

Teaching and Learning in Action

Abstract

In an era when library budgets are being reduced, Massive Online Open Courses (MOOC's) can offer practical and viable alternatives to the delivery of costly face-to-face training courses. In this study, guest writers Gil Young from Health Care Libraries Unit - North, Lisa McLaren from Brighton and Sussex Medical School and Liverpool University PhD student Michelle Maden describe the outcomes of a funded project they led to develop a MOOC to deliver literature search training for health librarians. Funded by Health Education England, the MOOC was developed by the Library and Information Health Network North West as a pilot project that ran for six weeks. In particular, the MOOC target audience is discussed, how content was developed for the MOOC, promotion and participation, cost-effectiveness, evaluation, the impact of the MOOC and recommendations for future development.

H. S.

Keywords: digital information resources; e-learning, information literacy; literature searching; mobile learning; virtual communities; virtual learning environment; Web 2.0

Delivering a MOOC for literature searching in health libraries: evaluation of a pilot project

Gil Young

Health Education England, Manchester, UK

Email: gil.young@nhs.net

Lisa McLaren

Brighton and Sussex Medical School, Brighton, UK

Email: l.mclaren@bsms.ac.uk

Twitter: @LisaMcLaren66

Michelle Maden

*Liverpool Reviews and Implementation Group,
University of Liverpool, Liverpool, UK*

Email: michelle.maden@liverpool.ac.uk

Twitter: @Michelle_Maden

Introduction and background

A MOOC or, Massive Open Online Course is a 'free at the point of delivery' innovative online educational resource.^{1,2} In an era when library budgets are being reduced, a MOOC offers a viable alternative to face-to-face training courses which often incur workshop fees, travel and subsistence costs not to mention time away from the desk. As they can be accessed anywhere, it means that participants can undertake the training at their own pace, dipping in and out as they please.^{3,4}

The LIHNN Literature Searching MOOC⁵ aimed to provide librarians with the knowledge, skills and examples to provide an effective literature search service. It was funded by Health Education England working across the North West as a pilot project that ran for 6 weeks. Hosted in Blackboard CourseSites, the content consisted of six sections (see Table 1).

Each week the content was broken down into a series of steps, making it easier to dip in and out of (see Fig 1).

It was anticipated that working through the MOOC would take between 1.5 and 2.5 hours a week. The content was made up of lectures, exercises, quizzes, videos, animations with a link out to a wiki hosting additional resources including further reading. The emphasis was on developing the practical skills required to set-up, deliver and evaluate a literature searching service.

Target audience

The MOOC was aimed specifically at health care librarians rather than students or clinicians and used the NHS England resources provided through the NHS Athens login. Participants without an NHS England Athens account were still able to

Table 1 LIHNN Literature Searching MOOC content

Week (2015)	Topic	Content
From 21st September	Registration and welcome	
5th October	ASK	ASK looked at how we refine the request from the user so we know exactly what we are searching for
12th October	SCOPE	Looked at how we SCOPE the resources, to select the most appropriate source to undertake the literature search in.
19th October	SEARCH	Explored how we can undertake an effective literature SEARCH using textwords and thesaurus terms.
26th October	<i>Catch-up week</i>	
2nd November	REFINE	Demonstrated how we can REFINE the search using techniques to narrow/broaden the search
9th November	SUMMARISE	Looked at how we can SUMMARISE the results of the literature search and how we can present these results to the user.
16th November	EVALUATE	Provided an overview on how we can EVALUATE the quality, the performance and the impact of our literature searches to provide evidence for the Library Quality Assurance Framework (LQAF),

view and take part as the skills taught are transferable to other database platforms.

Content development and learning outcomes

The content is based on the actual literature searching experiences of librarians. The developers undertook a national survey of UK health care librarians to discover the main resources they used for literature searching, three things they wished they had known when they first started searching

and their three main concerns when undertaking a search.

Two focus groups were conducted with North West Clinical Librarians to get more detail on how the literature search process was conducted and evaluated. This provided us with further real-life examples to share. All resources provided on the wiki have permission to be shared, and reference is made throughout to the relevant literature, thus ensuring an 'evidence-based' approach. The learning outcomes for the course are shown in Box 1.

Technological requirements and delivery

As a pilot project, the MOOC was initially only accessible via the Google Chrome or IE 10 (upwards) browsers; this was partly due to the fact that the iSpring Suite performs best in these browsers. In addition, access to YouTube was required to watch the demonstration searches and animations.

Where possible, the MOOC was developed and delivered via open source materials. Blackboard CourseSites hosted the content. Slide presentations were delivered via the iSpring add-on for Microsoft PowerPoint which allowed us to embed quizzes within the presentations. Videos were created using Google Screencastify and hosted on YouTube. Discussion boards were created within Blackboard CourseSites. A PB wiki was created to host additional MOOC content whilst a Facebook page, WordPress blog and twitter tag were created for more informal discussions. Finally, an email account was set-up to allow participants to contact the MOOC team directly.

A learning technologist developed the MOOC templates and trained MM in iSpring and Blackboard features. The content was checked by a second reviewer, and accessibility testing was undertaken on NHS networks and external networks via a laptop and mobile technologies.

Promotion

Formal promotion of the MOOC began one month in advance when emails were sent out to various email lists such as LIS-LINK and LIS-Medical. GY sent emails to her counterparts at regional

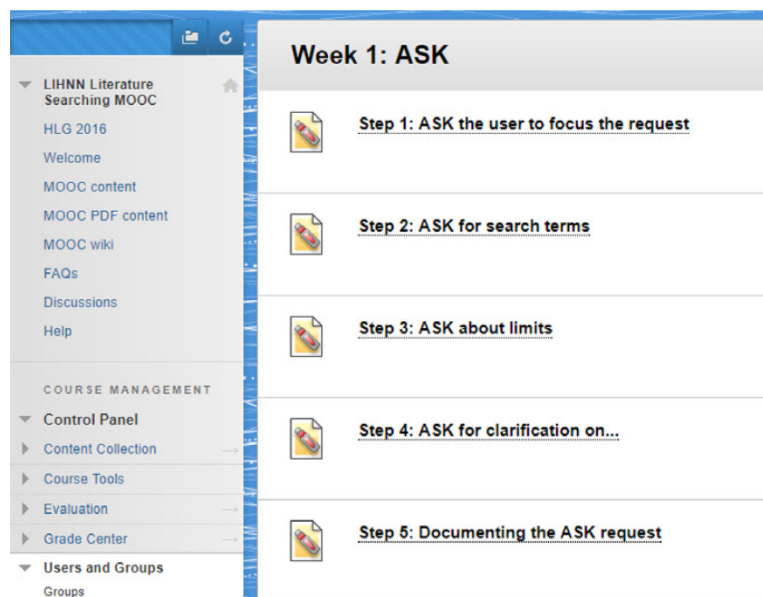


Figure 1 Example of the step-by-step approach in Week 1: ASK [Colour figure can be viewed at wileyonlinelibrary.com]

Box 1: LIHNN literature searching MOOC learning outcomes

By the end of the course, participants should be able to:

- Identify key concepts from the user to focus the search request
- Select appropriate resources and match them to the literature search request
- Conduct a literature search using textwords and thesaurus terms
- Identify techniques to refine the literature search
- Present search results in a bibliography, summary or synthesis format
- Map where literature searches can be used as evidence for LQAF
- Evaluate the quality, performance and impact of the literature search
- Present your evaluations to different audiences

level in England and asked that they distribute them to colleagues. In addition GY contacted colleagues from Higher Education and other sectors with the request that they promote the MOOC across their networks. A post was written for the LIHNN Clinical Librarians Blog⁶ which outlined the learning outcomes and provided a link to the registration form. The content of the blog post was very similar to that of the emails.

Participation

By January 2016, 679 people had signed up to the MOOC. Given that the MOOC was targeted specifically at NHS England library and knowledge staff, what was surprising was the large number of non-NHS staff that took part (121 individuals who completed the evaluation were in non-NHS library roles compared to 167 (58%) who identified as working in the NHS, six people skipped this question) and the global audience that the MOOC attracted with participants from as far away as Australia, Canada and South Africa. The largest number of non-NHS participants were from the academic sector. This highlights the transferability of the knowledge and skills being taught across different library sectors.

What was even more surprising was the number of experienced searchers that participated. This was seen as a positive experience as it allowed those with more advanced skills to share their experiences, knowledge and resources. This is reflective of the literature that describes MOOCs as large, interconnected communities that are powered by social online learning.⁷ Furthermore, inclusivity of more experienced learners and the sharing of knowledge is something that should,

Box 2: Recommendations for MOOC development and delivery

- Blackboard CourseSites is an effective free tool to deliver a MOOC
- Embed quizzes and practical exercises where possible to allow users to self-assess their learning throughout
- Invest in high quality microphone to record content
- PDF content ensures greater compatibility with mobile technologies
- Make clear to participants that the volume has been tested and that some older PCs may have poor volume control. For optimal listening, headphones are required and provide instructions for increasing the volume.
- Signpost participants to the availability of the transcript in the 'notes' section in iSpring
- Assess the level of participant experiences/skills prior to the start of the MOOC to give a better indication of baseline skills
- Include at the beginning of the course, an overview of what is covered in each week, presenting the amount of work, and timings required.
- If using discussion boards provide a weekly summary of their content
- Quality control/testing of content prior to release is essential via different hardware (laptop/tablets/Mac/PC)
- Access to a Learning Technologist with experience of CourseSites and iSpring is essential
- Involve the target audience and those already experienced in the area in developing the MOOC content
- Incorporate templates and examples of best practice to demonstrate how the skills are being utilised in delivering library services
- A short evaluation survey is invaluable in obtaining feedback on the MOOC. Incorporating the request for a certificate of completion in the evaluation survey is a good way of increasing the response rate
- There is scope for developing further MOOCs for librarians with critical appraisal being the most popular choice
- Explore the possibility for formal recognition of the course.

perhaps, be encouraged more in the advertising of future MOOCs.

The LIHNN MOOC was designed to offer training in the knowledge and skills required by health care librarians in their day-to-day role. It offered real-life examples, resources and templates that could be shared and implemented into daily practice with minor amendment. Finally, the MOOC offered training not usually offered in areas related to literature searching but beyond the usual 'how to do a literature search' in summarising and evaluating literature searches and was directly relevant to the NHS Library Quality Assurance Framework.⁹

Cost-effectiveness

Investigating the development of future LIHNN MOOCs, the initial set-up costs involved (e.g. the purchasing of relevant software and hardware, time spent training the developers to use the software (iSpring, Blackboard, Microsoft Office, virus protection) and become familiar with how it works when creating the content) would not necessarily be incurred. Recurring costs would be more labour-intensive regarding the time to scope

and write the content and then to develop the content in the relevant software packages.

Table 2 displays the cost per person based on the number of people who registered on the MOOC, the number of people who responded to the evaluation survey and the number of people who responded to the evaluation survey and completed the MOOC.

The results demonstrate that the LIHNN Literature Searching MOOC is a cost-effective way of delivering information skills training to large numbers of participants worldwide.

Table 2 LIHNN Literature Searching MOOC cost per person

Criteria cost calculated on	Cost per person
No. of people registered on the MOOC in January 2016 (679)	£29.45
No. of people who responded to evaluation survey (294)	£68.72
No. of people who responded to evaluation survey and completed all MOOC modules (259)	£77.22
No. of people registered on the MOOC in September 2017 (866)	£23.09

Evaluation and recommendations

At the end of the course, 294 participants completed the online evaluation form.

Two hundred and fifty-nine participants stated that they had completed all modules which give a minimum completion rate of just over 38%. This is substantially higher than reported completion rates of less than 13%⁸ and is particularly high given the fact that the MOOC did not offer credits. This is partly due to the fact that this MOOC differs from traditional MOOCs which are often run by academic institutions to promote and entice prospective students onto their courses.⁴

The content itself was well received, particularly weeks 5 and 6. For the more intermediate and experienced searchers, this is where the MOOC added to their existing knowledge base because training on these elements is rarely provided. Even participants for whom summarising and evaluating literature searches were not part of their role still found the sections interesting and informative and understood why they had been included. The full evaluation report is available online.¹⁰

Based upon the feedback, the project team have drawn up the following list of recommendations to be considered by anyone looking to deliver a MOOC for NHS professionals (see Box 2).

Impact

In response to several requests, we decided to keep the MOOC content open indefinitely, however, additional support and issue of certificates ceased as of 12 January 2016 and the content archived. Despite the MOOC no longer being active, an additional 187 people have registered, bringing the number of users to 866 (as of September 2017). This is encouraging and demonstrates that the content is still being accessed and viewed.

A short follow-up survey in January 2017 of MOOC participants demonstrated that the MOOC has impacted upon librarians in a number of ways. Firstly, the MOOC helped to improve the skills and confidence of librarians in undertaking literature searches:

‘It has changed the way I think about and show students how to search health databases.’

‘I have generally progressed my literature searching skills and now train users. We have a wider pool of skilled people in our team to take on literature search enquiries.’

Secondly, the MOOC has resulted in long term changes in practice, in particular helping librarians to redesign their literature searching services and offer new services:

‘We drew up a literature searching protocol to ensure a consistent approach across the team. We have redesigned our bib.list results template and adopted the 6S hierarchy to present results. We also reviewed the way we gather impact data. It gave me the spur to discuss peer review of search strategies with my colleagues, and we will be taking this forward. We will be continue to use the synthesising and summarising sections very heavily when preparing to offer this type of service in the next few months.’

Finally, and perhaps where the real value of the MOOC lies, it has helped librarians to progress their careers:

‘I was a library assistant when I did the MOOC with little experience of searching. I interviewed for my first professional post and was asked about searching. I talked about what I had learned through the MOOC. I wouldn’t have been able to answer this question as thoroughly had it not been for the MOOC. I got the job and now use the skills I learned regularly and still refer back to the materials. The MOOC was a great introduction to searching for me as it started at the very beginning and went right through to more complex things like appraisal and synthesis.’

‘This MOOC filled in the gaps in my knowledge and I was able to use this knowledge to get a promotion from working on the library front desk to now teaching literature searching to students and researchers.’

Summary and conclusions

The LIHNN Introduction to Literature Searching MOOC aimed to fill a gap in delivering literature searching training to NHS health care librarians. It differs from previous literature searching training for NHS librarians in a number of ways; firstly by piloting an innovative approach to delivering the training via a MOOC within the constraints of NHS technologies. Secondly, it went beyond simply teaching 'how to do a literature search' to examine the entire literature searching process from the very start in refining the request to the presentation and delivery of the search results and in designing the evaluation to meet local strategic organisational objectives. Thirdly, the MOOC is more than just a learning resource and has become a repository of tools and resources for librarians to use in their own literature searching services and training. Finally, it offered librarians a chance to share their own experiences, ideas and resources to showcase 'best practice', going beyond what can be offered in textbooks and written guidance.

Six hundred and seventy-nine librarians worldwide took part in the pilot. Given the number of intermediate/experienced searchers, non-NHS- and non-UK-based participants the LIHNN Introduction to Literature Searching MOOC has exceeded its original intention to provide a learning tool for NHS England Librarians in setting up and delivering an effective literature searching service and demonstrates not only the transferability of the knowledge and skills of the content beyond the health sector, but also the level of interest and demand for this type of training. Overall, the MOOC was received positively by librarians, both in terms of the content delivered and the mode of delivery. Feedback suggests the MOOC has had an impact on improving confidence and skills in literature searching, improving the delivery of literature searching services and enhancing career progression. The MOOC remains open, although content is now archived.⁵

Whilst a MOOC can be a cost-effective means of delivering training/continued professional development to the masses, not all MOOCs are successful. For it to be successful, a MOOC must

be adaptable for different learning styles, retain a level of interactivity, be structured to allow participants to dip in and out of the content at their own pace, incorporate a level of feedback from course tutors, be accessible to all and be a repository for sharing knowledge, resources and experiences.¹¹ Above all, it must be relevant to practice. Incorporating librarian feedback during the scoping of the development stage was invaluable in aligning the MOOC content with the needs and expectations of the target audience.

Following on from the success of the LIHNN Literature Searching MOOC, we are now in the planning stages for the delivery of a Critical Appraisal for Librarians MOOC (anticipated release date Spring 2019).

Acknowledgements

This MOOC could not have been delivered without the funding received from NHS Health Education North West. Moreover, it would never have got off the ground without the input from the LIHNN Clinical Librarians and LIHNN Trainers Groups and support from NHS health care librarians across the UK.

References

- 1 MacDonald, P. & Ahern, T. C. Exploring the instructional value and worth of a MOOC. *Journal of Educational Computing Research* 2015, **52**, 496–513.
- 2 Universities UK. *Massive open online courses. Higher education digital's moment?*. London: Universities UK, 2013.
- 3 Mahraj, K. Using information expertise to enhance massive open online courses. *Public Services Quarterly* 2012, **8**, 359–368.
- 4 Zutshi, S., O'Hare, S. & Rodafinos, A. Experiences in MOOCs: the perspective of students. *American Journal of Distance Education* 2013, **27**, 218–227.
- 5 Maden, M. & McLaren, L. (2015). LIHNN literature searching MOOC. Blackboard Coursesites. Accessible at: https://www.coursesites.com/s/_LIHNNMOOCLS
- 6 McLaren, L. (2015) *Coming soon: the MOOC to end all MOOCs*. LIHNN Clinical Librarians. Accessible at: <https://lihnnclinicallibs.wordpress.com/2015/09/28/coming-soon-the-mooc-to-end-all-moocs-by-lisa-mclaren/>
- 7 Hoy, M. B. MOOCs 101: an introduction to massive open online courses. *Medical Reference Services Quarterly* 2014, **33**, 85–91.
- 8 Jordan, K. Massive open online course completion rates revisited: assessment, length and attrition. *International*

Review of Research in Open and Distributed Learning
2015, **16**, 341–358.

- 9 Health Education England Library and Knowledge Services (2016). *NHS library quality assurance framework (LQAF) England*. Accessible at: http://www.libraryservices.nhs.uk/document_uploads/LQAF/LQAF_Version_2.3a_April_2016.pdf
- 10 Maden, M., Young, G. & McLaren, L. (2015). *The LIHNN Introduction to Literature Searching MOOC*. Final Report. Accessible at: https://lihnnclinicallibs.files.wordpress.com/2017/04/lihnn_mooc_evaluation_report_revj16.pdf
- 11 Spring, H. Online learning: the brave new world of massive open online courses and the role of the health librarian. *Health Information and Libraries Journal* 2016, **33**, 84–88.

For details on how to contribute to this feature
please contact:
Hannah Spring
Senior Lecturer
Research and Evidence Based Practice
Faculty of Health and Life Sciences
York St John University
Lord Mayor's Walk
York YO31 7EX, UK
Tel:+01904 876813
E-mail: h.spring@yorks.ac.uk

