the largest university in the UK with over 64,000 full-time equivalent (FTE) students (HESA, 2006). The majority of students study part-time and at a distance and the actual number of students studying each year is over 180,000 with 150,000 of those being on undergraduate courses (Open University, 2008).

The ICT online literature search tutorial will be used by three undergraduate courses comprising over 900 students in the 2008 academic year:

- T324 (Keeping ahead in information and communication technologies)
- T320 (Ebusiness technologies: foundations and practice)
- T455 (The information and communication technologies project).

In the 2009 academic year a new course - Digital Media - will begin using the tutorial bringing with it another 440 students. These courses can be used as part of the following degree programmes:

- BSc (Honours) Information and Communication Technologies

- BSc (Honours) Information Technology and Computing
- BA/BSc Open degree.

Figures 1-4 show some screenshots from the tutorial.

Take in Figure 1

Take in Figure 2

Take in Figure 3

Take in Figure 4

Figure 1. The opening screen of Section 2



Figure 2. Screen capture of IEEE Xplore with an animated call-out (it appears and then fades) that has been added using the screen capture software

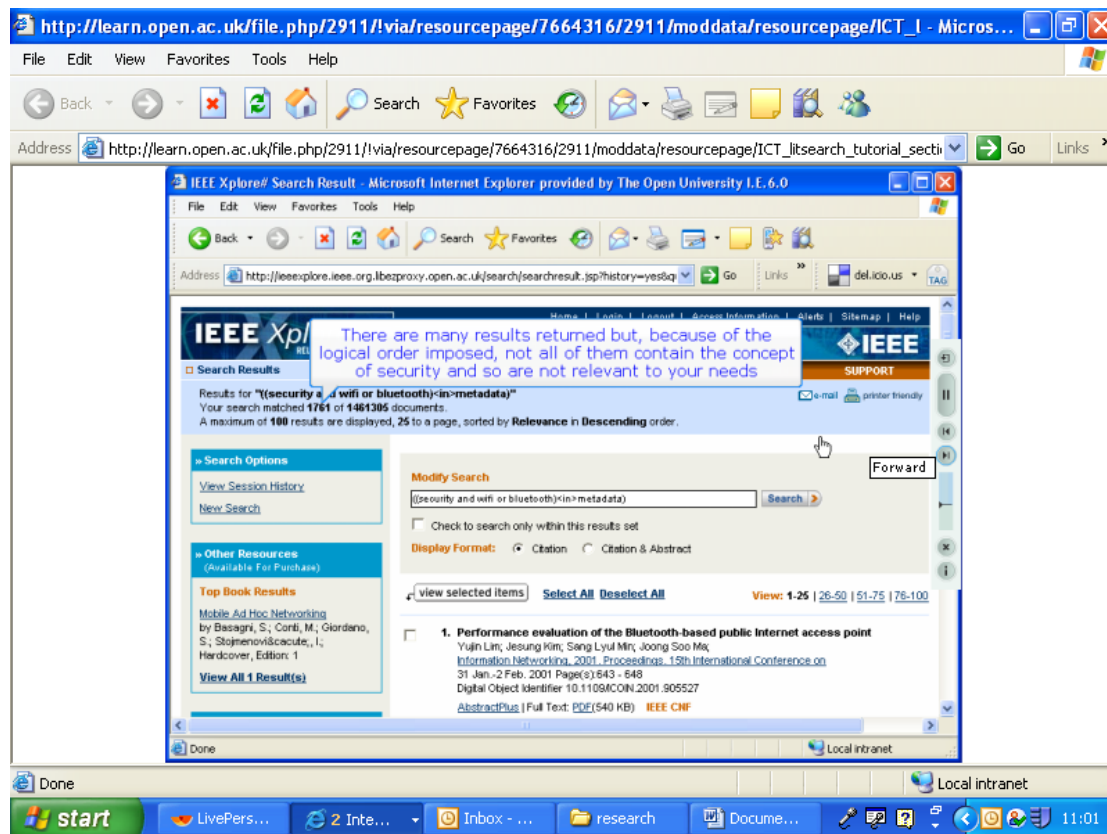


Figure 3. An example from the end of Section quiz

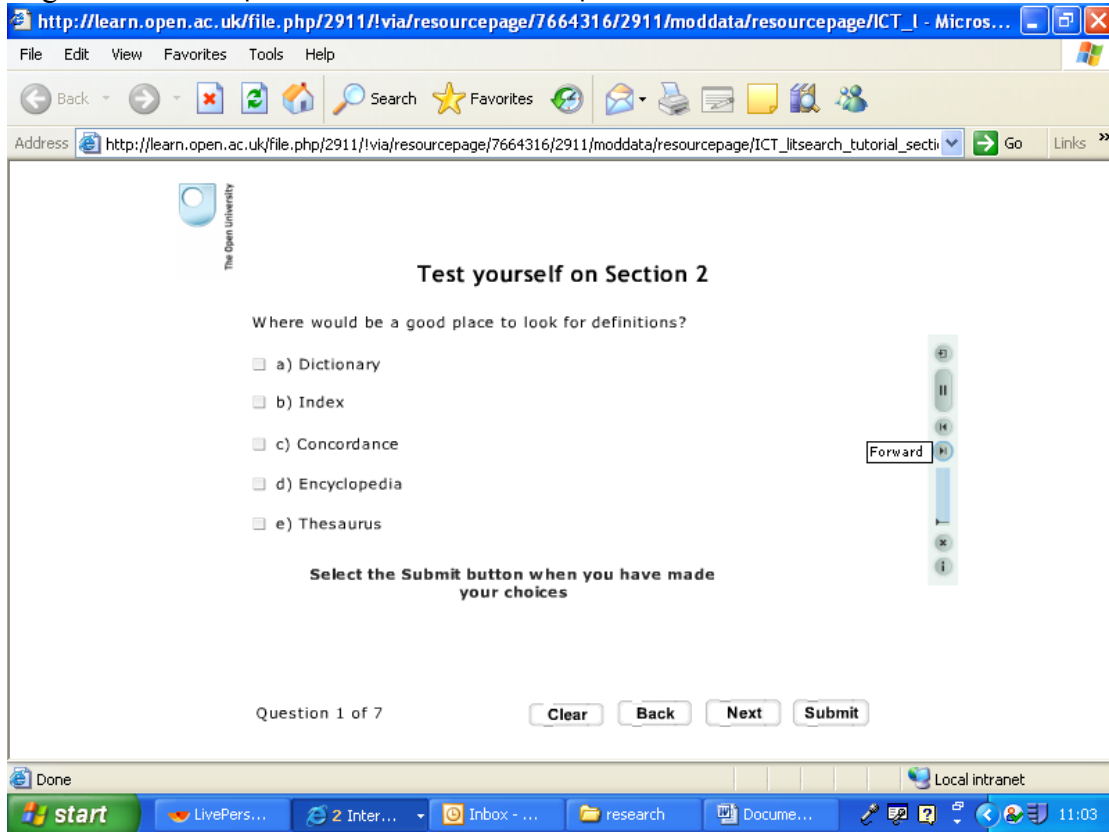
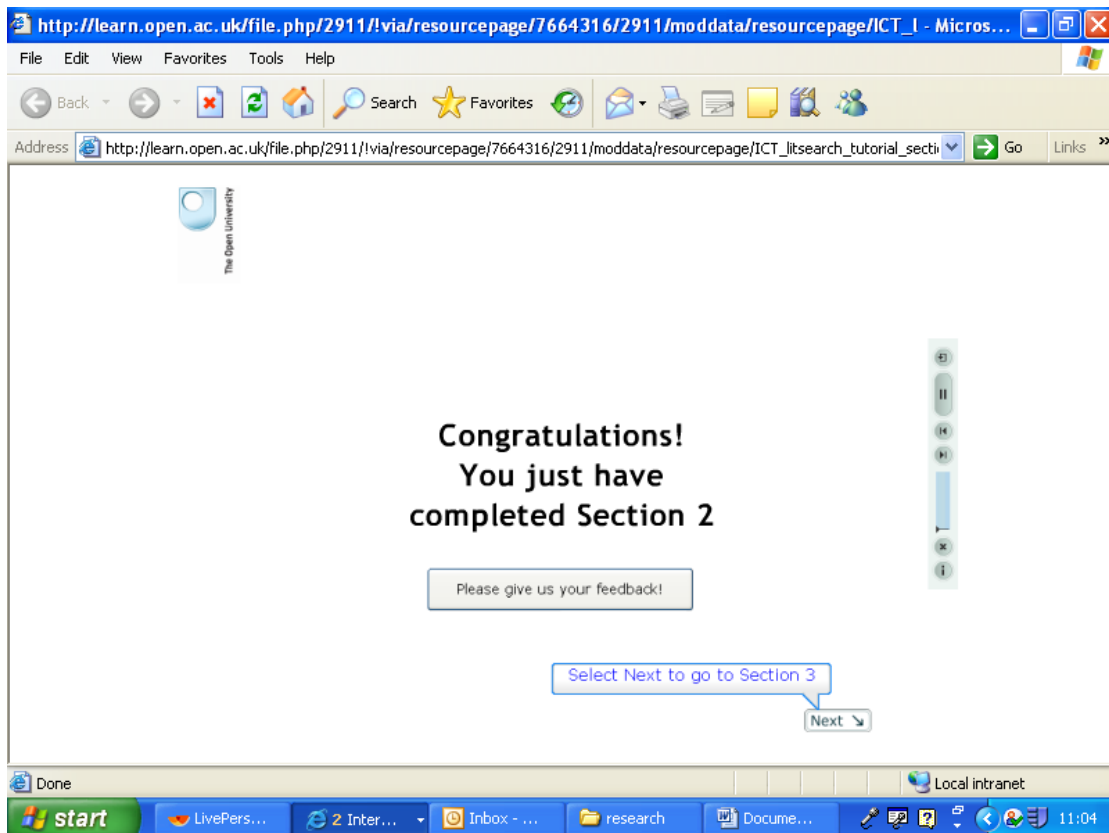


Figure 4. A screen showing the feedback button, this links to the generic OU Library feedback form



2. Literature review

When reviewing the literature in order to support the creation and development of the ICT online literature search tutorial it was necessary to consider the boundaries of our search. It was thought that there would be a large volume of potentially useful material, as ever since information professionals have been writing guides and tutorials (from now on referred to as information literacy material) there has been discussion of the merits and implementation of this material in the literature, (for example Cherry and Yuan (1994)).

It was clear that although there are common issues that span the development of information literacy material regardless of format (print, CD, online) there are some issues that are pertinent only to the online environment. For that reason this literature review focuses on material that influenced the production of the online literature search tutorial, that is accounts of best practice in the creation and promotion of information literacy material in the online environments. What is not dealt with in detail is the comparative efficacy of printed versus online information literacy material or the historical development of printed and online information literacy material. A comprehensive review of the latter has already been produced (Vileno, 2007).

For the practitioner wishing to learn from those who have recently developed online information literacy material there are two types of articles to regard. Firstly, those articles that tend to the descriptive - case-studies, surveys and accounts of local initiatives (examples include: Hayworth and Brantz (2002); Viggiano (2004); Aydelott (2007); and Armstrong and Georgas(2006)). Secondly, there are those articles that recount best practice in the creation and promotion of online information literacy material – attempts to draw out common principles or guidelines that could be applied regardless of an individual or institutional context. It is useful to discuss three of these later articles in detail as they informed our design principles. From looking at maximising the comprehensibility of online library tutorials and scripts (Bailin, 2007) the following design considerations were identified:

- the depth, breadth and information 'scent' of material;
- the meaningful use of labelling/taxonomies;
- allowing users to follow variable semi-structured paths (scripts) through material, thus taking full advantage of the flexible nature of the online environment.

In a study of academic business libraries (Dunsmore, 2002) four principles or rules of creation that can be applied to online information literacy material were drawn out. These principles are:

- transparency (clearly explained and free of jargon);
- consistency (easily recognised/identified and used, using terminology consistent within institution and sector);
- selectivity (users directed to relevant, quality resources);
- accessibility (easy to find).

Finally, from a discussion of online information literacy tutorials (Reece, 2007) features that make effective online information literacy material are described. In terms of the presentation of material, clarity of design and navigation was thought to be important. This navigation can be either via a logical sequence, by multiple pathways or a combination of both. In terms of pedagogy, it was suggested to define learning objectives clearly, to include a variety of difficulty levels, to cover lower-order (task) and higher-order (concept) skills and to use realistic simulations of research problems.

These common principles of design influenced the production of the ICT tutorial in two ways. Firstly they provided standards by which to measure what was achievable and/or appropriate within our institutional context, within the timescale and within the skills and knowledge of the project team. It was judged by the project team that the strengths of the ICT tutorial as compared to principles identified in the literature would be clear design, consistency, little use of jargon and accessibility. Much of the clear design and consistency can be attributed to a tightly controlled OU 'brand'. In terms of accessibility the project team would broaden the theme identified in the literature from making material easy to find, to cover making material available to *all* user groups. In the UK, this means complying with institutional responsibilities under the *Disability Discrimination Act (1995)*. With regards to structure and navigation, the tutorial was comprised of discrete sections that had identified learning objects at the beginning and quizzes to consolidate learning at the end. Each section can be studied and can stand alone, but is also part of the whole. All elements that have been described in the literature are included. However, a principle of the ICT tutorial not described in the literature was the commitment to reduce reader scrolling and to 'chunk'

material into screen-sized sections. This principle was derived from practitioner experience and unwritten OU Library style principles rather than literature searching. An outline of the structure of the tutorial can be found in Appendix A.

Secondly, the principles could be used as an evaluation tool at the end of the project. From this position it can be said that 'finer' design elements such as information 'scent' and taxonomies were not considered, this was partly due to time constraints and partly due to a lack of project team skills in this area.

With regards to the pedagogy of the ICT tutorial it was felt that there were constructivist principles at play. The students are expected to work through the material, gaining information literacy skills by building upon their existing knowledge. Once these skills are acquired, it is expected that they will be able to apply them to the rest of their studies. Using the literature, there was also consideration of how to design the ICT tutorial to accommodate a range of recognised leaning styles. Research into learning styles in a library context (Ying Chau, 2006) mentions giving students the opportunity to concept map, talk aloud and be able to follow a sequenced learning structure, but more importantly emphasises the need to provide an adaptable learning environment where students can work through material in a variety of ways to suit their individual needs and learning styles. It was this final point, of enabling the students to work through the ICT online literature search tutorial in a variety of ways (i.e. not only in a linear, section by section pathway), that was particularly applicable.

When searching the literature it was difficult to find any discussion of the problems and challenges faced when creating online information literacy material, which is disappointing as it is often the circumvention of such difficulties that provides the greatest insight for fellow practitioners.

In context of the OU, the production of information literacy material in the online environment is a relatively recent development for the Library. For example, SAFARI - Skills in Accessing, Finding and Reviewing Information (<http://www.open.ac.uk/safari/>) was launched at the end of 2001. It is a stand-alone interactive, online information literacy tutorial in seven sections, designed for all OU undergraduates and is freely accessible to the wider public.

In the last few years, at the suggestion of the faculty librarians and as a result of demand from OU course teams, the Library has been developing more sophisticated, subject-specific (and sometimes course-specific) online tutorials. Like SAFARI, the subject-specific online tutorials are grounded in pedagogy and are designed with specific learning outcomes in mind. A more detailed description of subject related information literacy and the demands of course teams is provided by Wales (2005) and broader considerations of information literacy at the OU by Parker (2003).

The advantage of creating specific course and subject related online tutorials is hoped to be a greater opportunity to embed within course structure (and sometimes assessment) and to engage students with relevant examples. There is certainly research that suggests information literacy is best integrated into a disciplinary context (Kautto, 2007). At the Open University it has been suggested that fully embedding information literacy into the curriculum will promote and enhance student independent learning and progression through programmes.

In terms of the literature discussing the use of screen capture software used for information literacy initiatives, there was no evidence of articles written from a UK academic library perspective. This is surprising because anecdotal evidence from UK professional academic librarian networks such as the British Business Schools Librarians' Group (BBSLG - <http://www.bbslg.org/>) suggests that some institutions have been experimenting with such software since 2004, e.g. to create online guides to searching the library OPAC. There are, however, examples of use by US libraries (Nickerson and Bryner, 2002; Webb, 2007) and also by professional institutions such as the Institute of Electrical; and Electronic Engineers (IEEE) Self-Paced Instant Training Modules (<http://www.ieee.org/web/publications/subscriptions/client-services/training.html#instant-IEEE>). It was useful to view the IEEE tutorials in particular as they covered a similar subject area to the ICT tutorial.

UK national initiatives, such as the Virtual Training Suite (<http://www.vts.intute.ac.uk/>), have yet to use screen capture demonstrations and Jorum (<http://www.jorum.ac.uk/>), the national UK Further and Higher Education Institution repository of learning objects, does not hold many examples. One example from a further education context is from the North Hertfordshire College where screen capture software has been utilised on a guide to the VLE.

Like the generic repository, Jorum, there have been attempts in certain disciplines and organisations to collate information literacy material with a view to facilitating re-use, for example BBSLG.

3. Pilot version

3.1 Background

The concept of using screen capture software to create an online search tutorial was initially raised in 2004 after one of the authors had obtained an example demonstration using Camtasia software (<http://www.techsmith.com/camtasia/publish.asp>) from Northumbria University Library after the BBSLG Annual Conference.

Various screen capture software programs are available in proprietary or open source versions. All simulate a true 'video' recording by taking a series of still images and incorporating animated features such as simulated mouse movements. It is possible to add audio tracks and captions too. The resulting file is smaller than a true video file would be and so has wider applications, especially where bandwidth is still an issue. The files are created in the industry standard AVI (Audio Video Interleave) format. This is then converted to a .swf (SWF, Small Web Format or Shockwave Flash) file which can be played back with the freely available Macromedia Flash Player.

After a brief analysis of the available software by a colleague in the Library's Information Literacy Unit (ILU), it was agreed to pilot the application using Adobe Captivate to develop a management literature search tutorial for a new MBA course, B830 (Making a difference), launching in May 2005.

This pilot version tested out the audio commentary functionality of the software but did not include self-assessment exercises. It was organised into four separate sections or chapters both to reduce file size and download time for students but also to facilitate re-use as other courses or applications could link to specific topics considered.

The main pedagogical emphasis was on the creation of an effective search strategy from an example research topic on health and safety management, based on the use of an online thesaurus, Boolean operators and truncation devices. Screen captures then illustrated a live search in the EBSCOhost's Business Source Premier database (<http://www.ebscohost.com/thisTopic.php?marketID=1&topicID=2>), including tactical use of controlled indexing with digressions on saving results and advice on locating the full text of an article from a citation. The total screen time was 20 minutes with a total study time of about 30 minutes.

3.2 Discussion points

Producing a pilot version was a very valuable exercise and the following conclusions were drawn from it:

- Audio commentary was time-consuming, tricky to create and modify and arguably superfluous from an accessibility point of view as the tutorial included screen-reader text.
- Any tutorial needs to be produced by librarians not IT staff as the former have a pedagogic understanding and know what is trying to be conveyed in terms of content.
- Detailed storyboarding may help reduce production time.
- MS Word was not the most appropriate tool for storyboarding content and structure.
- Use of standard templates in future should reduce production time.
- More interactive elements are required to engage students.
- 'Chunking' content into discrete sections facilitates re-use from a library perspective.

Some of the conclusions above merit further consideration as they raise interesting process and/or boundary issues.

In terms of who should actually produce the tutorial, an initial process was tried in which the business and management subject information specialist wrote the content with instructions for screenshots and then passed that onto a web project officer to output the tutorial using the Captivate software. The outcome of this process revealed differing world-views of the respective sections of the Library, and the web project officer felt obliged to re-

order and re-structure the storyboards in order to make sense of the content. However, the final outputs then made no logical sense to the librarian and had to be re-ordered again, all of which increased the time spent on the project.

The reason for this discrepancy can perhaps be best explained by the fact that librarians are aware of the intended user access method and 'order of engagement' with online resources, the intended navigation path of the user through the resources and the various complexity levels that can be applied to online searching. A person with an IT background may take a more software-oriented approach, linking together aspects of interface design of the system or a more linear sequential approach, not allowing for the serendipitous realities of library user engagement with online resources.

The pilot project was also used to service plan the process of creating such tutorials to calculate the time taken and then work out the cost to the Library. This information would inform whether or not any future production should be regarded as core, or non-core, activity and therefore whether or not the work should be charged for separately. The pilot took around 117 'person' hours to create at a total cost of £7000, most of which was staff time.

4. Methodology - ICT tutorial

The next opportunity to develop an online tutorial came in the form of the OU ICT courses. This project evolved over four main phases:

- Planning - outline structure and broad content agreed with course team chairs.
- Storyboarding - storyboards created in Powerpoint for each section and drafts shared with course teams via Wiki and FirstClass.
- Production - storyboards converted into Captivate outputs, flash outputs shared with course teams and tested on various PCs, and final versions uploaded to course VLE website.
- Review - ongoing feedback from users and formal feedback from the 'end course survey'.

4.1 Planning phase

A planning meeting was held with the two principal stakeholders in the project, the academics who were chairing the two new undergraduate ICT courses in production (abbreviated by their OU course codes as T324 and T320). As T324 was due to start in February 2007 and by nature of its theme of "keeping up-to-date professionally" was to be the prime user of the tutorial, it was agreed that this course would be the principal user.

A draft structure was prepared prior to the meeting with sections and their learning outcomes, sample subject specific topics and rough study times specified, building on the structure of the pilot version of the tutorial. Six sections were specified in total (see Appendix A for the outline structure). Each section was intended to be self-contained but offered in a logical thematic order.

The most important outcome from the planning meeting was agreement for an example topic ('wireless network security') to use throughout the tutorial that would have general applicability across the stakeholder courses and the ICT programme as a whole.

One interesting suggestion for inclusion by both course chairs was a detailed consideration of the role that Google can play in academic literature searches now alongside traditional full-text databases such as IEEE Xplore (<http://ieeexplore.ieee.org>). The tutorial ultimately addressed this issue head-on by comparing and annotating actual search results lists from both Google and IEEE Xplore to illustrate how the search hits returned can be evaluated to assess their research benefit.

Another valuable suggestion received was to include an illustration of how emerging Web 2.0 social networking technologies could be used as information/reference management tools in the literature search process. This resulted in the creation of a new section illustrating the use of the Del.icio.us (<http://del.icio.us>) bookmarking tool to store and tag useful resources followed by a consideration of one of the more traditional reference management tools, e.g. RefWorks (<http://www.refworks.com/>).

4.2 Storyboarding phase

The experience of working on the pilot version underlined the importance of the storyboarding phase. The more detailed the storyboards, the easier it would be to produce them in Adobe Captivate in the next stage. This included putting actual screenshots into the storyboards rather than textual description of what they might contain. As MS Word had proved inappropriate for storyboarding in the pilot project (it did not map onto a slide structure easily and did not encourage the discipline of writing for the screen), it was decided to use MS Powerpoint for storyboarding the ICT tutorial as it was understood that it was possible to import directly from MS Powerpoint to Adobe Captivate.

However, later testing found that Powerpoint slides were imported as complete images rather than as a discrete sets of objects that could be manipulated individually. The consequence of this limitation was the inevitably time-consuming task of cutting and pasting text into new text boxes for every slide, re-positioning and formatting every object on each slide manually. One of the main challenges of the storyboarding phase related to learning design in an online environment and the difficulty of making a potentially 'dry' topic engaging for the viewer without resorting to screens of explanatory text.

What is perhaps unique to these kinds of online tutorials is the need for authors to consider the fact that users are just as likely to start the tutorials at different points as they are to start from the first section. This in turn presents the challenge of deciding how much prior knowledge to assume in each section (or whether to rely on the user picking up the thread or conventions used quickly). A simple example serves as an illustration. The first section of the tutorial encourages students to access OU Library resources via a subject information guide or pathfinder. Screen animations show the user how to navigate to a particular section of the guide and then to a particular online resource (e.g. IEEE Xplore). Later sections, where IEEE Xplore is revisited again, may just show a screengrab of the IEEE Xplore link in the guide rather than repeating the whole navigational process. Later sections still, for brevity's sake, may just show the user the home page of IEEE Xplore itself and start from there.

Aside from the challenge of writing material for online learning, another significant challenge during the storyboarding stage was managing version control and workflow across different networks and organisational boundaries. One of the stakeholder course teams shared course production information in an online conference, another in an online wiki while the Library stored drafts in a document management system. There was a commitment to share drafts in this complex environment nonetheless so that the academics could use them as learning objects whilst writing their course material, as well as commenting on the actual material being produced. In practice, both aspirations were not met and the effort was not ultimately justified. The complexities of version control in an OU and OU Library subject guide context have been discussed previously (Wales, 2005) and it is hoped that the enterprise content management (ECM) project that is starting to be rolled-out across the University may help address the underlying issues over time.

4.3 Production phase

The production phase involved replicating the finished storyboards in the Adobe Captivate 2.0 software. As mentioned previously Adobe Captivate had been recommended after an evaluation exercise by colleagues in the OUL ILU.

Adobe Captivate 2.0 offered the following functionality:

- The ability to record either the whole screen or a portion of the screen.
- The recording could be adjusted for frame rate, colour and depth.
- The ability to create text boxes, call outs and quizzes.
- The ability to create multiple output formats from a single file. Formats available included MP3, iPod video, Adobe Flash (SWF (Shockwave Flash) and FLV (Flash Video)), AVI (Audio Video Interleave), WMV (Windows Media Video), QuickTime (MOV), RealMedia (RM), animated GIF and executable (EXE).

A 30-day trial version of the software was used and in this time it was necessary to become familiar with the functionality of the package and create the files needed for the tutorial.

Several other packages offer similar functionality to Adobe Captivate, these include:

- Camtasia Studio
- Camstudio 2.0 (an Open Source package)
- HyperCam

- Wink
- Madcap Mimic.

When using Adobe Captivate for the creation of the ICT tutorial it was often not possible to create a detailed sequence of instructions or screen shots to illustrate the actual screen capture sequences outlined in the storyboards. Therefore, the exact sequence of navigation and keyboard inputs needed to be rehearsed in real time in a browser before the Captivate record button was pressed, so that mistakes were not captured. On the whole, it was found to be less time consuming to re-record a sequence than to spend time editing its constituent objects afterwards.

At times, a quick fix of using appropriately coloured rectangles to cover up unwanted screen objects was appropriate. For example, late on in the production process it was discovered that MS Outlook e-mail notification call-outs had been inadvertently captured in some slide backgrounds, distracting users when viewing the slides. To correct these kinds of errors, a screen-grab tool was used to copy the exact section of screen without the intruding alert which was then pasted as a bitmap image over the top of the offending background in Adobe Captivate.

The main problem encountered in the production phase related to determining the optimum screen size for the user. Initially the first two sections were output in full-screen mode (1024 x 768 pixels). However, tests revealed that users would have to scroll excessively on each slide in order to use the playback controls and probably hide many elements of their browser to free up sufficient screen space. The decision was taken therefore to re-size the tutorial to 800 x 600 pixels. Theoretically, the software permitted outputs to be re-sized automatically. In practice, the process was not as sophisticated as desired, resulting in the inevitable 'hand-crafting' of each individual slide to move and re-size individual objects within the re-sized screen frame.

Consideration also had to be made relating to the 'standard' Internet Explorer browser setup displayed in the screen captures. Should browser buttons, link, status and address bars and custom toolbars be displayed or could some of them be de-activated to free up more screen space? Should the Window Systems Tray even be shown? In practice, only custom toolbars, such as the Google Toolbar were de-activated as later sections would illustrate how to use the del.icio.us plugin with Internet Explorer to save and share useful online resources. Nevertheless, what might be termed 'continuity of screen capture space' would prove problematic when making corrections to outputs later in the process, especially if computers with different software setups were used.

Finally, it is worth highlighting the time commitments that the software demanded of library staff. The storyboarding and production phases combined took 100 hours over a period of six months to produce six hours of study material (note - this is not equivalent to six hours of screen captures). Recent estimates of production time based on an improved use of templates would bring this down to about 75 hours. On the other hand, a short one-minute animation only learning object with extra accessibility aids could be produced to satisfactory quality in three hours.

4.4 Review phase

As this tutorial was the second of two produced using screen capture software there had been some reflection upon our methods and processes made between the MBA and the ICT tutorial production. Some changes were resoundingly successful, such as omitting the soundtrack, others, such as storyboarding in MS Powerpoint instead of MS Word produced problems of their own. During the production process informal evaluation from the whole project team was continuous. Opinions on particular matters were gathered in a more formal fashion when the need arose and a deadline was looming. For example, academics were canvassed on their opinion of the relative importance of various resources for the study of ICT (standards, patents and so on and the consensus from this survey was - it depends!)

Post 'soft' launch, various ICT student online conferences were monitored by librarians of the Business, Law and Technology team to pick-up on any comments and problems posted. The majority of the small number of comments received actually came from students on another ICT project course who had also been notified of the tutorial's existence.

Typical problems reported related to:

- the tutorial not appearing in Flash Player;
- the speed and pacing of the tutorial;
- bugs with the interactive quizzes;
- a bizarre tendency for the tutorial to fast-forward automatically to the end on several users' computers.

Some problems were fixed by asking the user to upgrade to a newer version of Flash Player. Concerns around speed and pacing can be addressed by the user making more active use of the playback control output with the tutorial. The user forums on the Adobe website ultimately proved to be a valuable source of 'workarounds' for some of the bugs. Others, frustratingly, remain unsolved at the time of writing.

One enhancement that was possible to achieve very quickly at the request of a student, and supported by the T324 (Keeping ahead in information and communication technologies) course team, was to post an offline version of the tutorial on the course website that could be used on laptops or portable devices not connected to the Internet. Adobe Captivate can output self-contained executable files of content intended for use on stand-alone media such as CD/DVD ROMs. Two zipped files (to reduce download time) containing all the tutorial sections were duly uploaded to the course website. It is worth noting, however, that these executable files were later found to be inaccessible with screen reading software, unlike their online equivalents.

After 12 months live some feedback is starting to filter through from the link embedded into the tutorial. To date only three comments have been received in this way:

"Great tutorials on literature search, (Penny Robertson and Tim Wales 2007) but would prefer re-attempting each question after the individual question rather than going through the whole exercise again."

"Finding the ICT literature search tutorial helpful."

"did literature search tutorial section 1. At the end there are some questions, allegedly 4. Only 3 appear. Q2,3 & 4. So I only got 75% and a "sorry". You might like to check it out."

As with the conference comments the feedback is greatly focused towards software glitches.

In terms of evaluating the use of and response to the ICT tutorial the feedback form offers the opportunity to gain anecdotal evidence only. In terms of systematic, formal feedback from students, it is hoped to include a question on the utility of the tutorial in a future end of course survey for T324. The Open University has a strict policy on the surveying of students during the year and the formal course survey represents the best opportunity for the Library to obtain structured, reliable and comparable data on the services it offers.

The other major opportunity for obtaining feedback regarding OU Library services is the OU-wide Courses Survey. This is not sent to every course every year, however, the Autumn 2007 Courses Survey did include the T324 course. The early results suggest library services have been rated highly (Bowtell, 2008). However, it is difficult to infer that this rating has been in part as a result of the ICT tutorial as the questionnaire did not include a specific question regarding the ICT tutorial, just generic questions about OU Library services that are posed to all of the courses included in the Survey.

5. Conclusions

Overall, use of screen capture software for producing information literacy materials is a positive step forward for a library serving distance-learning users. Not only does it force librarians to consider how students actually learn online and engage with objects presented on the screen, it provides an alternative method of conveying complex information, addressing a perceived over-reliance on textual resources. Surface learning can be avoided by the considered use of self-assessment quizzes, encouraging user reflection on their own practices and by careful selection of relevant examples and topics. Such objects can be re-used for many different applications thanks to the various output options offered by the

software. Re-use can also be facilitated by 'chunking' content into discrete sections at the storyboarding phase.

Based on the OU experience, it is recommended that audio commentary tracks are not added if screen readable text can be added with the software chosen. The extra time added to the production process, the complexity in editing content, the knock-on effect to tutorial pacing for the end user let alone the basic requirement for a sound-proofed recording booth outweigh any benefits.

However such undertakings should not be taken without consideration of organisational issues. Will library staff have the time to get to grips with the software? Will the expertise end up in only a few staff? Should production of such tutorials be treated as just another work output on the same scale as a PDF or library leaflet, or are they special added-value tools? Is there the commitment and resource available to keep them up-to-date?

6. The future

In the short-term (one year), the ICT tutorial will need to be re-branded to meet the new OU corporate branding guidelines. A template for this has already been developed by an OU graphic designer and applied to the original pilot version. The process behind this revealed even more quirks with the Adobe Captivate software from a customisation perspective.

There is also a desire to create very short and simple demonstrations of key OU Library services/resources, based on common queries to the Library Helpdesk, as a form of self-help resource. A good example is a recently produced one-minute demonstration illustrating how to set up Google Scholar with the Library's OpenURL resolver, SFX. This is harder to convey in text than it is to do visually and so is ideally suited to screen capture software. Such shorter demonstrations are easier to justify on a cost/benefit basis, the two hours or so required to produce them are balanced by the savings in Helpdesk staff time, user time and the higher use of online subscription resources linked to from Google Scholar.

In the medium term, it may be possible to test the integration of tutorials into the OU's virtual learning environment Moodle (<http://moodle.org/>). For example, scores from the quizzes may be able to be combined with assessment scores from other library information literacy tools. Such integration may also apply to offering the tutorial content as open source content via the OU's own equivalent of Jorum, Open Learn (<http://openlearn.open.ac.uk/>).

As more and more sections of the OU are starting to experiment with this software, efforts are starting to be made to pool expertise and produce some central guidelines. On the one hand, this is a positive step as it will bring the customary rich mix of OU expertise to bear and reduce the amount of duplicate effort across the OU. On the other hand, such attempts to centralise and 'corporatise' these kinds of efforts can over-complicate the production process and stifle creativity early on. The longer such tutorials take to produce, the costlier they are perceived to be and this serves as a disincentive to produce more. In this era of YouTube and easily-created embeddable end-user media objects, perhaps we have to re-think our high expectations and standards. Perhaps we should cease looking for that perfectly honed version and strive instead to create a 'good enough' version that can be continuously improved in its live state, even by students themselves.

Acknowledgements

The authors would like to acknowledge the contributions of Geri Smith, Fiona Bowtell and Adrian Leibowitz to the ICT literature search tutorial project.

References

- Armstrong, A. G. and Georgas, H. (2006), "Using interactive technology to teach information literacy concepts to undergraduate students", *Reference Services Review*, Vol. 34 No. 4, pp. 491-497.
- Aydelott, K. (2007), "Using the ACRL Information Literacy Competency Standards for science and engineering/technology to develop a modular critical-thinking-based information literacy tutorial", *Science and Technology Libraries*, Vol. 27 No. 4, pp. 19-42.

- Bailin, A. P. (2007), "Online library tutorials, narratives, and scripts", *Journal of Academic Librarianship*, Vol. 33, pp. 106-117.
- Bowtell, F. (2008) (f.bowtell@open.ac.uk) 26 Feb 2008. "Fwd: IET survey data T324", E-mail to P. Robertson (p.robertson@open.ac.uk)
- Cherry, J. M. and Yuan, W. (1994), "Evaluating the effectiveness of a concept-based computer tutorial for OPAC users", *College and Research Libraries*, Vol. 55, No. 4, p. 355.
- Dunsmore, C. (2002), "A qualitative study of web-mounted pathfinders created by academic business libraries", *Libri*, Vol. 52, pp. 137-156.
- Hayworth, G. B. and Brantz, M. (2002), "Developing an online library instruction program: ACC's Online Library Tutorial", *Colorado Libraries*, Vol. 28 No. 4, pp. 39-42.
- HESA (2006), *Table Ob - All students FTE by institution and level of study 2004/05*.
- Kautto, V. T. and Talja, S. (2007), "Disciplinary socialization: learning to evaluate the quality of scholarly literature", in Garten, E. et al (eds.), *Advances in Library Administration and Organization*, Vol. 25, pp. 33-59.
- Nickerson, M. and Bryner, J. (2002), "From video tutors to electronic portfolios: using advanced screen capture in support of educational technology instruction", in Crawford et al. (eds.), *Society for Information Technology and Teacher Education International Conference 2002*, AACE, Nashville, Tennessee, pp. 430-431.
- Open University (2008), *About the OU*. Available at: <http://www.open.ac.uk/about/ou/>
- Open University (2007), "Integrating information literacy into the curriculum." The OU Library in association with COBE, SUP 002538.
- Parker, J. (2003), "Putting the pieces together: information literacy at The Open University", *Library Management*, Vol. 24 No. 4/5, pp. 223-228.
- Reece, G. J. (2007), "Critical thinking and cognitive transfer: Implications for the development of online information literacy tutorials", *Research Strategies*, in press.
- Viggiano, R. G. (2004), "Online tutorials as instruction for distance students", *Internet Reference Services Quarterly*, Vol. 9 No 1/2, pp. 37-54.
- Vileno, L. (2007), "From paper to electronic, the evolution of pathfinders: A review of the literature", *Reference Services Review*, Vol. 35 No. 3, pp. 434-451.
- Wales, T. (2005), "Library subject guides: a content management case study at the Open University, UK", *Program: electronic library and information systems*, Vol. 39 No. 2, pp. 112-121.
- Webb, P. L. (2007), "YouTube and libraries: It could be a beautiful relationship," *C&RL News*, Vol. 68, No.6. Available at: <http://www.ala.org/ala/acrl/acrlpubs/crlnews/backissues2007/jun07/youtube.cfm>.
- Ying Chau, M. (2006), "Connecting learning styles and multiple intelligences theories through learning strategies: an online tutorial for library instruction," *LIBRES*, Vol. No. 16, p. 5.

Appendix A

Section title	Learning Outcomes for the Section	Possible Content	Study time (mins)
1. Introduction	(reproduces outcomes for the tutorial as a whole)	Example topic area for tutorial = wireless network security	2
	Demonstrate understanding of what is meant by (and expected of) an academic literature search as opposed to a simple google search	Examples of good and bad lit searches?	5
	Something about the differences between online searching as an OU student and searching in the real world?	Definitions of online plus explanations of OU authentication	5
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
	Total		17
2. Strategies for success...	Deconstruct research topic into a search strategy	Keyword generation	5
	Define adequate keywords, using reference tools as required	Reference tools - Online dictionaries and thesauri; mind maps	5
	Know how to locate reference tools via Technology ISG	Technology ISG, Library catalogue	2
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
	Total		17
3. Super searching (1)	Select appropriate sources to suit research topic from Library and beyond	Sources of sources of information e.g tech ISG and reputation of resources	5
	Ability to locate and query ICT specific information sources, specifically standards and regulations	Sources of ITC standards, regulations, RFCs etc plus examples?	10
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
	Total		20
4. Super searching (2)	Articulate pros and cons of using Google and Google Scholar	Demo search of Google and Google Scholar	8
	Exploit selected sources effectively harnessing features of native interfaces	Demo search of IEEE Xplore	8
	Demonstrate techniques to refine and improve search results		
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
Total		21	
5. Effective evaluation	Apply PROMPT evaluation criteria to search results	Link to PROMPT checklist in SAFARI	5
		Use ICT example (good and bad) for each criterion	10
	Use citations as tool for evaluation		5
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
	Total		25

6. Managing and referencing your results	Demonstrate understanding of different ways of managing and sharing references	Examples of different systems e.g.RSS feed aggregators, social bookmarking, RefWorks, OU Wiki	5	
	Article difference between a reference and bibliography	Examples of good and bad ICT referencing, plus link out to good plagiarism advice resource?	10	
	Demonstrate understanding of importance of good referencing of ICT sources, including plagiarism considerations			
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>			5
	Total			20
Grand Total			120	

Section title	Learning Outcomes for the Section	Possible Content	Study time (mins)	
1. Introduction	(reproduces outcomes for the tutorial as a whole)	Example topic area for tutorial = wireless network security	2	
	Demonstrate understanding of what is meant by (and expected of) an academic literature search as opposed to a simple Google search	Examples of good and bad lit searches?	5	
	Something about the differences between online searching as an OU student and searching in the real world?	Definitions of online plus explanations of OU authentication?	5	
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>			5
	Total			17
2. Strategies for success...	Deconstruct research topic into a search strategy	Keyword generation	5	
	Define adequate keywords, using reference tools as required	Reference tools - Online dictionaries and thesauri; mind maps	5	
	Know how to locate reference tools via Technology ISG	Technology ISG, Library catalogue	2	
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>			5
	Total			17
3. Super searching (1)	Select appropriate sources to suit research topic from Library and beyond	Sources of sources of information e.g tech ISG and reputation of resources	5	
	Ability to locate and query ICT specific information sources, specifically standards and regulations	Sources of ITC standards, regulations, RFCs etc plus examples?	10	
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>			5
	Total			20
4. Super searching (2)	Articulate pros and cons of using Google and Google Scholar	Demo search of Google and Google Scholar	8	
	Exploit selected sources effectively harnessing features of native interfaces	Demo search of IEEE Xplore	8	

	Demonstrate techniques to refine and improve search results		
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
	Total		21
5. Effective evaluation	Apply PROMPT evaluation criteria to search results	Link to PROMPT checklist in SAFARI	5
		Use ICT example (good and bad) for each criterion	10
	Use citations as tool for evaluation		5
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
	Total		25
6. Managing and referencing your results	Demonstrate understanding of different ways of managing and sharing references	Examples of different systems e.g.RSS feed aggregators, social bookmarking, RefWorks, OU Wiki	5
		Examples of good and bad ICT referencing, plus link out to good plagiarism advice resource?	10
	Article difference between a reference and bibliography		
	Demonstrate understanding of importance of good referencing of ICT sources, including plagiarism considerations		
	<i>Multiple choice quiz at end of Section to reinforce student learning</i>		5
Total		20	
Grand Total		120	