Learning from Recent British Information Literacy Models: A Report to ACRL's Information Literacy Competency Standards for Higher Education Task Force

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Introduction

Information literacy is a fluid concept, shaped by our experiences, and changes in our information rich society. Guidelines articulating information literacy need modification to reflect the current form of this evolving concept. This report highlights the work of four groups in the United Kingdom to create innovative guidelines to assist practitioners in the promotion and teaching of information literacy.

The findings outline prevalent concepts from newly revised, or recently created, British information literacy models. Each model provides some level of guidance for higher education. This report is not a definitive examination of British information literacy for higher education. The depth of British information literacy research and expertise is too expansive. Instead this report highlights the work of four groups in the United Kingdom to develop new guidelines to advance information literacy development and learning.[1] This study outlines prevalent or innovative concepts and learning outcomes for information literacy guidelines, while reiterating important ideas found in other models such as ACRL's *Information Literacy Standards for Higher Education*.

Collectively the four groups strived to build holistic, flexible frameworks that integrate information literacy into the learning process. Several themes emerged to shape how the authors realized this paradigm. The themes include:

- External collaboration
- Information and information literacy landscapes
- Multidimensional learning
- Academic literacies
- Expanding participation
- Addressing transitions

The appendices provide additional information by identifying external consultants and mapping the ACRL Standards to the British models.

Background & Methods

This report focuses on four recently published British information literacy models with content for higher education. The models included in this study are:

- ANCIL (A New Curriculum for Information Literacy)
- SCONUL (Society of College, National and University Libraries) Seven Pillars of Information Literacy
- National Information Literacy Framework Scotland (here after known as the Scottish framework)

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[1] This report is part of a broader research project to understand and disseminate prevalent themes found in recent higher education information literacy models in the United Kingdom. A literature review and additional findings will be disseminated in a future journal article.

- Information Literacy Framework for Wales (here after known as the Welsh framework)

The guidelines produced by the groups are collectively called models in this report. The author defines the term model as documentation that provides guidance in the understanding, development, and implementation of information literacy. Content within each of the following models can be reused if attribution is given.

ANCIL, or A New Curriculum for Information Literacy, is a Cambridge University project that created an undergraduate information literacy curriculum in 2011. The ANCIL team designed the curriculum to be implemented throughout the undergraduate career.[2] ANCIL is organized into ten strands starting with the student's transition into higher education and culminating in the transition out of higher education and into the workforce (including using skills in everyday life). ANCIL's ten strands are:[3]

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

The curriculum includes learning outcomes, example activities, and assessment ideas for each strand. Besides the curriculum, the team created an executive summary, a theoretical background report, a consultant's report that underpinned the curriculum's creation, and an audit tool.[4] The audit tool identifies strengths and weaknesses in an institution's information literacy instruction and support.

SCONUL Seven Pillars of Information Literacy is a prevalent information literacy model for British higher education. Originally created in 1999, the revised model was published in 2011. The Seven Pillars are organized into the following concepts:

- Identity
- Scope
- Plan
- Gather
- Evaluate
- Manage
- Present

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[2] Secker and Coonan, *ANCIL Curriculum*.
[3] Secker and Coonan, *ANCIL Executive Summary*, 7.
[4] Secker and Coonan, *ANCIL Executive Summary*; Coonan, *ANCIL Theoretical Background*; Secker, *ANCIL Expert Report*; Wrathall, "Using ANCIL as a Skills Audit Tool."

In the revised model each concept, or pillar, is broken down into "understands" and "is able to" categories. There are several documents linked to the revised Pillars. The *Core Model for Higher Education* provides the foundation by articulating general learning outcomes for the seven information literacy concepts.[5] The Working Group developed "lens" documents to focus learning outcomes on specific audiences or situations. These lenses include a *Research Lens*, an *Open Content Lens*, and a *Digital Literacy Lens*.[6] While the SCONUL Working Group on Information Literacy created the initial documents, they hope practitioners in the larger community will develop additional lenses.

The National Information Literacy Framework Scotland and the Information Literacy Framework for Wales provide content for higher education as part of lifelong information literacy learning. These frameworks outline incremental learning outcomes at different education levels including elementary, secondary, further education (similar to our community college system), higher education, and lifelong learning. The Scottish team published their framework in 2009 and used the original SCONUL Seven Pillars model for the learning objectives at the higher education levels.[7] The Welsh framework, published in 2011, used the Seven Pillars categories (identify, scope, etc.) to organize content within each educational level, but developed outcomes using a combination of original and borrowed content. At the higher education levels, the authors adapted learning outcomes from the Open University Information Literacy Levels Framework and, to a lesser extent, the Scottish framework.[8] Level 8, which lists outcomes for PhD work, uses SCONUL's *Research Lens*.[9] Both national frameworks align to their national credit and qualification structures and can be used as guidance models for practitioners to help individuals develop their information literacy skills. Whereas the Scottish framework provides recommendations for information literacy development, the Credit and Qualifications Framework for Wales (CQFW) accredits the Welsh framework and individuals can earn lifelong learning credit for their information literacy study.

Methods

The author used a grounded theory methodology to discover and organize emerging themes. Grounded theory is a qualitative method that allows the researcher to articulate themes that emerge out of the data.[10] The findings in this report are grounded in document and interview data. The analysis included coding published documents connected to the four models. Eleven individuals participated in interviews, which were transcribed and then coded. The interviewees were key participants in the creation of the models. The interviews provided an opportunity

[5] SCONUL Working Group on Information Literacy, *Core Model*.
[6] SCONUL Working Group on Information Literacy, *Research Lens*; *Open Content Lens*; *Digital Literacy Lens*.
[7] National Information Literacy Framework Scotland, "Higher Education."
[8] The Open University, "Information Literacy Levels Framework."
[9] SCONUL Working Group on Information Literacy, *Research Lens*.
[10] Charmaz, *Constructing Grounded Theory*.

to ask questions about the documentation and delve deeper into the process of developing the models. The collected information was analyzed through line-by-line coding, memo writing, and then memo categorization. The findings below represent categories and themes that emerged regarding the development of information literacy models.

Information Literacy as Holistic, Flexible and Integral to Learning

Creating a holistic, flexible model that embeds information literacy into the learning process is a paradigm that anchored all the models. Interviewees and model documentation highlighted the need to create broad and modular guidelines that could be adapted to a learning environment. Without a holistic, flexible approach, information literacy appears to be separate from, or an inferior part of, the learning experience. The paradigm combines two major categories that emerged from the findings: the need for holistic, flexible frameworks and information as integral to learning. Authors sometimes highlighted the categories separately, but, in many other instances, used sentiments that combined the categories.

Information literacy as integral to learning is a major category that ties together a number of themes expressed by the interviewees and outlined in the documentation. For the model authors, information literacy plays an active role in lifelong learning. It is not separate or an inferior component of the learning process, but so interconnected as to seem attained through "osmosis."[11] Rather than assuming information literacy is attained through brief, one-time experiences, it needs lifelong and continuous refinement best realized by becoming an explicit part of the learning experience.[12] As an interviewee stated:

> To me, [information literacy] has to be part of the learning process and it doesn't have to be a formal learning process in the university. It can be a learning process just being an individual and going along with your life. You still use information in lots of different ways and you still developing how you use it in the same way as how you are developing how you use language and how you develop communication with people.

Since many authors believe information literacy is integral to the learning process, information literacy needs to be seamlessly incorporated into learning situations.

Embedding is the preferred method to incorporate information literacy into learning environments. Since this study focuses on higher education, many interviewees connected embedding with the subject curricula at universities. While individual institutions are responsible for incorporating information literacy into the curriculum, models provide guidance to help practitioners with implementation and advocacy.

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[11] Osmosis is a term used by several interviewees to describe teaching faculty assumptions of how students attain information literacy skills.
[12] Welsh Information Literacy Project, *Welsh Framework*, 38; Coonan, *ANCIL Theoretical Background*, 4.

Creating a holistic and flexible process was another major category that ties together themes in the findings. Interviewees used reoccurring terms to describe an authentic information literacy learning process as broad, holistic, and flexible. Some models imply the information literacy process as step-driven and linear when in actuality individuals use different information literacy skills, at different times, with varying levels of sophistication. Adhering to a linear, fixed process alienates an individual from an authentic learning experience since, as one interviewee stated, "No one feels linear when someone is grappling with a bit of literature searching."

For the authors, models need a flexible and reiterative structure to adapt to different levels of experience and to varying educational situations. Identifying information literacy development as nonlinear and variable is an important component of the documents. For instance the introduction to the *Seven Pillars of Information Literacy: Core Model for Higher Education* states:

> Developing as an information literate person is a continuing, holistic process with often simultaneous activities or processes which can be encompassed within the Seven Pillars of Information Literacy. Within each "pillar" an individual can develop from "novice" to "expert" as they progress through their learning life, although, as the information world itself is constantly changing and developing, it is possible to move down a pillar as well as progress up it.[13]

The *Information Literacy Framework for Wales* reiterates the nonlinear information literacy process:

> We recognize however that learning and skills development do not always happen in neat consecutive progression. They may follow an interative or cyclical rather than linear progression. Learners may demonstrate higher spectrum skills in some areas whilst requiring more intensive support in other areas. Furthermore, an individual's information literacy level may not necessarily reflect the curriculum level at which they are studying. We recognize that one size does not fit all and that flexibility should be incorporated into the framework delivery."[14]

The interviewees stressed the importance of not rigidly following the models, but to use them as guidelines to facilitate practitioners' work. Several interviewees mentioned the importance of promoting the models and presenting information on how to adapt the models to meet the needs of individual institutions.

The model authors are not the first to advocate for a holistic, flexible process that embeds information literacy into learning environments, but their documentation provides direction in how this paradigm, with the two interrelated categories, can be achieved. The remainder of this report examines how the model authors created content to realize a broad, fluid process that integrates information literacy with

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[13] SCONUL Working Group on Information Literacy, *Core Model*, 3.
[14] Welsh Information Literacy Project, *Welsh Framework*, 6.

learning. The following six prevalent themes emerged from the findings to actualize the paradigm:

- External collaboration
- Information and information literacy landscapes
- Multidimensional learning
- Academic literacies
- Expanding participation
- Addressing transitions

Each theme is grounded in model documentation and supported with interview content. As a result, each section provides examples or learning outcomes to reinforce salient points.
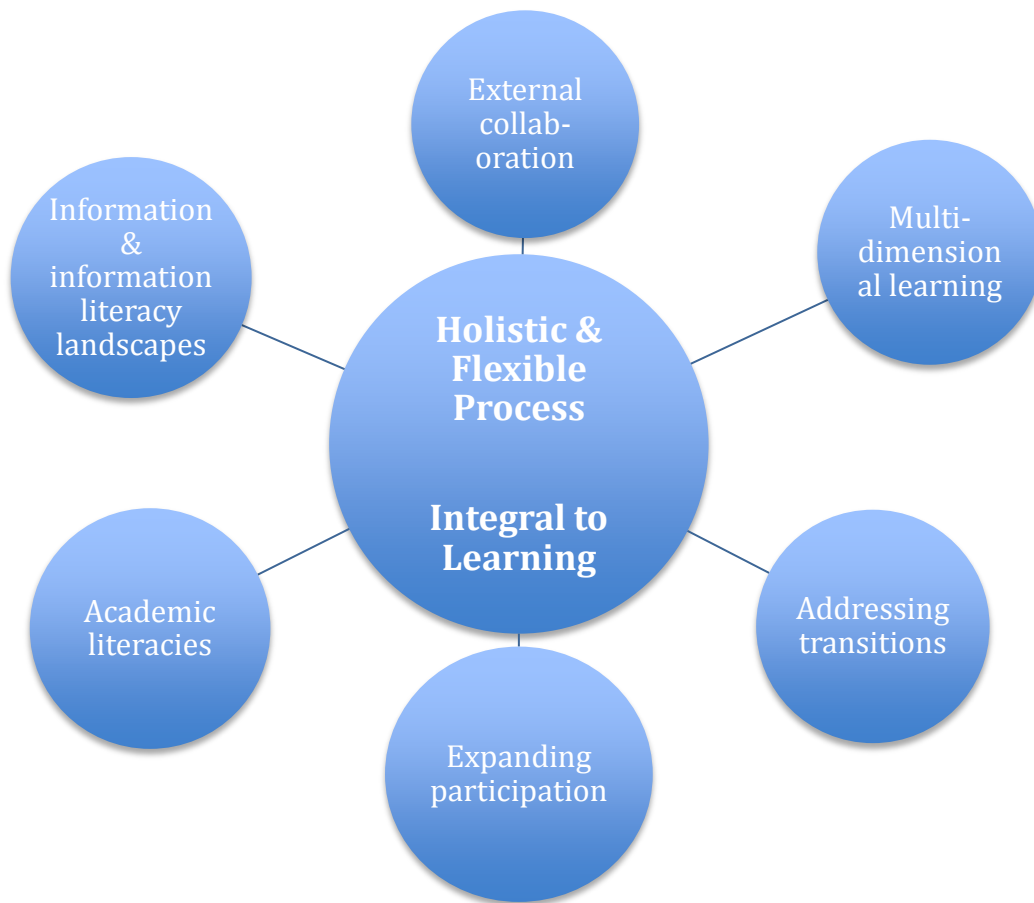
Illustration of Categories and Themes

External Collaboration

Interviewees frequently mentioned improving their models by working with groups outside of academic libraries. Higher education professionals in areas such as research support, digital technologies, data management and learning development

provided input on various models. Professionals within the government also assisted national framework authors. Appendix 1 highlights organizations or groups mentioned in interviews that helped refine the documents. These collaborations were beneficial to both the model authors and their external advisors. This is not to undervalue the assistance from the library community; rather, the external professionals provided different perspectives and new partnerships in the articulation and promotion of information literacy.

Communicating with outside groups helped break down learning barriers related to vocabulary. Interview participants noted how faculty, government officials, and professionals from other education sectors recognized issues related to information literacy; however, they used different terms to explain similar concepts. In other cases, professionals had a limited understanding of information literacy and equated the concept with only basic library research skills. As one interviewee reflected:

> I'm a trained teacher not a librarian at all…When I first heard the term information literacy, it was a while ago now, I did assume it was pretty much the sort of basic, how to use the catalog stuff, so when I was looking at what [model authors] were doing, I was like "Oh, that is learning development."

Once model authors established partnerships with other educationalists, and explained the goals of information literacy, the external consultants provided valuable feedback for the guidelines. A SCONUL Seven Pillars team member stated:

> I think the other reason we were lucky with the way it developed was because we were a part of other groups. We had access to people in different areas of education so when we were getting comments back on the various drafts, they weren't just coming from librarians. They were …coming from educators, they were coming from people in JISC, from people at the Digital Curation Centre, from the Higher Education Academy….We were getting people saying, "Oh, that doesn't make sense to me"….They allowed us to, I suppose, refine it in a way that makes it more understandable to a wider audience.

The external professionals helped to articulate information literacy outcomes. For instance the SCONUL Seven Pillars Working Group collaborated with VITAE on their Researcher Development Framework. This work led to the creation of the *Research Lens*, which contains learning outcomes adapted from feedback from VITAE members, a researcher support organization, and other groups.[15] For instance the lens incorporates researcher-friendly terms, such as dissemination, and learning outcomes that reflect appropriate data handling processes. Similarly professionals from CQFW, a Welsh accrediting agency within the Department of Education, assisted the Welsh framework authors. Using an accrediting professional's expertise, the Welsh framework authors developed learning outcomes appropriate for the different educational levels.

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[15] See Appendix 1 for information on these organizations.

Working with non-library professionals created reciprocal relationships that promoted information literacy to wider audiences. The model authors had an opportunity to highlight how information literacy complements the work of educationalists and government groups. Interviewees advocated how information literacy can address educational and social issues. Conversations provided model authors opportunities to show how information literacy can help with issues important to other groups such as digital inclusion, workforce skills, data management, and student retention. In turn, these external consultants became advocates of information literacy. The Research Information Network (RIN) mapped the Seven Pillars *Research Lens* to the Researcher Development Framework.[16] Furthermore the Welsh government advocated for information literacy training for teachers and referred to the Welsh framework. In the end these external partnerships strengthened the connection between information literacy and the learning process.

The external collaboration theme complements the recommendations by the ACRL Information Literacy Competency Standards Review Task Force.[17] Feedback from groups outside of academic libraries is valuable in an effort to realize the Task Force's recommendations to revise the Standards by simplifying language for wider audiences and removing library-related vocabulary.[18]

Information and Information Literacy Landscapes

The information landscape and the information literacy landscape are two key concepts used to build holistic, flexible models for various learning situations. The information landscape "comprises the information world as it is perceived by an individual at that point in time."[19] Interviewees often described an information landscape in terms of a specific social environment such as the workplace or university, but the landscape can also be situational. For instance a layperson seeking medical information for everyday purposes is interacting with a health information landscape. Since individuals operate in a variety of information landscapes at any given time, their level of information literacy fluctuates. Seeking information in an unfamiliar landscape may reduce or place strain on information literacy skills. A doctor, for instance, may have a high degree of health information literacy skills, but weaker skills in areas such as financial information literacy. As lifelong learners, individuals will enter new information landscapes. They need support during different periods in the development process to gain and refine adaptable skills. To address the changes in information literacy development, often cause by changes in the information landscape, the SCONUL model uses the metaphor of moving up and down pillars, whereas ANCIL framework highlights strands to assist students to transition in and out of higher education. The national

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[16] Working Group on Information Handling, "RDF and the Seven Pillars." See note 11.
[17] ACRL Information Literacy Competency Standards Review Task Force, "Task Force Recommendations."
[18] Ibid., 4.
[19] SCONUL Working Group on Information Literacy, *Core Model*, 4.

frameworks use progressive, incremental learning structures to help individuals move through information literacy levels.

SCONUL Seven Pillars expands on the information landscape by embedding the information literacy landscape into their model. The information literacy landscape takes into account a person's "aptitude, background and experiences, which will affect how they respond to any information literacy development."[20] Moira Bent, in *Perceptions of Information Literacy in the Transition to Higher Education,* explains the information literacy landscape can include internal factors such as an individual's learning style, perceptions and feelings about information literacy, abilities and motivations.[21] As depicted in the illustration below, the SCONUL authors see this landscape as the foundation on which the Seven Pillars rest.
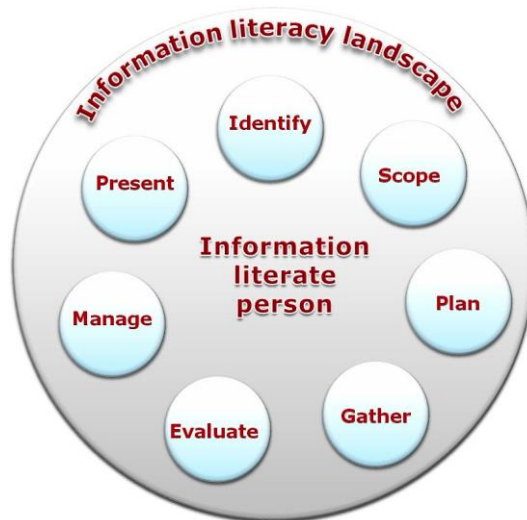
Illustration of the Seven Pillars and the information literacy landscape[22]

The information landscape and information literacy landscape concepts counter the one-size-fits-all, linear approach to information literacy attainment. Because everyone has different experiences and attitudes involving a variety of information landscapes, their information literacy landscapes will be different. As the introduction to the Seven Pillars *Core Model* states:

> The expectations of levels reached on each pillar may be different in different contexts and for different ages and levels of researcher and is also dependent on experience and information need. Any information literacy development must therefore also be considered in the context of the broad information landscape

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[20] Ibid.

[21] Bent, *Perceptions of Information Literacy in the Transition to Higher Education*, 60–61. A diagram on page 61 categorizes factors that contribute to the information literacy landscape.

[22] SCONUL Working Group on Information Literacy, *Core Model*, 4.

in which an individual operates and their personal information literacy landscape (Bent, 2008).[23]

In the end these landscapes reinforce the idea that both internal and external forces shape an individual's information literacy development.

The landscape concepts tie into a holistic, flexible information literacy process. A broad, modular model structure is important to guide individuals whose information landscapes will change along with their level of information literacy development. As an interviewee stated, the information literacy landscape allows for customization:

> For each individual take [the information literacy] concept and change it....Take bits out that aren't relevant for this person, add bits in there that I have not thought about because I don't know about every person in the world, and where they come from or what they do. So it is meant to be a model if you like, a guide, or a way of thinking, more maybe that is more a part of it. It is a way of thinking about a person so when you think more information literate, you can think about all the things that may be affecting what you do with them. That will impact on how they react to the new things that you are talking to them about.

Interviewees stressed we should guide and support students to help effectively navigate different information landscapes. By recognizing and using concepts like the information landscape and information literacy landscape, educators can create content to fit student learning needs.

The information and the information literacy landscape concepts can inform learning outcomes for students in higher education. A student's education and social experiences along with their attitudes and habits towards information play a role in enhancing, or hindering, their information literacy development. Viewing information literacy through an individual's information literacy landscape enforces the idea that educators cannot simply provide information and students will become information literate. A student's experiences with different information landscapes, along with their habits and attitudes will strongly impact what he/she can, or is willing, to learn. Educators can assess students' information literacy landscapes to identify areas of support and customize content to assist them in their literacy development. This assessment can be facilitated through multiple learning contexts to enhance a student's information literacy landscape.

Multidimensional Learning

Model authors repeatedly emphasize information literacy is more than action-based, library search skills. The four models aspire to empower people to become independent, lifelong learners. Learning must take place on several levels in order

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[23] Ibid., 3; Citing Bent, *Perceptions of Information Literacy in the Transition to Higher Education*.

for this transformation to occur.[24] The introduction to SCONUL's *Seven Pillars of Information Literacy: Core Model for Higher Education* states:

> Information Literacy is evidenced through understanding the ways in which information and data is created and handled, learning skills in its management and use and modifying learning attitudes, habits and behaviours to appreciate the role of information literacy in learning. In this context learning is understood as the constant search for meaning by the acquisition of information, reflection, engagement and active application in multiple contexts (NASPA, 2004).[25]

The lack of learning in "multiple contexts" is a weakness of some information literacy models. As Coonan notes in ANCIL's *Theoretical Background* report:

> Hepworth & Walton (2009) argue that SCONUL'S Seven Pillars (the dominant model in UK libraries) and other existing models of information literacy are overly rigid and fail to take into account the interactive nature of dealing with information. They argue that becoming information literate is a matter of an individual completing a task in a given context, which involves interplay of behavioural, cognitive, metacognitive and affective states, and that contextual interplay is not reflected in existing models.[26]

The findings of this study reiterate the statements by ANCIL, Hepworth and Walton, and SCONUL with their revised Seven Pillars. A number of interviewees expressed, and the documents support, creating multidimensional learning guidelines for information literacy. Some model authors expressed learning structures in terms of functional and cognitive skills, while others included guidelines for self-assessment and reflection. The findings below describe how the models—in varying ways— incorporate behavioral, cognitive, metacognitive, and affective learning. While the learning contexts are listed separately in this report, the learning types are interrelated and cannot easily be separated in the implementation process.

Behavioral Learning

Behavioral learning continues to be an important component of information literacy development. For this report, behavioral learning represents action-based skills.[27] The interview participants never questioned the need for behavioral learning outcomes; however, they expressed concern that practitioners overemphasize behavioral learning by focusing on teaching functional library skills. As an interviewee reflected:

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[24] Several interviewees mentioned the influence of Christine Bruce's research including Bruce, Edwards, and Lupton, "Six Frames for Information Literacy Education: A Conceptual Framework for Interpreting the Relationships Between Theory and Practice."

[25] SCONUL Working Group on Information Literacy, *Core Model*, 3; NASPA and ACPA, *Learning Reconsidered: A Campus-Wide Focus on the Student Experience*.

[26] Coonan, *ANCIL Theoretical Background*, 14. Citing Hepworth and Walton, *Teaching Information Literacy for Inquiry-based Learning.* Hepworth and Walton refer to the original version (1999) of the Seven Pillars model.

[27] Kaplowitz, "The Psychology of Learning: Connecting Theory to Practice," 27–28.

There are still some librarians who think that information literacy is using the library and finding information. Whereas since—what 2000?—it is not about finding information. It's about critically evaluating it and managing it and that leap has not been explicitly discussed as far as I know.

Some interviewees noted librarians are comfortable teaching functional skills, but teaching of only those skills undermines information literacy development as part of the learning process. The overemphasis on teaching specific skills is not necessarily a limitation of information literacy models, but is a challenge for the promotion and intended use of the guidelines.

While authors have concerns with the teaching of behavioral learning skills, the ability to perform information literacy tasks is important and is embedded throughout the British models. Behavioral learning outcomes unique to the ANCIL, SCONUL, and Welsh models include, but are not limited to:[28]

- Identify subject-specific collections of information such as gateways and portals[29]
- Is able to identify the available search tools, such as general and subject specific resources at different levels[30]
- Is able to identify different formats in which information may be provided[31]
- Is able to demonstrate the ability to use new tools as they become available[32]
- Independently carry out a subject search within a single database[33]
- Use appropriate quality criteria to filter results, and also to focus on the most relevant information within documents[34]
- Interpret database results (e.g. bibliographic or full text), and use results functionality (e.g. sorting, saving, exporting)[35]
- Is able to develop a personal profile in the community using appropriate personal networks and digital technologies (e.g. discussion lists, social networking sites, blogs, etc.)[36]

Cognitive Learning
The cognitive learning context continues to be an important part of information literacy development. The ability to understand underlying concepts and then implement them in any information situation is a prevalent theme during the interviews and in the documentation. In fact the related term of understanding became a key structural feature in the revised Seven Pillars model:

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[28] The Scottish framework used the original Seven Pillars for their higher education outcomes. Their outcomes are excluded from the list of examples. This report uses Welsh framework learning outcomes from Level 6 representing the Bachelor's Degree level.

[29] Secker and Coonan, *ANCIL Curriculum*, 12.

[30] SCONUL Working Group on Information Literacy, *Core Model*, 6.

[31] Ibid.

[32] Ibid.

[33] Welsh Information Literacy Project, *Welsh Framework*, 29.

[34] Ibid.

[35] Ibid.

[36] SCONUL Working Group on Information Literacy, *Core Model*, 11.

This model defines the core **skills and competencies** (ability) and **attitudes and behaviours** (understanding) at the heart of information literacy development in higher education.[37]

The interviewees connected cognitive skills to critical thinking and the ability to transfer skills into various information landscapes. Conceptual learning outcomes unique to the ANCIL, SCONUL, and Welsh models include, but are not limited to:

- Understands why complex search strategies can make a difference to the breadth and depth of information found[38]
- Understands the need to develop approaches to searching such that new tools are sought for each new question (not relying always on most familiar resources)[39]
- Understands the importance of citation in their learning/research context[40]
- Understands the importance of consistency in data collection[41]
- Evaluate the information environment including libraries and digital libraries as 'trusted' collections[42]
- Evaluate the strengths of online user-generated content as sources of information[43]
- Recognise common search features across different databases and the web[44]
- Use appropriate quality criteria to filter results, and also to focus on the most relevant information within documents[45]

Metacognitive Learning
Learning self-awareness of information literacy skills and understandings is an important component of the development process. This metacognitive learning, or the ability to assess one's own learning situation, is found in the ANCIL and SCONUL Seven Pillars models, and complements remarks made by interviewees.[46] For instance, one interviewee connected elements of metacognitive learning with the Seven Pillars structure:

In all our [learning outcomes], we were having be able to or be able to understand….We divided them out and I think that was really powerful. I think that's where it moves it from being the mechanistic, press this button or use this index, to actually being more self-aware about what you know,

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[37] Ibid., 3.
[38] Ibid., 7.
[39] Ibid.
[40] Ibid.
[41] Ibid., 9.
[42] Secker and Coonan, *ANCIL Curriculum*, 10.
[43] Ibid., 12–13.
[44] Welsh Information Literacy Project, *Welsh Framework*, 28.
[45] Ibid., 29.
[46] Grassian and Kaplowitz, *Information Literacy Instruction : Theory and Practice*, 36.

what you need to know so students can actually decide what they want to learn.

Metacognitive learning reinforces information literacy as a reiterative, holistic process where individuals continually assess their own development to expand their information literacy landscapes.

Metacognitive learning is realized through self-assessment and reflection-based learning outcomes in the models. ANCIL and SCONUL learning outcomes include, but are not limited to:

- Recognise that learning at HE is different and requires different strategies[47]
- Assess your current information seeking behaviour and compare it to experts within your discipline[48]
- Identify your learning style and preferences, including specific learning needs[49]
- Critique the tools and strategies you currently use to find scholarly information[50]
- Develop an awareness of how copyright and IPR issues impact on your work[51]
- Develop an awareness of how you appear to others online[52]
- "Know what you don't know" to identify any information gaps[53]
- Understands that being information literate involves developing a learning habit so new information is being actively sought all the time[54]

Affective Learning

Affective learning is an emerging type of learning context in information literacy models. From the affective learning perspective, information literacy development has an emotional impact that individuals' face as they gain information literacy skills. ANCIL embeds affective learning into their learning outcomes. This type of learning also complements remarks made by some Seven Pillars authors. The developing information literate individual will feel emotions like frustration, fear, and anxiety. It is important for models to recognize and provide guidance in the emotional aspects of information literacy development. Therefore, it is beneficial for a holistic learning process to include affective elements. As an interviewee noted:

> The other thing that we put in the Seven Pillars was that information literacy landscape idea and that was coming from the place [of] trying to see people

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[47] Secker and Coonan, *ANCIL Curriculum*, 9.
[48] Ibid.
[49] Ibid., 10.
[50] Ibid.
[51] Ibid., 14.
[52] Ibid., 15.
[53] SCONUL Working Group on Information Literacy, *Core Model*, 6.
[54] Ibid., 5.

as whole people developing in different ways, all the baggage they bring with them.

Like metacognitive learning, reflection and self-assessment aid affective learning and helps individuals address unsettling feelings during information literacy experiences. As a result reflective and self-assessing tasks are crucial:

> The reflective aspect of information literacy allows learners to evaluate and manage their own learning processes. It enables them to handle the affective dimension of learning - understanding the idea of a threshold concept, for instance, or recognising the emotional impact of information that conflicts with established knowledge or beliefs.[55]

The need for affective learning outcomes in the ACRL Standards is a recommendation made by the Standards Review Task Force.[56] ANCIL includes the following outcomes that demonstrate affective learning:

- Critique the concept that learning changes the learner [57]
- Acknowledge the emotional impact of learning on your worldview [58]

Academic Literacies

SCONUL and ANCIL authors stress the importance of blurring the lines between information and academic literacies. The interviewees and documentation place information literacy within or akin to academic literacies. Some interviewees mentioned how universities silo the literacies into different services, but this separation is foreign to students. As one participant stated, "[students] really didn't see why they needed to be talking to different people because it was the same thing, it was all their work." As a result some interviewees believe academic literacies need an expanded role in information literacy. Practitioners should not limit information literacy to library and information seeking skills but include guidance in tasks related to writing, presenting, and note taking. One interviewee reflected:

> I heard someone from the University of Leeds talking about how they've made it a huge conscious effort to bring over that line so that they are not just teaching library skills anymore. They are very much putting it in the context of the whole academic behavior, the whole academic process which means that they need to be including things like academic writing and reading skills and whatever else….There is a whole part of what we are trying to combat is the idea that, on the one hand, you have academic behaviors, and on the other, you have information needs.

Blurring the lines between information and academic literacies reinforce the concepts of creating a holistic information literacy process that is integral to learning. Incorporating academic literacy skills into models can help practitioners

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[55] Coonan, *ANCIL Theoretical Background*, 18.
[56] ACRL Information Literacy Competency Standards Review Task Force, "Task Force Recommendations," 6.
[57] Secker and Coonan, *ANCIL Curriculum*, 10.
[58] Ibid.

bridge the separated literacies. Embracing academic literacies provides a foothold to embed information literacy into the curriculum, and conversely gives libraries an opportunity to incorporate academic literacies into their services and provide holistic, informal support of student learning.

The ACRL Standards includes some academic literacy outcomes, but the content in Standards Three and Four can be expanded. For instance, unique ANCIL and SCONUL learning outcomes related to academic literacies include, but are not limited to:

- Assess your reading, writing and presenting skills and compare them to experts within your discipline[59]
- Learn the techniques of skimming and scanning[60]
- Distinguish between note-taking (dictation) and note-making (considered retention of vital points) [61]
- Develop a strategy for note-making - in lectures/supervisions, for your reading, in everyday situations [62]
- Is able to articulate current knowledge on a topic[63]
- Is able to engage with their community to share information[64]
- Understands the difference between summarising and synthesizing[65]
- Understand their personal responsibility to disseminate information & knowledge[66]
- Understands how their work will be evaluated[67]

Expanding Participation

Information literacy as part of the learning process expands an individual's roles and responsibilities, from an ethical and effective seeker and user of information to someone who also ethically and critically creates, manages, and disseminates information. Model authors recognize technological changes, like the emergence of social media, shifted understandings of information literacy development. Technological advancements created misalignments between information literacy models and current information concepts and tasks. An expert explained shifting information roles to the ANCIL team:

> Produsage - not a consumer but not a producer either - ideas of production and consumption are pre-internet concepts. Forces of publication/

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[59] Ibid., 9.
[60] Ibid., 11.
[61] Ibid., 13.
[62] Ibid.
[63] SCONUL Working Group on Information Literacy, *Core Model*, 5.
[64] Ibid., 8.
[65] Ibid., 11.
[66] Ibid.
[67] Ibid.

dissemination now much more wide-spread, democratized. "Produsers" produce and use at the same time. IL is beginning to sound a bit stale.[68]

Today's information literate person actively engages, rather than passively participates, in the information process. As a result, individuals take an expanded role in information literacy. Another expert explained to the ANCIL team:

> ... 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.[69]

The model authors stress several concepts to help students understand their roles and responsibilities in the current information world.

The advances in information technology and the proliferation of social media caused the model authors to revaluate publishing formats. Some authors note relevant information can be found in formats beyond traditional publication platforms. As one interviewee stated:

> In the UK, some of us have changed our perspective of where things are published. We think wikis and blogs are as valuable and as expert and as authoritative depending on who's writing them, and who's looking after them. It doesn't matter if it's a blog, as long as we know it's somebody who's authoritative in that area.

Since valuable information can be found in newer formats like blogs, it is increasingly important to understand how to appropriately use and critique various publication platforms. The learning outcomes below show how ANCIL and SCONUL models articulate issues surrounding new publication formats:

- Understands how digital technologies are providing collaborative tools to create and share information[70]
- Understands that individuals can take an active part in the creation of information through traditional publishing and digital technologies (e.g. blogs, wikis)[71]
- Evaluate the strengths of online user-generated content as sources of information[72]
- Summarise the key methods of publishing research findings in your discipline (including self-publication, e.g. blogging)[73]

Using new publishing platforms to create and communicate information increases the need for individuals to understand related responsibilities and ethical issues.

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[68] Secker, *ANCIL Expert Report*, 27.

[69] Ibid., 22.

[70] SCONUL Working Group on Information Literacy, *Core Model*, 8.

[71] Ibid., 11.

[72] Secker and Coonan, *ANCIL Curriculum*, 12–13.

[73] Ibid., 15.

An information literate person understands they are responsible for their actions. If an individual can seek, use, create, store and disseminate information; they should do so in an appropriate and ethical manner. Previous models did not address the evolving responsibilities connected to emerging technologies and information formats. This caused problems for practitioners. As a SCONUL Seven Pillars interviewee stated:

> People wanted to see where some of the issues sat so things in mind [like] the ethical issues and the legal issues, the data issues. They either couldn't see where they were at all in the model, or perhaps they couldn't see where they might fit.

The learning outcomes related to responsibilities and ethics help to emphasize the individual's active role in learning from, but also participating in, the information world. Learning outcomes in the ANCIL and SCONUL models related to responsibilities and ethics can be broken down into four categories:

Keeping Current with Information

- Develop appropriate strategies for current awareness in your field [74]
- Is able to keep up to date with new information[75]

Creating and Sharing Information

- Develop new insights and knowledge in your discipline[76]
- Is able to engage with their community to share information[77]
- Understands their personal responsibility to disseminate information & knowledge[78]

Managing Online Identity

- Is able to develop a personal profile in the community using appropriate personal networks and digital technologies (e.g. discussion lists, social networking sites, blogs, etc.)[79]
- Develop an awareness of how you appear to others online[80]
- Decide on appropriate level of information to communicate to different audiences (ie manage your digital footprint)[81]
- Evaluate the suitability of different online locations /tools for your online presence [82]

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[74] Ibid., 14.
[75] SCONUL Working Group on Information Literacy, *Core Model*, 8.
[76] Secker and Coonan, *ANCIL Curriculum*, 15.
[77] SCONUL Working Group on Information Literacy, *Core Model*, 8.
[78] Ibid., 11.
[79] Ibid.
[80] Secker and Coonan, *ANCIL Curriculum*, 15.
[81] Ibid.
[82] Ibid.

Ethically Using Information

- Summarise the key ways you can use and share information without infringing another's rights[83]
- Distinguish between collaboration and collusion[84]
- Develop strategies as appropriate for working within the legal framework[85]
- Is able to meet standards of conduct for academic integrity[86]
- Understands their personal responsibility to store and share information and data[87]
- Understands the concept of attribution[88]

By addressing new technologies and expanding the role of the information literate individual, these models address skills not found in previous frameworks. The learning outcomes above demonstrate how models can actualize the Standards Review Taskforce recommendations 4-7.[89] For instance, ANCIL and SCONUL's models include elements of meta- and trans-literacies, which stress the use, evaluation, and creation of information in evolving information platforms.[90] Including outcomes espousing the expanded role of the student will empower him/her to be active participants in the information world.

Addressing Transitions

Complementary to the information landscape concept is the ability to transition to different environments. A number of interviewees mentioned transitions from high school or into the workforce, but the ANCIL authors were unique in explicitly including transitional outcomes in their model. The ANCIL team emphasize the need to help students adapt to the academic information environment and then, with matriculation, translate those skills into the workplace or everyday information situations.[91] The ANCIL authors note that instructors and future employers expect students to gain skills from previous educational experiences, but students do not necessarily learn these skills. The transition strands in the ANCIL model help raise awareness about instructor and employer expectations through reflection and self-assessment outcomes and activities. Furthermore, transitions are not limited to social environments; the authors also see transitions in terms of helping students move from dependent to independent learner. By outlining transitional learning outcomes, information literacy practitioners can close the gap between expectations and students' actual skill, while increasing students' critical thinking and cognitive

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[83] Ibid., 14.
[84] Ibid.
[85] Ibid.
[86] SCONUL Working Group on Information Literacy, *Core Model*, 10.
[87] Ibid., 11.
[88] Ibid.
[89] ACRL Information Literacy Competency Standards Review Task Force, "Task Force Recommendations," 5–6.
[90] Mackey and Jacobson, "Reframing Information Literacy as a Metaliteracy"; Andretta, "Web 2.0: From Information Literacy to Transliteracy."
[91] Secker and Coonan, *ANCIL Curriculum*, 5.

skills. The ANCIL team organized the transitional learning outcomes into three strands:

Strand 1: Transition from school to higher education[92]
Learning outcomes include, but not limited to:

- Distinguish between the expectations at school and HE level in your discipline
- Develop an awareness of academic conventions at HE level

Strand 2: Becoming an independent learner
Learning outcomes include:

- Reflect on how to create strategies for assimilating new knowledge
- Identify your learning style and preferences, including specific learning needs
- Critique the concept that learning changes the learner
- Acknowledge the emotional impact of learning on your worldview

Strand 10: Social dimension of information[93]
Learning outcomes include:

- Develop an awareness that learning is a continuous ongoing process outside of formal educational establishments
- Develop strategies for assimilating new information to the conceptual framework
- Transfer the skills of finding, critically evaluating, and deploying information to the workplace
- Transfer the skills of finding, critically evaluating, and deploying information to daily life
- Reflect on how to create strategies for assimilating new knowledge

These outcomes are examples of how ACRL could bridge skills with the AASL Standards, a recommendation espoused by the Standards Review Task Force.[94] While helping students successfully transition into higher education is essential, the ANCIL model also highlights the importance of developing skills that are transferable to the workforce and everyday life.

Conclusion and Next Steps

The four British information literacy models provide relevant guidelines for information literacy development in today's information rich society. The model

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[92] Ibid., 9–10.
[93] Ibid., 15–16.
[94] ACRL Information Literacy Competency Standards Review Task Force, "Task Force Recommendations," 6.

authors created holistic, flexible guidelines that emphasize information literacy as integral to learning.

The authors realize creating guidelines is one step in revising information literacy. With the establishment of the models, the interviewees are continuing their work with promotion, assessment, and revisions. Promotion is a key task because it is an opportunity to explain the purpose and use of the documents. Going out into the community allows the authors to assist information literacy professionals to interpret the documents and adapt the guidelines for individual institutions. Assessment is another task for the authors. They continue to gather feedback from practitioners in an effort to refine and improve the future revisions. A number of the authors are implementing models at individual universities, and in the case with the national frameworks, working with public libraries and other educational sectors to implement the models.

In the end these authors view their work as a continuous process of improving information literacy guidelines. Information literacy is an evolving concept and, as such, professionals will continue to adapt frameworks to meet the needs of today's information users.

Bibliography

ACRL Information Literacy Competency Standards Review Task Force. "Task Force Recommendations." *American Library Association*, June 12, 2012. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/ils_recomm.pdf.

Andretta, Susie. "Web 2.0: From Information Literacy to Transliteracy." In *Information Literacy Beyond 2.0*, edited by Peter Godwin and Jo Parker. London: Facet, 2012.

Bent, Moira. *Perceptions of Information Literacy in the Transition to Higher Education*. National Teaching Fellowship Project Report. Newcastle, UK: Newcastle University, 2008. http://eprint.ncl.ac.uk/pub_details2.aspx?pub_id=55850.

Bruce, Christine, Sylvia Edwards, and Mandy Lupton. "Six Frames for Information Literacy Education: A Conceptual Framework for Interpreting the Relationships Between Theory and Practice." *Italics* 5, no. 1 (2006): 1–18.

Charmaz, Kathy. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. Sage, 2006.

Coonan, Emma. *Theoretical Background: Teaching Learning: Perceptions of Information Literacy*. A New Curriculum for Information Literacy. Cambridge: Cambridge University Library Arcadia Project, 2011. http://arcadiaproject.lib.cam.ac.uk/docs/theory.pdf.

Grassian, Esther S., and Joan R. Kaplowitz. *Information Literacy Instruction: Theory and Practice*. New York: Neal-Schuman, 2009.

Hepworth, Mark, and Geoff Walton. *Teaching Information Literacy for Inquiry-based Learning*. Oxford: Chandos, 2009.

Kaplowitz, Joan. "The Psychology of Learning: Connecting Theory to Practice." In *Information Literacy Instruction Handbook*, edited by Christopher N. Cox and Elizabeth Blakesley Lindsay, 26–49. Chicago: Association of College and Research Libraries, 2008.

Mackey, Thomas P., and Trudi E. Jacobson. "Reframing Information Literacy as a Metaliteracy." *College & Research Libraries* 72, no. 1 (2011): 62–78.

NASPA and ACPA. *Learning Reconsidered: A Campus-Wide Focus on the Student Experience*, 2004. http://www.myacpa.org/pub/documents/learningreconsidered.pdf.

National Information Literacy Framework Scotland. "Higher Education," February 6, 2009. http://caledonianblogs.net/nilfs/framework-levels/higher-education.

SCONUL Working Group on Information Literacy. *SCONUL Seven Pillars of Information Literacy Through an Open Content Lens*. London: Society of College, National and University Libraries, 2011. http://www.sconul.ac.uk/sites/default/files/documents/OER_lens.docx.

———. *The SCONUL 7 Pillars of Information Literacy Through a Digital Literacy "Lens"*. London: Society of College, National and University Libraries, 2011. http://www.sconul.ac.uk/sites/default/files/documents/SCONUL%20digital _literacy_lens_v4.doc.

———. *The SCONUL Seven Pillars of Information Literacy Research Lens for Higher Education*. London: Society of College, National and University Libraries,

2011.
http://www.sconul.ac.uk/sites/default/files/documents/researchlens.pdf.

———. *The SCONUL Seven Pillars of Information Literacy: Core Model for Higher Education*. London: Society of College, National and University Libraries, 2011.
http://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf.

Secker, Jane. *Expert Consultation Report*. A New Curriculum for Information Literacy. Cambridge: Cambridge University Library Arcadia Project, 2011.
http://arcadiaproject.lib.cam.ac.uk/docs/Expert_report_final.pdf.

Secker, Jane, and Emma Coonan. *Curriculum and Supporting Documents*. A New Curriculum for Information Literacy. Cambridge: Cambridge University Library Arcadia Project, 2011.
http://arcadiaproject.lib.cam.ac.uk/docs/ANCIL_final.pdf.

———. *Executive Summary*. A New Curriculum for Information Literacy. Cambridge: Cambridge University Library Arcadia Project, 2011.
http://arcadiaproject.lib.cam.ac.uk/docs/Executive_summary.pdf.

The Open University. "Information Literacy Levels Framework." Accessed November 26, 2012. http://www.open.ac.uk/libraryservices/ILLFramework/.

Welsh Information Literacy Project. *Information Literacy Framework for Wales: Finding and Using Information in 21st Century Wales*. Cardiff: Welsh Information Literacy Project, 2011.
http://librarywales.org/uploads/media/Information_Literacy_Framework_Wales.pdf.

Working Group on Information Handling. "The Researcher Development Framework and the Seven Pillars of Information Literacy." *Research Information Network*, June 11, 2011. http://www.rin.ac.uk/our-work/researcher-development-and-skills/information-handling-training-researchers/rdf-and-pillars.

Wrathall, Katy. "Using ANCIL as a Skills Audit Tool." *Implementing ANCIL*, July 4, 2012.
http://implementingancil.pbworks.com/w/page/48733952/Using%20ANCIL%20as%20a%20skills%20audit%20tool.

Appendix 1: External Consultants

The table lists outside reviewers mentioned by interviewees.

Organization	Description	Web Site
CQFW: Credit and Qualification Framework for Wales	A Welsh accreditation group	http://www.agored.org.uk/default.aspx?id=500&
CyMAL: Museums Archives Libraries Wales	Government agency supporting Welsh museums, archives and libraries	http://wales.gov.uk/topics/cultureandsport/museumsarchiveslibraries/cymal/?lang=en
Data Curation Centre	Organization to help with research data management	http://www.dcc.ac.uk/
DfES	Welsh Department for Education and Skills	http://wales.gov.uk/topics/educationandskills/?lang=en
o Created Skills Framework http://wales.gov.uk/topics/educationandskills/schoolshome/curriculuminwales/arevisedcurriculumforwales/skillsdevelopment/?lang=en		
Higher Education Academy	Organization to enhance higher education teaching and learning	http://www.heacademy.ac.uk/
JISC *Developing Digital Literacies*	Program working to improve digital inclusion in further and higher education	http://jiscdesignstudio.pbworks.com/w/page/46421608/Developing%20digital%20literacies
NIACE Dysgu Cymyu	Welsh National Institute of Adult Continuing Education	http://www.niacedc.org.uk/
Research Information Network (RIN)	Group supporting "effective information strategies and practices"	current website: http://www.researchinfonet.org previous website http://www.rin.ac.uk/
VITAE	Organization to assist researchers	http://www.vitae.ac.uk/
o Created *Researcher Development Framework* (a model for researcher development) that is connected to the SCONUL Seven Pillars http://www.vitae.ac.uk/researchers/428241/Vitae-Researcher-Development-Framework.html		
Working Group on Information Handling	Provides information handling guidance	http://www.rin.ac.uk/our-work/researcher-development-and-skills/information-handling-training-researchers/working-group-i
o For mapping of the RDF and Seven Pillars see http://www.rin.ac.uk/our-work/researcher-development-and-skills/information-handling-training-researchers/rdf-and-pillars		

Appendix 2: Mapping British Models to ACRL Information Literacy Standards

The chart maps some British information literacy models to the learning outcomes of ACRL's *Information Literacy Standards for Higher Education*. It does not document all models in the report. The map does not include the Scottish model since it used the original, and since revised, Seven Pillars model. The chart includes Level 6 of the Welsh framework, which represents information literacy attainment at a Bachelor's degree level.[95] Numbers in parentheses designate the page where the learning outcomes can be found in the original document. For more information, see the mapping of the ANCIL strands, ACRL standards, and the SCONUL Seven Pillars in ANCIL's *Curriculum and Supporting Documents* report.[96]

ACRL Standard One

	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
The information literate student determines the nature and extent of the information needed.	IDENTIFY: Able to identify a personal need for information (5) SCOPE: Can assess current knowledge and identify gaps (6) PLAN: Can construct strategies for locating information and data (7)	STRAND 1: Transition from school to higher education (9-10)	Identify (28) Scope (28) Plan (28)

1. The information literate student defines and articulates the need for information.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussion to identify a research topic, or other information need.		Assess your current information-seeking behavior and compare it to experts within your discipline (9)	

[95] Welsh Information Literacy Project, *Welsh Framework*, 28.

[96] Secker and Coonan, *ANCIL Curriculum*, 17.

b. Develops a thesis statement and formulates questions based on the information need.			Identify and frame problems or research questions (28)
c. Explores general information sources to increase familiarity with the topic.			
d. Defines or modifies the information need to achieve a manageable focus.	Is able to recognise a need for information and data to achieve a specific end and define limits to the information need (5)		Use a range of techniques to clearly define the selected information topic (28)
e. Identifies key concepts and terms that describe the information need.	Is able to use background information to underpin the search (5) Is able to identify a search topic / question and define it using simple terminology (5) Is able to scope their search question clearly and in appropriate language (7)	Identify appropriate terminology, use of language and academic idiom in your discipline (10)	Identify appropriate keywords (28)
f. Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information.			

2. The information literate student identifies a variety of types and formats of potential sources for information.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Knows how information is formally and informally produced, organized, and disseminated.	Understands the scale of the world of published and unpublished information and data (5) Understands the publication process in terms of why individuals publish and the currency of information (6) Understands how information and data is organised, digitally and in print sources (8) Understands the processes of publication (11)		
b. Recognizes that knowledge can be organized into disciplines that influence the way information is accessed.	Understands the information and data landscape of their learning/research context (9)	Recognise that learning at HE is different and requires different strategies (9)	Identify a range of key sources of information in the subject area (29)
c. Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, website, data set, audio/visual, book).	Understands what types of information are available (6) Understands the characteristics of the different types of information source available to them and how they may be affected by the format (digital, print) (6) Understands the differences	Identify and assess the range of information formats available (9)	Have experienced using a range of formats of information (e.g. bibliographic records, full text, abstracts) (29)

	between search tools, recognising advantages and limitations (7) Is able to select the most appropriate search tools (7) Is able to distinguish between different information resources and the information they provide (9)		
d. Identifies the purpose and audience of potential resources (e.g., popular vs. scholarly, current vs. historical).	Is able to distinguish between different information resources and the information they provide (9)		
e. Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline.			
f. Realizes that information may need to be constructed with raw data from primary sources.			

3. The information literate student considers the costs and benefits of acquiring the needed information.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Determines the availability of needed information and makes decisions on broadening the information seeking process beyond local resources (e.g.,	Understands issues of accessibility (6) Understands how libraries provide access to resources (8)	Identify and assess the range of information formats available (9)	

interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound).			
b. Considers the feasibility of acquiring a new language or skill (e.g., foreign discipline-based) in order to gather needed information and to understand its context.			
c. Defines a realistic overall plan and timeline to acquire the needed information.	Is able to manage time effectively to complete a search (5)	Produce a strategy to manage your workload (13)	

4. The information literate student reevaluates the nature and extent of the information need.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Reviews the initial information need to clarify, revise, or refine the question.			
b. Describes criteria used to make information decisions and choices.			

Other Outcomes

ANCIL

- Develop appropriate strategies for current awareness in your field (13)

SCONUL Seven Pillars Core Model

- Understands that ideas and opportunities are created by investigating/seeking information (5)
- Understands that new information and data is constantly being produced and that there is always more to learn (5)

- Understands that being information literate involves developing a learning habit so new information is being actively sought all the time (5)
- Is able to take personal responsibility for an information search (5)
- Is able to identify a lack of knowledge in a subject area (5)
- Is able to identify which types of information will best meet the need (6)
- Understands the need to keep up to date with new information (8)

Welsh Framework

- Be aware of sources of current information for keeping up to date and able to select and use those most appropriate to need (28)

ACRL Standard Two

	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
The information literate student accesses needed information effectively and efficiently.	PLAN: Can construct strategies for locating information and data (7) GATHER: Can locate and access the information and data they need (8) MANAGE: Can organise information professionally and ethically (10)	Strand 4: Mapping and evaluating the information landscape (11-12) Strand 5: Resource discovery in your discipline (12-13)	Scope (28) Gather (29)

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork).			
b. Investigates benefits and applicability of various	Understands the issues involved in		

investigative methods.	collecting new data (8)		
c. Investigates the scope, content, and organization of information retrieval systems.	Understands the characteristics of the different types of information source available to them and how they may be affected by the format (digital, print) (6)		Use knowledge of resources and their characteristics to independently select appropriate resources for the task (28)
d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system.	Understand the range of searching techniques available for finding information (7)		

2. The information literate student constructs and implements effectively-designed search strategies.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Develops a research plan appropriate to the investigative method.			
b. Identifies keywords, synonyms and related terms for the information needed.	Is able to define a search strategy by using appropriate keywords and concepts, defining and setting limits (7)		
c. Selects controlled vocabulary specific to the discipline or information retrieval source.	Understands the value of controlled vocabularies and taxonomies in searching (7) Is able to identify controlled vocabularies and taxonomies to aid in searching if appropriate (7)		

d. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books).	Is able to identify appropriate search techniques to use as necessary (7) Is able to construct complex searches appropriate to different digital and print resources (8)		Use a range of database functionality (e.g. truncation, phrase searching, date limits, combining search terms) within a single database (29)
e. Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters.	Is able to identify the available search tools, such as general and subject specific resources at different levels (6)		
f. Implements the search using investigative protocols appropriate to the discipline.	Is able to identify specialist search tools appropriate to each individual information need (7)	Develop strategies for using them [finding aids in your discipline] (12)	

3. The information literate student retrieves information online or in person using a variety of methods.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Uses various search systems to retrieve information in a variety of formats.	Is able to use a range of retrieval tools and resources effectively (8) Is able to access full text information, both print and digital, read and download online material and data (8)	Identify key finding aids in your discipline e.g. catalogues, full text databases, abstract and indexing services (12)	Select and use a wide range of sources appropriate to the discipline, from the Library and beyond (28)

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration.	Is able to access full text information, both print and digital, read and download online material and data (8)		
c. Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners).	Understands what services are available to help and how to access them (6) Is able to use online and printed help and can find personal, expert help (8) Understands the role of professionals, such as data managers and librarians, who can advise, assist and support with all aspects of information management (10)		
d. Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information.	Is able to use appropriate techniques to collect new data (8)		

4. The information literate student refines the search strategy if necessary.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Assesses the quantity, quality, and relevance of the search			

				Review search results (29)
	results to determine whether alternative information retrieval systems or investigative methods should be utilized.			Interpret database results (e.g. bibliographic or full text), and use results functionality (e.g. sorting, saving, exporting) (29)
b.	Identifies gaps in the information retrieved and determines if the search strategy should be revised.	Understands the need to revise keywords and adapt search strategies according to the resources available and / or results found (7)		Use judgment to appropriately adapt a search, including the decision to use a new database (29)
c.	Repeats the search using the revised strategy as necessary.			Refine the search as needed by broadening and narrowing criteria (29)

5. The information literate student extracts, records, and manages the information and its sources.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments).			Interpret database results (e.g. bibliographic or full text), and use results functionality (e.g. sorting, saving, exporting) (29)
b. Creates a system for organizing the information.	Understands the need to keep systematic records (10)	Develop and implement a plan for organising your files (including naming and organising folders)	Plan and organise an information task (28)

		(13)	
c. Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources.	Understands the different elements of a citation and how this describes an information resource (8)		
d. Records all pertinent citation information for future reference.			
e. Uses various technologies to manage the information selected and organized.	Is able to use bibliographical software if appropriate to manage information (10) Is able to use appropriate data management software and techniques to manage data (10)	Decide on an appropriate information management technique suitable for your discipline / the resources you use (13)	Be aware of the range of tools and techniques for managing and exporting references (e.g. card index, Refworks) and able to select and use as appropriate (29)

Other Outcomes

ANCIL

- Critique the tools and strategies you currently use to find scholarly information (10)
- Select appropriate resources for your assignment, discriminating between good quality academic sources and other sources (11)
- Identify subject-specific collections of information such as gateways and portals (12)
- Evaluate your own learning and working styles (13)
- Use chosen information sources to articulate and analyse new problems in your field (15)

SCONUL Seven Pillars Core Model

- Is able to identify the available search tools, such as general and subject specific resources at different levels (6)
- Is able to identify different formats in which information may be provided (6)
- Is able to demonstrate the ability to use new tools as they become available (6)
- Understands why complex search strategies can make a difference to the breadth and depth of information found (7)

- Understands the need to develop approaches to searching such that new tools are sought for each new question (not relying always on most familiar resources) (7)
- Is able to keep up to date with new information (8)
- Understands the importance of citation in their learning/research context (9)
- Understands the importance of consistency in data collection (9)

Welsh Framework, Level 6

- Recognise common search features across different databases and the web (28)
- Independently carry out a subject search within a single database (29)
- Search selected information sources effectively to find relevant information on topic (29)
- Interpret database results (e.g. bibliographic or full text), and use results functionality (e.g. sorting, saving, exporting) (29)

Standard Three

ACRL	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.	EVALUATE: Can review the research process and compare and evaluate information and data (9)	Strand 4 Mapping and evaluating the information landscape (11-12)	Gather (29) Evaluate (29)

1. The information literate student summarizes the main ideas to be extracted from the information gathered.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Reads the text and selects main ideas.	Is able to read critically, identifying key points and arguments (9)	Learn the techniques of skimming and scanning (11) Identify the strengths and weaknesses of source material (11)	

b. Restates textual concepts in his/her own words and selects data accurately.	Is able to summarise documents and reports verbally and in writing (11)	
c. Identifies verbatim material that can be then appropriately quoted.		

2. The information literate student articulates and applies initial criteria for evaluate both the information and its sources.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias.	Understands issues of quality, accuracy, relevance, bias, reputation and credibility relating to information and data sources (9) Is able to assess the quality, accuracy, relevance, bias, reputation and credibility of the information resources found (9) Is able to assess the credibility of the data gathered (9)	Develop evaluative criteria for recognizing and selecting trustworthy sources of academic quality in your discipline (11) Develop evaluative criteria for assessing ways of using source material in your work (12)	Apply appropriate quality/evaluation criteria to critically evaluate information from any source to determine authority, bias, etc, which sometimes may be subtle to detect (29)
b. Analyzes the structure and logic of supporting arguments or methods			
c. Recognizes prejudice, deception, or manipulation.		Identify overt and implicit techniques for influencing the reader/viewer in different arenas in academic writing, in advertising, in the media (10)	
d. Recognizes the cultural, physical, or other context within which the information	Understands how information is evaluated and published, to help inform personal evaluation process	Evalute the place of source material within the wider debate (11)	

was created and understands the impact of context on interpreting the information.	(9)

3. The information literate student synthesizes main ideas to construct new concepts.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Recognizes interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence.			
b. Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information.			
c. Utilizes computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena.			

4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Determines whether information satisfies the			

research or other information need.			
b. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources.		Assess the value of new information objectively in the context of your work (15)	
c. Draws conclusions based upon information gathered.			
d. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments).			
e. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions.			
f. Integrates new information with previous information or knowledge.	Is able to incorporate new information into the context of existing knowledge (11)	Reflect on how to create strategies for assimilating new knowledge (10) Develop strategies for assimilating and analysing new information, including that which challenges your world view (16)	
g. Selects information that provides evidence for the	Is able to choose suitable material on their search topic, using		

topic.	appropriate criteria (9) Is able to use the information and data found to address the original question (11)		

5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Investigates differing viewpoints encountered in the literature.		Analyse competing arguments and the use of evidence to justify a position (14)	
b. Determines whether to incorporate or reject viewpoints encountered.			

6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Participates in classroom and other discussions.			
b. Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., email, bulletin boards, chat			

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
c. Seeks expert opinion through a variety of mechanisms (e.g., interviews, email, listservs).		Identify the key experts in your field (11)	

7. The information literate student determines whether the initial query should be revised.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Determines if original information need has been satisfied or if additional information is needed.	Is able to know what you don't know" to identify any information gaps (6) Is able to identify when the information need has not been met (8) Is able to know when to stop (9)		
b. Reviews search strategy and incorporates additional concepts as necessary.			Refine the search as needed by broadening and narrowing criteria (29) Review search results and identify appropriate changes for a similar future search (29)
c. Reviews information retrieval sources used and expands to include others as needed.			Use judgment to appropriately adapt a search, including the decision to use a new database (29)

Other Outcomes

ANCIL

- Evaluate the information environment including libraries and digital libraries as 'trusted' collections (10)
- Analyse what makes an expert in your discipline (11)
- Evaluate the strengths of online user-generated content as sources of information (12-13)

SCONUL Seven Pillars Core Model

- Understands the use of abstracts (8)
- Understands the importance of appraising and evaluating search results (8)
- Is able to relate the information found to the original search strategy (9)
- Is able to critically appraise and evaluate their own findings and those of others (9)

Welsh Framework, Level 6

- Use appropriate quality criteria to filter results, and also to focus on the most relevant information within documents (29)

Standard Four

ACRL	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.	PRESENT: Can apply the knowledge gained: presenting the results of their research, synthesising new and old information and data to create new knowledge and disseminating it in a variety of ways (11)	Strand 3: Developing academic literacies (10-11) Strand 8 Presenting and communicating knowledge (14-15) Strand 9 Synthesising information and creating new knowledge (15)	Manage (29) Present (29)

1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards).	Is able to communicate effectively using appropriate writing styles in a variety of formats (11) Understands that data can be presented in different ways (11)		
b. Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance.			
c. Integrates the new and prior information, including quotations and paraphrasings, in a manner that supports the purposes of the product or performance.	Is able to synthesise and appraise new and complex information from different sources (11)	Use information sources appropriately to develop or support your argument (12) Use correct academic practices in quoting, citing and paraphrasing (14)	Demonstrate relationships between different pieces of information gathered and synthesise into a cohesive argument. (29) Accurately and appropriately refer to the thoughts and ideas of others in your work (29)
d. Manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context.			

2. The information literate student revises the development process for the product or performance.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process.			
b. Reflects on past successes, failures, and alternative strategies.			

3. The information literate student communicates the product or performance effectively to others.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Chooses a communication medium and format that best supports the purposes of the product or performance and the intended audience.	Understands that different forms of writing/ presentation style can be used to present information to different communities (11) Is able to select appropriate publications and dissemination outlets in which to publish if appropriate (11)	Choose an appropriate writing style, level and format for your intended audience (15)	
b. Uses a range of information technology applications in creating the product or performance.			
c. Incorporates principles of design and communication.			
d. Communicates clearly and with a style that supports the	Is able to analyse and present data	Use language appropriately in	Communicate / share findings in a manner or format that is

	appropriately (11) Is able to communicate effectively verbally (11) Is able to communicate effectively using appropriate writing styles in a variety of formats (11)	your academic writing (14)	appropriate to the information, the intended audience and situation. (29)
purposes of the intended audience.			

Other Outcomes

ANCIL

- Assess your reading, writing and presenting skills and compare them to experts within your discipline (9)
- Develop an awareness of the epistemological structure and values in your discipline (10)
- Distinguish between note-taking (dictation) and note-making (considered retention of vital points) (13)
- Develop a strategy for note-making - in lectures/supervisions, for your reading, in everyday situations (13)
- Develop new insights and knowledge in your discipline (15)

SCONUL Seven Pillars Core Model

- Is able to articulate current knowledge on a topic (5)
- Is able to engage with their community to share information (8)
- Understands the difference between summarising and synthesizing (11)
- Understand their personal responsibility to disseminate information & knowledge (11)
- Understands how their work will be evaluated (11)
- Understands that individuals can take an active part in the creation of information through traditional publishing and digital technologies (e.g. blogs, wikis) (11)

Standard Five

ACRL	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.	MANAGE: Can organise information professionally and ethically (10)	Strand 6: Managing Information (13-14) Strand 7 Ethical dimension of information (14)	Manage (29) Present (29)

1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Identifies and discusses issues related to privacy and security in both the print and electronic environments.	Understands the risks involved in operating in a virtual world (8)		
b. Identifies and discusses issues related to free vs. fee-based access to information.	Understands the difference between free and paid for resources (8)		
c. Identifies and discusses issues related to censorship and freedom of speech.			
d. Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material.	Is able to demonstrate awareness of issues relating to the rights of others including ethics, data protection, copyright, plagiarism and any other intellectual property issues (10)	Develop an awareness of how copyright and IPR issues impact on your work (14)	

2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Participates in electronic discussions following accepted practices (e.g. "Netiquette").			
b. Uses approved passwords and other forms of ID for access to information resources.			
c. Complies with institutional policies on access to information resources.			
d. Preserves the integrity of information resources, equipment, systems and facilities.	Understands the need to adopt appropriate data handling methods (10)		
e. Legally obtains, stores, and disseminates text, data, images, or sounds.	Understands the importance of storing and sharing information and data ethically (10)		Use information found ethically and responsibly (29)
f. Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as	Understands their responsibility to be honest in all aspects of information handling and dissemination (e.g. copyright, plagiarism and intellectual property	Identify the steps you can take to avoid plagiarism, deliberate or inadvertent (14)	Understand the issues surrounding plagiarism and take appropriate steps to

	issues) (10)		avoid it (29)
his/her own.	Understands the concept of attribution (11)		
g. Demonstrates an understanding of institutional policies related to human subjects research.			

3. The information literate student acknowledges the use of information sources in communicating the product or performance.

ACRL Outcomes	SCONUL Seven Pillars Core Model	ANCIL	Welsh Framework, Level 6
a. Selects an appropriate documentation style and uses it consistently to cite sources.	Is able to cite printed and electronic sources using suitable referencing styles (10) Is able to create appropriately formatted bibliographies (10)	Identify and use an appropriate citation style in your assignments (13) Construct appropriate bibliographies for your assignments (13)	
b. Posts permission granted notices, as needed, for copyrighted material.			

Other Outcomes

ANCIL

- Evaluate reference management tools and strategies in the light of your own workflow (13)
- Summarise the key ways you can use and share information without infringing another's rights (14)
- Distinguish between collaboration and collusion (14)
- Compare dissemination practices in your discipline across a range of publication platforms (preprint repositories, blogs, bibliographic sharing services etc.) (14)

- Develop strategies as appropriate for working within the legal framework (14)
- Develop an awareness of how you appear to others online (15)
- Decide on appropriate level of information to communicate to different audiences (ie manage your digital footprint) (15)
- Evaluate the suitability of different online locations /tools for your online presence (15)
- Summarise the key methods of publishing research findings in your discipline (including self-publication, e.g. blogging) (15)
- Assess the relationship between writing style, audience and publication platform (15)

SCONUL Seven Pillars Core Model

- Understands how digital technologies are providing collaborative tools to create and share information (8)
- Understands the role they play in helping others in information seeking and management (10)
- Is able to meet standards of conduct for academic integrity (10)
- Understands their personal responsibility to store and share information and data (11)
- Is able to develop a personal profile in the community using appropriate personal networks and digital technologies (e.g. discussion lists, social networking sites, blogs, etc.) (11)

Outcomes Outside ACRL Standards

ANCIL

Strand 1 Transition from school to high school (9)

- Distinguish between the expectations at school and HE level in your discipline (9)
- Recognise that learning at HE is different and requires different strategies (9)
- Develop an awareness of academic conventions at HE level (9)

Strand 2 Becoming an independent learner (10)

- Identify your learning style and preferences, including specific learning needs (10)
- Critique the concept that learning changes the learner (10)
- Acknowledge the emotional impact of learning on your worldview (10)

Strand 10 Social dimension of information (15)

- Develop an awareness that learning is a continuous ongoing process outside of formal educational establishments (15)
- Develop strategies for assimilating new information to the conceptual framework (15)
- Transfer the skills of finding, critically evaluating, and deploying information to the workplace (16)
- Transfer the skills of finding, critically evaluating, and deploying information to daily life (16)