Delivering search skills training for healthcare staff in England: A collaborative approach to developing e-learning

Sarah Lewis and Tracey Pratchett

Abstract

This study evaluated a national collaborative project to develop generic, freely available e-learning modules on literature search skills for the healthcare workforce in NHS England. Feedback data was drawn from usage reports, an online survey embedded within each module and a separate online survey nationally distributed to health-related library staff. The modules evaluated positively; learners found them useful, they impacted on learning and confirmed or increased knowledge. Only 3% reported that the modules made no difference to their literature search skills. There was also evidence that some libraries were using the modules as part of their local training. The study suggests that although there are challenges in trying to develop a one size fits all approach to e-learning, collaborating with potential end users and trainers can help to maximise its usefulness.

Introduction

The Service Transformation E-learning Project (STEP) is a working group under Health Education England’s Knowledge for Healthcare Framework (Health Education England, 2015).

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The project team identified a gap in equitable, national access to information skills training for health care professionals in England which could supplement local training programmes delivered by library and knowledge services (LKS). Increasing work pressures on healthcare professionals and the recent drive towards 24/7 services in the National Health Service (NHS) reduces opportunities to attend face to face library training (Tweddell, 2008; RCN Survey, 2015). E-learning provides the opportunity for another route of access but not every health LKS has the resources to produce it in-house.

In the interest of ‘do once and share’, STEP formed a collaborative partnership to create freely available, generically branded e-learning modules aimed at developing literature searching skills among healthcare professionals in England. These short information literacy e-learning modules are generic, do not require any prior knowledge of literature searching and are suitable for both novice and intermediate searchers. Consultation was sought from healthcare professionals and library staff from multiple sectors. To promote access, the modules were made available via a central platform (e-learning for Healthcare, 2019) and do not require a login.

This paper summarises the results of the project evaluation from the perspectives of both the end user and health librarians following the final part of a phased launch which completed in September 2018.
Objectives

In developing the modules, the project objectives were to:

- Extend the reach of library services for those who find it difficult to access physical libraries
- Provide equitable access to training for staff who may not otherwise be able to attend face to face sessions
- Align library services with technology enhanced learning initiatives
- Deliver economies of scale by reducing the need for libraries to each produce their own e-learning programmes
- Harness specialist skills which may not be available at local level

The evaluation of the final product aimed to measure the extent to which the modules met the original objectives, specifically whether the modules were:

- Effective in improving information literacy and search skills among healthcare staff and students
- Successful in meeting the criteria for accessible and engaging e-learning as identified by a pre-project survey
Accepted by healthcare librarians as an additional resource to promote to local healthcare staff and/or be used as part of a blended learning offer.

**Literature Review**

In the Knowledge for Healthcare Framework, Health Education England (2015) outlined its ambitions for strengthening NHS LKS and their role as business-critical functions within healthcare organisations. The framework is underpinned by a number of guiding principles which were integral to the development of the project and are embedded within its ethos:

- Collaboration – Do once and share working across boundaries
- Collective purchasing – Central procurement at scale
- Digital by default – Digital and mobile by default
- Equity – Equity of access and opportunity.
- Federation – Pooling of budgets, staff, resources across boundaries
- Innovation – Flexibility, new models of service, best practice

In preparing the healthcare workforce for a future in which digital skills are essential, Topol (2019) outlines the importance of providing the time and space for learning which would combine both face to face and e-learning approaches. Whilst there are some negative connotations for e-learning in the health sector, such as its overuse in delivering mandatory training requirements, if used appropriately it can deliver a “personalised and adaptive
experience” for the end user (Topol, 2019, p. 74). The NHS draft health and care workforce strategy also highlights the importance of expanding the use of online, distance and blended learning. (Health Education England, 2017a).

There are few examples of library services collaborating to develop information skills training as e-learning in the literature, although Palmer et al (2012) highlight the benefits of developing tutorials which could be customised by different academic libraries. Collaboration between NHS LKS is pivotal to the Knowledge for Healthcare Framework, (Health Education England, 2015) and the availability of centralised e-learning may avoid duplication of effort across different organisations and is a more cost effective approach (Health Education England, 2017a).

E-learning has a variety of meanings and there is no single definition of what it involves (Vaona, et al 2018). In terms of its application in the NHS in England, Health Education England (2016) includes e-learning in its definition of “Technology Enhanced Learning” (TEL), a term which encompasses a range of approaches including mobile learning, interactive digital media, videos, simulation, teleconferencing and webinars. In the academic sector, reusable learning objects are a type of e-learning which include a range of elements such as presentations, activities, self-assessment and external resources which are linked to the learning objectives and reinforce learning (University of Nottingham, 2016). For the purpose of this review, we will
refer to e-learning as the development of online courses and standalone videos which will support library staff in delivering information skills training to the healthcare workforce.

There are many examples in the literature where e-learning is used to support the learning and development of healthcare professionals (Taroco et al, 2017; Poon et al, 2015; Bond & Crowther, 2018). There are also examples of large scale e-learning programmes which have been used to train large cohorts of staff across multiple organisations on a range of healthcare topics which can be accessed via the e-Learning for Healthcare website (e-Learning for Healthcare, 2019). Despite the prevalence of e-learning, however, a recent systematic review by Vaona et al (2018) showed that when compared to traditional learning, e-learning for health professionals made little or no difference to patient outcomes, behaviours, skills or knowledge. In addition to this, Childs et al (2005) found that for staff and students working in healthcare, e-learning was time intensive and caused computer anxiety which were also barriers to engagement.

E-learning can be costly to develop, it can be poorly designed, the technology can be challenging and there is limited support and motivation available for the learner where trainers are not available (Cook 2007). Developing e-learning is a highly developed skill, and can be challenging for trainers and educators to develop these resources. In order to ensure that e-learning is impactful, user testing should take place (Childs et al., 2005). For successful e-learning in healthcare, a standardised approach should be adopted, appropriate funding should be allocated, it should be integrated into existing training as part of a blended learning approach, be
easy to use, use appropriate technology and healthcare staff and students should be given dedicated time to complete the e-learning (Childs et al., 2005).

As healthcare professionals increasingly find it challenging to attend face to face training, e-learning can offer an accessible alternative (Lafferty et al, 2016). Providing a central point of access to e-learning which is quality controlled enables e-learning to be shared and rolled out nationally delivering economies of scale and making training available to a large number of the healthcare workforce (Health Education England, 2017b). The research commissioned by Health Education England (Lafferty et al., 2016) found that users preferred face to face training which was also supported by e-learning and therefore offered a blended learning approach, an option which incorporates both face-to-face and e-learning. A systematic review (Liu et al., 2016) found that blended learning when compared with no intervention or non-blended approaches had a consistent positive effect on knowledge gained.

In their research into the challenges faced by nurses when participating in continuing education programmes, Shahhosseini and Hamzehgardeshi (2015) found that lack of time, shortage of staff, heavy ward duties, lack of line manager support and lack of funding made it difficult for nurses to attend training events. Similarly, Sarre et al. (2018) found that healthcare support workers struggled to access training due to lack of time, limited availability, ward manager attitudes and the use of e-learning as the usual method of delivery where IT infrastructures are limited. E-learning offers an alternative approach which provides sufficient
flexibility for staff to access training that they might not otherwise be able to attend, particularly staff working in community settings or working shift patterns.

Brettle and Raynor (2013) compared the effectiveness of an online information literacy course with face to face training for a group of pre-registration nursing students. They found that both methods of delivering the training improved nurses’ information literacy skills and this continued one month after re-testing. Although it is difficult to demonstrate a direct impact of information skills training on patient care (Brettle, 2003) evidence shows that library training of this kind is valued by users (Brettle, 2007).

Developing e-learning resources for use in library training requires expertise, staffing and time which small LKS may not be able to access. O’Doherty et al (2018) found that lack of relevant skills, access to appropriate technology, support and attitudes of staff were barriers to medical educators in adopting e-learning approaches. In their survey of hospital library staff and their use of e-learning to deliver information literacy training, Sandieson and Goodman (2018) found that only 35% of respondents were currently using e-learning to deliver training to clinicians. It seems that despite the benefits of e-learning in overcoming the challenge of busy clinicians not being able to attend face to face training, library staff may be reticent about using e-learning. In order to overcome these challenges, collaborative approaches to developing e-learning could be the way forward (Palmer, Booth, & Friedman, 2012) and effectively engaging
educators into seeing the benefits of these approaches are key to successful implementation (O’Doherty et al., 2018).

It is essential that appropriate methods are selected when evaluating e-learning. Whilst it is important that the impact on learning is assessed using established evaluation methods such as the Kirkpatrick model (Stevenson, 2012), Menon et al. (2012) advise that usability of e-learning such as navigation, format, layout and quality of content should also be considered when evaluating e-learning. In their systematic review of effective methods for evaluating postgraduate medical e-learning, de Leeuw et al. (2019) found that whilst there are many ways to evaluate e-learning, there is limited agreement about which elements should be appraised and identified a need for a validated evaluation tool to be developed.

Developing the Modules

Review of existing e-learning

A review of existing e-learning was conducted by the project team to ensure that the desired e-learning solution was not already openly available. The review identified a range of pre-existing online information skills resources produced by NHS LKS and university libraries (Appendix 1). The BASE e-Learning modules produced by the Heart of England NHS Foundation Trust for staff and students in the area were the nearest match. Unfortunately, it was
password protected on a local site and focused on specific resources which may not necessarily be available to all potential learners. Following discussions with the BASE developers, it was agreed to develop new e-learning that would be accessible without a password and that would focus on skills rather than specific resources which are subject to change.

**Pre-project survey**

To inform the module development, a survey of healthcare librarians and healthcare professionals was undertaken in May 2016. The survey aimed to identify which areas of the literature searching process should be prioritised for inclusion as well as factors that would encourage healthcare professionals to utilise the e-learning. The methodology and full results are outside the scope of this paper but are available on the Knowledge for Healthcare blog (Pratchett and Lewis, 2016). However, the survey indicated that to be effective the modules should:

- Avoid mandatory login
- Be interactive and engaging
- Be short and flexible
- Focus on how to refine searches which produce too few or too many results

**Consultation**

The project was assimilated into the Service Transformation Workstream of the national Knowledge for Healthcare programme (2015). A Steering Group chaired by a Health Education England regional library lead was set up to give strategic direction and uphold project
accountability. Representatives included librarians from the NHS, Higher Education, Public Health and NICE. Meetings took place bi-monthly online using WebEx.

In addition, the pre-project survey recruited health library staff interested in providing ongoing input into the module development. A total of 42 librarians joined this virtual network and had varied representation from NHS LKS in acute, community and mental health sectors as well as Higher Education, Royal Colleges, hospices, public health and NICE. The group identified relevant search topics, commented on module design, debated the use of audio, influenced animation design and championed the STEP project to their colleagues and healthcare staff. In the later stages, members also helped with module testing.

**Module content and design**

Module content was led by an Independent Information Consultant with input from the project leads. To break down the content into manageable sections, the e-learning was divided into seven modules (see Figure 1). The project team consulted with the Steering Group and Virtual Reference Group to develop the learning objectives for each module, which were then mapped to the 7 SCONUL Pillars of Information Literacy (Dalton, 2013). In developing the content, provision was made throughout for interactive activities and opportunities for the learner to check their understanding. To maximise the applicability of the modules to a wide audience, only Module 7 was based around a specific search platform, Healthcare Databases Advanced Search, which is part of a collection of national resources available to all NHS staff and partner
healthcare organisations. Search examples in the other six modules were based on a simple generic sample database created in house.

<table>
<thead>
<tr>
<th>Building the foundations</th>
<th>Behaviour change: Know where to get help with searching</th>
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</thead>
<tbody>
<tr>
<td>1. Introduction to the modules</td>
<td></td>
</tr>
<tr>
<td>This module provides an overview of the searching process and its main purpose is to get the user to think about their current level of knowledge.</td>
<td>SCONUL Pillars: Identify; Scope;</td>
</tr>
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</table>

| Behaviour change: Use the right resources to save time searching | |
| 2. Where do I start searching? | SCONUL Pillars: Scope; Gather; Evaluate |
| This module aims to help the user look in the right places for information based on the topic and the type of information required. | |

| Behaviour change: Put time into planning the search to get the most out of it | |
| 3. How do I start to develop a search strategy? | SCONUL Pillars: Identify; Plan |
| This module aims to show the user the benefits of planning a search strategy using tools such as PICO and 4Ws as well as identifying keywords and synonyms. | |

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<thead>
<tr>
<th>Developing the skills</th>
<th>Behaviour change: Not give up on searching because you find too much information</th>
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<tbody>
<tr>
<td>4. Too many results? Narrowing your search strategy</td>
<td>SCONUL Pillars: Plan</td>
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<tr>
<td>This module provides an overview of key search techniques to reduce the number of results.</td>
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| Behaviour change: Not give up on searching too soon because you don’t find much information | |
| 5. Too few results? Broadening your search strategy | SCONUL Pillars: Plan |
| This module provides an overview of key search techniques to increase the number of results. | |

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<tr>
<th>Applying the skills</th>
<th>Behaviour change: Applying more advanced search techniques</th>
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<tr>
<td>6. Searching with subject headings</td>
<td>SCONUL Pillars: Plan</td>
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<tr>
<td>This module is aimed at those who already know some of the basics of searching but aren’t confident in using the thesaurus.</td>
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| Behaviour change: Apply a range of search techniques to an essential resource for the healthcare workforce | |
| 7. How to search the Healthcare Databases (HDoS) | SCONUL Pillars: Plan; Gather |
| This module is useful for those who want practice going through the process of a searching a database from start to finish. | |

Figure 1: STEP E-learning content

The project team adopted a blended learning approach so that the modules, or elements of the modules, could be used flexibly by library staff in local training. Modules were designed to be short, taking no more than 20 minutes to complete, and structured so that each module could
be “dipped into” or completed in full during one session. Reusable learning objects (RLOs) were embedded within the modules. RLOs were also made available via YouTube so that library staff could embed them as standalone objects in their website, local e-learning, or within teaching sessions.

Module design

An NHS blended learning team adapted the content into Articulate Storyline. The modules were generically branded with the Health Education England logo so that the modules could be used as widely as possible. Although the content varied, a consistent structure was applied to each module and included core elements such as clear learning objectives; glossary; interactive exercises (see Figure 2) and self-assessment questions. A downloadable resource sheet summarising module content was also made available as a post-session aide-memoire. As a completion certificate was only available if the learner was logged into the eLfH platform, an inbuilt certificate was created for the learner to complete at the end of each module.
Evaluation methods

Evaluation data was drawn from several different sources to ensure that feedback was collected from both end users and library staff.

E-learning for Healthcare usage statistics

The eLfH platform provided administrators with reporting data including module usage statistics, demographic information and user feedback. However, this data was only captured if modules were accessed using an eLfH login or an NHS OpenAthens account. Although this method could only obtain a proportion of the module usage, it nevertheless provided a useful source of data. The project team ran reports that generated anonymous individual user activity showing job role, location, pay grade, which modules had been accessed, for how long and whether or not the modules had been completed. Separate reports were performed to show how learners had rated each module and also any supporting comments.
Inbuilt module feedback survey

To obtain feedback from a broader cross-section of users, an additional purpose built survey using Survey Monkey software was embedded at the end of each module. This survey contained eight questions (Appendix 2) which focused on the usefulness of the modules and the extent to which the modules helped build searching skills. Users were also asked to rate particular aspects of the modules including length, content, interactivity and navigation. To inform future promotion, the final question asked how they found out about the modules. eLfH reporting data and responses to the purpose-built survey are ongoing at the time of publication but the current evaluation focuses on responses and statistics obtained on or before 8 October 2018.

Survey of library staff

Although the inbuilt module survey included responses from library staff, it was not designed to elicit feedback on whether the modules had any impact on the delivery of local information skills training. Since it was only accessible for module users, it was unable to determine reasons for non-use. Consequently, an additional one-off online survey was designed to ascertain from library staff the extent to which they had promoted and/or used the modules as part of their local information literacy programmes. The survey was distributed to healthcare library staff in May 2019, eight months following the full programme launch to give time for the
modules to ‘bed in’. The survey was promoted through a national e-mail discussion list and cascaded by members of the Steering Group.

Data from all three sources was analysed using Excel and inbuilt survey software analysis such as filters.

**Results**

*Findings from eLfH data*

Data from the eLfH hub recorded 3679 sessions across seven modules showing they were used by 811 individuals primarily based in NHS England, with additional users from the UK and worldwide. The majority of users were based in NHS trusts (43%) followed by Universities (7%). For a large proportion of users, the organisation was not recorded (43%).

The majority of users were students (29%) and Library staff (24%) with most of the remaining users being healthcare professionals in a variety of roles with the highest use among Medical and dental (9%), Allied health (7%), Nursing, midwifery and health visitors (5%). For a significant proportion of users (10%), the job role was not recorded.
Figure 3: Distribution of users by organisation type

Usage statistics showed that Module 1 had significantly higher usage than the others. In part this may be due to the modules being launched in different phases.
When logged into eLfH, people were routinely asked to rate each module out of five to assess the quality of content, presentation, interactivity and self-assessment. One hundred and seventy-one respondents rated the modules on the eLfH platform. All modules scored over 4 out of 5 on average, indicating that the modules were well received by users. Most responses (44%) were received for Module 1 with Module 7 receiving only three responses (2%). Overall, presentation was the highest rated element across all seven modules. There were no major concerns with the modules, and no comments were made which could be used to inform improvements.

Figure 4: Usage statistics by module

![Bar chart showing usage statistics by module](image-url)
Findings from the inbuilt survey responses

Three hundred and seventeen responses to the Survey Monkey evaluation provided quantitative and qualitative data about the content, impact on learning and the overall design.

The majority of the responses to the survey related to the first three modules, particularly Module 1.

![Number of responders](image)

**Figure 5: Responses to survey by module**

The majority of responders (89%) felt that the modules were suitable for their needs; 8% felt that the modules were too basic and 3% felt that they were too complex. Seventy-nine percent of respondents reported that the modules helped them to learn what they needed to know, or most of what they needed. Most responders (61%) felt that the chosen module helped to confirm prior knowledge, 35% felt they had gained new knowledge and 18% felt they had gained new skills.
Figure 6: How did the module help with your learning?

Over a quarter of all respondents (27%) said that the module had helped improve their confidence. Very few (3%) felt that the module made no difference. Most of those who chose the option ‘Other’ were library staff testing the modules so hadn’t anticipated learning anything new.

The majority of respondents rated the length of the module, content, interactive exercises and navigation as either good or excellent (see Table 1). Interactive exercises received the highest number of ‘Poor’ ratings but this was still low at 3%. Overall 55% percent of responders found the module they evaluated extremely useful, whilst 44% percent felt it was somewhat useful.
Table 1: Rating of length of module, content, interactive exercises, navigation

Users heard about the modules from the eLfH website (26%) or via their local health library website/service (24%). Nineteen percent came across the modules via a university library service/website and 15% were recommended the resource by a colleague, 3% through social media and 1% from a search engine. Other methods reported included intranets, conferences, knowledge networks, email discussion lists, newsletters, Knowledge for Healthcare blog and recommendations from university lecturers.

Comments obtained from the inbuilt survey suggested that learners found the modules extremely useful and they fulfilled the purpose of providing accessible e-learning. Others stated that they had picked up new skills and knowledge, whilst some felt that it was a good refresher:

“New knowledge I had no idea about. Thank you very much for the knowledge shared. It will help me improve and gain confidence in my practice as a radiographer.”

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
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<tbody>
<tr>
<td>Length of module</td>
<td>0%</td>
<td>6%</td>
<td>63%</td>
<td>31%</td>
</tr>
<tr>
<td>Content</td>
<td>1%</td>
<td>10%</td>
<td>61%</td>
<td>28%</td>
</tr>
<tr>
<td>Interactivity</td>
<td>3%</td>
<td>9%</td>
<td>53%</td>
<td>35%</td>
</tr>
<tr>
<td>Navigation</td>
<td>1%</td>
<td>5%</td>
<td>54%</td>
<td>40%</td>
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“Effective search of the databases is a highly-taxing stage for the postgraduate researchers and students. From my perspective, this is the best and the simplest course I have ever had. Great work and big thanks”.

There were a small number of reported problems with text not displaying correctly on the screen, interactive exercises not being responsive and problems logging in and accessing videos. Among the library staff who had responded to the survey, there was also some confusion around the purpose of Module 1.

Findings from library staff

For the survey aimed specifically at library staff, 50 responses were received. Ninety-one percent of responses were from NHS or joint NHS libraries, which represents a response rate of 21% of the 215 NHS-based libraries in England (Health Education England, 2015). The remaining responses were mainly from Higher Education libraries. Sixty-eight percent had promoted the modules e.g. by adding information on library website (39%) or sending as follow up information after face to face training (32%) (see Table 2).
<table>
<thead>
<tr>
<th>Promotion Method</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>I haven’t promoted the e-learning</td>
<td>24%</td>
</tr>
<tr>
<td>I ask people to complete some aspects of the e-learning during a face-to-face</td>
<td>2%</td>
</tr>
<tr>
<td>training session</td>
<td></td>
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<tr>
<td>I send to people who can’t attend face to face training</td>
<td>26%</td>
</tr>
<tr>
<td>I have created a page on our library web site</td>
<td>39%</td>
</tr>
<tr>
<td>I have promoted during library events e.g. Learning at Work week</td>
<td>22%</td>
</tr>
<tr>
<td>I have embedded the modules in our local Learning Management system e.g. Moodle</td>
<td>4%</td>
</tr>
<tr>
<td>I ask people to complete module 1 to assess their skills before attending face</td>
<td>6.5%</td>
</tr>
<tr>
<td>to face training</td>
<td></td>
</tr>
<tr>
<td>I use the videos in face to face training to demonstrate AND/OR</td>
<td>17%</td>
</tr>
<tr>
<td>I send information to people after face to face training for them to refresh</td>
<td>28%</td>
</tr>
<tr>
<td>their knowledge</td>
<td></td>
</tr>
<tr>
<td>I have used social media</td>
<td>22%</td>
</tr>
<tr>
<td>I have adapted the flyer for local use</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>24%</td>
</tr>
</tbody>
</table>

*Table 2: How have you promoted the e-learning to your users?*
Other reported methods of promoting the modules included creating local promotional materials, incorporating into local current awareness bulletins and informally sharing with colleagues.

Of the 16 people who reported not promoting the modules, the most commonly cited reasons were lack of time, lack of alignment to local training programmes or forgetting that the modules were available. One or two people also stated they preferred to prioritise face to face training in order to meet user needs. One person said the modules took too long, another reported concerns accessing the videos and one person had forgotten about them.

Overall however the e-learning received positive feedback and there was evidence the modules supported services with low staffing levels and of services using it as part of a blended learning approach to training;

“The And/or videos are really useful in breaking up the training session with a fun element.”

“Really good module. I was doing it to use as part of blended learning approach for a group of occupational therapists who are coming to attend a training session within our library in a few weeks’ time.”

“This is a really useful resource - it allows users to have an overview of general literature searching which can be supported at a local level with skills tailored to their role / specialty. Thank you for making it available so freely.”
“Excellent idea and interesting and well-designed resource - in the face of diminishing staff levels I will be using much more - once I can make the videos run that is ....”

Themes identified from comments

Comments from both surveys indicated mostly positive feedback highlighting the value of the learning experience for the end user and indicated the modules were perceived as a useful tool to complement local library training. A small number of comments received from the evaluation highlight some recurrent themes which are summarised below:

**Technological issues.** Four users reported challenges with on screen formatting, missing letters, problems with interactive exercises and blocked web sites. The modules were tested on a range of devices and browsers by the eLfH team and further investigation indicated these sporadic issues may be linked to local settings. Vimeo and YouTube were used to host RLO videos, but these are blocked by some organisations.

**Navigation.** Three learners found the navigation unclear and able to move on too quickly. One learner found the prompts in Module 1 confusing as they felt that they suggested they had moved onto a different module.

**Accessing the module.** Although there is no need to login to the modules, some people found it challenging to register on the platform. This feedback was forwarded to the eLfH team for investigation.
**Module content.** Two users commented on the confusing nature of an interactive exercise in Module 3. Five comments, mostly from library staff, indicated some confusion around the purpose and content of Module 1. The module was originally devised as an initial assessment to help learners focus on areas they needed to develop. However, the comments suggested the module was not entirely successful in making this apparent as library staff commented that the module was asking questions about content that had not been covered. From the survey aimed at library staff, two respondents said they were not currently using the modules because the content did not sufficiently align with local training.

**Discussion**

Overall, user feedback on STEP was positive. The evaluation indicates that the main objectives of the project had been met. It is encouraging to note that 79% of users reported getting out of the modules what they needed or mostly needed to know, and in many cases reported increased confidence, confirmation of prior knowledge or gaining new knowledge. As previously discussed, e-learning may be negatively perceived by health care staff and may not necessarily impact on knowledge gained (Vaona, 2018). Therefore, it is heartening that the STEP modules appeared to have subjectively made a difference to healthcare professionals’ knowledge and skills in relation to literature searching. Although it was not possible via the survey to measure baseline skills and knowledge in order to objectively assess the extent to which knowledge and skills had been impacted.
Although some access issues had been reported by a small number of respondents, the usage figures show that the modules have been used by a variety of user groups across different sectors. An interesting point to note is that only 24% of users discovered the modules from their local health library. A similar number located the modules by accessing the eLfH site directly suggesting that hosting the modules on a national platform might increase the discoverability of information skills training to users without intervention from a library service. The pre-project survey helped to prioritise content based on end user requirements – overall the positive rating of the modules indicates that this paid dividends in the long run and it is worth the time to develop interactive elements although this could potentially increase the risk of the technological problems or the activity not working in practice.

The modules appear to have been accepted by library staff, although the sample size was relatively small. The survey data showed that librarians were not only promoting the modules to their local user groups but were also starting to integrate the modules into their training programmes. This fulfils one of the original aims in creating e-learning that can be used as part of a blended learning approach. A number of comments received from the evaluation highlight some of the common challenges in developing successful e-learning programmes as noted in the literature which include technological issues, navigation, access and developing the right level of content. Where the modules were not being used, this was mainly due to library staff forgetting about the availability of the modules, suggesting that a sustained promotional campaign might be
beneficial. Where the modules were reported to misalign with local training, this demonstrates that one of the trade-offs of developing a national product to improve availability of e-learning is the reduced opportunity for a one size fits all approach. Although making the source files available for others to use and adapt may partially overcome this. Another reason for non-use was the end user’s preference for face to face training, which supports what has previously been reported in the literature.

Although consultation with those delivering the training is recommended in the literature, it was not possible in this study to determine whether the efforts to consult with library staff increased the chances of the modules being used locally once they had been launched.

Limitations

The survey responses to the inbuilt survey mainly relate to Module 1, ‘Introduction to searching’ (67%). More feedback on the other modules would have provided greater balance, especially as Module 1 was most likely to cause confusion among learners. As users do not need to complete all modules, the survey is limited in that it does not assess whether searching skills and confidence of users improved as they progress through the modules. It is also difficult to judge how much knowledge, skills and confidence improved across the different modules using an online survey alone.
Conclusion/Implications for practice

The results of this evaluation are promising and show that through collaboration it is possible to create e-learning which can be relevant and useful for users based in different organisations and health settings, especially if used as part of a blended-learning approach.

Centralised open e-learning may enable learners to access information skills training even without signposting from their host library service, thereby making it more accessible. A sustained promotion campaign may be required to encourage more library services to use the modules. Further research is also needed to:

- Assess the impact of all 7 modules as this early evaluation focused primarily on Module 1
- Objectively measure the extent to which the modules had an impact on specific aspects of literature searching

References


Retrieved from https://www.futurelearn.com/courses/e-learning-health/0/steps/17122


Retrieved from


**Acknowledgements**

The authors gratefully acknowledge the input and support of the following: Health Education England for funding the project, Michelle Maden, Independent Information Consultant, Blended Learning Team Lancaster Teaching Hospitals NHS Foundation Trust, members of the project Steering Group and the Virtual Reference Group.
### Appendix 1

<table>
<thead>
<tr>
<th>E-learning package</th>
<th>Modules (of relevance)</th>
<th>Interactive tools</th>
<th>Notes</th>
</tr>
</thead>
</table>
| **BASE**           | Basic and Advanced Database Searching Cochrane  
10-15 mins but may be longer to complete exercise elements | Pre/Post Quiz  
Click through HDAS demo | 3rd September 2019 – no longer available |
| **UCLAN**          | **Using Truncation** | None – these are animations | 3rd September 2019 – no longer available, software no longer in use |
|                    | **Using OR**          |                   |       |
|                    | **Using AND**         |                   |       |
|                    | **Combining AND and OR** |               |       |
| **Keele Uni**      | **Introduction to Literature Searching**  
Identify your Question  
Using PICO  
Select a resource  
Develop your search skills  
Using a thesaurus | Quizzes  
Enter own example to work through frameworks | Linked to Keele’s own resources |

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<table>
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<tr>
<th>Library and Information Research</th>
<th>Volume 43 Number 127 2020</th>
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<tr>
<th>Evidence hierarchy</th>
<th>Free text boxes for users to write own answer then compare with the tutor</th>
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<tbody>
<tr>
<td><strong>Nottingham HELM</strong></td>
<td>Advanced Literature Searching Asking the right question How to conduct a literature search Using databases to find journal articles What are journals</td>
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<tr>
<td><strong>LIHNN MOOC</strong></td>
<td>ASK SCOPE SEARCH REFINE SUMMARISE EVALUATE</td>
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<td><strong>Searching Database</strong></td>
<td>Video/animation with sound YouTube video</td>
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<td>1 What are databases Yavapai College Library</td>
<td>Video/animation without sound YouTube video</td>
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<td><strong>Scharr</strong></td>
<td>Quick guide to developing a search strategy</td>
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<td></td>
<td>How to plan a search</td>
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<td>Doing a search</td>
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<td>Proximity</td>
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<td>Thesaurus terms</td>
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<td>Field searching</td>
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<td>Applying Limits</td>
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<td>Matt Holland</td>
<td>Finding the evidence</td>
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<td>Identifying and evaluating sources</td>
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<td>Developing a search strategy</td>
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<td>Sample searches in PubMed, PubMed Clinical Queries and Cochrane</td>
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<td>Save and store results</td>
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<td>Health Knowledge</td>
<td>Choosing keywords</td>
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<td>Search slips and trips</td>
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<tr>
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<td>Introduction to Cochrane</td>
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<tr>
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<td>Videos/demos</td>
</tr>
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<td><strong>Manchester University: My E-learning essentials</strong></td>
<td><strong>Planning ahead: making your search work</strong></td>
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<td><strong>NHS E-learning for Health</strong></td>
<td><strong>Knowing where to look: Search toolkit</strong></td>
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<td><strong>NHS E-learning repository</strong></td>
<td><strong>Research and Audit Core Knowledge</strong></td>
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<td><strong>Medline, Cinahl</strong></td>
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Presentations:
- Well laid out
- Interactive

NHS E-learning for Health:
- Interactive exercises
- Includes course on Searching the Journal Literature and Locating Papers. Focussed on PubMed search
Appendix 2

How to search the Literature Effectively: e-learning feedback

1. Which module have you just completed? (please select one option)
   - Module 1: Introduction to searching
   - Module 2: Where do I start searching?
   - Module 3: How do I start to develop a search strategy?
   - Module 4: Too many results? How to narrow your search
   - Module 5: Too few results? How to broaden your search
   - Module 6: Searching with subject headings
   - Module 7: How to search the healthcare databases (HDAS)

2. Do you think the information provided was suitable for your needs? (select one option)
   - Yes
     - No - it was too complex
     - No - it was too basic

3. Did this module help you learn what you needed to know? (select one option)
   - Yes, everything
     - Mostly what I needed
     - Some of what I needed
     - Nothing

4. How did this module help your learning about literature searching? (select one or more options)
   - Confirmed prior knowledge / refreshed my memory
   - Gained new knowledge
   - Gained new skills
   - Updated skills
   - Improved my confidence
   - Made no difference
   - Other (please specify)

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5. How would you rate the following aspects of the module? (Poor, Average, Good, Excellent)

   Length of module
   Content
   Interactive exercises
   Navigation (moving through slides)
   Add any comments here

6. Overall, how useful did you find this module?

   Not at all useful
   Somewhat useful
   Extremely useful
   Add any comments here

7. Which of the following best describes your role? (select one option)

   Admin & clerical staff
   Additional clinical services (e.g. healthcare assistants)
   Additional professionals (e.g. psychologists, social workers)
   Estates
   Medical and dental
   Nursing and midwifery
   Scientific and technical (e.g. pharmacists, biomedical scientists)
   Students
   Other (please specify)

8. How did you find out about these e-learning modules? (select one option)

   Local healthcare library service / website
   e-learning for Healthcare
   University library service / website
   Recommendation from a colleague
   Social media
   Search engine
   Other (please specify)
Appendix 3

How would you describe your library service?

- Health/NHS
- Higher Education
- Further Education
- Joint NHS & Higher Education
- Other (please specify)

Where did you hear about the eLearning? (Select all that apply)

- This is the first time I have heard about it
- Conference presentation e.g. HLG 2018, LILAC 2018, EAHIL 2017
- Knowledge for Healthcare blog
- Mailing list e.g. lis-medical
- Article in a local newsletter
- Local area meeting
- Colleague
- Other (please specify)

Have you completed or accessed any of the modules?

- Yes
- No
How would you rate the following aspects of the eLearning?

- Relevance of the content
- Navigation
- Interactivity
- Ease of use
- Not applicable

Do you have any other comments?

How have you promoted the eLearning to your users? (Select all that apply)

- I haven't promoted the eLearning
- I ask people to complete some aspects of the eLearning during a face to face training session
- I send it to people who can't attend face to face training
- I have created a page on our library web site
- I have embedded the modules in our local Learning Management System e.g. Moodle
- I have promoted during library events e.g. Learning at Work Week
- I ask people to complete module 1 to assess their skills before attending face to face training
- I use the videos in face to face training to demonstrate AND/OR
I send information to people after face to face training for them to refresh their knowledge
I have used social media
I have adapted the flier for local use
Other (please specify)
If you haven't promoted the eLearning to your users, please let us know why in the space below.
Do you have any other comments?