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Project Report

Curriculum mapping for identifying and assessing information literacy teaching in humanities and social sciences libraries

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Abstract

Teaching librarians are regularly tasked with assessing their teaching output and aligning their student learning outcomes to frameworks. Whilst this has been explored extensively in libraries where teams of teaching librarians work together, there has been little exploration for how to assess separate teams working towards the same goals. Previous studies have also mapped teaching against widely used frameworks instead of bespoke institutional information literacy (IL) frameworks. This article outlines how a group of faculty and departmental libraries mapped their teaching to a bespoke IL framework for higher education students. Through doing so, it created a shared understanding of the four competencies included in the framework and identified information practices. These practices were then developed into performance indicators for teaching across libraries and a system was devised for scoring the intensity of the teaching. A set of curriculum matrices and heatmaps were used to explore the scope of teaching delivered and to ensure parity across all student groups. Three core matrices are identified to assess if students receive introductory and advanced tuition across all of the IL framework. The study recommends that curriculum mapping starts with a new interpretation of IL frameworks and that mapping exercises consider how data will be presented during the design stage.

Keywords
academic libraries; curriculum map; higher education; information literacy; information literacy rubric

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1. Introduction

1.1 The Curriculum Mapping Project Launch

In January 2025 a project was launched by libraries within the School of Humanities and Social Sciences at the University of Cambridge. The goal was to identify omissions and duplications in teaching across a group of libraries and also to ensure parity across different groups of students. The library information literacy (IL) leader for the school undertook a project to investigate the level and breadth of training delivered by staff across a group of providers based at different libraries. This took the form of a curriculum map that was distributed to staff with teaching responsibilities.

Curriculum mapping is a process of gathering information about a range of teaching activities and assessing how each of them meets a set of pre-determined criteria. It can be used as a way of validating curriculum alignment and to review the topics that are taught by multiple providers (Breymier, 2018, p. 446).

1.2 Context

The School of Humanities and Social Sciences is one of six schools within the University of Cambridge. The school includes faculties and subjects that are similar in discipline and a host of administrative departments. Each of these faculties are supported by a library team who build collections and provide IL teaching to students and researchers. The School Humanities and Social Sciences has 11 faculties and departments that are serviced by nine libraries of differing sizes, capacity and responsibilities (Baker & Ellis, 2025, p. 185). This devolved structure enables librarians to liaise with academics and provide discipline specific IL teaching to small communities. Whilst this model is particular to Cambridge and other larger universities, it has been shown to provide strong relations between library staff and the faculties they serve (Tilley & Murphy, 2018).

The separation of teaching librarians across the school allows a degree of autonomy and enables libraries to specialise their teaching to focus on the skills and practices that are required by different disciplines. In some instances, the same IL skills are taught to multiple subject areas by different teams, whilst others might focus less on competencies that are not as relevant to the students they are teaching. The scattered nature of this teaching has led to questions about what IL competencies are taught across multiple libraries and which are omitted. This has led to the establishment of a curriculum map to validate curriculum alignment and create an awareness of the scope of teaching delivered across the humanities and social sciences. This map has also been set up as a way of identifying if competencies are taught at an introductory and advanced level.

The curriculum map was designed as a way of checking that IL teaching across the School meets the needs of the university and students. At a local level, the exercise considered each discipline in turn and revealed what skills are taught across a range of providers. More broadly, it mapped teaching practices to the four competencies in the University of Cambridge's IL framework. This ensured that librarians are teaching all aspects of the framework and helped analyse how the framework has shaped student learning outcomes.

Librarians at the University of Cambridge created a bespoke IL framework for all faculties and departments in 2018. The four competencies (resource discovery, critical assessment, managing information and creating and communicating) were designed to cover all the skills that students and researchers require when engaging with information and the inclusion of these competencies became a prerequisite for teaching delivered by library staff. The framework has become familiar to teaching staff and can therefore be used as a benchmark for assessing IL training in libraries.

2. Literature review

Curriculum mapping is a common practice in higher education and is used as a way of assessing curriculum alignment and ensuring learning outcomes reflect institutional standards (Breymier, 2018). The interdisciplinary nature of curriculum mapping has made it a versatile tool for academic and professional services staff in different disciplines (Psencik, 2009). The importance of student learning outcomes in curriculum mapping is particularly useful for library staff because it utilises a practice that is established within library tuition. Libraries have benefitted from using student learning outcomes as a way of aligning their teaching to those of their host faculties and research has shown that this practice has a positive impact on student attainment (Blummer & Kenton, 2018).

Previous studies have shown librarians using curriculum mapping for IL teaching in order to achieve a variety of outcomes. These include Levy et al.'s (1999) study to identify curricula goals and White and Moore's (2016) research into the impact of teaching IL at different stages of a university degree. Each of these examples demonstrate how curriculum mapping has been used to identify if IL teaching has met the needs of higher education institutions and to provide data to inform future practices. Similarly, Buchanan et al. (2015) documented four case studies of curriculum mapping exercises that used different methods and outcomes. Whilst these studies have shown how performance indicators can be used to detect IL teaching and identify duplication, they did not assess the teaching delivered by multiple teams and the different levels of tuition required by students, which will be the focus of this study.

Previous reports of curriculum mapping in librarianship also differ from this study because of their disciplinary focus. A study by Rawl et al. (2017, p. 76) found that curriculum mapping is mostly used as a way of assessing the teaching output of STEM disciplines. This assertion is supported by case studies conducted by Burns et al. (2023), Olson et al. (2023) and Castillo and Ho (2021), all of which provide informative accounts for how curriculum mapping can identify IL teaching in STEM subjects. Whilst these studies can help guide humanities and social sciences librarians to create a curriculum map, they cannot account for the different formats or practices required to become proficient at using information in different disciplines. A guide to curriculum mapping in the humanities and social sciences will complement the wealth of studies that have already defined what it means to be literate in this subject area.

Curriculum maps have been used by library staff in the past to ensure that IL teaching complies with established standards. The most commonly used is the ACRL framework by the American Library Association. Studies have shown that the ACRL framework has been used as a tool to establish shared goals with faculties (Reed et al., 2018) and to map alignment with student learning outcomes (Henson, 2023). These studies give guidance to institutions that use the ACRL framework, but they do not document how librarians can interpret institutional frameworks

for the purposes of a curriculum map. This study seeks to turn a bespoke IL framework into a set of performance indicators that can be mapped against library tuition.

There is a comparatively small amount of literature that focuses on the way that curriculum mapping data can be presented to library stakeholders. The ability to present data to academic committees can be vital for enabling libraries to position themselves within institutions and demonstrate the value of library services (Cox, 2018). This study will therefore use a heatmap as a visual tool to present curriculum mapping data in a matrix. A study by Clark et al. (2021) gives an example of how to create a heatmap as a visual tool for curriculum data in a subject specific context. Whilst this will provide a useful example of how to create and interpret a heatmap for an academic audience, this study will use very different data for a different set of disciplines. Further studies by Alshanqiti et al. (2020) and Alam and Benaida (2022) also advocate the use of visual tools for presenting curriculum data and provide guidance for how this can be achieved.

3. Designing and Implementing the Curriculum Map

The curriculum mapping project will be presented as a case study set within libraries supporting students in the School of Humanities and Social Sciences. It will focus on the way data is collected and how this data can be presented to stakeholders.

3.1 Collecting Data: Curriculum Mapping

The first step of the project was to establish a way that the competencies could be mapped to the teaching delivered by library staff and collect data that went beyond identifying teaching or counting how many instances a competency or practice was taught. The University of Cambridge's IL framework was used as a guiding document for this purpose and provided a set of four competencies that would form assessment criteria. The framework had been used as a set document by librarians and therefore had the added benefit of being familiar to the staff who would provide data to the curriculum map. The IL framework was therefore used as the foundation of the curriculum map and its competencies were expanded to show the practices they included.

The IL framework comprises four competencies that are required of all students at Cambridge, which are: resource discovery; critical assessment; managing information; and creating and communicating. Each of the competencies represent broad areas of IL instead of specific examples of what students need to be taught. They were therefore broken down into a set of 16 practices that could be used as performance indicators for the four competencies (as seen in Figure 1). The purpose of the practices was to create a list of practical skills that are taught by library staff rather than the broader competencies included in the IL framework.

Figure 1: Competencies and practices

Competencies	**Resource discovery**	**Critical assessment**
Practices	Finding reading list material	Checking source quality (clickbaits, etc.)
	Finding special collection content	Awareness of what peer review means
	Boolean search operators	The information life-cycle
	Using AI for literature searching	Becoming an efficient reader
Competencies	**Managing information**	**Creating and communicating**
Practices	Reference management software	Sharing information inclusively
	Creating a search strategy	Understanding copyright
	Creating citations/bibliographies	Note-making
	Tips for digital reading	Data visualisation

All of the practices were presented in the top row of a spreadsheet which allowed librarians to list a set of data below, including information about the classes they taught, which practices they included, and who they were open to. This would be sent to all library staff who delivered teaching in the School of Humanities and Social Sciences.

Once a set of practices had been established, the exercise needed to ascertain what level of tuition was offered and how much focus was given to each practice. This was achieved by devising a scoring system that could indicate the level of the teaching each librarian delivered. Respondents were asked to grade their tuition for each of the practices set out in Figure 1 using the following terms:

- **Introduction:** The competency is introduced, but not in detail. This can include signposting or recommendations for future training sessions.
- **Detailed/Reinforced**: The concept is described in detail and is the focus of at least a part of a class.
- **Advanced**: The concept is either a significant part of a class or is taught to students at a higher stage of their course (such as to a third-year undergraduate or a postgraduate preparing for their final submission).

Seven libraries within the Humanities and Social Sciences were sent a spreadsheet that asked librarians to list their training sessions and provide further data about the contents of the classes. This curriculum map would be distributed to 10 teaching librarians who each had responsibilities for delivering classes to undergraduate and postgraduate students. In each case, they were asked to specify if the practices in Figure 1 were included and then assign a score for the level the practice was taught to. This was compiled alongside data about who the teaching was open to, what disciplines could attend, when it was delivered, and what location it was delivered at. This was designed to provide a full account of the scope of the training delivered by each team and to every discipline within the School of Humanities and Social Sciences.

3.2 Presenting Data: Curriculum Matrix

The second aim of the project was to present data in a way that was easy to interpret and that could be shown to academic committees within the university. This would serve two purposes:

firstly, to help interpret the findings so that further action can be taken; and, secondly, to present the findings in a way that can drive up engagement with the university (Cox, 2018). The data was collected in a way that allowed multiple responses to be overlayed, to demonstrate the amount of teaching that occurred for each practice. The project therefore created a curriculum matrix that could also be used as a heatmap for illustrative purposes.

A curriculum matrix can display data about information practices alongside a class or discipline within a single chart (as seen in Appendix 1). The matrix is able to show how each practice and each discipline compares to one another by comparing the number of times a practice is taught or a numerical representation of how intense the class was. The same matrix can be turned into a heatmap by assigning deeper colours to the numbers that are the highest. In order for this to work, library staff needed to assign scores for the intensity of teaching they offered for each practice. Therefore, each of the three intensities assigned by library staff were turned into scores ranging from 1 (for introducing a practice) to 3 (for providing advanced tuition) as seen in Figure 2:

Figure 2: Library scores

Grading	Score
Introduction	1
Detailed/Reinforced	2
Advanced	3

Once the responses were turned into a numerical set of scores, a series of matrices and heatmaps were created to demonstrate the nature and level of teaching delivered across seven libraries in the School of Humanities and Social Sciences. The project used these matrices to assess the responses in three areas: discipline, induction, and intensity. A matrix of discipline specific data was created by bringing together all the responses from library staff that included classes that were open to specific disciplines. For example, a class open to history and sociology students gave data to both of those disciplines. The intensity for the teaching was calculated by adding together the scores for the classes that were delivered to each discipline. For example, if history students had access to three classes that each were taught to a ‘detailed/reinforced’ level, this would equate to a score of six (three classes that each scored two). A further matrix to ensure all practices were taught at an induction level was created by finding all the practices that had a score of one across each of the disciplines.

All of the matrices were popular with data that were indicative of the teaching delivered across seven libraries. Whilst the scoring was informative, it was not presented in a way that was easy to describe or analyse. The matrices were therefore turned into a set of heatmaps for discipline and induction to show where numbers were higher or lower. All the higher scores were given a deep shade of red and the lower scores (or non-responses) were left as white. This provided a visual aid for anyone who was viewing the data for the first time and helped library staff to present their findings in committees.

4. Project Review

The curriculum map was able to provide a high-level overview of the teaching delivered across seven libraries and take a holistic view of all the IL teaching delivered within the School of Humanities and Social Sciences, but this was only possible because data was collected from seven separate teaching teams. To analyse the data the project leader needed to pull together all the training open to specific disciplines and then record what practices were taught. For example, a library that taught Boolean search operators to sociology and politics students would provide a score for each discipline. Whilst this provided comprehensive data about what was available to students, it also led to some disciplines receiving higher scores due to libraries offering classes to everyone within the School of Humanities and Social Sciences. Further difficulties arose when trying to assess if students on joint courses had access to the same content as single honours students.

The curriculum map was able to highlight omissions and duplications among different libraries whilst also noting common themes across all disciplines within the school. The data provided a useful insight into the teaching priorities of libraries within the school and can help identify future opportunities for training and collaboration. For example, the responses showed that resource discovery was taught by multiple providers to different groups. Furthermore, the addition of a scoring system showed the intensity of the training that was delivered and provided data that showed if practices were taught at an introductory and advanced level.

One of the goals of the curriculum map was to present data to senior managers and provide useful data that would lead to positive changes across libraries. This meant that it needed to present the data in a way that demonstrated the scope of teaching at different levels across the school and individual disciplines. The data fitted well into three matrices (discipline, induction and intensity) and provided an opportunity to look at the data in context and ensure that students had a range of training opportunities available throughout the course of their degree. A further matrix that covered all responses provided a uniform way of looking at a broad range of IL practices, spread across disciplines, and taught across seven separate libraries. The most successful aspect of the matrices was the creation of heatmaps that worked as a visual tool for explaining the scope and intensity of teaching across the IL framework and could easily be shown to stakeholders with the School of Humanities and Social Sciences.

The curriculum mapping exercise depended on library staff recognising IL practices in their teaching and being able to grade the level of tuition they delivered. Whilst library staff are capable of both of these tasks, they are open to interpretation within different contexts. For example, an advanced class about a practice in one discipline may mean something very different to another. Equally, the scale of teaching can differ between library teams and each may have a different notion of what constitutes as a teaching activity. The collected data provided an overview of the practices that were taught at each library, but further studies could focus on the views of library staff when completing the mapping exercise. The limitations of this project could be overcome by collecting multiple datasets and cross-referencing them with the findings in the curriculum map. For example, a larger study could ask students for their perceptions or check if their attainment matched the level of teaching recorded in the curriculum map. Interviews with library staff would also help establish what IL means in different disciplines and environments. There is an opportunity for a new curriculum map that explores duplication and omissions in other aspects of the teaching delivered by library staff. For example, a more

comprehensive study could consider mapping teaching in different modes of delivery in order to assess ways that different practices are taught. The curriculum map could then show the level of uptake for classes and include feedback from students about the usefulness of being taught information practices.

5. Conclusion

This study has demonstrated that it is possible to use a bespoke IL framework for curriculum mapping and capturing data from multiple teams of teaching librarians. Through doing so, it has raised questions about the content and structure of IL frameworks and their adaptability for curriculum assessment. This case study has shown that a reinterpretation of IL competencies and the development of a set of practices can lead to a more expansive curriculum map. The inclusion of information practices also led to a curriculum map that could identify trends across a group of libraries and comment on the IL needs of students within the humanities and social sciences.

The presentation of curriculum map data was considered throughout the project and featured heavily in the design stage. Data was collected in a way that would enable teaching to be graded whilst also demonstrating the number of instances that an information practice was taught to each discipline. This led to a set of matrices and heatmaps that showed the scope and intensity of IL training across a range of providers. A recommendation from the project is that data visualisation is considered from the inception of a curriculum mapping exercise and that data is collected in a way that can be easily interpreted by stakeholders. Using familiar terminology and simple scoring mechanisms led to a set of matrices that could use numbers and colours, to demonstrate teaching outputs and IL trends across the humanities and social sciences. Through doing so, the project was able to connect librarians and academics to an institutional framework and create a shared understanding of what competencies are being taught to students.

Declarations

Ethics approval

Ethical review was not considered necessary in alignment with the University of Cambridge's guidance on the conduct of ethical research.

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AI-generated content

No AI tools were used during this study.

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Appendix 1: Curriculum Matrix

		Resource discovery					Critical assessment					Managing information					Creating and communicating				
Session name	**Who is it open to?** Disciplines and level	**Resource discovery**	**Finding reading list material**	**Finding special collection content**	**Boolean search operators**	**Using AI for literature searching**	**Critical assessment**	**Checking source quality (clickbaits, etc.)**	**Awareness of what peer review means**	**The information life-cycle**	**Becoming an efficient reader**	**Managing information**	**Reference management software**	**Creating a search strategy**	**Creating citations/bibliographies**	**Tips for digital reading**	**Creating and communicating**	**Sharing information inclusively**	**Understanding copyright**	**Note-making**	**Data visualisation**