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TOWARDS AN UNDERSTANDING OF INFORMATION LITERACY IN CONTEXT: IMPLICATIONS FOR RESEARCH

ABSTRACT

Information literacy (IL) has been described as a core literacy. However emerging empirical research indicates that the phenomenon will have different characteristics in different contexts and will be played out in culturally different ways. This paper reviews the nature and growth of IL to ascertain how researchers understand the phenomenon in various contexts. It then considers the contradictions across contexts and the importance of context to understanding the complexity of IL. The conclusion is that a focus on various contexts, not yet explored, will result in the need for a new agenda for IL research.

INTRODUCTION

Information literacy (IL) has been described as the core literacy of the 21st century, underpinning all other forms of literacy and making them possible (Garner, 2005, p. 68). This statement also posits the phenomenon as a core concept of the information society in the 21st century, indicating people's relentless need for information in order to achieve educational, social, occupational and economic goals. It also alludes to the phenomenon of IL as having currency in all contexts although, as emerging research has illustrated, the manifestation of the process will have different characteristics and will be played out in culturally different ways (Lloyd 2007 in press).

The purpose of this paper is to review the nature and growth of IL research to ascertain how researchers, who are exploring IL in various contexts, understand the phenomenon. Starting with Bruce's (2000) examination of the territories of IL research, the paper will review research conducted in the educational, workplace and community domains to identify how far the territories identified by Bruce have been advanced in recent years.

From this point the article focuses, first, on a review of the IL research literature. This section includes a detailed example of one recent study in the workplace arena and another of a community group, people in the fourth age, mostly 85 years and over. We then consider the contradictions across contexts and the importance of context to understanding the complexity of IL. In the final section we explore the gaps in the current research agenda and suggest a new agenda for IL research.

INFORMATION LITERACY RESEARCH: REVIEWING THE LITERATURE

Reviews of IL have been conducted by a number of authors including Bruce (2000) who mapped the terrain of IL, Rader (2002), Johnson and Jent (2005) who reviewed publication output relating to IL and Hughes et al. (2005) who surveyed IL in Australia over a five-year period (2000-2005). Virkus (2003) reviewed the European literature and suggested that, as with other countries, the IL 'movement' has evolved from bibliographic

instruction and user education with the majority of research emanating from this sector.

These reviews reveal the growth in theoretical and applied understanding of IL driven by a range of methodological approaches to exploring the phenomenon. Over this period, IL research has spread from its initial focus around higher education, with emerging research being reported from workplace studies. In the community context (including the public library sector), research into IL is still very much in its infancy, although empirical cross-cultural studies are beginning to emerge.

Early research and terrain mapping

Most early research in IL was carried out in an educational context, either secondary or tertiary, with the result that definitions and descriptions were attuned to the needs and characteristics of those environments. Indeed the IL ‘territory’, as Bruce (2000) refers to it, was ‘still in its infancy’ in her opinion at the time that she provided her detailed ‘state of the art’ review of research in the field as it had developed to that point (91-2).

In her review article, Bruce (2000) saw four phases in IL research, stretching from the 1980s to the time of writing. The first phase she described as ‘precursors (1980s)’ as it sowed the seeds of IL research through the information skills and bibliographic instructions movements (93). Bruce saw Kuhlthau’s (1988, 1993) research as the most significant in this phase, with its focus on user studies. Next came the experimental phase (1990-

1995) when the term 'IL' began to be applied to research, particularly in the educational area, and Doyle's (1992) Delphi study led to a widely accepted definition and descriptions (94).

In the third phase, labelled 'exploratory (1995-1999)', Bruce noted the use of a broadening range of paradigms, beyond the positivist approach. She also postulated that, while the educational context still prevailed, some of the same researchers who had focussed on this environment were beginning to consider IL in other contexts such as information technology, community, and workplace. Indeed, she noted that an interest in workplace-based research was beginning to emerge (94). Although, Bruce (1999) herself undertook some workplace research, this was the period of her considerable research output focussed in the educational arena (e.g., Bruce, 1990; Bruce, 1997) with her *Seven Faces of Information Literacy* (1997) being regarded as a seminal work. Through this research she used phenomenography to develop seven conceptions of IL as they emerged from a study of the meanings of IL for higher educators in mostly Queensland universities in Australia. She questioned whether users and professionals share common meanings of the concept and whether 'skills' or 'attributes' are the most helpful way of describing IL. In her view, the concept is better understood in terms of the quite different ways of *working with* information across a variety of contexts (Bruce, 1997). This also marked a shift in the conceptualisation of IL research.

Although Bruce (2000) saw what would occur in the fourth phase, called 'Evolving (2000 -)', as a matter of conjecture, she predicted 'growth in research beyond the educational sector, the workplace and community; attention to a wider variation of cultural settings; and a firmer, more consolidated research agenda'(95).

Information literacy in educational contexts

In school and tertiary education libraries, where IL research and practice has predominated over the last 30 years, the phenomenon has been variously described as a way of 'engaging with and learning about subject matter' (Bruce and Candy, 2000: 7) or as an approach to learning (Limberg, 2000; Lupton, 2004: 89). In Australia, the most commonly used definition of IL, drawn from the ALA definition, is set out in the *Australian and New Zealand Information Literacy Framework* as 'an understanding and set of abilities enabling individuals to recognize when information is needed and have the ability to define, locate, evaluate and use effectively the needed information' (Bundy, 2004: 3). According to the Framework, people are considered to be information literate 'when they need information, and are then able to identify, locate, evaluate, organise, and effectively use the information to address and help resolve personal, job related, or broader social issues and problems' (Bundy, 2004: 3).

This understanding of IL has been drawn from the Delphi research of Doyle (1992) and phenomenographic explorations of IL by Bruce (1996) and variations of this definition have been used consistently in the higher

education IL sector. Internationally, other frameworks have been developed, most notably the SCONUL Task Force on Information Skills (1999), which emphasises information needs and information seeking, and the IL Competency Standards for Higher Education (Association of College and Research Libraries (ACRL) (2000). Attempts have also been made to quantify the relational model developed in Bruce's seminal work, *Seven Faces of Information Literacy* (e.g., by Catts, 2005). In educational, including academic and school library contexts, where the majority of research has been conducted, the focus of IL is closely associated with the development of generic skills and graduate attributes (Hughes et al., 2005: 4), the emerging pedagogic role of librarians in facilitating this process (Peacock, 2001) and the relationship between IL and lifelong learning (Bundy, 2004).

At the instructional level, where IL is viewed as a process of facilitating students' connection with textual sources such as databases, web-based resources, other information and communication technology (ICT) sources and print literacy, there is a plethora of practitioner-based articles which focus on relationships between librarians and students, in addition to librarians as collaborators with teachers and university educators. In a review of library instruction and IL for Reference Services Review, Johnson and Jent (2005) listed collaboration with educators and integration or embedding of IL into the curriculum within disciplines (such as Law and Medicine) as major themes emanating from the tertiary education and school sectors, indicating strong interest in librarians' 'pedagogic role'. In

these sectors, IL has been described as associated with the activities of defining, locating, accessing and using information in the context of learning about codified sources of information. IL has been linked to outcomes such as the ability to think critically about information, problem solving and the ability to continue learning outside formal education institutions, to foster lifelong learning (Webber and Johnston, 2000; Lloyd, 2005).

In discussing the range of definitions within the education and library sectors, Webber and Johnston (2000) suggested that these focus on common skills and behaviours, such as information seeking, informed choices in relation to information sources, evaluation of sources, selection, and the ethical use and presentation of information. In reporting research about English Faculty conceptions of IL in the UK, Boon, Johnston and Webber (2007) have argued that IL has become central to meeting the requirements of dealing with the ‘complexity and volume of information’ (205) and the phenomenon has become a subject of interest to academics and administrators within the higher education sector. However, they noted that, while interest is evident outside the library and information sector, it is still ‘librarians’ conceptions and experiences that have dominated the literature and their frameworks and models for information that have been most visible’ (Boon, Johnston and Webber, 2007: 205).

Despite these particular emphases in the educational sector it should be noted that, in the field of ‘information behaviour’ which is linked to IL in

many ways, research has overwhelmingly indicated the importance of people as sources of information, including in educational settings. (See, e.g., Heinström, 2002 and Mills, 2003). In work with an IL focus, Wright et al. (2006) and Williamson et al. (in press) confirmed that information from ‘people’ needs also be considered in the IL mix.

It should also be noted that (Bruce, 1997), whose work has been mainly in this arena, has developed a broad approach to IL, one which is very much from the perspective of the user, and which highlights the different ways in which information is ‘experienced’ and the variations of that experience. Later Cheuk (2002), who explored IL in the workplace, suggested that IL research would be improved if researchers focussed more on the user perspective rather than taking the position of ‘experts’ providing an understanding of IL (178). She based this conclusion on an examination of auditors seeking and using information - thus in a workplace setting. While there has been less research activity in this context than in the educational arena, new initiatives are now beginning to receive attention, as discussed below.

Information literacy in workplace settings

In the seven years since Bruce’s (2000) article was published, research into workplace IL has progressed slightly but could still be considered as ‘emerging’. In this area, Hughes et al. (2005) noted that researchers have focused their research on the requirement of IT skills, transfer of IL skills from education to workplace, and workplace information use and behaviour.

While the reporting of empirical research in this sector is still emerging, it has become evident that generalizations from research in the educational sector to workplace situations do not necessarily reflect the realities of experience and use of information in those contexts. Nor do they provide a clear understanding of the outcomes of IL practice in at least some workplaces. This is largely due to the varied nature of work and work practices where there are differing emphases on the types of learning which occur, as well as on what constitutes information and knowledge, and on what processes and practices are considered legitimate. In workplaces with tertiary-trained workforces, IL will be closely connected to skills with text and ICT skills and IL education by specialist librarians. On the other hand, in the vocational sector, IL is often connected with acquiring competency or employability skills which also focus around engaging with the text, technology and people.

It is in the workplace context that the term ‘information literacy’ was attributed to Zurkowski in the 1970’s. Zurkowski (1974) linked the term to the private service sector, the emerging complexity of the information age, attainment of economic and workplace goals and the ability to use information to solve problems. Since that time, while IL as a prerequisite for employment has been highlighted by a small number of researchers, in most cases research has been centralized around understanding IL as a suite of skills related to text-based work.

There are a number of examples of the approach that sees IL consisting of a set of skills or competencies. First, Burnheim (1992), writing from the context of vocational education and training, advocated IL as a generic process and a key competency in training, which would enable an individual to think critically about information in the context of work. Second, the idea of IL as a core competency for legal training was taken up by Gasteen and O'Sullivan (2000) who linked IL to organizational knowledge. Based on their study, they connected IL to the attainment (through training) of information skills such as the ability to define, locate, evaluate, manage and organize information. Third, the importance of IL as a necessary skill in the operation of small businesses was explored by Rosenberg (2002) in the UK. Rosenberg emphasised that employees in small business are often under-equipped in key information skills such as the ability to evaluate information found on the Internet. He argued that small business employees 'must understand the value of information and must be able to acquire and use information' (8).

Finally, Smith and Martina (2004), in a small study of the baking industry in Australia, focused on the relationship between IL and 'employability' skills (previously known in Australia as key competencies), described as the generic skills required by all employees. They concluded that:

It is not enough to show students how to use a particular library or where to find the books they need. By definition, if the skill is taught and understood then it becomes an

employable skill. Students will then be able to relate finding information to their everyday working environment, and to their adult life in general (Smith and Martina, 2004: 329).

Recently the concept of IL, as a set of ‘generic skills’, has been questioned. In a study of IL training for Australian students studying engineering, Palmer and Tucker (2004), argued that, while IL may be referred to as a ‘generic skill’ because it is seen to underpin all forms of learning, it is not essentially a ‘global, context-free attribute’ (19). This is primarily because experiencing an information landscape and learning how to use the information resources available will depend on developing an understanding of the unique and idiosyncratic characteristics of the context. Kirk’s (2004) investigation of managers’ ways of experiencing information led her to suggest that:

the complexity of information use raises questions about the education and training of people for the workplace. IL programs in schools, Technical and Further Education (TAFE) colleges and universities have usually assumed a limited experience of information use and a limited understanding of information (197).

The notion that skills gained through education can be transferred directly to workplaces has also been challenged recently. For example, reporting by Donnelly and Craddock (2002) on IL practice at Unilever, illustrated how understandings of information from one perspective can lead to assumptions

about IL in other contexts. This report focused on the inability of scientists to retrieve and manage information sources, leading the researchers to realize that the information skills learnt by scientists in educational contexts were different from the ones required in the workplace. Their conclusion therefore was that ‘we were wrong in assuming that employees necessarily bring to the workplace the skills they need to work effectively’ (para.13). Again, McMahon and Bruce (2002) concluded, following their investigation of development workers’ perceptions of local staff IL needs, that danger lies in ‘imposing...another “outside” view of what local workers need’ (22), suggesting that current educationally driven conceptions of IL and IL practices may not reflect the nature or manifestation of IL in other contexts. Again, in an exploration of IL in the workplace, Lloyd (2003) questioned whether IL skills taught in one context could transfer to others. The next section presents a more detailed discussion of Lloyd’s work.

Lloyd’s workplace research

In two studies of workplace IL (Lloyd-Zantiotis 2004 and Lloyd 2007 in press) Lloyd has illustrated that IL is a complex and holistic socio-cultural practice, which requires a person to experience information in a range of different ways in order to know the setting and its practices. In a study of fourteen fire fighters, Lloyd (Lloyd-Zantiotis 2004) examined the nature of IL and how the phenomenon manifested in the specific workplace. Focusing on novice and expert experiences with information, Lloyd understands IL to be more than just an experience with theoretical sources of knowledge.

Social and physical experiences with information also play a significant role.

The fire fighter study illustrated the significant role that more experienced practitioners played in recognizing ‘information gaps’ in novice knowledge. Experienced fire fighters act as social sources of information furnishing opportunities for novices to access their tacit and experiential knowledge through activities such as story telling, deconstructing past events as a way of explaining mistakes and narration of the tacit aspects of professional practice. In this way experienced practitioners influence the negotiation of meaning (about practice and profession) and mediate novice access to sources of information that are essential for competent practice. By interacting and engaging with social sources of information novices are drawn into the workplace community and over time begin to develop a shared understanding of practice and profession.

The role of the body of the fire fighter also emerged in the study as a critical source of information for novices and for other practitioners. Novices’ observation of experienced practitioners in day-to-day work and during times of risk and danger enabled them to access a source of embodied knowledge which cannot be explicitly replicated or articulated in textual form.

The second study of fifteen ambulance officers by Lloyd (2007, in press) explored IL through the themes of social, textual and body experiences with

information. This study sought to understand how novice ambulance officers experienced information in the context of learning about pre-hospital care, in a preparatory training context. Novice experience was then contrasted with the information experiences of on-road practitioners who had been employed by the Ambulance Service for many years. The findings of this study suggest that, whilst an experience with theoretical sources of information is critical in the preparatory stages of training, this experience does not prepare novices for actual on-road practice and results in high levels of uncertainty and a feeling of being unprepared when novices have to make the transition. Experienced practitioners reported a change in the sources of information that are most valued in practice. Social and physical information replaces theoretical sources as primary sources used by practitioners to inform practice and the process of becoming information literate in this particular is driven by embodied experiences.

As a result of these studies, Lloyd (2007, in press) questions whether IL as it is conceptualized in the library and education fields has the same characteristics as in the workplace, Lloyd also questions whether IL education as it is currently conceived in the secondary, tertiary and vocational education sectors adequately prepares people to enter the workplace with the information skills required to engage with information which is not textual in nature. She argues that IL must be recast as holistic practice which is constituted through the whole person experiencing the information environment through the practices which are specific to the

setting, and that this experience may not resemble the textual conceptions of current IL educational practice.

Information literacy in community settings

A review of research in community settings, including public libraries, or with community groups, reveals that here IL research is still very much in its infancy, with very little research pertaining to community perspectives of IL, specifically, being reported. Reporting in the public library sector focuses on understanding how IL may be accommodated in terms of the instructional role (Julien and Breu, 2005). It should be noted that there is a considerable body of research about the information-seeking behaviour of various community groups from which there can be some extrapolation about the IL needs of these groups. Examples, including in the subsection, *Information Literacy and the Fourth Age*, follow.

Hughes et al. (2005) view IL research in the community area as having implications for social justice and action. An example is a study of information seeking by blind and sight-impaired people (Williamson, Schauder and Bow, 2000). In this study, which did not discuss IL per se, the researchers illustrated that information is not only experienced through text, but also through other communication technologies such as radio. This research highlights the importance of information being available in a range of formats, a case Williamson (1995; 1998) also argued strongly in the conclusion of her study of the information-seeking behaviour of older people. It also supports the case for a holistic understanding of information

as more than just a textual practice, a theme which has been argued by Lloyd (2005).

At the recent *High-Level Colloquium on Information Literacy and Lifelong Learning*, Candy (2005) discussed IL in relation to health and argued that a primary concern was that ‘greater clarity and precision about the term must be ensured’ (57). He suggested that IL must be relevant to users and that their needs in relation to IL must be taken into account (57). Thus he argued that, in developing lifelong Health IL programs, educators must take into account and respect ‘different cultures, languages and development priorities’ (57).

In cross cultural settings, understanding of IL are still emerging, but there appears to be a shift away from recognizing IL primarily as a textual practice towards understanding the manifestation of IL as ‘oral practice’. Raseroka (cited in Garner, 2005), discussing IL for the sub-Saharan countries, has indicated that further work needs to be undertaken on the oral aspect of IL in order to understand the influences on internally driven ‘market economies’ (72).

On the whole there is a major gap in research in the community sector, exacerbated by the wide range of societal groups and organisations. The next section is based on research undertaken to investigate information-seeking behaviour, now usually referred to as human information behaviour (Fisher, Erdelez and McKechnie, 2005), rather than IL. While we

acknowledge that there are fundamental and significant differences in the complexity and focus of IL and human information behaviour research, both fields have the capacity to contribute to an understanding of each other's research focus. In the absence of specific IL research, the section illustrates how it can be quite easy to draw inferences about at least some aspects of IL needs and processes from this allied field. The particular cohort, people in the Fourth Age, was chosen because this is the only group on which this kind of inferential work has already been done.

Information Literacy and the Fourth Age

Baltes and Smith (2002) described the Fourth Age as indicating 'a level of bio-cultural incompleteness, vulnerability, and unpredictability' (2). People in this age are close to the end of their lives, are frail and have a number of disabilities. Baltes and Smith found that nearly all people who reach their mid-80s had the kinds of disabilities associated with the Fourth Age.

Two different studies that focus on information seeking by people in the Fourth Age prove useful. The first was by Williamson (1995; 1997; 1998) who undertook major Australian research investigating the information-seeking behaviour of 202 older adults, aged 60 and over. She based her age distinctions on well accepted groupings in the literature (e.g., those of Turock, 1982 and Rowland, 1991), with her oldest group of 12 people being aged 85+ (called 'the very old'). The second is a USA study currently being undertaken by Terry Asla who is investigating the role of information

in successful ageing, thus necessitating an examination of the information behaviour of his participants. (Publications so far are Asla, Williamson and Mills, 2006; Williamson and Asla, in press). Asla interviewed 20 people whom he describes as being in the Fourth Age, living in two different retirement centres in Kansas, USA. Thus the samples of Williamson and Asla are likely to be comparable.

Williamson and Asla (in press) drew from their two projects a number of inferences about the IL needs and processes of people in the Fourth Age. They argued that people continue to have information and communication needs when they are frail aged and that IL is still a relevant concept, although it needs to be considered differently. For example, people in the Fourth Age often do not set out to find information (i.e., seek information purposefully), but rather will acquire it incidentally, as they happen upon it through social and professional care networks. (The concepts of purposeful information seeking and incidental information acquisition were explored, in depth, in Williamson's earlier work, cited above.) The researchers therefore postulated that: 'maintaining a healthy relational system, thus facilitating communication, is the first and foremost element needed for sustaining IL at this stage of life' (Williamson and Asla, in press).

Also important for people in this age group is that attempts are made to 'compress' IL which Asla saw as comparable to 'compression of morbidity', with the latter referring to the attempts 'to slow the progress of biological losses in the Fourth Age so that most major declines occur close

to death' (Williamson and Asla, in press). The 'slowing down', or compression of illiteracy, can be assisted by the introduction of assistive technology, so that people can continue to use a computer and the Internet, for example.

If IL cannot be compressed sufficiently, because of the physical and mental deficits people may experience in this last stage of life, there will be a need to compensate for loss of IL through support from carers. Williamson and Asla stress that their research indicates that, as mounting disabilities make communication and information gathering more difficult, 'knowing that someone cares may sometimes be as important as any information they may share'. There is thus a strong 'affective' element involved in IL at this stage about which it is important to educate carers.

For people in the Fourth Age, the emphasis on the processes of seeking, managing, and using information, particularly using print and electronic information sources, as demonstrated for example in the Australian and New Zealand Information Literacy Framework (Bundy, 2004) approach, has diminishing relevance. Williamson and Asla agree with Lloyd (2006) that there is a need to broaden the concept of IL so that it is relevant to a range of different 'landscapes'.

CONTRADICTIONS OF INFORMATION LITERACY ACROSS CONTEXTS

This brief review of the literature illustrates the contradictions in understanding IL as a phenomenon, raising questions about the education and library sectors' ability to accommodate the wide-ranging cultural, economic and occupational IL demands on individuals and employers in training and workplace settings. On the one hand, in education settings, where the focus is on instruction, IL is closely aligned to skills and attributes. In the same settings where IL is viewed as connecting with content, IL is viewed as learning. On the other hand, in at least some workplace settings, IL needs to be viewed holistically as an engagement and connection with a range of information forms that enable a worker to know the paths, nodes and edges of their information environment (Lloyd, 2003). In community and cross-cultural settings IL may also take on a different shape that cannot be accommodated by library-driven frameworks and standards.

Lloyd (2005) has argued that, in relation to IL, library practices are currently bound by an educational concept of what IL is and how it manifests itself. Based on empirical research into workplace IL, she suggested that current library-driven 'pedagogy', which has resulted in the development of IL frameworks (Bundy, 2004) do not necessarily reflect the reality of information experience or information practices outside an educational world. Boon, Johnston and Webber (2007) noted that the literature about IL which has guided the development of IL standards such

as those of the Association of College and Research Libraries (ACRL) (2000) and the *Australian and New Zealand Information Literacy Framework* (Bundy, 2004) ‘delineate what librarians do and believe others should do, generalizing information skills and competencies to other disciplines’ (222).

THE IMPORTANCE OF CONTEXT

Understanding context has only recently emerged as a methodological issue for IL researchers. According to Schatzki (2002,) recognizing the influence of context is important, because it determines the phenomenon and shapes the practices within it. He suggests (61-63) that context embraces and entangles the phenomenon, giving shape to the entities within it, and has a composition and character that will vary.

The review in this article highlights the role that context plays in our understanding of IL. In summary, in one key context, the library and education sectors view IL as a textual practice, while in the workplace the phenomenon can be conceptualized through a framework of social practice or attainment of competency-based skills. For example, Lloyd’s work has illustrated that becoming information literate in the workplace is strongly influenced and shaped by context-specific practice and processes which facilitate learning about the performance of work in ways which reflect the agreed values and beliefs of the community of practice. Williamson and Asla’s work has shown that an important part of being information literate

for the frail aged is related to good social networking and communication skills. This leads us to suggest that a major task for researchers, who study IL, is to understand more about the nature of the phenomenon and the way its processes and practices manifest and operate in different contexts.

Based on her work on IL, Lloyd (2005) has argued that understanding the historical, political, social and economic concerns that contribute to the construction and shaping of context is a significant task for IL researchers. Historically in library and information science research, context is usually described simply to provide a background for the research object (Talja, Keso and Pietilainen, 1999). This approach tends to marginalize context in favour of the phenomenon or behaviour being explored. We would argue that exploring context becomes the first task in order to understand how a phenomenon like IL is revealed as socio-cultural, context-specific processes. This has led us to conclude that other contexts, not yet explored, may reveal other differences in IL needs and processes, not yet identified.

IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

There appears to be little doubt that IL acts a catalyst for learning in formal, workplace and community settings (Lloyd, 2006). However, the dominant conceptions of IL that have emerged from library and information science research may be too narrow to accommodate the claims which have been made for IL as generic sets of skills and attributes which are pre-requisites to prepare people for lifelong learning (Bundy, 2004). As we have illustrated in this paper, research emerging from the workplace and community sectors

challenges the current approaches by introducing new conceptions and perspectives about IL. These challenges can be summarized as: (1) the idea that IL is more than just a text-based literacy, but is also a social and physical experience with information; (2) a need to explore how IL is experienced in a range of workplaces, including for new employees, where collaborative work is the norm; and (3) a need to study community IL processes and social practices including the extent that they enable easy participation by newcomers.

There is a further implication identified from the current educationally-driven standards for IL. While these standards may be seen as preparing people to participate in an educational context, they may not prepare people to enter the workplace, or equip them with information skills or behaviours that they will require to meet challenges of work, specifically the challenges of working as part of a team. This is because the current focus on IL is on individualized, principally text-based skills, rather than focusing on the preparation of individuals to engage in information environments which are collaborative, complex and messy. They also may not be entirely relevant to all community settings where being information literate may depend on social and communication skills, as much as skills with ICT.

This suggests a new agenda for IL research, in particular: the importance of understanding how IL is conceptualized in a range of contexts; deepening the understandings of the commonalities and differences of IL experience across a range of contexts; the role IL plays as a catalyst for learning and for

the transfer of processes and practices from the educational arena to settings where there is no emphasis on formal learning. Based on this research agenda, an IL framework can be developed – a model that is flexible, adaptable and applicable to all sectors and settings.

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