

14

New developments in information literacy in the tertiary education system: An overview

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The genesis of the term 'information literacy' is well-known: almost every dissertation, paper, or other work about information literacy records that the term was first used in 1974 by the President of the Information Industry Association, Paul G Zurkowski, in a paper written for the National Commission on Libraries and Information Science, then an independent agency of the United States (US) of America.¹ This gives the impression that coining the term is something of a starting point for the topic, but this is a misconception. Zurkowski's (1974) paper is titled 'The information service environment relationships and priorities' and it is the fifth in a series of related papers² discussing the role of information in social and economic development in the US. Zurkowski makes it clear that the concept of information literacy was nascent in many minds at the time of writing: he provides a title for the prologue: 'The goal: Achieving information literacy', suggesting that these words would resonate with his readers. Furthermore, William Badke, looking back in 2010, discusses, from the viewpoint of personal knowledge, the work of Zurkowski against the background of the time (Badke 2010). Badke (2010) explains that the context of the paper was concern about the consequences of the increase in the volume of published material – the so-called 'information explosion' – and ideas about the skills necessary for coping with what was rapidly becoming seen as 'information overload'. As so often happens, it is only after a significant period has passed that one can begin to understand the development of a concept in the context of the conditions and imperatives of the time.

Information literacy has been viewed as a multifaceted concept; definitions of the term have been relative to its use within the confines of various disciplines and workplace environments, as well as other similar concepts and their application to information technology. Perceptions of the term as an emerging concept have tended to focus more on issues of access to information, skill or competence in handling information, critical thinking and problem-solving abilities. Behrens' (1994:309) historical analysis of the concept points out that the exponential growth of information redirected attention to issues of information handling and brought to the fore the need to re-examine the traditional role of libraries and librarianship through user education programmes. Since the term 'information literacy' was coined, the concept has been variously interpreted by different authors. This chapter will suggest a tentative historical framework for understanding the emergence of information literacy and its development, particularly within the tertiary education system. It is in no way a comprehensive historical review of the literature – that awaits further work and a larger canvas – but, rather, a selection of papers considered as marking significant stages in the development of information literacy as a subject of discourse.

Method

The antecedents to information literacy can be traced far back in the development of the professional discipline of librarianship and information science, and can be said to form a 'prehistory', which is followed by a 'protohistory'. Historians use this latter term in several ways, but one that is especially useful for our purpose is that it describes a period after the formation of a society, but before the society produces its first histories; in other words, before there is a language adequate to express ideas about its culture (Anon 2011). In this sense, in identifying a 'protohistory', we are considering the period immediately after the term 'information literacy' has been coined and we are trying to identify the emergence of crucial ideas.

Thereafter, the aim is to identify what seem to be major developments and to group them by contribution to our understanding of what forms information literacy. A clustering emerged from a 'thought experiment' based on the contents of a comprehensive review of the literature on information literacy (Lawal 2009; Lawal 2011). From this, a tentative framework for the development of information literacy was developed. The tentative framework:

- Prehistory: the antecedents of information literacy;
- Protohistory: a period immediately following the adoption of the term, as concepts begin to form;
- Experimentation: a period when many approaches are tried, but before there is an understanding of cause and effect;
- Formalisation and codification: a period when strategy begins to emerge and effective approaches become evident;
- Theory and pedagogy: a period when a deeper understanding of the learning

process emerges and information literacy development is linked to theories of education; and

- **Experientialism:** period when challenges to, and development beyond, the prevailing theories and practice of information literacy take place.

This is not to suggest that the development of information literacy has necessarily followed a neat, step-by-step process: rather, there have been periods of recursion involving the last four components of the framework. During these periods, there have been further experiments leading to improvements and modifications that have then had to 'bed-down' before wider adoption.

Prehistory

It is difficult for us, in the 21st century, to appreciate that the concept of the librarian as having any role in the educative process is, in itself, of modern origin. Still less apparent in the early history of the profession is the notion of the librarian as an initiator and facilitator of a learning process. For example, John Winter Jones (then Librarian of the British Museum), in his inaugural address to the 1877 Conference of Librarians stated, as if it were a new idea, 'A librarian ought to be much more than an officer to take charge of a collection of books; he ought to be an educator' (Jones 1877:5). There is certainly evidence for instruction in the use of a library – a concept that came to be known as 'bibliographic instruction', as noted by Ewert (1986), but beyond this essentially practical approach there is little until the concept of popular education becomes part of social discourse. In 1876, Melvil Dewey (1876:5) considered the higher role of the librarian: 'The time is when a library is a school, and the librarian is in the highest sense a teacher'. It has been suggested that such seemingly avuncular statements need to be interpreted with care, because Dewey was strongly influenced by an emerging technocratic view of the need to manage intellectual resources on behalf of the national endeavour (Frohmann 1996), a view that may be traced from the Utilitarian philosophy apparent in some 19th-century thinking. Whatever the view taken, it is certain that Dewey's writings had a considerable influence on the development of a professional identity, including a strong association with education. This held true in both North America and the United Kingdom (UK) and, by association, in the countries where the form of professional education consciously adopted American or British models.

Experiments with teaching methods also had a strong influence. For example, in 1934, the American Library Association Conference on National Planning for Libraries took note of a change from solely classroom-based group education to forms which could incorporate project-based study and individual work in the school library (American Library Association 1935). In 1940, Harvie Branscomb, supported by a grant from the Carnegie Corporation, conducted a study on the use of college libraries and concluded that they were underused and that academic staff made little significant use of the resources to support their teaching (Branscomb 1940). This finding, supported by parallel research in North America and elsewhere,

encouraged the development of bibliographic instruction, mostly using large-class teaching; attendance at such courses was often obligatory. Many consisted of a short series of lectures, with no obvious link to academic work or research. A prevailing problem was the lack of a widely-accepted conceptual framework. This gave rise to criticism of the excessive curriculum time wasted and the eventual abandonment, or weakening, of many programmes.

As mass media began to develop in the 1950s and facilities for viewing them became more common in educational institutions, interest in using them in the context of learning and teaching grew, resulting in experiments in constructing customised learning. In 1960, Patricia Knapp developed a programme for teaching bibliographical instruction, while the research process was planned as an integrated part of the academic programme, making links with actual academic work and research to be undertaken (Knapp 1956): in this way, she hoped to secure cooperation with academics and acceptance by students. Her work at Wayne State and Monteith College in the US was widely recognised and had an impact not only on tertiary, but also on primary and secondary education, in both the US and elsewhere. Knapp's approach extolled the individualised, experimental approach to discovering and using information resources and can be seen as having many of the elements of what would become outcomes-based education. Although Knapp continued to work on developing the programme, funding for its full realisation was denied because of doubts by academics and administrators about its value, given the cost (Worrell 2002).

Further development of library, or bibliographic, instruction continued in the 1970s, but was largely library-based, which severely restricted its impact and hampered its development.

Protohistory

Zurkowski's paper thus appeared at a time of growing concern about how to cope with the plethora of information becoming available, how to select and channel such information to sustain economic and social development and, generally, how to ensure that people had access to relevant information. As Paul Königer and Karl Janowitz (1995) wryly observed, the population was 'drowning in information, but thirsting for knowledge'. Although Zurkowski was principally addressing the needs of industry and government, the ideas that he explored and his suggestion of the need for the development of a plan by the National Commission on Libraries and Information Science to achieve an information literate population in the US by 1984 caught the professional imagination. Here, also, the new term 'information literate' – developed later as 'information literacy' – was used to embrace a variety of research, academic and socially-useful skills, without including the term 'library', the employment of which several commentators had come to suggest was problematic because of the negative connotations sometimes attached to it. For example, Bill Crowley commented that

Many library and information science faculty members want to drop the word 'library' and emphasize 'information' in our professional education. The motivations for what might be termed the 'dump the library' movement are complex, reflecting both an admirable concern for the future employment of graduates and an understandable – if self-serving and ultimately doomed – effort to enhance our status in higher education' (Crowley 1998:48).

There was fertile ground, some professional support and apparently strong social reasons for devoting resources to developing the new concept of information literacy.

Experimentation

With the insights gained from the successes and difficulties of the library or bibliographic instruction period, the development of the ideas behind information literacy was quite rapid, but centred on individuals and institutions. The prevailing model was the in-library course or workshop, mainly in academic libraries and schools. The latter was driven, especially, by the belief that information literacy as an educational programme could have the greatest effect if it could enrich children's learning experience in the classroom and in the library. Such learning would then be carried with them into higher education, the workplace and society. Robert Taylor (1979) provides a pithy overview of the changes that were to become necessary if information literacy, amongst other changes to the profession, were to be developed.

The essence of such a period is one of purposive turmoil: many ideas have to be tried; there is a rapid churning of activity and many claims and counterclaims, but little actual evidence of properly evaluated studies and assessment of implementation. Such work requires a body of experience to compare and contrast, while amassing it takes time and experimentation.

Formalisation and codification

Progress in the development of a new concept depends, critically, on persuasion and adoption. Few people or organisations would be willing to devote resources to trying an approach unless there was some evident recognition by others of the validity and usefulness of the approach. This can come about only through a process of formalisation, where agreement is reached as to what the approach constitutes, and codification, where its components and their interactions are defined.

One of the key difficulties for the advocates of information literacy was that of establishing the difference between this subject field and apparently closely related fields, such as library and bibliographic instruction. The matter was further complicated by growing awareness of the role that computers were likely to play in the workplace and even in education. This brought forth an era of confusion which has persisted for a long time. The question must be asked: is 'getting to know computers' also part of information literacy? An article by Shapiro and Hughes noted that

some of the most vital questions about the emerging phase of our society – some of its most important economic, social and political issues – are turning out to be about both information itself and about the information infrastructure (Shapiro & Hughes 1996:31).

They went on to distinguish between various ‘literacies’:

- Tool literacy: being able to make productive use of information technology (IT);
- Resource literacy: understanding the form and means of accessing information from various sources;
- Social-structural literacy: knowing how information is related to social structures and the means of its production;
- Research literacy: being able to use IT tools for productive research;
- Publishing literacy: being able to express and communicate ideas to a wider audience;
- Emerging technology literacy: the ability to adapt and keep up-to-date with technological developments in the use of information; and
- Critical literacy: or the ability to evaluate information and its sources.

This helpful clarification encouraged the formalisation of the field and its eventual codification. Further work on the recognition and development of underlying theory emanated mainly from within the higher education sector, of which the definition developed by the Association of College and Research Libraries (ACRL) (2000) was especially influential. It defines the qualities of an information literate person as the ability to:

- determine when information is needed;
- access the information needed effectively and efficiently;
- incorporate selected information into one’s knowledge base;
- use information effectively to accomplish a specific purpose; and
- understand the economic, legal and social issues surrounding the use of information and access and use information ethically and legally.

The ACRL definition embraces many of the core elements of the ‘literacies’ listed by Shapiro and Hughes.

Similar frameworks were developed by a Task Force on Information Skills in the UK (Standing Conference of National and University Libraries [SCONUL] 1999). SCONUL, known since 2001 as the Society of College, National and University Libraries, has produced a complete revision (Society of College, National and University Libraries Working Group on Information Literacy 2011). In the Australasian region, information literacy frameworks of a similar kind were developed (Council of Australian University Librarians 2001), which were later issued

in a considerably expanded form as a revised edition (Bundy 2004). This activity served as a guiding principle for implementing information literacy programmes in various educational institutions. A common element of these frameworks is that they each identify access, acquisition, evaluation and manipulation of information as necessary steps in the information-seeking process. Also, each framework discusses an identification of information needs as a necessary element of information literacy and emphasises the value of the ethical use of information (Lau 2006). The difference between the frameworks, however, is that while the ACRL's definition sets information literacy within a social scenario, SCONUL's model places greater emphasis on the recognition of information need and the steps involved in the information-seeking process are more related to the academic environment. The Australian and New Zealand Framework, on the other hand, was largely adapted from the ACRL framework and incorporates two additional standards which include principles that embrace social responsibility through a commitment to lifelong learning and community participation (Andretta & Cutting 2003). This brings it even closer to the view of 'literacies' held by Shapiro and Hughes.

Theory and pedagogy

Evidence that there could be major differences of opinion over the value, even the conceptualisation of the meaning of information literacy, emerged from the work of, *inter alia*, Boon, Johnston and Webber, whose findings noted that most of the commentary had originated from librarians and provided a counterbalancing view by considering that arising from academic staff. This revealed a hitherto unexpected richness and complexity of view that would need to be accommodated in the design of information literacy if such interventions were ever to be broadly accepted by academics (Boon, Johnston & Webber 2007). Librarians had to remind themselves that, with the best of intentions, they were attempting to work within an academic workspace and timetable, the control of which was jealously guarded by academics.

Some of the criticisms of the concept of information literacy are rooted in arguments which suggest that conceptualisations of the term and the various frameworks and models developed tend to place more emphasis on the individual than on groups, are preoccupied with measurement and assessment of skills and seem to ignore the environment or context in which learning occurs (McCrank 1992:485–486; Snavely & Cooper 1997:9–10; Owusu-Ansah 2003:219). Furthermore, some commentators have argued that much of the literature of information literacy practices tends to exclude the ideological, historical and cultural context of information knowledge and production, contending that information literacy can also evolve in the course of conducting specific work-related tasks (Tuominen, Savolainen & Talja 2005:330). In this regard, Lloyd and Williamson (2008:5) observed that variations in the experiences of information literacy, specifically in the workplace, are consistent with Paul Zurkowski's naming of the concept in 1974 as one that is related to issues of complexity of information use within a specified context.

Such apparent confusion within the field inevitably resulted in resistance from many academics when attempts were made to persuade them of the value of including an information literacy component in their courses or as an adjunct to the curriculum. Quite apart from the difficulty of demonstrating that information literacy had a positive and beneficial effect on students' academic progress, there was evident epistemological and terminological uncertainty amongst practitioners. Unless information literacy could be placed successfully within the educational paradigm and linked to the theoretical base of education, further progress and adoption within the academic curriculum would be hindered.

A taxonomy of educational objectives (Bloom 1956; revised by Anderson & Krathwohl 2000), compiled by a group of academics prominent in the field of educational theory, had exerted considerable influence over the field and was widely respected, despite some criticism of the original over the lack of rigour of its taxonomic process (Moreshead 1965). It is not surprising, therefore, to find that the *Taxonomy* was one of the first sources to be consulted in an attempt to build a theory of information literacy.

The *Taxonomy* is particularly suited to defining a pedagogy for information literacy, in that it identifies learning objectives and allocates them to the cognitive, affective and psychomotor domains of learning; thus it provides a perspective on knowing (cognitive), feeling (affective) and doing (psychomotor), which maps quite effectively into the aspects of information literacy defined by researchers like Shapiro and Hughes (1996), as well as the various frameworks for information literacy that have been promulgated. Additionally, implicit in the *Taxonomy* is a holistic view of learning that encourages the recognition that information literacy should be strongly related to the whole learning process and, ideally, linked directly to the tasks undertaken by learners.

Practical expositions of this approach can be seen in several of the frameworks, such as the 'Big Six' approach developed by Eisenberg and Berkowitz (1990) and subsequently revised and extended. This framework prescribes a structure that can be related to the objectives defined in the *Taxonomy*:

- Task definition (cognitive);
- Information-seeking strategies (cognitive);
- Location and access (affective and psychomotor);
- Use of information (cognitive, affective and psychomotor);
- Synthesis (cognitive and affective); and
- Evaluation (cognitive).

The work of Carol Kuhlthau has lasting significance: the Information Search Process (ISP) model (Kuhlthau 1985) also has strong links with the *Taxonomy* in that it clearly identified the affective aspects of the process of information literacy:

- Initiating a research assignment (feelings: apprehension, uncertainty);

- Selecting a topic (feelings: confusion, sometimes anxiety, brief elation, anticipation);
- Exploring information (feelings: confusion, uncertainty, doubt, sometimes threat);
- Formulating a focus (feelings: optimism, confidence in ability to complete task);
- Collecting information (feelings: realisation of extensive work to be done, confidence in ability to complete task, increased interest);
- Preparing to present (feelings: sense of relief, sometimes satisfaction, sometimes disappointment); and
- Assessing the process (feelings: sense of accomplishment or sense of disappointment).

This may be said to have focused attention on the rationale of searching and suggested that the process is quite individualistic – that, although each searcher may go through the affective aspects in the ISP model, each person experiences them in a unique and particular way. The search process undertaken will be critically affected by prior experience: a good or bad outcome from using a particular source, a positive or negative response to assistance with the search from a professional librarian, even the degree of comfort in the environment where the search is conducted – all of these can have a strong influence on the choices to be made when conducting searches in the future.

The ISP also suggested that the success of assistance in the form of personal intervention by a professional librarian or a group process, such as a workshop on information literacy, strongly depended on the degree to which the intervention addressed the needs of the individual. This tended to rebut some of the criticism noted earlier of information literacy as being individualistic.

Within the field of information literacy tension was becoming evident. On the one hand, there was theory and some evidence, suggesting that the most effective interventions were those designed to address individual needs. However, on the other hand, there was the recognition that the human resources to provide anything more individualistic than a 'triage' system, in which those needing guidance are sorted into a priority order based on the perceived level of support needed, were not readily available. In South Africa, for example, the move towards the massification of tertiary education first introduced by the post-1994 Government of National Unity, combined with an education system that was (with few exceptions) producing students inadequately prepared for entry to tertiary education, placed a great strain on resource provision of all kinds (Jansen 2003; Mohamedbhai 2008) and has continued to be a challenge in managing library and information services and in providing adequate support for the development of information literacy.

The position in many other countries is similar: one of the more worrying aspects of the present economic uncertainty is that resources for maintaining and developing library and information services will be severely constrained. Although a manager of any enterprise must make strategic choices based upon relative resource scarcity,

there is a point beyond which the maintenance of an *effective* service becomes impossible. To provide one example from a 'rich' country, the argument surrounding the provision of public library services in the UK has, in some municipalities, focussed on the notion of relying heavily on volunteers to run branch libraries (Museums, Libraries and Archives Council 2011). It is evident that the proponents of such an approach have little conception of a public library as being anything other than a book repository; how could one expect volunteers, however well-intentioned, to be able to provide the advice and guidance on the use of information that a professional librarian has been trained to supply, let alone supporting information literacy programmes?

It is worth recalling that, during similar difficult economic times, Nick Moore (1976) proposed a rather daring approach: in times of hardship, when financial resources are scarce, is it better to save on staff or on information resources? The argument is that, without adequate staff, there is little likelihood of effective use being made of information resources, however extensive they may be.

In considering the 'mind space' of those working in information literacy, the work of Christine Bruce (2000) has been of seminal influence. She proposed five dimensions of awareness, or 'consciousness', about information literacy research:

- Locus of the research: In which academic sector(s) does information literacy belong?
- Perceptions of information literacy: How is the topic seen by others?
- 'What' is being investigated? What concepts and processes are intrinsic to information literacy?
- 'How' information literacy, or its components, is to be studied. What are robust techniques for its research?
- The ways in which information literacy is influenced by other disciplines: Does it have any effect on other disciplines?

These dimensions have been of lasting use in discussing and typifying the development of information literacy research, together with identifying gaps in knowledge and potentially fruitful areas for research.

Experimentalism

The final category of the tentative historical framework represents a new approach to the design process of information literacy interventions aimed at addressing a fundamental problem: many students choose not to attend sessions, even if attendance is considered compulsory. Many reasons may be adduced, from laziness to pressure of other academic work, but a deeper analysis has suggested that the problem is psychosocial. Put simply, the design of an information literacy programme must embrace difference: not every student or academic has the same needs. Added to this, most information literacy programmes are designed by teams and, for this process

to be successful, collaboration needs to be managed so that diversity of thinking can be captured rather than avoided. Experiments carried out at the University of Pretoria, South Africa have highlighted the importance of attempting to 'measure and understand individual thinking preferences and areas of thinking avoidance as well as the impact on teaching and learning' (Scheepers [et al] 2011:75). Making use of the Whole Brain Model developed by William 'Ned' Herrmann, and its associated Herrmann Brain Dominance Instrument (HBDI) (Herrmann 1999), the design approach has explored the four key dimensions identified in the HBDI:

- Analytical thinking: logical, fact-based, quantitative;
- Sequential thinking: organisation, planning, detail;
- Interpersonal thinking: feelings, emotions, kinæsthetics; and
- Imaginative thinking: holistic, intuition, integrating, synthesising.

The result is a much deeper understanding of the principles and practice of the design of information literacy programmes. However, it remains to be seen how well these insights can be incorporated into the practical delivery of information literacy programmes, given the ever-present constraints upon the availability of resources.

There is also an 'elephant in the room' in the form of changes in the use of Information and Communication Technologies (ICTs). It is not so much that one technology is being replaced or supplanted by another, but rather that the technologies are offering more ways in which information can flow or be channelled in our societies. The use of social media, for example, provides a subtle change in relationships, as users also become suppliers of information (although not necessarily knowledge or wisdom). How this could be incorporated into the information literacy frameworks is still unclear.

Conclusion

The struggle for information literacy to gain recognition and sustainable funding continues in many institutions. Despite the very evident difficulties many (perhaps, most) students and even some academics have with information use, information literacy is not universally recognised as a key component in the academic curriculum. This is partly because it is a relatively recent development and also because it is notoriously difficult to identify precisely the benefits that may accrue from its practice. The development of frameworks, codification, the search for sustainable theory and experimentation must continue, but the problem is a 'chicken and egg' one: without adequate funding, these activities will dwindle, but sustainable funding depends on being able to demonstrate value. The next phase must, therefore, be a largely experimental approach to developing a set of verifiable measures of effect and imputing value to such measures.

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Notes

1. The US National Commission on Libraries and Information Science was created in 1970 and closed on 30 March 2008 as part of a federal government economy drive.
2. In the period November 1974 to July 1977, 26 'Related Papers' were presented to the National Commission on Libraries and Information Science (US National Commission on Libraries and Information Science 2008: F6-F8).

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