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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.

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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

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- 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

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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

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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

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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

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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

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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

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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

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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

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healthcare organisations. Search examples in the other six modules were based on a simple generic sample database created in house.

Building the foundations		
1. Introduction to the modules	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.	**Behaviour change:** Know where to get help with searching **SCONUL Pillars:** Identify; Scope;
2. Where do I start searching?	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:** Use the right resources to save time searching **SCONUL Pillars:** Scope; Gather; Evaluate
3. How do I start to develop a search strategy?	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.	**Behaviour change:** Put time into planning the search to get the most out of it **SCONUL Pillars:** Identify; Plan
Developing the skills		
4. Too many results? Narrowing your search strategy	This module provides an overview of key search techniques to reduce the number of results.	**Behaviour change:** Not give up on searching because you find too much information **SCONUL Pillars:** Plan
5. Too few results? Broadening your search strategy	This module provides an overview of key search techniques to increase the number of results.	**Behaviour change:** Not give up on searching too soon because you don't find much information **SCONUL Pillars:** Plan
6. Searching with subject headings	This module is aimed at those who already know some of the basics of searching but aren't confident in using the thesaurus.	**Behaviour change:** Applying more advanced search techniques **SCONUL Pillars:** Plan
Applying the skills		
7. How to search the Healthcare Databases (HDAS)	This module is useful for those who want practice going through the process of a searching a database from start to finish.	**Behaviour change:** Apply a range of search techniques to an essential resource for the healthcare workforce **SCONUL Pillars:** Plan; Gather

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

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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.
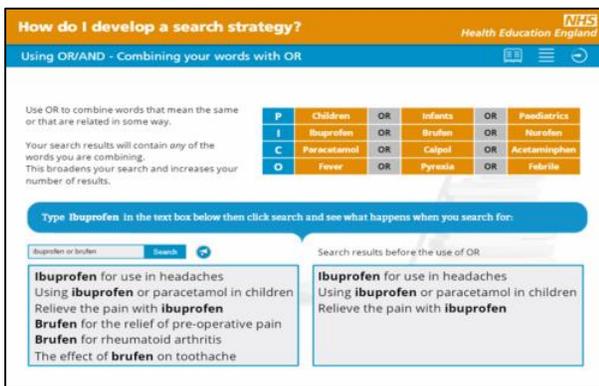
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Figure 2: Interactive activity example

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.

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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 focusses 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

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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.
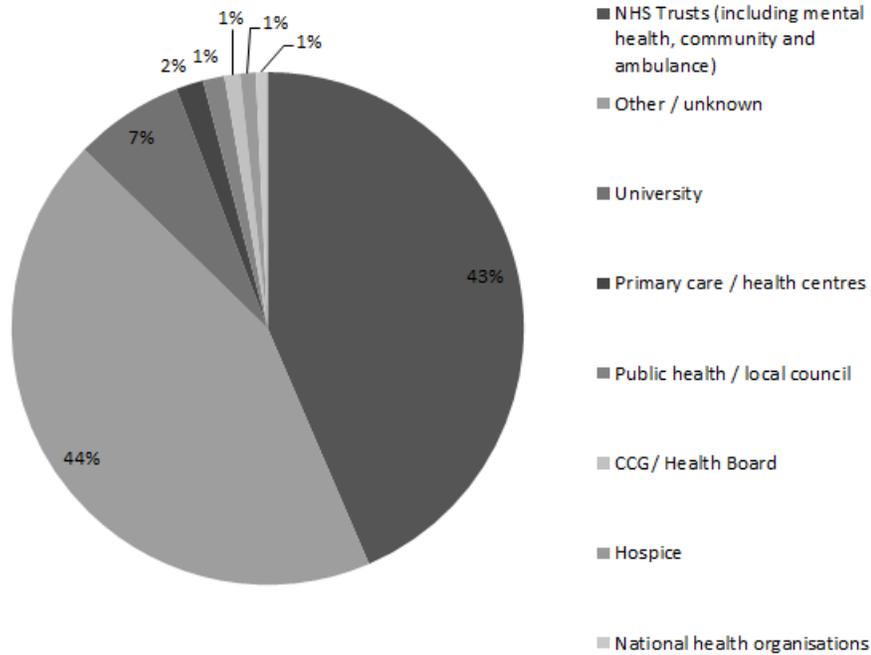
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Figure 3: Distribution of users by organisation type

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.
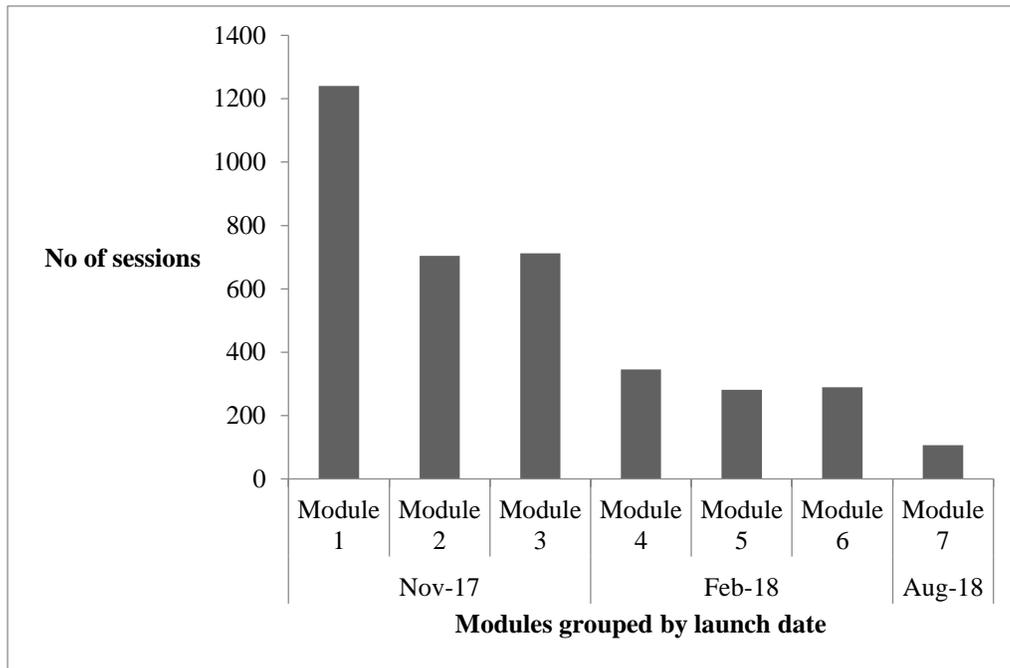
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Figure 4: Usage statistics by module

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.

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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
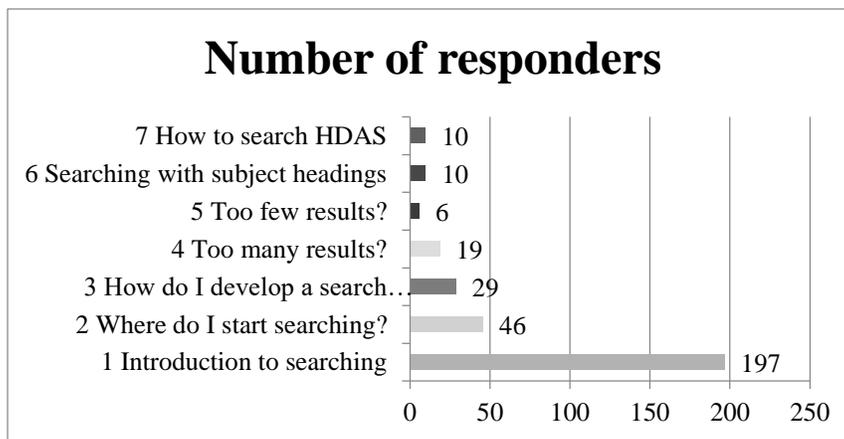
Module 1.

Number of responders

Module	Number
7 How to search HDAS	10
6 Searching with subject headings	10
5 Too few results?	6
4 Too many results?	19
3 How do I develop a search…	29
2 Where do I start searching?	46
1 Introduction to searching	197

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
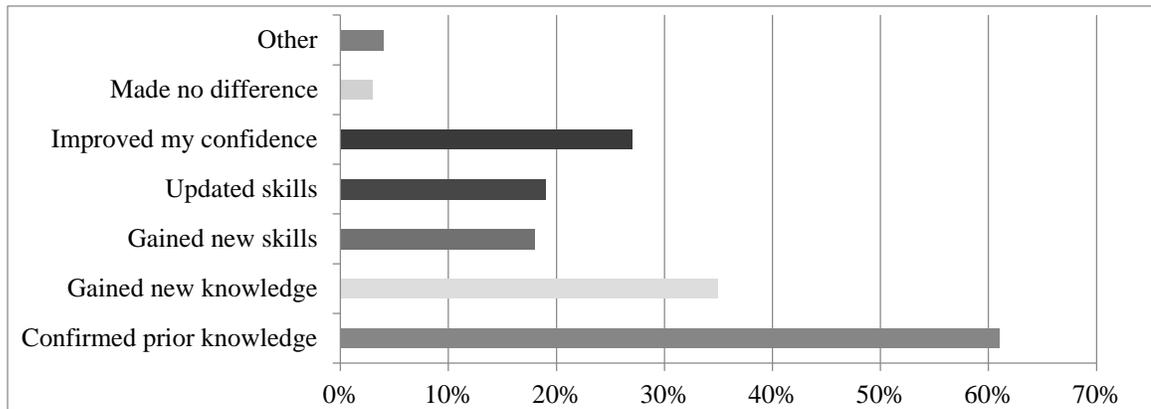
new skills.

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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.

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	Poor	Average	Good	Excellent
Length of module	0%	6%	63%	31%
Content	1%	10%	61%	28%
Interactivity	3%	9%	53%	35%
Navigation	1%	5%	54%	40%

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."

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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).

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I haven't promoted the e-learning	24%
I ask people to complete some aspects of the e-learning during a face to face training session	2%
I send to people who can't attend face to face training	26%
I have created a page on our library web site	39%
I have promoted during library events e.g. Learning at Work week	22%
I have embedded the modules in our local Learning Management system e.g. Moodle	4%
I ask people to complete module 1 to assess their skills before attending face to face training	6.5%
I use the videos in face to face training to demonstrate AND/OR	17%
I send information to people after face to face training for them to refresh their knowledge	28%
I have used social media	22%
I have adapted the flyer for local use	15%
Other	24%

Table 2: How have you promoted the e-learning to your users?

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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."

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"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.

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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.

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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

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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.

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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

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Acknowledgements

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Appendix 1

E-learning package	Modules (of relevance)	Interactive tools	Notes
IL specific			
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 Using OR Using AND Combining AND and OR	None – these are animations	3rd September 2019 – no longer available, software no longer in use
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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	Evidence hierarchy	Free text boxes for users to write own answer then compare with the tutor	
Nottingham HELM	Advanced Literature Searching Asking the right question How to conduct a literature search Using databases to find journal articles What are journals	Limited interaction – uses quizzes for assessment	3rd September 2019 – no longer available
LIHNN MOOC	ASK SCOPE SEARCH REFINE SUMMARISE EVALUATE	Quiz/exercise/animation/ video/discussion	This is an online MOOC not standalone e-learning
Searching Database 1 What are databases Yavapai College Library		Video/animation with sound YouTube video	
Scharr	Quick guide to developing a search strategy	Video/animation without sound YouTube video	

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Matt Holland	How to plan a search Doing a search Truncation Proximity Thesaurus terms Field searching Applying Limits	Video/demo Screen capture	
Health Knowledge	Finding the evidence Identifying and evaluating sources Developing a search strategy Sample searches in PubMed, PubMed Clinical Queries and Cochrane Save and store results	Presentation	
Open Uni	Choosing keywords Search slips and trips	Exercises, videos, demos and quizzes	
Cochrane	Introduction to Cochrane Browsing and Searching the Cochrane Library Using MeSH and Search Manager	Videos/demos	

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Manchester University: My E-learning essentials	Planning ahead: making your search work Knowing where to look: Search toolkit	Presentations Well laid out Interactive	Award winning
NHS E-learning for Health	Research and Audit Core Knowledge	Interactive exercises	Includes course on Searching the Journal Literature and Locating Papers. Focussed on PubMed search
NHS E-learning repository	Medline, Cinahl		

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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)

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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

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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

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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?

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