# A New Curriculum for Information Literacy

***transitional ▪ transferable ▪ transformational***

## THEORETICAL BACKGROUND

## Teaching learning: perceptions of information literacy

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[O]ur society and all of its institutions are in *continuing* processes of transformation .... We must learn to understand, guide, influence and manage these transformations. We must make the capacity for undertaking them integral to ourselves and to our institutions.

We must, in other words, become adept at learning.

~ Donald Schon, 1973

## Contents

## 1.Introduction: a contested vision

"Living in the twenty-first century means that we need to be able to deal with vast amounts of data and information and have the ability to absorb, synthesize, and transfer it into knowledge and understandings that have relevance to our lives .... it is hard to negotiate meaning in the face of such massive quantities of information."

(Yelland, 2007, p.17)

**Information literacy is key to negotiating meaning in the information environment of the 21st century.** UNESCO has declared that information literacy (or IL)

> empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations. (UNESCO, 2005)

Information literacy has been defined by the Chartered Institute of Library and Information Professionals in the UK as "knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner" (CILIP, 2004).The US Association of College and Research Libraries has asserted that IL is "common to all disciplines, to all learning environments, and to all levels of education" (ACRL, 2000, p.1).

All these statements situate information literacy as a vital factor in the development of an individual's learning not only in formal educational settings but also in the wider social, cultural, political and economic arenas. The term 'lifelong learning' is often used to signify the ideal of an informed, independent and self-reliant individual who is capable of finding and using the information s/he needs within all these arenas. Being information literate can therefore be seen as a key part of lifelong learning, and "central to achieving both personal empowerment and economic development" (Bruce, 2002, p.1). It is a means of enriching human experience and the individual's quality of life:

> Being able to use different ways of finding information and being able to judge whether the information is trustworthy or accurate is vital: it opens up choices, empowers us and can give us more confidence. (Welsh Information Literacy Project, 2011, p.2).

Following naturally from the idea of the empowered individual, *autonomy* is a significant element in definitions of IL. Where learners possess the capacity to "extend their investigations, become more self-directed, and assume greater control over their own learning" (ACRL, 2000, p.1), they are endowed with the ability to take responsibility for their own knowledge framework. This enables learners to develop strategies 'on the fly' to meet and handle new information contexts, formats or media, "modifying learning attitudes, habits and behaviours" as required (SCONUL, 2011, p.3). For instance, the explosion of information in the digital age has led to an increased focus on the credibility and validity of information sources, which lack the evaluative clues such as physical appearance and volume, publication details, and cover artwork available in the print environment. New criteria for judging the intended audience, reliability and relevance of material found online are therefore necessary.

Many definitions of IL therefore address learning as an ongoing, developmental process, a continuous evaluation of and adaptation to the information environment: "information literacy cannot be seen as something to be addressed once and then ignored. It is an integrated part of lifelong learning which must be recognised, enhanced and continually updated" (Welsh Information Literacy Project, 2011, p.38).

These qualities of autonomy, discernment and ongoing development are in turn key characteristics in the depiction of the knowledge economy, described thus by Lovitts (2005):

> graduate education is about producing the knowledge workers who ensure the ultimate success and survival of all the major institutions of society, by preserving, creating and developing the ideas, information and technology necessary for them to persist and advance. (p.140)

The importance of information literacy and lifelong learning is evident not only in the definitions and models produced by library bodies, but also in the IL frameworks designed for use in both Scotland (2010) and Wales (2011). In addition, UNESCO has recently released a 'media and information literacy' curriculum designed to support "citizens' making full use of their rights to freedom of expression and the right to information" with "teachers as principal agents of change" (Wilson et al., 2011, p.11).

Summing up, we find from these statements and definitions that information literacy is a fundamental human right; that it is common to all learning at all levels; a key factor in the knowledge economy; and, indeed, "a potential weapon in the cognitive arsenal available to the citizen of the information society" (Whitworth, 2006, p.6).It empowers individuals with an understanding of not merely how to access but also how to judge and make use of information, make one's voice heard, and make a difference.

Yet a study of both theoretical and evidence-based academic literature around information literacy reveals that a major chasm exists between the aspirational assertions outlined above and the applied teaching of information literacy in UK educational institutions. A RIN report of 2008 draws a picture of scattered IL provision across UK universities, while the LLiDA report of the same year states that: "Due to a lack of clear ownership at institutional level, learning and digital literacies are rarely the basis of an integrated institutional strategy" (Beetham et al., 2008, p.5). As this paper will explore, this chasm has arisen out of conflicting perceptions of the nature, role and importance of IL on the part of various stakeholders, which can include students, faculty members, librarians, learning developers, teachers and educational administrators.

This is chiefly due to a failure to establish a common framework of terminology and understanding around what information literacy is and what it is intended to achieve. 'Literacy' is a term with many uses and meanings in various contexts, some of which have been brought into question in the digital age (see, for example, Kress, 2003; Lankshear & Knobel, 2003; Evans, 2004; Beetham et al., 2008). The proliferation of non-textual literacies has attempted to address new forms of communicating and learning enabled by the internet and social media, and thus we have 'digital literacy', 'new media literacy', 'new literacies' and 'transliteracy' as well as 'information literacy'. (Many of these terms overlap in practice: see the mapping in the Executive Summary.)

In addition, the term 'information literacy' is itself not uncontested. The aspirational nature of many of the statements on IL means a lack of guidelines for clear practical implementation. The historical tendency to situate IL within the library, examined in Section 3, has brought about a confusion between bibliographic instruction and IL, leading to claims such as "information literacy remains the wrong solution to the wrong problem facing librarianship" (Wilder, 2005). As the LLiDA report notes, "The lack of a shared vocabulary makes it harder for all concerned to recognise how potential contributions from different providers might fit in to a research training agenda" (Beetham et al, 2008, p.5). The failure to establish a shared recognition of its status and value within the scholarly community, and even an agreed working definition of what constitutes IL, has led to a fracturing of perceptions which has been deeply damaging for information literacy in practice.

This paper focuses on the higher education environment, and specifically on the factors influencing the undergraduate experience of information. It examines the variant, and at times conflicting, visions of information and 'information overload' held by the different players in the higher education field which have contributed to the contested state of information literacy in UK higher education as it currently stands. It argues that information literacy cannot be reduced to rote mastery of functional skills, and that its provision should not be left solely to library or support departments, and thus segregated from core academic practice and thought. Far from being a supplementary, optional or remedial adjunct to the academic curriculum, this paper situates information literacy as a continuum of skills, behaviours,

approaches and values that is so deeply entwined with the uses of information as to be a fundamental element of learning, scholarship and research.

Finally, this paper offers a overview of the nature and role of information literacy from the learner's point of view - a perspective which illuminates the crucial role of IL within learning and which also offers an opportunity to resolve the conflicting perceptions around it, and suggest a way forward for its rehabilitation within the higher education arena.

## 2. Information literacy in the Higher Education institution

"We shall cope with the information explosion, in the long run, only if some scientists are prepared to commit themselves to the job of sifting, reviewing and synthesizing information; i.e. to handling information with sophistication and meaning, not merely mechanically."

(US President's Scientific Advisory Committee, 1963)

**The scholarly mission is based upon information**. It is the currency of knowledge, the matter that is contributed, disseminated, discussed, analysed, judged and assimilated within the academic arena. Foremost in all these scholarly activities is the element of human intellectual expertise, which enables the sophisticated filtering and managing of information prescribed in the quotation above. Notably, these high-order intellectual functions of "sifting, reviewing and synthesising" are inscribed as the solution to what we would now call 'information overload'. This positing of human expertise as crucial to managing and coping with information still holds in the 21st century, and is a key element in the conflicting perceptions of information literacy within the higher education environment.

The academic perception of information, in the sense of knowledge, is both organic and individual. Innovative thought is prized most highly - insights that enrich, challenge or even break with existing knowledge structures whilst displaying a sophisticated grasp of the disciplinary context and conventions. To contribute to knowledge demands not only the highest order of intellectual agility but also an unassailable familiarity with the landscape of the discipline: what has gone before, and how this new information will complement or conflict with it. Information literacy, in the broad sense outlined in Section 1, therefore appears to be a fundamental element of academic practice: as Snavely (2001) argues, "information literacy manifests itself in the specific understanding of the knowledge creation, scholarly activity, and publication processes found in … disciplines" (p.2).

However, in a devastatingly understated depiction of the silent contest over the status of IL in universities, Stubbings & Franklin (2006) note that "Departments are always very supportive of the idea of enhancing students' information literacy skills, but are reluctant to fully embed these competences into the curriculum" (p.2). This finding echoes a theme that appears over and over again in the literature of library and information research: that there is simply "no room in the curriculum" for information literacy (Stubbings & Franklin, 2006, p.2). Yet if high-level information handling is crucial to the academic mission, and if - as the statements in Section 1 assert - information literacy is fundamental to learning in all contexts, why does IL not form a significant element in the mainstream academic curriculum?

Stubbings and Franklin identify a number of reasons for this issue, echoing many previous findings in the literature. Among these reasons are the following:

- Lack of understanding of information literacy by lecturers
- Confusion of information literacy with IT competency
- Student misconceptions that they know how to search the Internet, therefore they believe they are information literate. (Stubbings & Franklin, 2006, p.2)

Badke (2010) goes further, claiming that IL has been rendered "invisible" within academia by a number of causes:

> because it is misunderstood, academic administrators have not put it on their institutions' agendas, the literature of information literacy remains in the library silo, there is a false belief that information literacy is acquired only by experience, there is a false assumption that technological ability is the same as information literacy, faculty culture makes information literacy less significant than other

> education pursuits, faculty have a limited perception of the ability of librarians, and accrediting bodies have not yet advanced information literacy to a viable position in higher education. (p.129)

The lack of understanding noted in both quotations can be traced to a conflict of perception around the nature of information and how to handle it. This conflict has led to a separation between the functional and intellectual aspects of the term 'information'; and within this conceptual conflict, information literacy has become reductively aligned with low-level, functional or basic skills.

The confusion of information literacy with IT competency identified both by Badke and by Stubbings & Franklin offers an example of this reductive alignment. It is an issue that has been addressed well, clearly and often in library literature. The ACRL Competency Standards (2000) recognise that information technology skills are "increasingly interwoven" with IL, but that IL "has broader implications for the individual, the educational system, and for society" and that IL abilities "may use technologies but are ultimately independent of them" (p.2). Bruce (2002) describes the distinction between IL and IT literacy as "the difference between the intellectual capabilities involved in using information, and the capabilities required for using technologies that deliver or contain 'information'" (p.2). In a broader sense, Whitworth asserts that overemphasis on the technological aspects of IL has "damaged its ability to be seen as a subject whose tools may include technological ones but whose field of interest is social" (2006, p.4).

Why, then, does this confusion persist? This may be due in part to 'Google generation' assumptions. The LLiDA report of 2008 found that "Academic staff perceive students as being more digitally capable than is really the case"(Beetham et al., p.6), a trend that may be matched, or indeed caused, by academics' concerns around their own technological capacities, and a concomitant failure to distinguish between finding information online and evaluating it appropriately. The JISC 2009 report on resource discovery found that "Even though users may be able to use a search engine or other resource, they did not necessarily know how to get quality information from it" (JISC, 2010). Likewise, CIBER's 2008 report found that "although young people have 'apparent facility with computers' and confidence in their own ability, these are actually masking their lack of IL skills and performance" (JISC, 2010). (This issue was echoed by our expert panel: see section 7.3 of the Expert Report.)

However, the studies which painstakingly unpick the confusion between information literacy and IT skills are produced, in the main, by librarians and library and information bodies, published in library and information journals, and read almost exclusively by librarians. Thus as Badke notes, "the literature of information literacy remains in the library silo" (2010, p.129) - an effect described by Potter (2010) as an "echo chamber" in which these issues are endlessly rehearsed in library publications, but fail to penetrate beyond the discipline.

**IL and the support environment: skills v. knowledge**

The confusion between IL and ICT skills is bolstered by university organisational structures which very frequently link or converge library and IT services and situate IL provision within this area. As Beeson (2006) notes, this fosters a perception of IL as "a practical matter of making information available and teaching students the tools and techniques needed to access and organise it" (p.211). The consequences of aligning IL with library instruction are explored in detail in Section 3, but it is worth noting here that the emphasis in this scenario is again on the *functional* aspect of information handling - on mastering tools and techniques rather than developing transferable strategies, and on accessing and organising information, rather than using context-relevant criteria to judge its validity and value as part of the academic dialogue and to the individual's research topic.

Separating the functional aspects of dealing with information from their subject context and disciplinary practices in this way risks creating a set of decontextualised or generic 'skills' which are seen as supplementary to core academic practices and behaviour rather than a crucial part of the mainstream

academic mission. As the LLiDA report asserts, “Where skills are delivered as separate components, there is a danger they will not be seen as central or compulsory elements of the learning experience” (Beetham et al., 2008, p.11). This in turn leads to a discourse of “skills as being without knowledge structures” (Barkas, 2011, p.268).

The linking of IL with transferable skills for graduate employability has produced a similarly generic and extraneous focus. IL has been linked to the idea of employability since the Roberts report of 2002, which outlined a need for an increased focus on transferable skills training, and it is tempting to predict that in a climate of increasing commodification of education universities will increasingly attempt to attract students by promoting their future employability. Yet as various studies have pointed out (see Barkas, 2011; Holmes, 2001) employers’ need is not for ‘skills’ in the sense of functional competencies but for an overarching intellectual agility: the ability to adapt an existing knowledge base, to generate strategies for dealing with new information, and to evaluate its impact within a particular context. Barkas (echoing Ainley, 2000) points out that these concepts, unhelpfully subsumed into ‘personal’ and ‘transferable’ skills “are neither personal, transferable, nor skills, but social and generic competences that operate in a given context” (2011, p.3). Similarly, Holmes (2001) points out that “it is by no means clear that employers should want skills per se: rather they want the graduates they recruit and employ to *perform* in desirable ways” (p.112, emphasis mine).

This concept of learning as the ability to adapt one’s behaviour to new contexts is powerfully different from the notion of ‘skills’ as generic components. Where skills are taught without reference to a knowledge structure and perceived as separable from or ‘bolted on’ to academic learning, the implicit suggestion is that mastery of the skill equates to mere *reiteration* of learned behaviour, as opposed to attaining the transformative, performative understanding outlined by Holmes. This performative dimension of learning is similarly described by Biggs: “if you understand something properly you *act differently* in contexts involving the content understood, particularly unfamiliar contexts” (Biggs, 1996, p.351, emphasis in original).

Thus as Barkas (2011) notes,

> although the discourse of knowledge, skills and employability sounds plausible, its generic application has created polarised differences in all aspects of the management, the curriculum and the role of professional status in teaching and learning. (p.266)

Where information literacy is situated in the support arena in this way it may achieve a degree of prominence and visibility, attracting institutional support and resourcing; however, this also engenders a perception of IL as optional or supplementary, rather than a fundamental element of academic theory and practice. Ironically, separating out IL in this way allows its advocates to champion its importance, but its forcible disconnection from the academic curriculum undermines any status it may achieve through advocacy.

**Experts’ and learners’ behaviour towards information**

The performative aspect of learning may in fact be partly responsible for the low status of information literacy in higher education, as academics’ information behaviour over the course of their careers becomes expert and ingrained: “Many faculty members ... have forgotten their own process of information literacy development” (Badke, 2010, p.133). Drawing on years of experience, a broad knowledge base, and an established identity in relation to the field, experts’ familiarity with their discipline allows them to work in flexible, networked and non-linear ways:

> expert researchers rely upon citation gleaning, reading of current journals, and interaction with colleagues for the majority of their research information ... drawing information and ideas from a

> wide variety of sources, all the while revising and rethinking ... (Stoan, 1991; quoted by Badke, 2010, p.137).

Expert researchers, having gained a deep understanding the of practical, theoretical and epistemological issues in their field, reach a point where they rely on multiple vehicles of current awareness – including networks of other experts known both personally and virtually – to maintain and develop their expertise in the field. In contrast, beginning students have no expert networks, no experience base in the field, and have yet to build an understanding of their discipline and its structures:

> During the dependent stage, students are immersed in mastering the knowledge base of their disciplines and specialty areas, learning their discipline's theories and methods, and establishing relationships with peers, faculty and their adviser. (Lovitts, 2005, p.139-40)

Head (2008) also argues that the student research process differs significantly from that of faculty and librarians, who nevertheless "may have, unknowingly or inaccurately, assumed [it] is similar to their own" (428). She cites Leckie et al.'s 1996 study of information behaviour which contrasts the embodied and unconscious expertise of faculty with the "coping strategies" of students (p.429), who create workarounds with a greater or lesser degree of success (p.437).

These workarounds can be successful, as Badke notes: students can develop "an uncanny ability to optimize highly inefficient research methods and somehow pull together a decent dissertation by sheer brilliance alone despite shabby skills" (2010, p.133).In Badke's argument, it is the students who develop successful coping strategies who go on to take up academic careers in which they in turn espouse the view that information literacy can be "acquired by experience" (Badke, 2010, p.129) or through "osmosis or other mysterious methods" (Weetman, 2005; see also McGuinness, 2006).

Under these conditions the teaching of information literacy is once again perceived as supplementary, rather than an integral part of the academic knowledge base. This view has also led to IL's being seen as having a remedial function. If information literate behaviour and abilities can be absorbed by experience or osmosis, this argument suggests, those students who fail to develop such qualities – as evidenced in the workarounds or coping strategies described by Leckie above – are to some degree failing in their academic learning.

Yet students entering higher education often confront a radical change of learning culture and expectations. Many students' experience of school learning will have been grounded in the model of knowledge transfer, in which learning is parcelled into discrete chunks, communicated by instruction and demonstration, and tested by means of memorisation and repetition which rewards rote or regurgitative answers. The 'teach to test' culture runs the risk of inculcating the positivist concept that there is a single right answer, rather than encouraging an interpretative, questioning or analytic approach. Yet this independent, inquiring approach is precisely what is required at higher education, which places value on radically different qualities such as 'finding one's voice', 'critical analysis', and 'research rigour', and where learning is "associated with understanding and interpretation, not reproduction" (Bruce, 2002, p. 4).

However, this transition from the dependent model of learning prevalent in UK schools to the more autonomous learning demanded at higher education is, in general, not well supported: indeed it is rarely made explicit. Starting undergraduates may be told that they need to approach study, writing and learning differently now they are at university, but rarely will they be told in concrete terms how expectations of their performance will differ and how they should adapt their existing attitudes and practices around information to meet these new expectations. (See sections 2.3 and 8.1 of the Expert Report.)

As a result, students whose learning has been dominated by the 'teach to test' model can experience a learning crisis on arrival at University. Yet because of the belief that information literacy is acquired by experience or osmosis, solutions to this crisis are situated outside the mainstream of academic practice; students are directed to support services such as learning development or study skills centres, or in graver

situations to counselling services. In such an environment is it unsurprising to find learning support described as a “poisoned chalice” (Barkas, 2010). As Badke notes,

> In information literacy, though we are dealing with a complex and challenging set of understandings and skills that require much instruction and practice to develop to the point of sophistication, the response of academia to this point has been to make it a remedial issue. (2010, p.130)

The various definitions of information literacy suggest that it is a complex assembly of abilities that underpins all learning activity. At the deepest level, IL touches the convictions and beliefs that inform the researcher’s professional and individual worldview. Yet at higher education level the battle to show that “Information literacy is not a remedial topic but a whole way of thinking about information and its use” (Badke, 2010, p.131) is still being lost.

## 3. Information literacy and the library

"Information literacy is about *understanding information and how it works* .... To equate this with teaching students how to use a library is as short-sighted as assuming that driving a car simply requires that a person know how to step on the gas pedal."

(Badke, 2010, pp.130-1)

**In contrast to the academic perception of information handling as an intellectual operation,** dependent upon the individual's expertise, the library approach to information has been predominantly systematic and, later, technological. It conceives of scholarly information as a corpus of data to be stored, ordered, retrieved and filtered, and in this way rendered manageable and meaningful. Within the library perception of information, its key attribute is its susceptibility to formal organisation through means such as controlled vocabularies, formalised taxonomies and hierarchies, and increasingly detailed cataloguing and metadata standards. It therefore stands in direct contrast to the academic mission of "handling information with sophistication and meaning, *not merely mechanically*" (US President's Scientific Advisory Committee, 1963, my emphasis).

As a result, the library conceives of information overload as a human problem with a technological solution. Whitworth (2006) recalls Vannevar Bush's 1945 assertion that

> there is a growing mountain of research .... [and] increased evidence that we are being bogged down today as specialization extends. The investigator is staggered by the findings and conclusions of thousands of other workers - conclusions which he cannot find time to grasp, much less to remember, as they appear (p.3)

Like Bush's solution of the memex or artificial memory extender, the library's solution to information overload lies in mechanical, rather than human, means: in an approach to information that is both systematic and, in the digital age, technological.

### The unbounded environment and the cloistered garden[1]

In addition to being systematically ordered, the library is a bounded field: a collection selected and maintained by professionals according to specific principles such as appropriacy, reliability and truth-value. The academic library offers a trustworthy subsection of information, meaning that "there is here an in-principle bounding of the notion of relevance within the confines of an organised collection and an orderly search process" (Beeson, 2006, p.213).

Beyond this safe haven or cloistered garden of authoritative, trustworthy sources carefully selected for their academic integrity (often achieved at the cost of dense, unintuitive interfaces) lies the wild, unbounded and treacherous reaches of online information: unordered, unverified, yet freely available and seductively easy to use.

Yet the appropriate or desired information may well lie outside this secure boundary rather than in the library's domain, since no library's holdings – physical or virtual – can constitute the entire world of knowledge. "An information literacy approach indeed might not even in every case take the student to a library" (Badke, 2010, p.131). However, the debate over source reliability and trustworthiness nevertheless tends to polarise around the opposition of library and open web sources, as the Australia and New Zealand

[1] Thanks to Helen Webster for the metaphor of the cloistered garden.

Institute for Information Literacy's statement on 'Helping students effectively understand information' suggests:

> anyone is able to get information about any topic from the Internet .... When students believe everything they research on the internet must be true, they are not able to conduct valid research. (ANZIIL, 2004)

Part of this polarisation is due to beliefs around the ownership of access to information. Here the conflict is one of values, again hinging on the perception of information: in this instance, whether access to information should be mediated by experts, or disintermediated and available to all.

The perception of information as rendered useful and meaningful by means of expert classification and hierarchy has until now legitimised the role of the librarian as both the guardian of information and its intermediary. The older title of 'user education' reflects the view that novice library users must be inducted into and trained in using specialised systems to access information. For example, the user must learn to translate his or her natural search keywords into controlled vocabulary terms (and sometimes even into the idiom of another country, as in the case of UK students in a library that employs Library of Congress Subject Headings). Control and description of resource information is portrayed as a professional skill, festooned with esoteric rules and usages, a specialised field in which the librarian is the expert, gatekeeper and guide.

However, as Tennant has famously asserted, "nobody except librarians want to search; everyone else just wants to find" (quoted in Wilder, 2005; see also Webber, 2011). Like Whitworth, above, Wilder argues that library instruction has been underpinned by the assumption that "students are drowning in information" and that the solution is to "Teach them the information-seeking skills they need to stay afloat". This results in a vicious circle whereby the emphasis on learning to search "encourages librarians to teach ways to deal with the complexity of information retrieval, rather than to try to reduce that complexity" (Wilder, 2005). As a result, the focus of many library sessions which are termed 'information literacy' is actually on the much more basic skill of information retrieval within a highly selective environment, with the emphasis on interface navigation. This can lead to a prescriptive teaching style - "they don't know how to use that database properly so they can't be information literate" (Bent, 2008, p.62) – and to a misguided focus on the interface for its own sake:

> It is amazing that some OPAC users willingly spend hours learning the intricacies of software they want to use on their personal computers, but they grow impatient spending five minutes learning the basic commands and structure of an online catalog in the library. (Peters, 1989, p.272)

**Drowning in information**

The systematic approach to information has led in the digital age to an overriding focus on online tools and technologies, with the result that in many cases the emphasis is placed on the *product* - the library catalogue, the abstract and indexing database, the reference management software - at the expense of the *process* that the tool is designed to support. In some cases library sessions are even used to market subscription resources not because they are the most appropriate tool for the student, but because the resource is under-used (see also section 2.3 of the Expert Report).

Library instruction which focuses on mastering the product rather than supporting the research process propagates the artificial separation between 'skills' and academic behaviour which has led to the contested status of information literacy within higher education. In many institutions the library presents a version of information literacy that deliberately remains aloof from the higher-order operations of the research process such as critical evaluation, hypothesis formation, writing skills and synthesis. Instead, library instruction has placed inordinate emphasis on the act of searching - learning to navigate not only the formal aspects of information organisation, but also the manifold electronic sources available through the

library, with their “dozens of user interfaces, search protocols, and limitations” (Wilder, 2005). The search process has thus become so complex that the tendency is to present the procedure as a separate part of the research process - and therefore distinguishable from the higher-level actions of evaluating, judging and assimilating the material retrieved.

Despite inclusion of some higher-order abilities in many of the models of information literacy on which library practice is based, these are less well defined than, and sometimes subsumed into, the more functional skills the models outline. In particular, library IL models appear to place disproportionate emphasis on the functional actions of search and retrieval, as distinct from the more holistic and iterative research process that combines searching, evaluating, and integrating the results into the researcher’s own argument or hypothesis. Thus 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 an interplay of behavioural, cognitive, metacognitive and affective states, and that contextual interplay is not reflected in existing models.

Webber, approaching the issue from a different direction, has challenged the application of Tennent’s search/find aphorism as a simplistic either-or dichotomy. She argues that feedback from search results can enrich and deepen understanding of a topic, and that “you can **learn** through searching for information” (2011). Similarly, Beeson describes how a research project evolves as familiarity with the topic is gained:

> as we navigate from site to site, and in and out of documents, new information comes to light, and new thoughts are prompted which may well lead us to reformulate our search, incrementally or radically …. we may find ourselves ‘lost in hyperspace’, but also on [the] edge of exciting discoveries. (Beeson, 2006, p.214)

Both Beeson and Webber present a picture of searching that places the student or learner at the centre of the activity. The learner does not perform a one-off ‘rote’ search, but exercises judgement, selectivity, and flexibility in order to perform an iterative exploratory activity that both informs and is informed by the learner’s perception of the topic at a given point. This echoes Hepworth & Walton’s focus, which emphasises the role of the individual performing a task in a particular context and at a particular time in his or her development.

To break down this multi-faceted, compound exploratory activity into separate, sequential or linear actions is to offer a simplistic and unrepresentative view of the research process. Yet in endeavouring to describe the components of information literacy, the majority of library models have inadvertently done just this. Too strong an emphasis on search techniques suggests that IL consists not just of lower-order skills based around familiarity with functional routines, but that these skills are generic and can be taught independently, without reference to the individual’s information needs or subject context.

This manoeuvre fatally reinforces the perception of information literacy as a separate, supplementary or bolt-on skillset suitable for teaching outside the academic curriculum. Furthermore, the continued emphasis on search techniques in the digital environment has led to accusations that the library is offering “the wrong solution to the wrong problem” (Wilder, 2005).The most demanding activity in the internet age is no longer searching but evaluating: "e-literacy demands the development of abilities to make and convey judgements about the relevance of information from navigation in an unbounded and diverse information environment" (Beeson, 2006, p.210). Likewise, the JISC 2009 report notes that

> searches which once took days of painstaking work can now be done in a matter of seconds. Increasingly, learners and new teachers’ needs are defined by their capacity to differentiate information … (p.1)

The gatekeeper model, with its paternalist vision of helping the student to find 'the right information', is in many ways laudable, but is in conflict with the whole concept of the autonomous, information literate learner described by UNESCO, CILIP, ACRL and others (see Introduction). More pragmatically, it is also contrary to the disintermediated access to information enjoyed by anyone with access to the internet and a search engine. Where librarians have traditionally prized and taught the ability to "find precisely the right information, in a finite repository, by skillful searching" (Beeson, 2006, p.210), the internet and search engines have dramatically undermined the need for formal organisation and ontologies. As Shirky suggests, "If you've got a large, ill-defined corpus, if you've got naive users, if your cataloguers aren't expert, if there's no one to say authoritatively what's going on, then ontology is going to be a bad strategy"- and as he further notes, this is "an almost perfect description of the Web" (2005).

Whitworth's (2006) study of the conceptual foundations of IL practice argues that the ACRL standards lend themselves to an instructional teaching style that enacts and enforces a prescriptivist, single-answer perception of the information landscape. Such a teaching style closes down opportunities to construct and explore information in ways that develop autonomous learning. Instead, it allows the teacher to "specify certain technologies to be useful, certain techniques appropriate, certain selection criteria preferable, and certain uses legitimate" (Whitworth, 2006, p.8). Such an approach robs the student of the chance to develop active, informed and contextually appropriate strategies for selecting and handling information, instead presenting a 'one-size-fits-all' - or, perhaps, none - generic model.

**A new role for librarians?**

With the future and indeed the identity of the library so much in question it is tempting to insist on our historical claim to information literacy as the traditional province of librarians simply as a means of retaining our value in higher education. However, the 2008 LLiDA report crisply recommends that

> While librarians can be regarded as pioneers in articulating the impact of digital technologies on their area of expertise, and adapting their practices of support, *digital literacies cannot be left to librarians if they are to be embedded throughout the institution*. (Beetham et al., p.11, my emphasis)

Bent is equally clear on this issue: "Librarians see the support of information literacy development as 'their' domain, but if we see information literacy as part of learning, this is an increasingly unsupportable view" (2008, p.60). Section 4.5 of the Expert Report also deals with this issue.

At the practical level, information and information channels are mutating too rapidly for a set, taught knowledge base to be either practical or useful. This means that we can no longer attempt to train students behaviouristically in all the sources and strategies required for dealing with information (see also section 7.1 of the Expert Report). The autonomy and ability to create new strategies for assimilating and using information engendered by information literacy in its broadest sense is the more necessary as we can no longer teach every possible information context or conduit. Therefore, information literacy remains crucial: but the narrow understanding that identifies IL with library resources, or indeed the library itself, must be jettisoned.

Nicholas has suggested that "we are all librarians now, and have to behave like them - constantly reviewing and validating data" (cited by Rapple, 2011, p.12). Yet it could be argued that students only need to behave more like librarians in that they should be empowered to become their own gatekeepers of knowledge. The emerging need is perhaps more for librarians to behave more like researchers: to understand 'information' in a broader sense than library resources, and to establish a deep interactive understanding of the uses of information within the context and parameters of their discipline. Under these circumstances "Librarians would not be teaching students to become librarians, but to absorb and add to their disciplines in ways that make them more like their professors" (Wilder, 2005).

This chimes with Andretta's view that

> If the learner/user becomes information literate, that is, self-sufficient, then the role of the information professional is necessarily redefined as the one of facilitator of learning, rather than provider of information. (2005b, p.2)

Library instruction must therefore move away from the prescriptive, instructional approach and the focus on executing a well-formed search. Information literacy cannot be equated with 'bibliographic instruction' or 'user education' about the library: being information literate does not consist of the ability to use a library, a catalogue or an abstract and indexing database. In short, teaching people how to use a library and its resources is different from teaching them about information. As Godwin argues, therefore, a fundamental change in approach is necessary for librarians:

> It's time to stop boring our users with conducted tours of our libraries, earnest library guides, and endless demonstrations of those arcane databases that we love so much .... Our users have new mindsets and new expectations. (2008, p.3)

The irony is that the impact of the digital age has served to increase the stress on tools and technologies as solutions for information overload. With an increasing quantity of information now available and insufficient guidance available on how and where to look, the need for students to become informed and autonomous, capable of adapting to new information contexts, is greater than ever before. There is no longer a role for the gatekeeper model; rather, there is an imperative need for scholars and citizens to be capable of accessing, evaluating, and handling information in all its levels, types and formats appropriately:

> the most important thing libraries can do to educate students is not technological in nature. We must change the way we think of students and of librarians. Students are apprentices in the reading and writing of their chosen disciplines, and librarians are experts who can help them master those tasks. Here is an educational function that creates real value within our institutions. (Wilder, 2005)

## 4. Information literacy and the learner

"Information literacy ... is clearly part of the fabric of learning; and, if students are to learn to learn from the resources available in information rich environments, must be woven into the learning experience."

(Bruce, 2002, p.3)

**The academic perception of information ultimately finds meaning in its novel, innovative or creative aspect**: in ground-breaking new thought which refuses to fit existing knowledge structures. This perception is governed by a concept of knowledge and information as organically generated. It also views the processes involved in making information manageable and meaningful - sifting, filtering and appraising - as high-level cognitive functions informed by individual expertise.

This vision of information as an organically generated and managed creative phenomenon is clearly at odds with a perception which chooses to focus on systematicity. Where the academic view of information inherently promotes and celebrates difference in the form of innovative or creative thought, the system view demands *similarity*: likeness with what has gone before means that what is new may be fitted into the taxonomic framework, and that the same structure of classification, description and ordering may be applied to it.

This conflict of values around different constructions of 'information' has led to a conceptual split within higher education, the effect of which is to create a deeply polarised opposition of functional 'skills' and intellectual proficiencies. This in turn suggests that these are different in kind, and gives a confused and conflicting vision of the processes of study and research that the learner is left to recover.

For the learner to address and resolve the dichotomy between the underlying perceptions of information within higher education, therefore, requires something more than a sophisticated and nuanced grasp of the discipline. Equally, it requires more than a functional mastery of taxonomic and technological tools or a grasp of 'key skills'. In addition to these components, navigating the complex and various perceptions of information requires a reflective or metacognitive structure which allows the learner to recognise that each has its own validity *within a given context*.

Conflicting perceptions of information may thus be reconciled if they are situated within a relational framework which enables an awareness that the conception of information can vary according to individual needs at a particular time, rather than being monolithic and non-negotiable.

Such a framework has been outlined by Bruce, Edwards & Lupton (2006), who describe five different 'frames' for perceiving information, each of which entails certain mutually exclusive views, attitudes and values, and which are brought together within a sixth, relational frame. This sixth frame is contingent on being able to discern that a range of frames exists. Once in place, it permits the individual to choose any of the frames, and deploy the one most appropriate for the context.

This mental manoeuvre is described by Biggs (1996) as "understanding as appreciating relationships". He asserts that at the reflective level "the components are integrated into a coherent whole, with each part contributing to the overall meaning", and that "the integrated whole at the relational level is reconceptualised at a higher level of abstraction, which enables generalisation to a new topic or area, or is turned reflexively on oneself" (p.352).

Such a metacognitive framework is therefore linked to the deep behavioural or performative understanding that permits a transfer of learning to new contexts, as described variously by Holmes and Biggs in Section 2. In addition, it runs directly counter to the positivist 'one right answer' approach describe by Whitworth, since it is the individual who is responsible for choosing which frame to employ depending

on context and need. Learning therefore becomes a matter of actively constructing knowledge, not passively receiving it.

This sophisticated metacognitive or reflective approach mirrors the nature of research, which is not merely to affirm but also – indeed primarily – to query. It is less about finding answers than about framing questions; problem-setting, not just problem-solving. Lovitts argues that "Creative intelligence is the ability to formulate good problems", and that

> The synthetic role involves insightful information processes, such as coming up with ideas, seeing old problems in a new light, redefining or reconceptualising problems, putting existing information, concepts or theories together in new ways, and the ability to change direction and use difference procedures when the current problem-solving strategy proves ineffective. (p.143)

Thus as students move from models of dependent learning and the 'one right answer' culture into constructive, interpretative or analytic learning, their "relationship with knowledge changes" (Lovitts p.139-40).

However, in a study focusing on postgraduate researchers Lovitts found that students struggled to make the transition from "being good course-takers to being creative, independent researchers" (p.138). Lovitts argues that the transition from course-taker to independent scholar entails a crucial shift from consumer of pre-selected and pre-packaged knowledge to "a producer of knowledge" capable of working with uncertain processes and unstructured contexts (2005, p.138).

Parallel with students' development within the chosen field or discipline, therefore, is the need to develop autonomy and awareness in their own learning processes: "At the same time, learners must be invested with the responsibility for their learning" (Andretta, 2005b, p.3). Students must be empowered to recognise and manage their own learning development as a strand that runs parallel with mastery of their subject discipline: intellectual insights must be matched by and grounded in a flexible, evolving and reflective attitude to the information context of the field.

**Learning and the construction of identity**

Learning only occasionally involves acquiring new knowledge; more often it involves effecting change in existing knowledge, a process that can have a major impression on our identity. Encountering new information that challenges our convictions or conceptual framework can be unwelcome and can impact negatively on self-esteem and self-image. Developing understanding of a discipline is often contingent on grasping 'threshold concepts' that are "problematic or 'troublesome' for learners .... a student's progress on a specific aspect of a topic can even be brought to a halt by the failure to grasp a particular threshold concept" (Edwards, 2011, p.4). Lovitts notes that the transition to independent learning requires students to navigate processes that often seem "vague and alien concepts" and that to negotiate these processes "students must undergo both psychological and social transformations" (2005, p.140).

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. Likewise it empowers them to recognise and develop their relationship with information-handling and thus their identity within a given field: as Holmes writes,

> What is socially salient is not so much the formal award of a degree, but the extent to which an individual who has graduated is successful in gaining affirmation of their identity as a graduate in relation to the social setting for which this is deemed relevant. (2001, p.115)

The concept of learner identity is similarly raised in the LLiDA report, which describes learning

> not as the collection of competences but as the emergence of an identity. Particularly in higher education, learning is about being able to take up a personal stance in relation to subject knowledge and expertise. (Beetham et al., 2008, p.12)

As Schon argues, however, this formation of identity causes changes at a deep level which can impact deeply and negatively on the learner. During "periods of change or transition in which urgent questions of identity are raised .... critical elements of the self come into question." (Schon, 1973, p.11). As new information is encountered it may come into conflict with individuals' existing convictions or values, and in some cases the existing world view cannot accommodate the new information.

> In these situations there is not a lack of information. There is not an 'information gap'. There is an *information overload*, too many signals, more than can be accounted for; and there is *as yet no theory in terms of which new information can be sought or new experiments undertaken*. (Schon, 1973, p.13, my emphasis)

This description directly relates information to its context, the surrounding or underlying framework which allows us to invest information with meaning through pattern, hierarchy and relative value. This framework is the system through which information can be interpreted and assimilated - related to what is already known or believed. The anguish of uncertainty and crisis of identity which Schon describes as "overload" is an apparent undermining of the totality of the contextual framework. It is not a function of the *volume* of new information demanding attention but of its inassimilable nature, which renders the contexual framework partial and questionable.

When attention is directed in this way towards the framework we undergo instability, because the framework is closely related to the individual identity which in turn assures us of a stable, recognisable and established place in the order of things. It helps us select appropriate behaviours and expressions and gives us a means of interacting with our environment. Thus new information that refuses to fit into or be assimilated to the framework has the effect of rendering it deeply unstable. In knowledge terms this can bring about a paradigm shift - an irresistible undermining of an established and monolithic vision (e.g. the effect of quantum theory on Newtonian physics). For the individual, however, this new definition of information overload goes beyond the previous, dichotomised solutions - the expert human filter, use of the taxonomy or technological tool - and becomes a matter of a threat to the learner's identity.

If learning is to encounter and assimilate new information - to 'stretch' or 'broaden' one's world view - the process will *necessarily* at some points create such a conflict at the individual level. Yet little attention is paid in learning establishments to this affective dimension or to the personal anguish that can arise from these challenges to world view and identity. Or it may be more correct to say that little attention is paid within the mainstream system of teaching and learning to these processes and their effect. Universities offer pastoral care and counselling, but by their nature these are separate from the academic pursuits they support. Yet the affective impact of learning will be familiar to counselling staff, study skills advisors, and learning developers all over the UK.

Equipping learners with the outlooks and strategies that will enable them not just to discover new information, not just to judge its value and assimilate it, but to cope with the changes it brings to their beliefs, convictions and self-image, is surely a fundamental element of the mission of higher education. It is beyond doubt a fundamental element of information literacy. This brings renewed force to the assertion that "information literacy isn't just a library issue, but is an issue for all of HE and society as well" (Snavely, 2001, p.2):

> Ultimately, information literate people are those *who have learned how to learn*. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because *they can always find the information needed for any task or decision at hand*. (ALA, 1989, quoted in Andretta, 2005a; my emphasis)

The IL continuum is so complex, sophisticated and entwined with our uses of information - everyday as well as academic - that we should endeavour to perceive it not as 'invisible', as Badke pessimistically suggests, but as *indivisible* from the processes that constitute research in its broadest context: the processes of evaluation, comparison and selection; of questioning and problem framing; of synthesising variant views and creating new ones. Thus there is an imperative need to rehabilitate the perception of information literacy and recognise that it is not merely a set of skills and competences, but a continuum that *starts* with skills and competences and ascends towards high-level intellectual and metacognitive behaviours and approaches. It is a "complex of different ways of interacting with information" (Bruce, Edwards & Lupton, 2006, p.6), and, as such, a fundamental component of learning, scholarship and research.

## 5. Conclusion: Teaching learning / learning teaching?

"The important thing is not to stop questioning."

(Albert Einstein, 1955)

**How can creativity - or autonomy, or empowerment - be 'taught'?** How can students be trained to achieve insights, to make intellectual breakthroughs, to recontextualise a problem in a way that revolutionises a discipline? While it is impossible to transmit these qualities as a kind of 'pre-packaged' knowledge through instructional training, it *is* possible to support students in developing their own reflective construction of the uses of information in their field. To achieve this requires a pedagogical approach predicated on "a knowledge construction process, rather than a knowledge transmission approach" (Andretta, 2005b, p2).

Active or inquiry-based learning is becoming a more common teaching technique in both IL and information skills classes (explored at length in section 4 of the Expert Report). Active learning is a pedagogical technique which to operate effectively requires a shift in the teacher's outlook and behaviour, not just in the session design: this shift entails

> movement from a content orientation to a process orientation to teaching, shifts from a teacher-centred to a learner-centred view of learning, and an increased emphasis on understanding the perceptual worlds of students and their pedagogical implications. Such shifts both aid, and can be aided by, guided movement towards information literacy education. (Bruce, 2002, p. 11)

The 2008 LLiDA report reiterates the need for a learner-focused pedagogy, noting that "literacy provision ideally starts with learners' existing practices and conceptions";

> It also needs to recognise that the process of development will be incremental, and challenging. Learners need scaffolding, direction and modelling in the first instance, followed by practice and personalisation, giving way to unstructured tasks through which they can learn to choose strategies and technologies to suit different situations and their own preferred ways of working." (Beetham et al., 2008, p.9).

It is vital to distinguish this concept of scaffolding from the dismissive term 'spoon-feeding' which is often applied to supported learning. Where 'spoon-feeding' suppresses the learner's ability to act for him- or herself, scaffolding is a form of constructive empowerment: it

> provides differing degrees of assistance for a learner according to his or her progress. As the learner's abilities grow, the assistance formerly available is gradually withdrawn until he or she can learn independently. (Chang et al., 2002, p.7)

Thus "An important aspect of scaffolding instruction is that the scaffolds are temporary" (Van Der Stuyf, 2002, p.2). Once again, reflection plays an important part in creating a collaborative learning structure that enables the student to move towards autonomous learning:

> When reflection on learning to be information literate is combined with the experience of information literacy, students are helped to recognize the transferability of the processes involved to every day life, community and workplace contexts. (Bruce, 2002, p.1)

**A co-operative pedagogy that includes the learner**

Moving away from the instructional teaching style takes time and resourcing: it may require an increase in staffing, in number of classes offered, or both. Resource creation and maintenance, assessment design and execution, presessional audits and other potentially new elements of the classes require time for reflection and preparation. In addition, the maintenance of class materials, currency of content, and keeping one's teaching style fresh and engaging, are greatly aided by continuing professional development activities such as exchange of experience days, workshops, and conferences. These too require time away from the desk and the day job, and are difficult to assess quantitatively in terms of cost benefit or return on investment.

Wilder argues that: "Most college libraries can reach some students; some libraries can manage to reach all students. But no instructional program can reach enough students often enough to match their steady growth in sophistication throughout their undergraduate careers" (2005). Yet by embedding information literacy into the academic curriculum, the growth in sophistication of students engaged in contextual information handling should keep pace with and enhance their development in subject knowledge. Thus as Snavely argues, "faculty and librarians should ... work together to develop assessment instruments and strategies in the context of particular disciplines" (2001, p.2). (See section 4.2 of the Expert Report.)

The LLiDA report also advocates a collaborative approach "in which diverse skills of staff and students are recognised and used as a resource, in more flexible organisational structures". This approach has the additional advantage of underlining the complexity of "the multiple modes of engagement, varieties of digital scholarship, and numerous specialist applications, which characterise the academic experience" (Beetham et al., 2008, p.9).

However, as Biggs cautions, this is not a matter of merely changing the approach to teaching, but of changing the whole outlook. "Attempts to enhance teaching need to address the system as a whole, not simply add 'good' components, such as a new curriculum or methods" (Biggs, 1996, p.350). Faculty, librarians and other staff themselves need to engage in a process of reflection and revaluation around their own practices of both teaching and learning.

> The extent to which academics are prepared to become more reflective and self-conscious of their own ongoing learning will influence their ability to engage with students more interactively to create open spaces into which students can bring their own experiences to create quality learning. (Karelse, 2000, quoted in Bruce, 2002, pp.10-11)

A similar change in librarians' perceptions may be required. As Bent (2008) writes,

> There is a general assumption that all librarians are information literate .... However this may not always be the case. Many library staff have taught "user education" and "information skills" to students very successfully for years ... and see no reason to change their practices. (p.59)

It is not sufficient for librarians to "learn[] to speak the language of pedagogy in order to make information literacy more acceptable to teaching staff" (Andretta, 2009, p.2) or "to push the right buttons with faculty staff" (Stubbings and Franklin, 2006, p.5). As Biggs notes, changes in teaching must be matched by a change in outlook that informs the whole system.

Effecting a shift in pedagogic outlook is challenging not merely in resourcing provision, but also in affective or emotional terms. Paradoxically, it can be less demanding both personally and pedagogically to design a class around instructional and demonstrational teaching, where the 'sage on the stage' imparts knowledge, than to design opportunities to involve students in their own learning and open up discussion and peer exchange (see Tilley 2011; Andretta 2005b). However, as Whitworth (2006) points out, the instructional style can enforce a positivist 'one right answer' approach which is fundamentally and damagingly at odds with the higher-order functions of information literacy and with the interrogative nature of the scholarly mission. If we are to equip students with the strategies and attitudes which will enable them to become inquiring scholars and lifelong, autonomous learners, we must recognise that we do not have all the

answers. Rather, learning should become a negotiation of meaning between students and teachers (Barkas, 2011); we should engage students in reflecting on their own information literacy, "rather than just 'doing it to them'" (Bent, 2008, p.47).

Tilley (2011) outlines a model of community learning that actively engages students in the construction of knowledge:

> all of us, whatever our status and role, should never assume that we are the experts imparting knowledge .... Where the 'teacher' also demonstrates that they are prepared to learn from the student, then community learning begins to take place. (p.2)

Interestingly, this challenge to our teaching methods and styles mirrors the affective impact on the learners. The deep changes in approach and outlook caused by greater awareness of the information landscape, and by reflection on our own information practices, can be frightening. Therefore, learning to teach information literacy in its broadest sense as a spectrum rather than a skillset, and in an active, reflective and scaffolded way, could present significant challenges for library - and other - staff accustomed to the 'gatekeeper' approach to information or a reference desk environment which requires them to find answers, rather than explore questions. However, "this is not to take away our role as 'teacher', and in many instances it is right that we take that on, but it should encourage us to take a broader approach" (Tilley, 2011, p.135). (This issue is explored at length in sections 6.2 and 6.5 of the Expert Report.)

Ultimately, as Bruce comments, "changes in educational cultures cannot be mandated" (2002, p.11). To establish a truly collaborative approach which supports learners at every point of the undergraduate career requires greater awareness of and reflection on teaching methods, styles and practices on the part of librarians and other staff members charged with teaching IL; but there is a parallel need for institutional support for the staff members – whether faculty, librarians, learning developers, careers and admissions staff – who will themselves experience teaching as an ongoing process of learning and development. Until this takes place, we may do as Bent (2008) suggests, and

> think of information literacy in terms of threshold concepts. We want perceptions of information literacy to change so that learning habits are adapted in a permanent way and it is this philosophy that we are trying to pass on … one threshold concept might be about moving from seeing it [information literacy] as skills to seeing the bigger picture, certainly a threshold you can't go back over the other way! (p.61-2)

To perceive information literacy as a contextually situated continuum of skills, behaviours, attitudes and values which enable individuals to navigate "the inequitable labyrinth of the information society" (Whitworth, 2006, p.1) is to see it as the defining characteristic of the discerning scholar, the informed and judicious citizen, and the autonomous learner. We are all gifted with the capacity to take a personal stance, to voice opinions, and to build our identity, but for our contribution to society to be meaningful and valuable, it must be rooted in and guided by an information-literate world view.

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