



**Invited Paper**

# INFORMATION LITERACY AS AN IMPORTANT COMPETENCY FOR THE 21ST CENTURY: CONCEPTUAL APPROACHES

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## INTRODUCTION

The need for effective functioning in the knowledge society, and to cope with continuous social, economic and technological changes, has caused a wide debate about what competencies young people and adults need for successful life and work in the 21st century. While there is a growing agreement on the importance of competencies for individual, social and economic development, “there is far less agreement on which competencies and skills make the difference” (OECD, 2001, p.100).

At the European and transnational level several organisations and projects have attempted to define the necessary competencies<sup>1</sup> for the knowledge society. For example, within the project of the Organisation for Economic Co-operation and Development (OECD) *Definition and Selection of Competencies (DeSeCo)* three broad categories of key competencies were developed: functioning in socially heterogeneous groups, acting autonomously and using tools interactively. Competencies have been defined and selected from the vantage of their contribution to sustainable development, social welfare, cohesion and justice, as well as personal well-being (OECD, 2005).

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<sup>1</sup> The terms 'competencies' and 'competences' are often used interchangeably. In this paper these terms are used as referred to by authors and institutions cited in this paper.

The European Council and the European Parliament adopted, at the end of 2006, a European framework for key competences for lifelong learning. The Framework identifies and defines, for the first time at the European level, the key competences that citizens require for their personal fulfilment, social inclusion, active citizenship and employability in our knowledge-based society. The framework includes competences in 'traditional' subjects, such as mother tongue literacy, numeracy, and knowledge of foreign languages, science and technology. But it also covers other competencies, such as learning to learn, digital competence, social and civic competences, initiative taking, entrepreneurship, cultural awareness and self-expression (European Commission, 2007).

The project *Tuning Educational Structures in Europe (TUNING)* which started in 2000 as a project to link the political objectives of the Bologna Process and at a later stage the Lisbon Strategy to the higher education (HE) sector distinguishes generic and subject specific competences. Three types of generic competences are categorized as follows: instrumental competences, interpersonal competences and systematic competences (Tuning, 2009).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) 2009 World Conference on Higher Education concludes:

Postsecondary education has to prepare graduates with new skills, a broad knowledge base, and a range of competencies to enter a more complex and interdependent world. Agencies throughout the world are struggling to define these goals in terms that can be understood and shared across borders and cultures. (UNESCO, 2009a, p.64)

Many authors believe that in our modern society everyone needs an increasingly sophisticated set of competencies for information finding, handling and use. In library and information science (LIS) literature these competencies are called 'information literacy' (IL). Proponents of IL believe that it is the absolutely critical literacy for the 21st century and for the realization of most personal, academic and professional goals as well as for economic development. IL is perceived as a prerequisite for lifelong learning (ALA, 1989), "active, effective and responsible citizenship" (Correia, 2002, p.1), personal growth, empowerment (ALA, 1989), self-actualization (Boekhorst, 2003) and social inclusion (Bundy, 2004). It is believed that IL will help to bridge the digital divide, strengthen the employability of a workforce, counter information overload, and support evidence-based policy and decisions in governments and the professions (Corrall, 2003). IL is highlighted as a core educational goal that is "common to all disciplines, to all learning environments, and to all levels of education" (ACRL, 2000, p.3) and an important factor in the workplace (ALA, 1989). IL is perceived as an ongoing process that should be facilitated throughout a whole life (Boekhorst, 2003, cited in Virkus, 2006).

Librarians have tried to help library users to develop competencies to locate and find information for

many years. However, debates about IL have intensified during the last decade (Bertelsmann Foundation and AOL Time Warner Foundation, 2002; UNESCO, 2003, 2005a, 2005b, 2006, 2009b; Obama, 2009). In the increasingly complex information environment students face diverse, abundant information choices, information is available in different forms, places and increasingly in unfiltered forms and in uncertain quality (Wilson, 2001, p.2). Students have been found to have insufficient IL in a series of studies (e.g. Oberman, 1991; Ray and Day, 1998; Hepworth, 1999; Armstrong et al, 2000; OECD, 2000; Andretta, 2002; Pejova, 2002; Mittermeyer and Quirion, 2003; Stern, 2003; Cole and Kelsey, 2004; Ilves, 2004; UNESCO, 2006; Gunter, 2008). It is also believed that constructivist thinking and pedagogy and alternative modes of educational delivery are creating new demands for IL and the need to move away from the dominant paradigm of pre-packaging information for students to facilitating learning in an authentic and information-rich context. Therefore, the facilitation of the development of information literacy as an essential competency for the 21st century is an utmost importance. It has also created a need for a re-conceptualisation of the roles and responsibilities of library and information professionals in a new learning environment (Virkus, 2006, p.468).

### CONFUSION WITH THE CONCEPT OF INFORMATION LITERACY

Since 1970s many definitions of IL have been offered and several overviews and analysis of the concept have been published (e.g. Behrens, 1994; Bawden, 2001; Virkus, 2003; Horton, 2008). Herring (2006, par.8) refers to the plethora of definitions of IL as an evidence of a lack of agreement on the meaning of IL. Table 1 shows a range of these definitions.

**Table 1: Definitions of Information Literacy.**

Author/ organization	Definition
Tessmer (1985, cited in Behrens, 1994, p.312)	Information literacy is the ability to effectively access and evaluate information for a given need
American Library Association (1989, p.1)	To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information
Olsen and Coons (1989, cited in Behrens, 1994, p.313)	[IL is] understanding the role and power of information, having the ability to locate it, retrieve it, and use it in decision making, and having the ability to generate and manipulate it using electronic processes
Doyle (1994, p.40)	[IL is] the ability to access, evaluate and use information from a variety of sources, to recognize when information is needed, and to know how to learn
Shapiro and Hughes (1996)	[IL is] a new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure, and its social, cultural and even philosophical context and impact
ACRL (2000)	Information literacy is a set of abilities requiring individuals to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.” Information literacy, on the other hand, is an intellectual framework for understanding, finding, evaluating,

	and using information - activities which may be accomplished in part by fluency with information technology, in part by sound investigative methods, but most important, through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities which may use technologies but are ultimately independent of them
Johnston and Webber (2003, p.336)	Information literacy is the adoption of appropriate information behaviour to obtain, through whatever channel or medium, information well fitted to information needs, together with critical awareness of the importance of wise and ethical use of information in society
UNESCO (2003)	Information Literacy encompasses knowledge of one's information concerns and needs, and the ability to identify, locate, evaluate, organize and effectively create, use and communicate information to address issues or problems at hand; it is a prerequisite for participating effectively in the Information Society, and is part of the basic human right of lifelong learning
Abid (2004)	Information literacy is an intellectual framework and a social process for understanding, finding, evaluating, communicating and using information – activities which may be accomplished in part by fluency with information technology, in part by sound investigative methods, but most important, through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities which may use technologies but are ultimately independent of them
Lupton (2004)	Information literacy is a way of learning through engaging with information. Information literacy includes 'library research skills' and 'IT literacy' but it is broader than these. Information literacy is not just about finding and presenting information, it is about higher order analysis, synthesis, critical thinking and problem solving. It involves seeking and using information for independent learning, lifelong learning, participative citizenship and social responsibility
Abilock (2004, para.1)	Information literacy is a transformational process in which the learner needs to find, understand, evaluate, and use information in various forms to create for personal, social or global purposes
CILIP (2005)	Information literacy is knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner
Horton (2008, p.53)	Information literacy means the set of skills, attitudes and knowledge necessary to know when information is needed to help solve a problem or make a decision, how to articulate that information need in searchable terms and language, then search efficiently for the information, retrieve it, interpret and understand it, organize it, evaluate its credibility and authenticity, assess its relevance, communicate it others if necessary, then utilize it to accomplish bottom-line purposes
Bruce (2008, p.6)	Information literacy is being able to draw upon different ways of experiencing the use of information to learn
Lloyd (2010, p.1)	Information literacy is a socio-cultural practice, one that is embedded and interwoven through the practices that constitute a social field (i.e. a context) and as such is subject to collaborative arrangements and activities. It is constituted by a set of interwoven understandings that guide interaction and is linked to the activities around information and knowledge sanctioned by any given setting.

Many documents and authors have described IL via characteristics of an information literate person, as a set of personal attributes. Webber and Johnston (2000, pp.382-384) note that most definitions circle around these stages of need recognition, search formulation, source selection and interrogation, information evaluation and information synthesis and use and there has been increasing number of ever more detailed lists.

Tuominen et al. (2005, p.333) note that most texts can be categorised as “an individual-centred generic skills definition” of IL. The generic skills approach sees IL as consisting of a set of attributes that can be defined and measured in an exact manner. Bawden (2001, p.231) argues that one prevailing problem appears to be the enthusiasm of many commentators to give a single all-encompassing definition of IL, whereas it has been recognized from an early stage as a multifaceted topic. He notes that some authors have drawn a very comprehensive list of skills that very few information professionals would possess in their entirety.

Some authors have perceived IL as a synonym for information seeking and retrieval skills (Tuominen et al., 2005, p.331) or an ‘umbrella’ term incorporating other literacies (Shapiro and Hughes, 1996; Virkus, 2003).

Bruce (1997, pp.28-35) has examined the different ways in which IL is described in the literature arising out of scholarly reflection on the subject. IL is described as: 1) using information technology (IT), 2) including library and computer literacy, 3) acquiring mental models of information systems, 4) a combination of information and IT skills, 5) a process, 6) an amalgam of skills, attitudes and knowledge, 7) actively engaging with information, 8) the ability to learn, 9) the first component in the continuum of critical thinking skills, and 10) part of the literacy continuum.

Bruce (1997) defines IL according to it how people perceive or experience it: (a) IT experience, (b) info-sources experience, (c) info-process experience, (d) info-control experience, (e) knowledge construction experience, (f) knowledge extension experience and (g) the wisdom experience. Bruce’s (1999a, para.10) research leads her to conclude that IL is an appreciation of the complex of ways of interacting with information; it is a way of thinking and reasoning about aspects of subject matter.

Kuhlthau outlines (2004) that IL is not a discrete set of skills, but rather a ‘way of learning’. However, with the explosion of digital information IL is increasingly linked with digital literacy (Bawden, 2008). Lloyd (2003) calls for a broadening of the definition of IL seeing it as a ‘way of knowing’ and including both textual sources and non-textual sources. Several authors have suggested the concept of critical IL that highlights critical reflection and is based on critical theory, the critical literacy movement and

Paolo Freire's notion of 'critical pedagogy' (Luke and Kapitzke, 1999; Elmborg, 2006). Lloyd (2006, p.578) states that IL "is a variable construct and is shaped and understood according to context".

Limberg and Sundin (2006) and Julien and Williamson (2010) have identified differences between practitioners' and scholars' conceptions of IL; practitioners define IL mainly instrumentally and scholars more conceptually. While information seeking is a foundational concept for information science scholars, IL has been a concern primarily of practitioners; the relationship between these concepts has not been fully explored and largely ignored in the research literature (Julien and Williamson, 2010).

Breivik (2000, p.xii) summing up viewpoints made by a number of the authors in the foreword for the book *Information Literacy Around the World: Advances in Programs and Research notes*: "there are no easy answers, because information literacy is 'complex, messy and political' or, as another author stated it is 'deeper, richer and more complex' than we had originally perceived. It is also clear that these authors do not see information literacy as teaching a set of skills, but rather as a process that can, and should, transform both learning and the culture of communities better".

## **INFORMATION LITERACY AND RELATED CONCEPTS**

Virkus (2003) summarised the terms and combinations of terms that have been used for the IL concept: 'infoliteracy', 'informacy', 'information empowerment', 'information competence', 'information competency', 'information competencies', 'information literacy skills', 'information literacy and skills', 'skills of information literacy', 'information literacy competence', 'information literacy competencies', 'information competence skills', 'information handling skills', 'information problem solving', 'information problem solving skills', 'information fluency', 'information mediacy' and 'information mastery'.

Snavely and Cooper (1997) analysed 36 alternative terms for IL including abstractionism, information competence, information sophistication, information inquiry, know how to know how, reading and research, virtuous instruction, and library literacy. Their conclusion was that IL was still an appropriate term to use. Savolainen (2002, p.215) suggested the umbrella term 'information-related competences' that covers IL, media competence and library skills and added: "Because new labels describing specific kinds of literacies are continually introduced, reflecting the developments of ICTs, the attempts to develop an exact classification of information-related literacies seem to be futile". However, according to Bawden (2001), despite the contentious nature of the term, IL is still the most commonly used phrase to describe the concept.

In several European countries the terms used for IL clearly refer to competencies. For example, in Denmark the term *informationskompetence*, in Norway *informasjonskompetanse*, in Sweden *informationskompetens*, in Finland *informaatiokompetenssi* (also *informaatiolukutaito*), and in Germany *informationskompetenz* have been used for IL (Virkus, 2003).

How people perceive and define IL depends on how they perceive and define other related terms: for example, information, literacy, competence, competency, skill, learning and knowing. There are numerous definitions and interpretations for all these concepts and a lack of commonly understandable terminology. But, many authors do not adequately define the exact nature of the concept to which they are referring in their publications and leave a lot of freedom for interpretation (Virkus, 2003).

Thus, the definition and understanding of the concept of IL seems to be related to the way in which the concepts of competence and skills are defined and perceived. The concept of competence also has different meanings and it is not always clear whether competence refers to identifiable skills, or is it related to patterns of behaviour. Savolainen (2002, p.212) observed that there are several other concepts closely related to them and belonging to the same family of concepts: 'ability', 'capacity', 'expertise' and 'know-how' and it can be difficult to determine whether these form a conceptual hierarchy or whether they reside at the same level of generality. Anttiroiko et al. (2001) refer to competing approaches to the phenomena of competence. Rationalistic theories approach competence as a set of relatively stable attributes possessed by actors or the set of requirements characteristic of specific work. In contrast, the interpretative approaches emphasize the importance of the ways in which actors experience the settings of action and construct meanings concerning action (Virkus, 2003).

Anttiroiko et al. (2001) state that competence has two dimensions - knowledge and skills. Knowledge may be seen as our understanding of how our everyday world is constituted and how it works. Skills involve the ability to pragmatically apply, consciously or even unconsciously, our knowledge in practical settings. In this setting, 'skills' can be conceived as the technical aspects of competence, emphasizing the aspect of 'how to do' (Anttiroiko et al., 2001, p.31; Virkus, 2003).

Different terms are also used interchangeably and it is not always clear what different authors mean by the terms 'competence' and 'skill'. For example, if the terms competence and skill are defined as synonyms, as well as IL and IS, and information literacy is defined as 'a set of competencies' then it is

not always easy to understand the meaning of phrases such as 'information competence skills', 'information literacy skills', 'skills of information literacy', 'information literacy and skills' or

'information literacy competence/competencies' used by the same authors. Savolainen (2002) noted that the concepts such as 'competence' and 'skill' are taken as given and most researchers seem to assume that the meanings of these concepts are self-explanatory or sufficiently well known from everyday contexts (Virkus, 2003).

## **CRITICS OF INFORMATION LITERACY**

Thus, despite the numerous discussions and definitions of IL there has been continuous concern about the concept since 1990s. Arp (1990) noted that the phrase's meaning was unclear, especially to those outside the library community. According to Langford, Henri (1992) considered IL as the "buzz concept in education" throughout the 1980s, Breivik (1993) characterizes the frustration with this term: "We are going to change the term, we hate this term, it is no good. There are all these other literacies" and Snavely and Cooper (1997) concluded that disagreement over the term IL was fairly strong and seemed to be widespread (Langford, 1998; Bawden, 2001).

Behrens (1994, p.309) refers to IL as an abstract concept: "As a metaphor, it is neatly packaged - and imaginative - descriptive phrase that is not literally applicable or easily interpretable, implying something more qualitative and diffuse than is evident in the historical meanings of both literacy and information".

Several authors have complained that the labels IL, information skills, study skills were fuzzy and that teachers were not clear about what was meant by these terms or how these related to classroom practice. Most of the publications were of little help in assisting teachers (a) to define what information skills were, and (b) to develop programmes on information skills within schools. Such was the conclusion of Hopkins in 1987, in the review of research on information skills which formed part of the British Library project Knowledge, Information Skills and the Curriculum (Rogers, 1994).

There were also some who questioned the validity of IL as a concept and subject for debate (Foster, 1993; University of Leeds, 2002). Webber and Johnston (2000) criticized IL standards which might result "in a 'tick the box' approach: reducing a complex set of skills and knowledge to small, discrete units". They (ibid., 384) note:

The assumption seems to be that the skills have been mastered for good once each unit can be labelled as completed. This fragments the field of knowledge and reflects a 'surface learning' approach (with a short-term focus on the task in hand) rather than a 'deep learning' one (in which the students are encouraged to reflect on and contextualise what they are learning, in a manner that enables them to use the knowledge or skill outside the task in hand).

Several authors criticize the individualistic, context-free, and instrumental approach towards IL. Tuominen et al. (2005, p.336) note that most definitions of IL take 'the generic skill approach'. They



observe that IL should be viewed as context- and content-dependent – a view that is shared by others (e.g. Mutch, 1997; Webber and Johnston, 2000; Grafstein, 2002; Cheuk, 2002; Kapitzke, 2003a; 2003b; Virkus, 2003). Tuominen et al. (2005, p.337) suggest the constructionist viewpoint on information and knowing which sees that knowledge and meanings are built through dialogue and debate.

## CONCLUSIONS

Thus, some conclusions can be drawn:

- IL has no generally accepted definition; many definitions and interpretations exist.
- IL has had very varied connotations from the earliest time of its usage (Bawden, 2001).
- The concept of IL is very ambiguous, elusive and difficult to capture.
- The term IL does not clearly communicate its meaning (Bruce, 1999b, p.34).
- IL is a variable and multi-faceted construct, which is shaped and understood according to the context (Lloyd, 2010).
- IL is a contested term; some see it as a separate literacy while others see it as belonging to literacy continuum (Lupton, 2004).
- The term IL has no clear translations in other languages.
- IL can be seen in three perspectives as generic basic functional skills, as situated, social practices, and as transformative skills, which are complementary (Lupton and Bruce, 2010).

However, debates about the nature of IL, its relationship to other literacies, for example digital literacies (Bawden 2001, 2008) continue. Tuominen et al. (2005, p.331) believe that the IL debate is a necessary one because background assumptions and theories have crucial effects on how IL training is implemented.

The author of this paper, focusing in her research on the HE sector in Europe, prefers to use the term 'information-related competencies' rather than 'information literacy'. The reason for using this term is the conviction that the concept of 'information literacy' is very elusive, its essence is hard to grasp, and the meaning is not always clear in the European HE environment. It is believed that the concept of competencies is more familiar and better understood among academics, students and senior managers in European HE settings.

In addition, the concept 'information-related competencies' allows for the differentiation of several blocks of competencies related to information handling and use; for example, identifying, locating, gathering, selecting, storing, recording, retrieving and processing information from a variety of sources and media; developing successful information seeking and retrieval strategies; mastering

complex and multiple information systems; organizing, analysing, interpreting, evaluating, synthesizing, and using information; and, presenting and communicating information clearly, logically, concisely and accurately. Thus, it might be easier to perceive how to integrate or embed the development of different competencies or blocks of competencies into the curricula at a different educational level and thereby facilitating the development of these competencies. However, the term 'information literacy' might be a useful research construct and also as a strategic concept or goal - a political, economic and educational one. Information-related competencies are defined as the skills, knowledge, attitudes, experience, attributes, and behaviour that an individual needs to find, evaluate and use information effectively (Virkus, 2003, 2006, pp.469-470).

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