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The development and use of online information literacy activities to engage first year health students during the COVID-19 pandemic.

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Abstract

The article discusses the development of online tutorials to support the Academic Librarians' information literacy instruction during the first lockdown of the COVID-19 pandemic. The content and development of the activities are presented in relation to information literacy (IL) standards. At the University of Northampton, the first-year students each receive two IL sessions from an Academic Librarian that support their information skills development. The first session focuses on identifying an information need and how to search for relevant information. The second session supports students to understand the referencing process and how to use information ethically. The IL sessions are based on the principles of Active Blended Learning and focus on providing interactive and engaging workshops for students. The activities were designed to support the students on health programmes who began their studies in April 2020 and the students who were receiving their final IL session. The reflections on the IL sessions highlight lessons learnt during the online delivery.

Keywords

active learning; blended learning; COVID-19; information literacy; online learning; UK

1. Introduction

This paper reflects on the development and use of online activities for information literacy (IL) instruction. As an Academic Librarian my focus is to support students to develop their IL skills. Teaching sessions allow me to reach all students and provide a basic introduction to IL and how it can support their academic study. During the unprecedented COVID-19 lockdown (Office for National Statistics, 2020) I had to develop a method of providing engaging information skills instruction to support students studying at home. In March 2020 I was sent to work from home and was teaching students online the following day. I support students from several different programmes, specifically the health programmes. These courses have three cohort intakes throughout the academic year, so whilst most of my colleagues had completed their teaching, I still had to teach students who started their programmes in September 2019, January 2020 and those who were due to start their courses in April 2020. The pre-registration Nursing, Midwifery and Paramedic students had to start their courses studying at home, without any opportunity to go onto campus or meet their colleagues and tutors in a face-to-face format. Therefore, I had to radically change my teaching practices from a 'traditional' in-person session, to one that could be delivered online in a synchronous and asynchronous manner. This paper will present the development of the online activities and how they were used to support first year undergraduate students, the majority of whom began their studies during the first COVID-19 lockdown in April 2020. This will include how the activities integrated the institutional focus on student-centred teaching and Active-Blended Learning (ABL) and the Integrated Learner Support system (ILS).

The paper will then reflect on the IL sessions, the lessons learnt, and ideas taken forward into future teaching sessions.

1.1 Institutional context

The University of Northampton's (UON) mission is to transform lives and inspire change in its students, staff and community (University of Northampton, 2022). The focus on students encourages the academic teaching team to be 'super supportive' and motivated to engage students with their learning using Active-Blended Learning as a pedagogical approach. 'The pedagogical approach is constructivist in nature, with the focus on involving students in building their own knowledge and skills to achieve the learning outcomes' (Armellini, et al., 2021, p. 1). The Academic Librarian team have embedded the ABL approach into their sessions using student-centred activities to support students to develop their information skills (Institute of Learning and Teaching in Higher Education, 2022). IL skills are key to helping students to develop and explore their topic independently and to use the information they find ethically and effectively (Information Literacy Group, 2022).

As part of the University's commitment to transforming the lives of students, the University developed an Integrated Learner Support (ILS) framework. This framework redeveloped the support around the student (Institute of Learning and Teaching in Higher Education, 2022). The ILS established that all students would get the same support to develop their skills. It includes the support of the Personal Academic Tutor (not discussed here) and the integration of three teams to help students to reach their academic potential: The Academic Librarians (finding and using information effectively); the Learning Development team (developing their academic skills); and the Changemaker team (to help students build their employability skills). This approach scaffolds the students' skills throughout their undergraduate degree, rather than offering them as a bolt-on towards the end of their course (Institute of Learning and Teaching in Higher Education, 2022). Therefore, every student gets the opportunity to develop their skills, receive support and reach their academic potential.

The Academic Librarian team focused on two main learning objectives for the ILS. By the end of the programme students will be able to:

- gather, assimilate, and critically evaluate information from a range of sources, spheres and media.
- evaluate appropriate legal and ethical frameworks surrounding information and make judgements about their selection and application.

The Academic Librarian focus was to make sure students were confident in finding, assimilating, and evaluating information within a legal and ethical framework. The ILS began in September 2018 with a gradual roll out across all three academic years of undergraduate study (Institute of Learning and Teaching in Higher Education, 2022).

The learning objectives developed by the Academic Librarian team focus on the key concepts of IL (Association of College and Research Libraries, 2016; CILIP, 2018 as cited in 'Definitions & models – Information Literacy Website', n.d.; SCOUNL, 2016). The focus on helping students to identify an information need, search effectively to find relevant information and then use and apply that information successfully at university and beyond (SCOUNL, 2016). A key aspect of IL is the ethical use of information and how that relates to the creation of new knowledge (Association of College and Research Libraries, 2016).

This paper will focus on the work of the Academic Librarians supporting health programmes and the two sessions taught during the students' first year of study to develop their IL skills: ILS 1 'Finding the Good Stuff' (literature searching) and ILS 2 'Referencing and Ethical Use of Information' (referencing and plagiarism). Therefore, the first year ILS sessions are designed to

provide students with the fundamental IL skills, which will be developed further and embedded as the students' progress through their academic studies at UON.

In alignment with ABL the ILS system differentiates between pre-sessional, in-session and post-sessional activities to help consolidate students' learning. The Academic Librarians developed activities that would build on the model that students would see reflected in their standard module teaching, using both synchronous and asynchronous teaching activities. Asynchronous delivery (similar to the flipped classroom concept) was designed for students to explore a subject area, before a face-to-face session. Synchronous teaching represents the real-time student – staff engagement, often in face-to-face teaching, which encourages students to explore the topic alongside their peers and tutor.

Before the COVID-19 pandemic, all the ILS IL sessions were delivered face-to-face in the classroom with students. However, following the national lockdown in the UK in March 2020 (Office for National Statistics, 2020; Sparrow, Campbell, & Rawlinson, 2020), the teaching had to be adapted to an online format (University of Northampton, 2020b). This involved a quick change of direction for the Academic Librarian supporting programmes who still had teaching during this period.

1.2 Context of IL sessions

The nursing, midwifery, and paramedic pre-registration¹ undergraduate programmes all had new student intakes starting in April 2020. Unsurprisingly, the pandemic had affected how the new and current student intakes would be taught. The academic faculty for each subject decided how they would teach the new students and what format IL sessions would take. The paramedic students who were due to start in April went straight into practice and therefore could not receive the 'traditional' sessions for the ILS. Therefore, I was asked to provide the ILS content in an asynchronous format. Usually all health students would receive their 'theory' teaching for a few weeks before going into the practice setting, therefore the ILS sessions would be contextualised within their learning about the evidence base of their programme. The midwifery students were going to be taught wholly online, but the focus of the teaching team was to build the student community, so it was decided that the ILS would be delivered asynchronously. The nursing students would receive their sessions synchronously online. There were also students studying on these courses who had started in September 2019 or January 2020 and still needed the second ILS session from the Academic Librarian. Therefore, the Academic Librarian had to develop a suite of resources that would allow all students to engage with the IL content, in a student-led way, whatever their experience and level of study in both a synchronous and asynchronous format.

Between 25th March 2020 and the end of July 2020 the Academic Librarians supporting these programmes delivered 19 IL sessions. 11 of these sessions were for first year students, two of these were completely asynchronous, the Midwifery and Paramedic Science cohorts starting in April 2020. The sessions varied in lengths according to the content covered.

2. Developing online activities

To ensure all students on the three programmes had the same information and opportunity to explore the IL skills developed during the first two ILS sessions, a package of online activities was developed. The online activities were designed to allow students to explore information skills, either for one or both ILS sessions. Xerte software was used to develop the online

¹ Pre-registration refers to the status of the students on the programmes – by successfully completing the academic programme (including practice placements) they are recommended for registration with the Nursing & Midwifery Council or Health Care Professions Council and can gain employment as registered nurses, midwives or paramedics.

activities. Xerte was developed by the University of Nottingham and is open source software designed to develop interactive online learning objects (The Xerte Project, 2022). Accessibility features are built into Xerte in line with government legislation (The Xerte Project, 2021a) and the usage of tutorials can be tracked through SCORM² (The Xerte Project, 2021b).

Due to the accessibility of the Xerte software and the team's previous experience using it, Academic Librarians were encouraged to develop several tutorials using the software. However, mindful of screen time and pedagogical theory around teaching in chunks, the tutorials were broken down into short manageable segments (Saunders, 2018; House & Dimmock, 2015; Mestre, 2010; Slebodnik & Riehle, 2009; Yang, 2009).

There was no time to do usability testing with students as the resources had to be delivered immediately. Therefore, usability testing was instead done with Library colleagues. At least two members of staff reviewed each Xerte which gave a sense of the time taken to complete the tutorial (which would be used to guide students). It also removed the creator bias that can often be present when the creator or author, reads what they expect to read, rather than what is in front of them. This feedback was helpful in addressing minor spelling and punctuation errors, providing realistic timings for the completion of tutorials and highlighting accessibility and legibility errors. Some feedback highlighted issues with the limitations of the software used, which could not be addressed, but which would be taken forward to look at for future redevelopment. An example of a problem with the software was the speed of transition between text in a video. This timing was automatic, and it would take more time to explore the settings in the recording software to see if this could be slowed down. This was identified as something to look to amend during the summer period, when teaching demand was lower.

The asynchronous online activities were divided into two packages to represent the two sessions. Within these parts, the activities were broken down into smaller chunks to address the learning outcomes. In the asynchronous package there was an 'Introduction to the Academic Librarian' video. This short video was recorded using the video recording software Kaltura. It gave students a 'face' for the support on offer and introduced them to the activities for them to complete.

2.1 ILS 1: Finding the good stuff

To address the first Academic Librarian learning outcome, three Xertes were developed. These were uploaded to the module VLE site, where students would access their other course materials. All activities used a combination of text, videos, and interactive elements to explore the skills and topics they represented.

Activity 1: Keywords (10 minutes). This activity was designed to help students to understand the search process. The activity used everyday examples like shoes to explore keywords and synonyms.

Activity 2: Academic Sources (20 minutes). This activity was designed to help students recognise information needs in 'real life' and academic situations. It also helped them to differentiate between academic and non-academic sources.

Activity 3: Questioning sources (20 minutes). This activity was designed to help students explore the quality of a source. Students are then guided through different types of sources through highlighted screenshots that explain details of the source examples. They are encouraged to use simple questions to evaluate the sources they use.

² SCORM is a set of technical standards that allows eLearning packages to interact with educational software such as a VLE (Rustici Software LLC, 2021).

2.2 ILS 2: Ethical use of information

The second part of the package focused on Referencing and Ethical Use of Information, the second AL learning objective. All three health programmes used the UON Harvard Referencing system, therefore the main Xerte focused on this particular style.

Activity 4: Referencing: Cite it right (25 minutes). This activity was designed with a colleague. It introduces students to referencing, starting from the terminology used and exploring examples of in-text citations. The students are taken step-by-step through the process of constructing a reference according to the UON Harvard referencing style.

The Academic Librarian had developed an extended second session for the pre-registration nursing students following a conversation with the academic staff on how students are struggling to use social media safely and effectively. Digital literacy is perceived to encompass further skills that build on and compliment IL. For example, JISC (2018) have identified six core competencies that a digitally capable individual would have. These include information, data and media literacies. In their discussion of the digital capabilities required, JISC highlight how individuals need ICT proficiency and 'digital identity and wellbeing' (JISC, 2018). Identity management should be a core consideration for all health professionals as they have to maintain and manage their identity in real life and online (Nursing and Midwifery Council, n.d.). Originally the Academic Librarian had an interactive face-to-face session with students that got them to explore and challenge their 'digital footprints'. It was very well received and helped them to realise what information was available about them online and what they could do to use social media in a more professional way. Therefore, it was essential that the Academic Librarian developed these ideas into the Digital Footprints Xerte which could be delivered during the pandemic.

Activity 5: Digital Footprints (15 minutes). This tutorial was created in April 2020. It encourages students to reflect on how they interact with the online world. The tutorial explores how different social media profiles can be used for professional and social purposes. As the tutorial is aimed at pre-registration nursing students, it includes recommendations and advice from the Royal College of Nursing and the Nursing and Midwifery Council.

3. Delivery

The Academic Librarian delivered IL sessions during the COVID-19 lockdown to all students. This paper will focus on the teaching for first year students who had started their courses in September 2019, January 2020 and April 2020. Figure 1 presents the date and range of IL sessions delivered and whether they were delivered synchronously or asynchronously online.

The first online session (see Figure 1) was delivered jointly by the Academic Librarian and Learning Development tutor to a Paramedic Science cohort starting their course in September 2019. This was a synchronous session, focusing on ILS 2. Students were introduced to the academic skills Xertes and given time to complete them during the session. The instructors remained in the online classroom and answered questions using the chat feature. Thus, replicating the face-to-face environment where tutors were on hand to answer questions as they arise. The usage statistics from the VLE demonstrate that students found the activities useful and revisited the content that afternoon, after the session.

The April 2020 Midwifery and Paramedic students received the activities asynchronously. When the Academic Librarian reviewed the usage after two weeks, the engagement and progression through the activities was low. This could be the result of several factors, but key issues were:

- Unfamiliarity with the VLE
- Difficulty navigating through the pages of the Learning Unit
- The overwhelming amount of information

Figure 1: Table listing the asynchronous and synchronous Academic Librarian ILS sessions delivered during the first COVID-19 lockdown in 2020.

Date	Cohort	Session	Asynchronous or synchronous delivery
25/03/2020	FdSc Paramedic Science (September 19 cohort)	ILS 2: Ethical Use of Information	Synchronous
01/04/2020	FdSc Paramedic Science (April 20 cohort)	ILS 1: Finding the Good Stuff	Asynchronous
16/04/2020	BSc Midwifery - April 20	ILS 1 and 2	Asynchronous
28/04/2020	BSc Nursing - January 20 (Group 1)	ILS 2: Ethical Use of Information and Digital Footprint	Synchronous
28/04/2020	BSc Nursing - January 20 (Group 2)	ILS 2: Ethical Use of Information and Digital Footprint	Synchronous
11/05/2020	BSc Nursing - April 20 (Group 1)	ILS 1: Finding the Good Stuff	Synchronous
11/05/2020	BSc Nursing - April 20 (Group 2)	ILS 1: Finding the Good Stuff	Synchronous
01/06/2020	BSc Nursing - April 20 (Group 1)	ILS 2: Ethical Use of Information and Digital Footprint	Synchronous
01/06/2020	BSc Nursing - April 20 (Group 2)	ILS 2: Ethical Use of Information and Digital Footprint	Synchronous

Both the January 20 and April 20 pre-registration Nursing students had synchronous online sessions (see Figure 1). The students completed the Xerte activities during the session and the Academic Librarian responded to questions at the end of the session. Engagement with the activities was high and students appreciated the chance to work through the online activities, although some had difficulty navigating the software. Students showed they appreciated the opportunity to ask questions as they worked through the activities. The Academic Librarian was able to give timely responses. 'This communication is most effective when it is not felt as hierarchical, but truly reciprocal' (Armellini et al., 2021, p.5). Therefore, the Academic Librarian's communication with students was engaging students and supporting them at their point of need.

4. Lessons learnt

The Academic Librarian developed several online activities to provide students with a grounding in key information skills. They were developed using Xerte software because the Academic Librarian had experience using it as part of developing content for the UON Skills Hub (House & Dimmock, 2015). The software allowed interactive elements to test students learning and encourage them to reflect on what they were learning. These interactive elements also offered a method of partially replicating the engaging activities that had been used in face-to-face sessions before the lockdown. Literature demonstrates how face-to-face quizzes can be used to assess students learning and understanding from completing online activities (Mune et al., 2015). Unfortunately, this was not possible in this context, so the diagnostic questions at the beginning of the online workshops helped to provide general feedback on students' skills and acted to prompt further questions. Students therefore had their learning tested in the online workshops.

4.1 Scalability

The online activities helped to address the issues of scalability as the Academic Librarian had to deliver core content to multiple cohorts in different ways: from completely asynchronous delivery; to multiple and repeated synchronous online sessions. Salisbury et al. (2012) wrote that many Academic Librarians are struggling to find a way to provide scalable and sustainable IL instruction that can be delivered across a university. The same issue of scalability was highlighted by Mune et al. (2015) when they were developing online information skills tutorials for different subject areas. This was compounded in this instance as each Xerte had to be uploaded individually to the relevant subject VLE module site. For example, the 'Harvard Referencing: cite it right' tutorial had to be uploaded to four separate module sites, each upload taking approximately 15 minutes.

Therefore, in light of scalability issues, anyone developing IL tutorials should consider:

- **Accessibility:** build accessibility into the activities from the beginning, look at how to support students with additional or different learning needs.
- **Chunking:** Avoid replicating an hour-long workshop, break skills and activities down into discrete sections to enable students to complete them in their own time.

4.2 Context

Fontane's (2016) article discusses the growing preference students have for online instruction, although they also highlight the propensity of students to watch video tutorials at a faster speed to get through them quickly (p. 93) raising the question of their effectiveness in demonstrating key IL skills. Fontane's (2016) work demonstrates that librarians need to contextualise videos within tutorials and offer variation in the activities students are required to complete. The combination of videos, quizzes and interactive elements in the tutorials discussed in this paper, are designed to contextualise the information skills and online activities. The complexity of creating and reviewing online activities is demonstrated in the work of Franklin, Faulkner, Ford-Baxter, and Fu (2021). Their activities highlighted similar 'real life' examples to help highlight key IL examples (Franklin et al., 2021). The ILS 1 keyword activity uses a photograph to prompt students to explore keywords around shoes – an everyday object that has many synonyms and regional variations. Activity 2 has multiple choice questions to highlight information needs such as buying cinema tickets. Therefore, the online activities were designed to bridge the gap between students' own experience and the information skills they would need to develop for their university study.

In light of the competing demands on students' time it is helpful to consider:

- **Visibility:** Do not use learning units that restrict access to resources. The VLE used had a 'learning unit' template that restricted access to the online activities, meaning that a student had to complete each activity in turn. Allow students to scroll through asynchronous content so they can understand the resources available and pick and choose those most relevant to them.
- **Choice:** Give students relevant and useful choices to complete activities that build on their skills. As an example, some students felt confident with referencing, so allow students to see what activities are available and choose those that they think will be most helpful to them. They could choose between completing a 25-minute referencing activity, with watching a couple of videos that addressed specific issues such as plagiarism and 'ten tips for referencing'. Providing links to the online referencing guide, also gives students the opportunity to look at referencing in more depth, if they wanted to, and to bookmark key resources to come back to as needed.

4.3 Engagement

It could be argued that the ILS at the UON is a continuation of the traditional 'one-shot' IL instruction, which Shannon and Shannon (2016) argue has limited impact on student

development of information skills, an idea which is supported across the literature (Fontane, 2016; Stagg & Kimmins, 2014). However, the fact that most of the pre-registration health programmes received two separate sessions from the Academic Librarian during their first year provides an opportunity to build and consolidate these skills. The diagnostic questions in both the synchronous and asynchronous ILS activities prompt students to reflect on their skills and highlight areas to develop. This builds on the ideas of Shannon and Shannon (2016) and Tang and Chaw (2016) that just because a student is confident using social media, does not mean they have the necessary skills to find, evaluate and use information effectively for academic work, thereby reinforcing the need for students to engage in the sessions. Students could also return to the online activities to revisit key areas as needed. The overview of student usage in this paper looked at a two-week window following the synchronous session or package upload and does not account for any subsequent engagement with the online ILS activities.

The second ILS session for the Paramedic Science cohort starting their course in September 2019 highlighted the effectiveness of tutors being open and responsive to questions. The same open communication was used in the Nursing sessions in April 2020. Armellini et al. (2021) found that this open and adaptable approach in the teaching sessions fostered 'positive, mutually-beneficial learning environments' (Armellini et al., 2021, p. 5). The student engagement and appreciation for the online sessions was replicated when UON explored students' learning experience during the first lockdown (University of Northampton, 2020a).

Usage statistics from the module VLE sites where the packages were embedded demonstrate that where the activities were wholly asynchronous, there was little to no student engagement. This would reflect the fact that paramedic students were in practice in a challenging environment and therefore felt disengaged from the academic study at university. Basing their findings on discussions with students at UON, Armellini et al. (2021) discovered that 'they will attend sessions that add value to their learning, while many will skip sessions that do not' (Armellini et al., 2021, p. 8). Although Armellini et al. (2021) were reflecting on 'traditional' ABL where there was a large element of face to face teaching, it is wholly understandable that the paramedic students focused on the core curriculum that provided the foundation for their practice, rather than the 'academic' skills that they did not perceive as required because they did not have any written assignments during their practice placement.

The purely asynchronous IL online activities can be viewed in a similar way to one-shot IL instruction. Taken out of context and without clear integration within the curriculum (contextualised and promoted by the programme team) they have limited impact and students may not engage with them (Fontane, 2016; Shannon & Shannon, 2016; Stagg & Kimmins, 2014). This is similar to the research by Armellini et al. (2021, p. 4) into students' engagement with pre-sessional activities – if there are not clear links to core content, the perceived value of the activities may be low and students are unlikely to engage with them. This was likely to be the case in this example, where students were balancing a number of competing demands on their time such as a lockdown, a brand-new course, plus any caring responsibilities, so it is important to make the value and relevance of the activities clear.

If an Academic Librarian wishes to increase the impact and reach of online activities and synchronous sessions, it is advised that they:

- Responsive: encourage and respond to questions after activities.
- Clear: When asking students to complete activities during the session, give clear instructions and share the screen to show them the steps to access them.
- Considerate: During 'quiet' activities, if students need to talk to the instructor, the instructor should take them into a separate break-out room, so their conversation does not disturb the other students.

5. Conclusion

This paper has demonstrated how Xerte software was successfully used to develop and deliver IL skills during the first lockdown in 2020. When the tutorials were integrated into synchronous online sessions, they were well-used, prompting engaging and valuable interaction between the Academic Librarian and students. However, when the activities were uploaded into module VLE sites for asynchronous delivery there was little to no student engagement. One reason for this could be because the Paramedic students were out on placement, focusing on practical skills, and the Midwifery students were learning about the theory of Midwifery and getting to know one another, adding support to the findings in the literature that IL activities should be contextualised and promoted to students. The lessons learnt during the rapid development and deployment of the IL activities have been taken forward into future online teaching. Asynchronous activities are integrated into the programme from the beginning. The referencing activity is introduced to the students by the programme team, and I also highlight it during the first ILS session I deliver, as well as share a Padlet (n.d.) where they can raise questions in advance of the next session. This means the second ILS session, is tailored around their questions, and responds directly to their needs in relation to Harvard referencing and integrating sources into their academic work.

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