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A New Curriculum for Information Literacy

transitional ▪ *transferable* ▪ *transformational*

EXPERT CONSULTATION REPORT

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You can teach a student a lesson for a day; but if you can teach him to learn by creating curiosity, he will continue the learning process as long as he lives.
~ Clay P. Bedford

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1.1 Introduction

In order to inform the development of a New Curriculum for Information Literacy, the project researchers consulted widely with a number of key individuals in the information and education professions. The findings were used to shape the structure and content of the curriculum. It became clear as the project progressed that how the curriculum was delivered was in fact more important than what was included in it. Issues such as the format, structure, teaching style, the barriers that might hinder its implementation and how it should be marketed and promoted to the various stakeholders across an institution were in fact crucial. Other important issues included assessment and assumptions around students' familiarity with technology. This report summarises the key issues to consider when implementing and designing a curriculum for information literacy. This research was funded by the Arcadia Programme at Cambridge University Library; we hope it is valuable for the wider higher education community.

1.2 Methodology

A modified Delphi approach was used informed by a previous study in this field by Saunders (2009). Delphi studies are particularly useful when attempting to predict the future. They usually involve at least two rounds of consultation with experts, so it became clear that after an initial consultation phase we would need to return to our experts and consult again. We describe the method as modified Delphi as we carried out individual, one-to-one interviews or email questions in most instances in the first phase, but decided for the sake of expediency to bring our experts together for the second phase of the consultation. The second consultation phase included a face-to-face workshop, which was held in June 2011, 3 weeks before the end of the project. For those unable to attend the workshop the resources were made available from the project wiki (http://ccfil.pbworks.com/) and feedback was gathered through an online form.

When carrying out a Delphi study, the selection of experts to interview is extremely important. Discussions with the project's academic advisor generated a list of potential experts in the information and education fields. The researchers also used their own contacts with key individuals in the information literacy field, committee members of the CILIP Information Literacy Group, and members of the RIN Information Handling Working Group. In addition the decision of who to consult evolved organically, as during the interviews people were asked to suggest other key people that had an interest. Inevitably time limits were such that the consultation could not be exhaustive, but a wide range of academic librarians, school librarians, educational technologists, researchers and academics in the field were consulted. A list of the individuals who were consulted during the project is available in Appendix 1.

The same questions were used in the face-to-face, telephone and e-mail interviews. Questions were deliberately kept as open ended as possible to allow interviewees to raise any pertinent issues. The interview questions appear in Appendix 2. In most instances the interviews were recorded and a full transcript was produced. This facilitated the data analysis process, which involved generating categories and a coding frame from the data, an approach influenced by grounded theory. As each interview was coded modifications were made to the coding frame if new concepts or issues appeared which were not expressed in the coding frame.

1.3 Summary of findings

The primary aim of the interviews was to identify topics that should be included in the new curriculum. However, the questions were also designed to elicit information about any issues that needed to be considered when planning the curriculum. The analysis of the data suggested that how to implement this new curriculum was at least as important as what should be included in it. Six areas to consider aside from the content were identified including:

- The format and structure of the curriculum
- The timing of the interventions
- Teaching style and the method of delivery
- The role of audits and assessment

- Marketing and promotion of the curriculum including barriers to implementation and key drivers
- Considerations around technology

The above six issues are all critical to the success of a curriculum, regardless of the content included. Therefore these will form the basis of sections 2 to 7 of this report.

Meanwhile the experts identified a wide range of topics that they believed needed to be included in the curriculum. By analyzing, refining and grouping these topics and using evidence from the literature review, they naturally evolved into 10 themes or strands. The strands form the basis of the curriculum developed during this project and can be summarized as:
1. Transition from school to higher education
2. Becoming an independent learner
3. Developing academic literacies
4. Mapping and evaluating the information landscape
5. Resource discovery in your discipline
6. Managing information
7. Ethical dimension of information
8. Presenting and communicating knowledge
9. Synthesising information and creating new knowledge
10. Social dimension of information literacy

Section 8 of this report will briefly draw on evidence from experts around why each of these issues was important and needed to be included in the curriculum.

2 Format and structure of the curriculum

Almost all the experts agreed that the format and structure of any information literacy curriculum was crucial to its success. Important consideration around structure included the need for it to be embedded within the academic discipline, the need for flexibility, the need for a holistic approach, the need for a student centred approach and the need for the curriculum to be joined up across an institution.

2.1 Embedding Information Literacy in the curriculum

The need for the curriculum to be embedded into the academic curriculum was mentioned by almost all experts. The idea that information literacy could or should be taught in isolation from an academic discipline was not advocated. Linked to this was a discussion around who should teach information literacy (discussed in Section 4.5 in more detail). Collaboration between academics, teachers, learning developers and librarians, not only in terms of drawing up the curriculum but also teaching it, was suggested. An ideal scenario in one institution was described:

> Academics are involved in developing a curriculum to meet the University's learning and teaching strategy, assisted by librarians and educational developers. The academics are embedding it in the curriculum with advice from the librarians. This means that students don't see something separately labeled "information literacy" as opposed to academic learning.

Another expert simply stated:

> It is important for librarians to work with academics or faculties to integrate information literacy into curriculum, to understand what students need and to design information literacy curriculum to meet their needs.

Another felt that information literacy:

… should be embedded within the core subject discipline curriculum so that examples can be course specific and that info lit can be made apparent at point of need and not as a separate (and poorer) cousin.

2.2 Flexibility

Flexibility was also a key aspect of the curriculum mentioned by many experts. This included a flexible response to students' needs, which many observed were hugely varied, but also the capacity to amend the level or topics that were covered so not to make assumptions about what students did or didn't know. Flexibility was also important to take into account the differences between academic disciplines, but also to allow different teachers to adapt the curriculum to their own teaching style. The need to have some elements of prescription was balanced with the need to allow teachers to customize the sessions as appropriate for the discipline in which they work, and the needs and level of their students. Another point made by many experts was that the curriculum needed to consider students' prior learning, with many experts mentioning the value of pre-sessional audits or diagnostics (for more detail see Section 5). One expert told us:

> I believe information literacy has to be context-sensitive both in subject but also individual experience.

2.3. Holistic

Many experts discussed how an information literacy curriculum should be 'holistic' so that students understood the complexity of the research process and approaches to learning in higher education. This was partly due to the differences from the learning that students have experienced at school.

As one expert, echoing the sentiments from the literature, commented:

> I think the main gap I am finding is with regards to critical and holistic thinking. There seems to be a teach-to-test culture which focuses on circumscribing knowledge into manageable boxes, but that is not the world we inhabit. Understandably, perhaps we draw these boxes to simplify the immense complexity we face, but I think that increasingly we are, in the information society, having to interact directly with this complexity and additional strategies for dealing with it (beyond that of imposing order on it) are needed.

The holistic approach led some people to describe a core set of modules or themes that were developed and reinforced as a student progressed through their academic studies. The need to build on knowledge over time and to 'scaffold' the learner with greater levels of support in their first year or at critical points in their career was highlighted. However, it was important for the curriculum to be coherent and to 'fit together' and as one expert said:

> You need to take a chunked approach so the curriculum's content is not overwhelming. Some people may only need a reminder or refresher of a small part of the overall curriculum. But it must be obvious that it's part of a greater whole – people need to understand how it all fits together … The sum is greater than the parts to be an information literate person.

What was also clear was the structure of a new curriculum should be a departure from previous teaching approaches in the library field, which are often not embedded, holistic or responsive to students' needs. Some literature explored in the Theoretical Background argued that information literacy should not be a marketing excise on the part of the library, and this expert made a similar point:

No longer should the library be trying to sell its resources as part of information literacy instruction. Rather than focusing on resources, IL instruction should be focusing on habits of mind. Librarians' role as a guide through the information landscape should not be touted but demonstrated.

The need to understand information literacy as being more than just skills that sit outside or alongside the academic curriculum, but which actually underpin a student's ability to learn, was also key:

> **...** 'skills' are not the be all and end all of information literacy education. The IL curriculum needs to consider the whole students information experience – skills are just one aspect.

It was also clear that many librarians needed to broaden and deepen their understanding of information literacy and to plan sessions that develop appropriate attitudes and behaviour in addition to skills. This will be discussed in further detail in Section 4 and is also covered in Section 3 of the Theoretical Background, but as one expert said:

> IL must be seen as holistic and multifaceted, meaning different things in different contexts. Much IL teaching in universities focuses only on functional skills - information retrieval, library orientation and avoidance of plagiarism - which Bruce et al term the 'content' and 'competency' frames. But focusing on these does not deal with issues such as how we can understand the social impact of information; how we can learn how to learn through developing personal perspectives on information; how we can understand information as relevant in our own contexts.

2.4 Joined up approach: strategy

The challenges and barriers that this new curriculum might present are not underestimated, and are discussed in more detail later in this report. These challenges include assumptions about the role of the library and librarians as teachers, and staff development issues for both library staff and academic staff. The need to have a common understanding of what information literacy is, and an institutional strategy towards supporting it, was mentioned. As this expert said:

> … if the teachers, whether they're school or university teachers, don't have the same view of IL that we do, it's always going to be the skills. And the skills are fine but anybody can teach the skills; it's teaching the changing attitude and the different approach that I think has to come from the teachers.

Collaboration between different groups of staff was considered to be extremely important in terms of the successful implementation of any information literacy strategy or curriculum. This was seen as a two-way process, with librarians needing to understand the role other staff (both academic and academic support) could play in supporting information literacy as well as a recognition of the role of the librarian in learning:

> Libraries and librarians need to recognise that IL does not equal library, it is broader and more holistic than that.

2.5 Learner centred pedagogy

Finally, another important aspect of the curriculum design was that it adopted what many called a 'learner-centred pedagogy' or 'student-centred approach'. This includes an:

> … acknowledgment of what the learners bring to the learning.

But also a recognition that we:

… must start by looking at what the students need and expect – which is part and parcel of the changing the academic world. We are too embedded in "We know what you need to learn and we'll tell you". Academia needs to employ a learner-centered pedagogy and culture.

3 The timing of information literacy

Two key factors arose regarding the timing of what can be termed information literacy interventions. Our experts were clear that information literacy should be timed to happen at the point of need, but also that it should extend beyond simple induction. In many institutions 'library induction' is traditionally scheduled at the start of the academic year and is the one and only opportunity for librarians to interact with a large group of students. Often in a lecture theatre, librarians are given one chance to impart all the relevant information about the library which is intended to prepare students for their academic career. What our experts were clear about is that library induction is not information literacy. It does little to convey the attitudes, skills and behaviour that an information literate student should have. As these experts told us:

> I worry that students come into HE really fired up with the desire to learn (yes, really) and they have this beaten out of them in the first few weeks. This happens mainly in the classroom but we also play our part with an emphasis on rules/control and boring inductions/mistimed library sessions.

> Induction sessions at the start of undergraduate study are useful - many will think, essential - but if this is all that happens then the lessons will soon be forgotten. Effort needs to be made to embed IL into the curriculum at later stages as well.

This is not something restricted to higher education but something that happens in schools as well:

> There is no point going through it with students at the start of the first year when you have got no free time because you have labs left right and centre and aren't expected to read around the subject you just learn, learn, learn.

Timing is clearly critical, but also what was clear was that information literacy needs to be ongoing throughout the student's academic career and possibly beyond if it is to be truly effective. Otherwise students find it difficult to transfer their skills and knowledge and apply it later in their studies and in their lives. As this expert said:

> They [students] will focus on one or two aspects, which is fine in the first year, but how to you get them to go back and repeat it in the second year or third year so there is continuous improvement? To me, its also fine to do something in the first year but how do you build on it in the second and third year because all the studies have shown yet again that you need building blocks according to specific chunks of need.

4 Teaching style and the method of delivery

The experts discussed in some detail the teaching style and method that should be used in information literacy education. This included the relative value of online and face-to-face teaching, the use of active learning techniques including discussion, the use of peer learning and the importance of building in opportunities for reflection. Many in the group also recognised the shift from a more traditional view of information literacy as library training to regarding it as a core part of education. The experts also discussed in some detail who should teach information literacy, whether it was the role of the librarian, whether it should be taught in collaboration with academic and other support staff and the role of students as peer mentors. What was clear was that how information literacy is taught matters enormously. Often what lies at the heart of information literacy is transformational, in terms of allowing learners to become more autonomous and helping them to become reflective, critical and discerning in their use of information. This inevitably means that the curriculum must be engaging and well designed. One further

point that several experts made reference to was whether information literacy could actually be 'taught' rather than encouraged and supported.

4.1 Face-to-face versus online teaching

Teaching face-to-face was clearly highly regarded by many experts in our group. However, the challenge for librarians who deliver information literacy sessions is how to cope with increasing student numbers. Online components were therefore advocated by some as a way of delivering some core, more functional skills to large cohorts of students. This would also allow teachers to concentrate on higher order skills in their efforts in face-to-face sessions. As this expert told us:

> … it's then how you translate it into practice. If you have got a small cohort it is very easy to tell them what they need to be doing and where they need to brush up, either delivering that face-to-face or online. But if you have 150-200 students that's actually a lot more difficult.

Some librarians have become victims of their own success and found themselves completely overloaded with information literacy teaching: describing a group of librarians at another institution, the expert said:

> … they were so successful they couldn't run it. They were being asked to do too much and they were running around to such an extent that they weren't thinking about what they were doing anymore they were so busy delivering it. And I've always argued for 25,000 students we cannot see everyone face-to-face.

In some forward-looking institutions the approach has been for librarians to equip academic staff with the skills to teach information literacy, which relates also to the importance of embedding it into the curriculum. As this expert said:

> … for us it's the only scalable approach. It's the academics who are doing this teaching at [our university]. Librarians CAN'T do all the teaching if all the programmes across the university responded positively. It has been facilitation and partnership.

4.2 Active learning / discussion / collaborative peer learning

Many experts talked about the teaching style that should ideally be used in information literacy, and the value of active learning techniques. Librarians will typically carry out hands-on computer-based workshops for students, but the active learning techniques that many of our experts were advocating are more discursive. The importance of peer learning through discussion was also mentioned by several experts. As one stated:

> There is more emphasis on group work now, even in a lab, students are encouraged to work together; but also, get students away from the PCs so they're not just repetitively doing but have opportunities for discussing and reflecting, also for peer learning! Particularly intellectual activities around key word searching. … We take students away from the PC to encourage them to think.

This is discussed elsewhere in the report (See Section 6.5), but many librarians commented on how they found this type of teaching quite challenging. However, using discussion, peer learning and opportunities for reflection can be more effective and transforming for learners. As this expert said:

> I think we are very controlling about the way we deliver teaching. It is about letting go and having what seem like chaotic lessons. Peer learning carries much greater impact than a traditional teaching environment. Even apparently active learning can still be over directed by the teacher - we need to explore the richer environment that peer involvement can provide.

4.3 The need for reflection

Linked to the above point is the importance of providing the learners with opportunities for reflection which many experts noted was missing from many IL programmes currently. Reflection can be undertaken by the individual learner or may be achieved in a peer setting. However, it was mentioned time and time again as being crucial to student's understanding of what it means to be information literate. As this expert said:

> Some of the most successful interventions we devised in [our department] featured reflection that got the students to think about what they had just done. It is quite easy to dismiss it as 'just library skills' but these are really important things they will use again and again.

4.4 From training sessions to teaching

Many of our experts commented that introducing active learning, discussion, peer learning and opportunities for reflection represented a shift from regarding information literacy as training to seeing it as teaching. One expert described this as a 'paradigm shift in information literacy'. Running training sessions is far easier for many librarians who in some institutions might struggle to be regarded as teachers. As one expert noted:

> Yes, because it's easier, isn't it? it's less threatening and easier especially if you don't have much notice and it's a class that you're giving at the last minute. It's easier to do the training. And not very many librarians, I think, do the education.

And another told us:

> That transmission model of teaching is very difficult to break. I would advocate that IL should use other methods as much as possible, not the transmission model except maybe to get started in the first 5-10 minutes.

4.5 Who delivers sessions?

There were some interesting discussions around who should deliver information literacy sessions, with some differing opinions about the role of librarians. Collaboration between library staff and academics was widely advocated, with many experts recognizing the role that learning developers, IT staff and also students could play. One expert described this issue in terms of the institutional structure, commenting:

> There is a basic contradiction, or tension, within the way universities are structured. Libraries and librarians, whose expertise is in knowledge preservation, classification and retrieval, are centralised, but academic departments, which have the expertise in knowledge creation, are autonomous and decentralised. Because both 'sides' need to work together to deliver the full range of informational experiences, we need to think hard about how to make the right connections.

Another expert felt that who delivered the IL curriculum was the most important question:

> The first thing I wrote down is who is going to deliver it – and that is the bottom line for me, is it going to be library staff or academic staff?

Collaboration was seen by many as being the way forward:

> So its about how do we work together to integrate it into the learning experience.

Some experts clearly saw librarians as being the key staff who should be running information literacy sessions and broadening out the range of topics they could cover to include e.g. information on time

management and academic writing. For others, the librarian's role was to work in partnership with an academic to develop a session, which in some instances might be delivered jointly and in others might be delivered by the academic and fully embedded into the curriculum. The need to work with other learning support staff including learning developers, e-learning staff and IT staff was also recognised.

Another group who our experts believed could be hugely valuable in the teaching process were students themselves. In some institutions students in their second or third year of study have helped to develop online resources such as audio tours and student guides to the library. The value of being taught by another student, as opposed to a librarian or academic, was considered very powerful. However, students also learnt a lot when they acted as peer mentors. For example, one expert told us how student mentors reflected on their own learning:

> Mentors were used in some of the projects and they were very successful, so students from higher levels mentored students at level 1. And there were various ways that happens. The feedback we got from the mentors was it really helped them recognise that their information literacy was important and how far they had come.

5 The role of audits and assessment

Unsurprisingly, many of our experts felt that assessment should form a key part of the information literacy curriculum. Many information literacy programmes include self-assessment, but if these programmes sit outside the academic curriculum it is difficult to design meaningful summative assessments. If the curriculum is to be taught in collaboration with academic staff, then they need not only to recognize the role the librarian plays in assessment, but also to consider how the learning of skills, attitudes and behaviour will be measured. Many of our experts recognized that designing meaningful and innovative assessment in information literacy was a particular challenge:

> There's been a lot of debate on evaluating the impact of IL - one problem is that they assess students' expectations of improved competences; whereas it is much more difficult to assess the change in practice. We must find ways of establishing what they did before and what they do after that's different.

One librarian felt so strongly about the importance of assessment that she was reluctant to work with teachers unless she got to see the student results at the end and had some say in the assessment criteria. Building good information literacy practice into a marking scheme was difficult but one librarian thought that an element of marks could be allocated for the referencing style or the way you had carried out your research, stating:

> … even at school level, if things were assessed and part of the mark included how you researched then it would make quite a difference – if it was say 5 marks it could be the difference between a first or second.

5.1 Information Literacy Audits

Many experts felt it was critical to the success of a programme that an audit of student abilities was carried out at the outset, to help better understand the needs of the students and any gaps in their knowledge. It would also help in planning more meaningful sessions, as otherwise it was very easy to make assumptions about what students might know. Audits or diagnostics can be a way of engaging students but also:

> A diagnostic strategy is useful to engage the students, but absolutely necessary for us [facilitators] to establish where they're at and what they need.

Another expert asked:

… what skills can we assume people will have? I have put none - we need to assess them and have a two tier approach - one for those who know nothing and one for those who know a little bit - because of the diverse backgrounds.

Questions on whether students are familiar with academic journals, how to reference sources, and their use of the internet would all be useful to help a teacher pitch an information literacy session at the right level. Many experts mentioned they had used such audits or that they were aware these were available:

I am not sure it is safe to assume anything with regards to the skills young people will have, at least in the short term. Students should be surveyed on entry so that a sense can be gained of where they stand. On a number of occasions I have found myself guilty of making assumptions in this area about my students which have proved false.

5.2 Peer assessment

Peer assessment could also be a useful way of bringing a reflective approach into the learning where it might not be possible to assess students summatively. Two academic librarians used peer assessment as a way of engaging students and getting them to reflect on the sources they might be using, or criteria for judging quality:

If you try and teach students about the value of citation they find it really boring, but through peer assessment they get much more engaged.

We run a first year undergraduate module in inquiry and information management. One of the assignments is a small-scale group research project leading to the creation of a poster which displayed at an internal 'conference'. The students set the criteria for judging the posters. Students, staff, researchers all come along to the event and assess the posters. It helps the students understand not just disciplinary content but ways of working within the discipline. To become an expert and understand how research is conducted in the discipline.

6 Marketing and promotion of the curriculum including barriers to implementation and key drivers

All our experts discussed the marketing or promotion of an information literacy curriculum, including how to engage stakeholders both within an institution and more widely. The stakeholders include senior management, students, academic staff, librarians, learning support staff, potential employers, exam boards and government policy makers. The experts also highlighted barriers that might prevent the curriculum from being successfully implemented. Again the concerns of the different stakeholders were considered. Before considering this in more detail, one recurring theme across the board was the need to use language effectively. Numerous authors in the field have debated the use of the term 'information literacy' (see Section 2 of the Theoretical Background) and our experts were divided with regard to the value of this term. Many believed that it simply wasn't appropriate to describe their teaching as information literacy to students or academic staff. However, others in the group felt that, provided the term was explained, it was helpful to be consistent in the use of terminology. There was also a belief that librarians could spend too much time debating terminology instead of providing a clear explanation of what they are trying to achieve in terms of learning outcomes. One expert concluded:

I also think that librarians should be talking with marketers about how to sell curricula to students, faculty, and administrators. Are we using language that is effective? Language that means something to students.

6.1 Student motivations

When 'selling' an information literacy curriculum to students its relevance to their success and achievement is clearly a powerful motivator. Students also need to be convinced of the transferability of the knowledge and skills within the curriculum and of its links with employability. However, some experts were cautious in taking this too far; being information literate is rarely a skill specified in a job description. One expert stated:

> For students the key is to make them see that IL expertise will improve their grades. Students will respond to this most of all. There is some evidence that the term 'information literacy' has no currency with students (maybe not academics either), so while we can use it to coordinate efforts within the library, avoid using it externally. We need to show how the library adds value - and increases marks.

It might be helpful to explain the value of being information literate to students explicitly in language they understand:

> You need to make sure the students are aware of the importance of IL skills because if its not something they have come across or studied much or they have not been taught IL skills they won't understand how important they are until its too late.

Changes to the funding of higher education from 2012 was mentioned by several experts as being a potential turning point which might further increase student expectations. As this expert said:

> Having to pay fees will change students' perceptions of what university is offering.

However it was felt to be important to capture some of the excitement around learning that many young people enter university with. As this expert stated:

> I think sometimes we make assumptions that students aren't excited about learning and won't be interested in this stuff. If we challenge them a bit more they are quite excited – they have worked hard to get here and being here is an exciting thing. Being a researcher, being in a big research library and understanding how it all works is exciting and somehow we need to get that excitement across.

6.2 Motivations and drivers for academics and teachers

Many experts recognized it could be a challenge to engage academic staff and teachers with information literacy and for them to understand the role the librarian can play as a teacher. However, improvements in student performance, better engagement, and higher retention are all likely outcomes of increased information literacy. Some of the group thought a model such as the SCONUL 7 pillars could provide a helpful way of entering into a dialogue with academic staff about the knowledge and skills they expected their students to have. For others looking for hooks around academics' concerns worked well, including students' use of less scholarly sources such as Wikipedia and growing instances of plagiarism. Having an Information Literacy Forum where lecturers could discuss issues and concerns has been helpful in one institution.

Language was again considered important when engaging with academics and teachers. One expert stated:

> When I do it for staff I call it information for learning – I am talking about IL but we call it information for learning.

However, another expert felt that in order to engage school teachers with information literacy the term should be used:

> I think particularly where there are schools of education, for teachers I think it is very important and only fair on school librarians if librarians have been quite assertive about this is information literacy. If they do that when the trainee teacher goes to a school and the school librarian mentions IL they will know what they are talking about. They won't have to negotiate.

And another had some success over time using the term:

> …you do need academic engagement and there is an issue over what you call things. IL is a library term and we have persevered with using it at the university quite successfully.

Engaging teachers at both primary and secondary level with information literacy is key as many experts observed that students picked up bad habits at a young age, which persisted through to higher education:

> Yes because the [school teachers] are the role models – if the kids are getting it from ages 4 or 5, we are going to do some research today, when we've looked in this book we want you to write down who its by and what its called – it's simple but can be built on in secondary school and made a little bit more complicated and added to, but using the same method.

6.2 Motivations for librarians

Many of our experts had ambitious ideas about the purpose of information literacy, believing it to be central to the role of librarians. One expert describing information literacy as a way of "helping learners negotiate and make sense of the changing information landscape". Another suggested that the growth in information literacy teaching is linked to the wider debate about the role of libraries (and librarians) in the future. If students visit the library less, but still need the help of librarians, then becoming more involved in teaching and embedding information literacy in the curriculum is important. Librarians are no longer seen simply as gatekeepers of information, but partners with faculty helping to facilitate learning. This issue is discussed in more detail in the Theoretical Background. However, this new role leads to a number of challenges, discussed later in this section, and not all in the library profession are happy with the increased emphasis on teaching. Two experts also highlighted how information literacy should be about supporting students in their use of information in the widest sense and not primarily regarded as a way of promoting under-used library resources.

6.3 Information literacy and employability

Evidence from our experts suggests that information literate graduates are attractive to employers, as information literacy develops a student's ability to handle and analyse information and data and to communicate and present them effectively. Not only does information literacy make an university's graduates attractive to employers, graduate employment is important to senior management and to academic staff. It is also important to students, so librarians can use employability as a powerful way of marketing and promoting the information literacy curriculum. As one expert said of the information literacy course they have developed:

> It aims to develop key knowledge, skills and attitudes that you would expect a [University] business graduate to have. You have to work with information, statistics, ethics, business leadership and other areas, and it has been very successful. There are a number of universities who realise to make themselves distinct they need to do something a bit different.

Another described how the curriculum should cover managing your own web presence, stating:

… that's more about promotion of yourself and I don't think its something that is covered at undergraduate level, so that is a new area that in 5 years time will be quite important particularly with the employability skills, so tying in new technologies with employability.

Another discussed using employability as a marketing strategy:

> … a hook I found at [my university] was to talk about the graduate skills framework and how what we are doing fits into that and the e-portfolio the students do … there is a lot of interest from careers staff as they look at it [information literacy] as a graduate attribute and employability.

6.4 Promotion to other groups

Experts believed it was important to demonstrate the value of an information literacy curriculum to two other important groups while recognizing they were more challenging to reach. Some experts suggested lobbying politicians and policy makers in the Department for Education would be beneficial. Both Scotland and Wales now have national information literacy frameworks, but this is an area where England has fallen behind.

Exam boards for GCSE and A Level were also bodies in which an understanding of the value of an information literacy curriculum could be helpful. While the International Baccalaureate was recognized as having an element of independent research, many experts commented on the general 'teach to test' culture in secondary education, which leads to transition issues where students entered universities. This will be discussed in great detail in the Section 8 of this report, which deals with experts' views about the content of the curriculum. However, one expert commented:

> my daughter […] did science at A Level and I said, I have read this really interesting article about engineering and she said stop filling up my brain with things I don't need to know to pass the exam, tell me later! And that is, they have to learn to pass the exam.

6.5 Barriers to implementation

The expert group identified a considerable number of barriers that might make the implementation of an information literacy curriculum difficult to achieve. Some of the barriers relate to specific stakeholders including students, academic staff, and librarians themselves. The current economic climate in higher education was also seen as another barrier to implementation. One expert stated that the:

> … political, social and organisational differences between universities would make it [the curriculum] difficult to insert across the board.

The need for flexibility in the curriculum has already been stated (see Section 2.2) and what is clear is that a single rigid curriculum could never be suitable for all universities. However, the experts suggested that a curriculum outline could provide guidance without being overly prescriptive.

In terms of student engagement with the curriculum, two issues were identified as significant in this research: perception and timing. Firstly, students might not see the relevance of information literacy. This might particularly be the case amongst high-achieving students who prior to university had been very successful and had little need to develop their information literacy. As stated here:

> … sometimes students make assumptions about themselves, students who have managed to get through school being academically bright and feel they have got to university and don't need to change their behaviour as they have been successful.

Several of the experts made very similar points about high achieving students being less likely to see the need to change the way they had learnt at school when they enter higher education. These students are often very bright but may struggle more than others to make the transition to independent learning. One expert commented:

> … they have got extremely high grades, they get to university and as librarians you are trying to involve them with the information literacy and skills they need, but these are students who have been told well actually you are the elite of the elite and you have got all this way without having to do this at all. So why would you suddenly need to know about it! They don't see any value at all in what you are doing.

Another expert believed that library induction and information literacy sessions in the first few weeks of higher education were really crucial to engaging students. As discussed in Section 3 on the timing of the curriculum, mistimed or uninspiring library inductions could do more harm than good in terms of failing to get students to regard the library and librarians as key to successful independent learning.

Another barrier to the success of an information literacy programme could be the perceptions and understanding of academic staff of their role, and the role of librarians as teachers. In a few institutions information literacy is covered as part of academic staff induction or it might be covered as part of a teaching qualification that new staff are increasingly encouraged to do. One expert told us how this was the case in his institution:

> Every new academic must do postgraduate qualification in teaching which includes an IL component. It's slightly less than I would like it to be, but part of a suite of things academics need to be aware of.

But others felt this was a real challenge:

> …we need to upskill the lecturers. I think a lot of librarians say we'll teach them to find information for their research but we are not going to show them how to find resources for teaching…we need to be actively involved in helping them find information for their teaching, whether its images or the written word, and teach them how to legally use it in their teaching.

> So the big challenge for me isn't so much working with the students, it's working with the teachers to get them to change how they teach to include these kinds of things as an expectation in everything they teach.

Finally, librarians themselves could present barriers to the effective implementation of the curriculum if they don't have the skills and knowledge to deliver this new curriculum effectively. The experts talked about a reluctance by some librarians to regard teaching as part of their role and a lack of confidence around more discursive teaching techniques. At one university it was estimated that around 10% of the library staff were unhappy with this change, but the true number may be far higher. As one expert stated:

> It's scary, and most of us haven't had the background of learning to be educators in that way, to be running a class where it's not a show and tell, it's a let's have a discussion about whether it would be better to use Google Scholar than this resource and why might it not be - might they ask us questions that we don't know the answers to, because they're not anymore straightforward answers.

Another described how her team were:

… actively engaging with it, but slightly struggling, but that is fine. We never went into librarianship to be teachers, it is something we are all developing.

Several universities who have been successful in embedding information literacy in the curriculum have also developed robust staff development programme for librarians around teaching techniques such as inquiry-based learning. These programmes are sometimes broadened out to all library staff, leading to a greater understanding of information literacy and what is expected of students. Ensuring the staff who are expected to teach information literacy have the required skills and support to do this effectively must surely underpin any successful information literacy curriculum.

7 Considerations around technology

The final issue that our experts considered important when planning an information literacy curriculum was technology. When questioning experts we wondered if people would mention specific tools and technologies they thought should be included in the curriculum. We also asked whether we should make any assumptions around technology, for example ownership of computers and mobile devices or student ability in terms of their IT skills. One of the most important issues almost all our experts highlighted was the danger of assuming young people were all proficient with technology and represented a 'Google generation'. One of the clearest messages from the group was that it is too easy to make assumptions about any skills that students would already have when entering university and misleading to do so as students' backgrounds and experience are so diverse.

7.1 Need to teach specific tools and software?

Almost all our experts agreed that the curriculum should not teach specific tools or technologies as these were constantly evolving and would easily date. As one expert said:

> Things change so quickly there is little point in focusing on a particular technology or information resource or information process.

While technologies were not important, understanding specific technologies was mentioned by one expert as being important and another mentioned cloud computing as being increasingly important:

> Don't focus on any particular technology, e.g., a particular software package. Students need to understand "where things are" on the internet--understand basic things about the architecture of the web like clients/servers/networks.

Most experts agreed that students from UK schools would have a basic knowledge of using word processing and other software packages such as PowerPoint, but as one expert pointed out:

> … we say that these people are IT literate but have you ever seen how they use Word? They use the space bar to do indents, they don't set headings, they don't know how to do Tables of Contents automatically so as far I am concerned they are not IT literate actually they just get by!

7.2 Ownership of computers and mobiles

When questioning experts about the development of a curriculum over the next five years we asked if there were any assumptions we could make about ownership and access to technology and mobile devices. Laptop and mobile ownership is generally high amongst UK students; however, many people felt it was wrong to make assumptions:

> I assumed they [my students] were all digital natives, but when I mentioned this they said they were not. It is also not safe to assume, for example, that they all have access to computers/broadband at home.

….although there is a high penetration of people with computers in the home, there is still a gap which correlates with the household income. Research is still showing that and schools also vary a lot, my perception is they vary a lot in how they use computers. There is a basic literacy issue around how people interact with these different technologies.

That said, what is clear is that the ways in which people access resources might change significantly as we see a shift away from fixed PCs towards the growing ownership of e-book readers, smartphones and tablets such as the iPad. One expert observed:

… a course my husband administers at [University X] they give all the students an e-book reader loaded with all their texts. All the articles they need. I think that model might extend. In some universities students get given a laptop, I think it is much more likely students might be given an e-book reader.

Another suggested:

I think they will need access at all times from various places with a wide range of technologies, including mobiles…. Info lit needs to take advantage of social networking approaches to learning and supporting flexible learning so that when students want access at 11pm on a Sunday they can access a range of supporting info, tutporials, revision materials etc.

Still another felt that course designers and teachers need to be ready for the future where there will inevitably be a proliferation of devices and gadgets:

We need to plan ahead for a more complex landscape beyond the PC and the Web--i.e., dealing with mobiles, tablets, etc.

7.3 'Google generation' assumptions

A whole range of interesting opinions was expressed around the issue of whether young people today represent a new generation sometimes referred to in the literature as digital natives, the net generation or Google Generation. Most of the group generally believed that students were more technologically aware than previous generations, but that staff were unwise to make assumptions about what they were good at. When asked if we could assume students had any specific abilities or skills, one expert replied:

They will assume they are effective web searchers because they are familiar with Google. They will have very good facility with social media and can multitask. I doubt here I will be saying much different from the stereotype. I think we can actually assume that IL, as we understand it, will slowly rise over the next few years as more efforts are made at secondary school level.

Another stated:

…..no doubt about it they are familiar with all the gadgets and everything that's on the market. So I would say unless they come from some outback country they are going to know ipad and iphone and Sony Readers and Kindles are… And I think to be fair they would all know if you gave them a question they would probably be able to find you some information on it. I think they could do that and the majority of them do know how Wikipedia has been put together.

As discussed in Section 2 of the Theoretical Background, there is a danger of confusing IT awareness with information literacy. As this expert said:

…we overestimate how technologically aware they are, they can do certain things but a lot of things they need to help their work they don't know about and I think that is a huge role for a librarian

And:

We make assumptions about their levels of expertise because they are good at pressing buttons that I think is a bit dangerous in terms of information literacy.

Several of the group also mentioned that a significant minority of young people were not interested in computers and to assume that they were could be dangerous and risk alienating them from learning. Once again this raises the issue of the need for flexibility to cater for different ability levels:

… the digital natives literature has vastly over-rated info skills of young people, and also they may think they have better skills than they do. At the same time you have to appreciate that some students will be highly skilled online and any introduction that begins at too basic a level will put them off.

7.4 The role of social media

Social media as a component of the curriculum will be discussed in the next section of the report; however, the huge impact of social networking sites, blogs and wikis cannot be underestimated. The use of social media might be a way of engaging some students, but also of teaching them to be discerning and critical of their sources. However, for others it could be off-putting, as stated here:

They [students] are sometimes interested in using other technologies but we have discussed it because they don't want to be using a blog, a wiki and twitter because it all becomes too much to keep control of. It becomes a barrier to learning rather than facilitating it.

Understanding social media should form an important part of information literacy, but the term 'transliteracy' may be more appropriate for understanding the full range of media. What is clear is that technology is evidently a factor that has changed the way we live, communicate and share information and must be integral to the development of this new curriculum for information literacy.

8 The content for the curriculum

This section describes experts' opinions on elements which should be contained in the curriculum for information literacy. Drawing on their suggestions for topics to include we devised ten themes or strands, which are set out in the Curriculum Content and described in more detail in the Curriculum Overview and Implementation Guidelines. These strands were drafted and presented to experts during the second consultation phase, so have a degree of validity amongst the library and education community already. In this next section of the report, the comments from experts are used to highlight why the ten issues were considered important in our curriculum. However, in recognition of the fact we are developing a curriculum in an area where change is constant, this curriculum will inevitably evolve further over time. One expert said:

Our users, like the information landscape they must function in, are diverse and constantly evolving.

It is clear that like our users, this curriculum will also need to evolve. We hope that these ten themes provide a helpful structure for planning a future information literacy curriculum.

8.1 Transition from school to higher education

Experts were in agreement that the transition issues students face when they move from schools to higher education can be vast. This chimes with issues highlighted in the literature such as information literacy as a continuum, the expectations at higher education and the development of autonomous learners. The gap between the way students learn in schools and what is expected of them at higher education level seems to many to have grown significantly in recent years. While these changes were related to the current A level and GCSE exams systems, experts did not believe this issue was not confined to UK students. The 'teach to test' model of learning is widely used and criticized for not adequately preparing students for the ways they were expected to learn at university. This first theme overlaps with almost all the other themes we identified; however, because of the frequency with which it was mentioned by experts, we concluded that it deserved to be singled out as a topic in its own right.

Transition issues include students needing to understand what it means to study their discipline at higher education level, what the key sources are, getting them to reflect on their current and previous information behaviour including how they find and evaluate information. Transition also involves beginning to understand how to read, write and present in your discipline, the academic conventions and the expectations of staff. It might include small elements of a traditional library induction, but this theme must be much broader than simply covering where information is kept and how it is arranged and it must be situated within the context of the academic discipline. As this expert said:

> I just think we are doing the wrong thing in teaching them to find information. There is so much information out there that they will find something, it's teaching them how to find the right information so they know they have found the right information. … if you don't know anything about it how can you possibly evaluate and judge it? … It's looking for clues to support the information is written by an expert, it's the critical thinking aspect.

Another expert highlighted how in Wales there were some attempts to deal with these problems:

> Transition has to be a key factor taking into account those entering university and those who are moving on either within academia or to the world of work. Increasingly (certainly in Wales) there is more of an emphasis on skills including information literacy in school curricula. However, student experiences are inconsistent so it might be good to check what changes are expected in the next few years in England particularly. This might form a baseline for expectation.

The experts were, largely speaking, fairly critical of the way learning takes place at secondary school level. As some of these experts said:

> … Students don't ever see the skills curriculum as a whole they only see the little bit they are doing at the time. So when they come to university and we are expecting them to have this vision that university calls, they find it quite difficult to look ahead and see how they are going to be at the beginning of the first year to the end of the third year. I think that has a big impact on how we design information literacy for them.

> I think anyone who hasn't done the International Baccalaureate has been rigorously prepared to get high grades and the easiest way to get high grades is tell them what they have to write and get it done as quickly as possible so you maximise the time for revision at the end of the school year.

Others had personal experience of students who were struggling to make the transition:

I have history students as tutees and some of them are having real difficulties understanding which is expected of an essay …. In one particular case a student said 'I can't write the essay because I can't find the answer in the reading that has been given'.

Teaching within this strand really needs to bring out how higher education is different, as expressed here:

Higher education is **"**not just *more* education, but different". Students coming from school are not sure what learning is - it's always been managed for them.

Reflection was again mentioned as a key way of achieving this:

… schools are so geared towards passing exams or to project work where they take it in and get in marked and they revise it and do more work on it. There is not the higher order thinking, the critical thinking and reflection. I don't think students are reflecting on what they are doing, why they are doing it and how they can improve it.

An important aspect of this first theme was understanding the expectations is at higher education in your discipline: not only what the key information sources were, but also how you should write, what you should read and why. Academic staff were perceived as failing to be explicit to students about what they expected of them. Experts claimed some staff felt that being explicit to students about expectations equated to spoon feeding. However, a greater understanding on the part of students of how they have been taught prior to entry and where any gaps exist could be hugely beneficial to all students and not just to those who might come from another country or from a non-traditional background. The wide availability of information on the internet means that for large numbers of students books are not familiar sources of information for them:

There is an aspect of going into a modern learning centre and going to use a computer and meet your friends, but I think the books and the way they are arranged is quite difficult. The act of finding book based material can be quite alien to students who have grown up with the Internet.

Another key part of this first strand is an opportunity to reflect on current and previous behaviour in terms of finding and using information. Almost all students will be able to find information, but:

the kind of things they need help with is understanding about the shortcomings of the internet and the world of information. Making them realise they don't know as much as they maybe think they do and maybe skills around critical thinking and critical reading – not believing everything you read.

Therefore, this strand should include a timely introduction to conventions and expectations around reading, writing and presenting within the discipline. It is difficult for many staff to remember a time when academic journals or scholarly monographs and bibliographic databases were unknown to them. But there is a role to help guide the student, and to recognize that

The academic world is quite bizarre - help students learn the language and culture. Libraries can make a contribution to this. But the culture itself needs to change - both the academic culture - needs to open up and be less exclusive. Libraries and academics are too insular.

Finally, part of this theme might be to recognise that the learner can bring something to a subject however novice they might be. As this expert told us:

An important gap to recognize is faculty and librarians' lack of understanding of the changing way in which students exercise skill sets. For example, faculty often complain that students don't read

when in fact students read copious amounts of material; just not from the same types of resources as faculty mean (e.g. they don't read from books!).

8.2 Becoming an independent learner

The second strand has some themes in common with strand one; however, we have treated them as distinct because of the findings from our experts. Helping a student to become an independent learner is part of the transition process from school to higher education, but it seems worthy of a separate strand as it is more complex. It involves students being able to articulate the expectations of a new information context, and also being able to reflect on their own learning. Part of the process of becoming an independent learner also involves helping a student understand more about the process of learning, described by several in the group as the metacognitive aspect of learning. It involves helping students develop strategies for dealing with new knowledge, and to understand how arguments are put together. It is also important to provide scaffolded support along the way to developing independent learners. This might involve supporting students through the use of reading lists and then, as appropriate in their discipline, helping them to go beyond their reading list and find new sources. Independent learning involves preparing students for key milestones in their academic career, for example their first assignment or their dissertation. It also involves encouraging them to take responsibility for their own learning, which includes aspects of planning and time management.

Experts agreed that independent learning and information literacy were closely linked:

> Information literacy creates an independent learning style which can become a self sustainable habit thorough life which must surely be considered as a desirable graduate attribute.

However they believed, as reflected in the literature, that you cannot teach people to be independent learners - you can only guide or scaffold them:

> You can prepare students for change - make them as independent a learner as they can be so that they are prepared and can find new strategies as they need them. But teaching them to be independent learner? You guide and scaffold. You can't become independent learners overnight - it's a deep change.

This theme includes the affective dimension of learning, dealing with students' fears and misunderstandings about it what it means to learn in higher education. As stated:

> … the fear of not knowing, fear of making mistakes must be addressed right at the start. With IL nowadays a huge amount of information - what if I miss something in my literature search? … It's changing the learner's world view - changing the individuals - and change is scary.

There can also be a confidence issue, which might affect high achieving students in particular:

> …suddenly they are with all the other top dogs and then they get told, well actually we don't do it that way. I think it is quite an emotional blow to them actually and they can get quite depressed

Independent learning involves a student creating strategies for dealing with new knowledge, and also understanding what they don't know - the 'unknown unknowns' as several people said:

> ... information is not something that you passively receive or transmit, but rather something that you actively engage in. It is about the change it brings about ... students also need to learn to be creators of and collaborators in information, not just searchers for and users of it.

Scaffolding students with greater levels of support in the first few months to help them become independent is key and helps students go "from the straitjacket of reading lists to finding your own sources". Therefore, the curriculum needs to prepare students with targeted help at key intervention times. Our experts felt that these points of intervention must not be predicted or imposed by the curriculum designers. Rather, these intervention points are institution- and indeed cohort-specific.

Finally, planning and prioritizing work and aspects of time management were important in developing an independent learner, so that students can "plan [their] own agenda and decide what's important and prioritising". The differences between working at the school level and at higher education were again stressed:

> … the nature of how they do homework or a piece of work in class, it is not extended work. I think that is the first shock that comes to them. Even our students when it comes to the extended essay, its this thing they have a long period of time and how we get around it is to make sure we have milestones throughout.

8.3 Developing academic literacies

Theme three might for many librarians sit outside their area of expertise and knowledge and be a challenging aspect to this new curriculum. This theme centres around academic writing and reading, including techniques such as note taking. In many institutions this might be called 'study skills' and sit within a learning development unit. However, our experts believed it was crucial that these skills were taught as part of the information literacy curriculum, in order to make it truly holistic. Students do not compartmentalize their learning into neat units in the way that many universities have arranged their student support services. This means that when writing an essay they will not necessarily distinguish between the process of finding readings, using them to make an argument and citing the material. However, support for this work might lie with several different individuals and departments across a university.

One of our experts linked the need to provide this sort of education with transition issues and the nature of learning at secondary level. She said:

> This is a serious issue in the US where secondary education has been limited to and shaped by standardized testing. Students come to college grossly underprepared in terms of faculty expectations of reading and writing. They are not used to asking questions that don't have a singular answer and therefore are not prepared conceptually or developmentally for the research process.

The link between academic literacies and independent learning was also made by another:

> Developing critical reading, thinking and writing skills is essential for students coming into university. Academics are often very concerned about the lack of critical thinking in their students. At secondary school it is arguable that they are "spoon fed" and not necessarily encouraged to question things as much as they will be expected to do at university. It is important that when students come into HE they understand that they will be expected to become independent learners and carry out their own research.

Most functional skills such as skim-reading and notetaking were also mentioned as being a key part of this curriculum:

> They need things like note taking and how to take notes properly to save yourself time later on. I don't think we do anything with them on note taking.

8.4 Mapping and evaluating the information landscape

Experts were unanimous in the need to include evaluation skills in the information literacy curriculum. They are already prominent in all the major models that exist, but the opportunities for evaluation in many programmes are currently fairly limited. Again, this theme has points in common with earlier themes. A key part of becoming discerning must be situated within your academic discipline. Who are the experts in your field? How do we know they are expert? What are the quality and reliable sources in your discipline. Studying media and communication is very different to studying medicine and the sources you can rely on and trust will vary enormously. It's also important for students to understand the appropriateness of sources for the specific task in hand. This will go way beyond simply evaluating internet sources (which many information literacy classes will do). A huge number of comments from experts were collected on this topic. A selection are included below:

> I am strongly of the view we should be discussing what information is out there and getting students to talk about the relative value of information sources – to talk about the relative strengths of it, identify the strengths and weakness. What we do is say we have all these databases out there, but they don't know what they have got once they have found it. We are not really helping them. We need to teach them how to discern/critically evaluate the sources, but also teach them how to identify scholarly texts and how to know what they've got once they've found it.

> There are problems within the new sources (e.g. Wikipedia) but there are problems with the old sources as well - e.g. authors plagiarising themselves. It's good to let the students loose on Google and Wikipedia and let them evaluate their sources for themselves!

There was a sense from several of our experts that some information literacy interventions spent too much time helping students find information and not enough time on evaluating it. As this expert told us:

> I think students are quite good at searching for information when they come into university. They have a lot of experience on Google and because of the things they are looking for and the way Google operates they tend to be able to find what they want quite easily. So I think we need to help them make a distinction between academic level information and information they need in their everyday life.

Another said:

> That is an issue with today's teenagers understanding what these different information types are. Does it matter that they understand a book works differently to a journal article and a website works differently to a book - does that matter or is it just all stuff to them? And how important is it they understand the differences when they read an e-book and read something else. We know when they are written they are written with a different hat on. A book will approach it differently to someone writing a web page but to the kids picking it up on the web it's just something on the web. … That's a hugely important skill you need to teach very early on.

The need to understand the trusted sources and experts in your discipline was another important feature of the curriculum:

> I don't quite know where the divide is but this is something that comes from the academic as well. We can tell them about how to find out who the experts.

Evaluating sources and judging their appropriateness for your specific purpose was also key:

Even once you've identified scholarly material, you then need to differentiate between quality of those materials - e.g. not all peer reviewed journals are of equal standing. So you look a range of sources, not just the internet. So it's a continuous trajectory - you don't just stop at the scholarly line, you keep evaluating.

I suppose its and understanding of what were acceptable sources in different situations and different disciplines and who to ask because different people are right for different questions.

We return also to the need to help students understand what they don't know:

….What else was out there and that's the hard bit isn't it, the unknown unknowns as that famous quote says. Its about teaching them about the world of information and what's out there, being able to make an informed choice that its ok to use Google today because I am only doing this and that's fine and another day it might not be ok but I understand why. That's the hard bit.

8.5 Resource discovery in your discipline

Related to evaluation is the need to use a wide range of sources as appropriate for your subject discipline. This theme was the most difficult to be prescriptive about as valid sources in one discipline might be inappropriate in another. Therefore, this is not a comprehensive list of all the resources students will need to become familiar with. Rather, it emphasises the need for students to appreciate a wide range of resources used by researchers in their field, although some of those described below might be valuable for students in a variety of different academic disciplines. Experts felt that students lacked the ability to find good quality sources:

... intense, deep research skills are lacking. Being able to find not just "good enough" sources but the best sources is critical.

Using sources that are not simply text or traditional academic sources will become increasingly important in some fields:

… we are still concentrating on the written word not the visual… there have been a lot of interesting papers on visual literacy and I think we will have to do a lot more on that area. What about images, sound, we think this isn't our role but its just information in another format and I think we should be saying we have a role to play in teaching students how to find it, but then how to manipulate, re-use it.

Other resources mentioned included data and statistical sources. One expert believed there was an

expectation that students will be able to work with data which has not been shaped for them, but is raw. Information and data handling skills. And the use of data in disciplines where it is not traditional (such as Humanities computing/digital humanities)

Other sources that might be appropriate in different disciplines include archival sources, traditionally used by historians, and also an understanding of the role that people can play as information sources. As this expert said:

Research shows that people use other people as the main information source. So they might be finding information from other people. In terms of students that means other students, lecturers, and sometimes librarians are important sources for getting advice and information.

Finally, new sources of user-generated content from social media might be appropriate to understand in many disciplines.

8.6 Managing information

Managing information is a standard element in most information literacy programmes, and, unsurprisingly, many of our experts believed it should be a core part of our curriculum. Several did not explicitly mention it as they believed we were looking for new areas to include in a curriculum and on probing revealed they assumed such skills would be included. Interestingly, the concept of managing information was broadened to include an understanding of how to store information such as personal files and work effectively. Many librarians might traditionally regard managing information as being solely about bibliographic management, but file management, management of web resources and also developing an understanding of how to keep up to date, should form a fundamental part of the curriculum. As one expert said:

> … with web tools it depends on whether they can access it through their laptop or what kind of network the college has. But just saying that, organising folders, so kids can find things. They just save stuff everywhere and can never find it again and if they have a search tool they don't search for it. Managing your own information is key.

8.7 Ethical dimension of information

Strand seven concerns the ethical dimension of information, again something that features in many information literacy models and programmes. Traditionally this might include an understanding of plagiarism, and citation and referencing techniques. Links were made with the transition from school to higher education in this strand, as young people

> … spend more time online and because there are so many websites out there they are not necessarily finding the best information, the amount of times I find kids on Yahoo Answers. And you say to them, which expert wrote that and they say 'dunno'. There is a lot more of that going on – they are no validating their information – they are still copying and pasting – especially the year 7's when they come in – they seem to have been taught that from primary school.

Sharing information appropriately also forms part of the ethical use of information. This expert felt that students needed to know about

> sharing content and all that that entails. Knowing the permission you have given/been given for use.

Linked to this was the need for a greater awareness about copyright and other intellectual property rights issues. This expert thought students should understand about issues such as

> infringement of copyright – lecturers at the moment and teachers don't teach students about whether they can use logos from companies, they might be scanning stuff in etc. and I know there is a thought this is going to relax and we are going to have to accept this more, but I don't think this will be in the next 5 years. I think it will take longer.

This was linked to other aspects of the curriculum, such as writing:

> It's an understanding of your intellectual property rights and copyright buts it also about finding your voice and practicing your voice and if you are writing with different voices it is knowing voice is acceptable whilst always have that overall sense of who you are.

8.8 Presenting and communicating knowledge

Presenting and communicating knowledge forms the eighth strand of the curriculum. This includes knowing how to give a presentation and communicate effectively, but also how to do so effectively in a digital environment. One expert mentioned

> The need to present like someone on TED talks. Is presentation an information literacy skill? It's a digital literacy skill. Being literate in the tools, modes and reach of your presentations (slideshare, podcast, recording and rights.)

Presenting and communicating knowledge is also linked to developing academic writing abilities or 'finding your voice', mentioned in Section 8.7. Students often struggle with this aspect of writing; as one expert told us:

> They are scared to, finding their voice, they don't want to say what they think, they don't want to criticise because in the curriculum you don't get any rewards in the A level curriculum for thinking outside the box.

Another said:

> I don't know how you get across to people that it's not simply about finding the answer, it's finding your voice to make a valid answer.

Managing your online identity, web presence or 'digital footprint' and becoming what is described as a 'Produser' (a combined user and producer of information) was another key part of this eighth strand:

> Produsage - not a consumer but not a producer either - ideas of production and consumption are pre-internet concepts. Forces of publication/dissemination now much more wide-spread, democratized. "Produsers" produce and use at the same time. IL is beginning to sound a bit stale

Another told us:

> Yes it's the digital footprint, so what footprint have you made and what impact is that having, so its and understanding of that, so you cannot get away from that.

Finally, knowing how to communicate findings appropriately, whether through a traditional publication model or via self-publication on the internet, such as blogging, is another important element of this strand.

8.9 Synthesising information and creating new knowledge

Synthesising information and creating new knowledge is probably one of the highest order skills described in this curriculum and it was suggested that it should be presented to students later in their academic career, (although this was felt to be discipline-specific: in some subjects the ability to create new knowledge might not occur until postgraduate level. However, experts felt it is important for students to understand at undergraduate level how to formulate research questions and how to assimilate information. One told us:

> I suppose the idea of synthesising information from different sources – students really struggle with this - the ideas of looking at two different sources and evaluate them – even if its not evaluating for quality, they might both have different opinions about something. Compare and contrast – that idea. I don't know what happens now in the A level curriculum but they struggle with that.

Again, this might be an aspect of the curriculum that many librarians might struggle to deliver without collaboration from academic staff. However, these higher order skills are key to the curriculum. As one expert said:

> It's funny, some academic librarians think I am doing it because I am told to and I don't know how it relates to academic libraries and others see this as being integral and when they look at the 7 pillars they say pillars 5, 6 and 7 – that is what I am now concentrating on. So they are moving it away from the mechanistic this is how you find information, to what do you do with information to generate knowledge.

8.10 Social dimension of information literacy

The final strand in the curriculum is perhaps one of the most important. As strand one relates to the transition from school to higher education, so this tenth strand could be seen to relate to the transition from higher education into the workplace and the wider social arena. Many experts believed it was crucial that the curriculum included the social dimensions of information literacy. It may also be a way of engaging students at undergraduate level to help them to recognize that being information literate will help them in their daily lives as well as in their studies. One expert said:

> [If] you are going to be have an ambition beyond this person should be an IL history graduate to does the university have a commitment to make them IL citizens which may involve IL beyond their discipline… Going back to the UNESCO quote, if you are taking that seriously that does imply something beyond the narrow focus of IL for your assignments.

Another told us

> Part of it is developing citizens that are aware and socially conscious … being an information conscious person and an IL person when it comes to elections and major issues like a referendum…. It's in a much broader sense we are talking about when we talk about IL.

It's also about helping students understand that information is not neutral and information literacy is political and transformative:

> … information is not something that you passively receive or transmit, but rather something that you actively engage in. It is about the change it brings about … students also need to learn to be creators of and collaborators in information, not just searchers for and users of it.

When students leave higher education there is a wider relevance to being information literate. But it is also helpful if they understand that the information they have access to within academia is not free and may not be available to them when they leave:

> I think for students its also about understanding there is some cost associated with this, and its difficult with the Google Generation but there is different between information you get for free and that you pay for. And understanding that the library has paid for this journal content. And that their course fees, the huge amount of money they pay now to the university quite a large percent of that is going towards paying for the electronic resources they have access to.

Within this strand it is important for students to work towards becoming a lifelong learner and to understand the role that information literacy plays in underpinning this. As this expert said:

> As a profession, we need to think about what students need to know and be able to apply in the information environment. Our commitment should be to life-long learning rather than the longer

life of our library resources. The UK is ahead of the US in this way, at least as far as I can tell from attending LILAC 2009 & 2010. Many institutions in the US continue to cloak bibliographic instruction as information literacy. Students need instruction on more than the library. They need instruction that enables them to make smart information decisions in a variety of contexts.

Theme ten includes helping students find and use information as they go into the workplace, helping them using information in problem solving and decision making. The theme is also about understanding the range of tools and services that are available outside of education and preparing for the work environment when the academic databases and sources may not be available.

Finally, this strand relates to a socio-ethical use of information, as this expert noted:

> There is an ethical dimension to being information literate. Don't just make mechanical judgments; don't just look for information that fits your world view.   You could be perfectly information literate but you could make an atom bomb and I don't think we explore that. … There is good evidence that people look for information that fits their world view.

9 Conclusion

This report draws on the opinions of our experts, whose views have shaped the development of a new curriculum of information literacy. Inevitably the curriculum itself is also a product of our own ideas and thoughts, as well being grounded in ideas from the literature. However, we were privileged to talk with a huge range of information and education professionals who provided a vision of not only how the curriculum might look in UK universities but how it could be structured, supported and implemented, to stand the greatest chance of success.

10 References

Saunders, Laura (2009). The Future of Information Literacy in Academic Libraries: A Delphi Study. portal: Libraries and the Academy - Volume 9, Number 1, January 2009, pp. 99-114.

Appendix 1: List of expert interviewees and workshop attendees

Susie Andretta, Senior Lecturer, London Metropolitan University; Editor Journal of Information Literacy

Moira Bent, Faculty Liaison Librarian, Newcastle University; SCONUL Working Group for Information Literacy

Debbi Boden, Director of Library Services, Glasgow Caledonian University; Chair of CILIP CSG-Information Literacy Group

Jenny Bunn. UCL Centre for Digital Humanities

Dan Cohen, Director of the Roy Rosenzweig Center for History and New Media, George Mason University;

Sarah Faye Cohen, Assistant Director, Miller Information Commons, Champlain College, Vermont

Sheila Corrall, Head of Department and Professor of Librarianship & Information Management, University of Sheffield, Member of RIN Information Handling Working Group

Angela Cutts, Librarian, Faculty of Education, University of Cambridge

Joy Head, Information Literacy Development Officer for Wales, Cardiff University

Nikki Heath, School Librarian, Werneth School, Cheshire

Melissa Highton - Head of Learning Technologies, Oxford University Computing Services

Christine Irving, Freelance Consultant

Anna Jones, Wolfson College Librarian and tutor, University of Cambridge

Matt Lingard, Learning Technologist, Centre for Learning Technology, LSE

Lou McGill, Freelance consultant: e-learning and information management

Pam McKinney, Lecturer, Information School, University of Sheffield

Hester Mountifield, Associate University Librarian: Academic & Research Support Services, University of Auckland

Lyn Parker, Head of Learning & Teaching Enhancement, University of Sheffield Library

Helen Partridge, Coordinator Library & Information Science Education Faculty of Science and Technology, Information Sciences Discipline, Queensland Institute of Technology,

Sarah Pavey , Librarian, Box Hill School

Chris Powis, Deputy Director (Academic Services), University of Northampton

Andy Priestner, Judge Business School, University of Cambridge

Steve Ryan, Director, Centre for Learning Technology, LSE

Michelle Schneider, Academic Skills Development Officer, University of Leeds

Pamela Stirling, Editor, The New Zealand Listener

Ruth Stubbings, Academic Services Manager, University of Loughborough; Deputy Editor Journal of Information Literacy; Deputy Chair of CILIP CSG-Information Literacy Group

Libby Tilley, Librarian, Faculty of English, University of Cambridge

Geoff Walton, University of Staffordshire; Member of RIN Information Handling Working Group

Li Wang, Learning Services Manager, The University of Auckland Library

Sheila Webber, Senior Lecturer, iSchool, University of Sheffield

Helen Webster, Transkills Project, University of Cambridge

Martin Weller, Professor of Educational Technology, Open University

Wendy White, Institutional Repository Manager and Faculty Librarian Law, Arts and Social Science, University of Southampton; Member of RIN Information Handling Working Group

Drew Whitworth, Senior Lecturer, School of Education, University of Manchester

Appendix 2: Questions for experts

1) We are working on developing an information literacy curriculum for undergraduate students that anticipates and meets the needs of those entering university in the next 5 years. What factors do you think will be important in planning this curriculum?

2) What are the key ways you think libraries and librarians can support student learning over the next 3-5 years?

3) Thinking about young people's / undergraduate students' information needs over the next 3-5 years, what areas do you think undergraduate students need help with?

- What skills can we assume young people will have?
- Are there any gaps in skills or expectations between the culture of secondary school and the learning culture of higher education?

4) What issues do you think we should consider when planning this curriculum?

5) Who else do you think we should talk to when planning this curriculum?

We will assume that you would prefer to keep your response anonymous and not directly quoted or referenced in our work unless you explicitly assure us otherwise.

[ ] I am willing for my responses to be referenced or quoted in part or in full **anonymously**

[ ] I am willing for my responses to be referenced or quoted in part or in full and wish to be attributed by name

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Many thanks!

Jane Secker & Emma Coonan
Arcadia Fellows, Cambridge University Library