What ICT-related skills and capabilities should be considered central to the definition of digital literacy?

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Abstract

In the 21st century, when talk of digital literacy arises, we think of tools that have become an extension of ourselves and provide us with the ability to download music, capture video, and edit media to socially construct meaning of the world. The evolving landscape of Web 2.0 tools and the taxonomy of social networks are now available are central in shaping our idea of communicating, participating and sharing knowledge in the global age. Traditional media literacy is about what we consume, read, or download. However, new communications media require new forms of digital, cultural and communicative competence. In the age of participatory Web of social and creative networking we also need *social* media literacy, information literacy and a range of associated ICT skills to enable us to access, use, create and share digital resources. The variety of terms now used to describe e-literacy or digital literacy are a reflection of the importance of understanding the competencies needed in the digital environment and the need for digital flexibility.

Convergence and participatory culture Defining digital literacy

The purpose of the current study is to investigate the range of definitions of digital literacy and to investigate the idea that several overlapping skills and literacies are required so that students are capable of evaluating the relevance, currency, reliability, completeness and accuracy of online information, in addition to participating in today's digital culture. With the emergence of the new media of interactive video games, the Web 2.0 and a raft of social networks, students must learn not only how to use these tools but also how to apply them to real world contexts. For example, as a great deal of today's media is in visual form, students need visual literacy skills to understand how images, video, sequences, forms symbols, colour 3D and graphic representation are used and how to interpret visual messages (Alexander, 2008). But visual literacy is only one element of being *digitally literate,* defined by Beetham (2010) as follows: *The functional access, skills and practices necessary to become a confident, agile adopter of a range of technologies for personal, academic and professional use.*

In searching for a definition of digital literacy, it is clear that it is tied up with that of multiliteracies and that we are looking a concept that is plural. Hence the notion of multimodal literacy that is now popular. Advocates of a multi-modal approach to literacy view the integration of written text, image and film as essential as media convergence is an enriching and holistic method of creating and sharing knowledge. However schools and higher education institutions continue "… to promote a linguistic view of literacy and a linear view of reading. The multimodal character of new technologies produces a tension for traditional concepts of literacy that maintains language at their centre.' (Jewitt: 2006: 8). The convergence of print, visual images, social networking, online gaming and the ease of editing and producing music and film are evidence of the convergence of media and the scope for learners to create and share meaning in multiple formats.

Henry Jenkins, a leading scholar in the area of new media, in his book *Convergence Culture*, describes the phenomenon of convergence as follows:

> "the flow of content across multiple media platforms, the cooperation between multiple media industries, the search for new structures of media financing that fall at the interstices between old and new media, and the migratory behaviour of media audiences that would go almost anywhere in search of the kind of entertainment experience they want. Perhaps most broadly, media convergence

refers to a situation in which multiple media systems co-exist and where multiple media content
flows fluidly across them." (Jenkins, 2006: 282).

One particular social effect of this is the emergence of participatory cultures "in which fans and other consumers are invited to actively participate in the creation and circulation of new content." (Jenkins, 2006: 290).

Digital literacy as a plurality of skills
According to Jenkins, the ideas of media literacy, information literacy, visual literacy and digital literacy and are closely connected, and include the notion of very traditional literacy (Bacigalupo,. et al. 2008). While some would consider audiovisual literacy as displacing traditional print literacy, it could also be regarded as another dimension of how we expand our capacity to communicate and connect. As we do so we need skills in using diverse digital tools, and Web 2.0 technologies provide us with multiple modes of expression. In other words, we can regard traditional literacy as building the foundation with multi-literacies being built around it. The New London Group (1997) and the work of Lankshear and Knobel (2008) along with Kress'(2003) share the notion of multi-modality, and all touch upon the concept of new media literacies. However, these are no longer simply individual skills; they are social skills because literacy now unfolds within a networked society. As we participate in networks, as we communicate with each other across distances, and we pool knowledge and we compare notes and we create new ideas and resources together. However, the skills required to co-creating resources are different from the kinds of skills we needed when writing which traditionally tended to be an individual author. Today, people are communicating in multiple distributed on line networks that demand familiarity and skills in using digital writing tools and technologies to network, share and participate in global networked communities. Media literacy describes thus cluster of skills and is the term used to refer to the need to critically analyse media messages, examine perceptions of realism and increase media scepticism. Media literacy is therefore linked to definitions of information literacy. Buckingham (2006) also argues that literacy cannot be as a singular notion or constellation of skills and advocates and replacing it with a plurality of literacies.

Information literacy and ICT skills as central to digital literacy
Technology is of increasing importance in people's everyday lives and that presence will most certainly increase in the coming years. No longer relegated to specialized workplace settings, information and communication technologies have become increasingly common in community settings, at school, and at home. One of the four key strands of the European Commission programme is the promotion of digital literacy: defined as: "The ability to use ICT and the Internet becomes a new form of literacy – "digital literacy". Digital literacy is fast becoming a prerequisite for creativity, innovation and entrepreneurship and without it citizens can neither participate fully in Clearly, digital literacy entails the skill of information literacy, as it is these skills that enable users to access and use the internet for information sharing and communication (See diagram I for a list of information literacy skills.
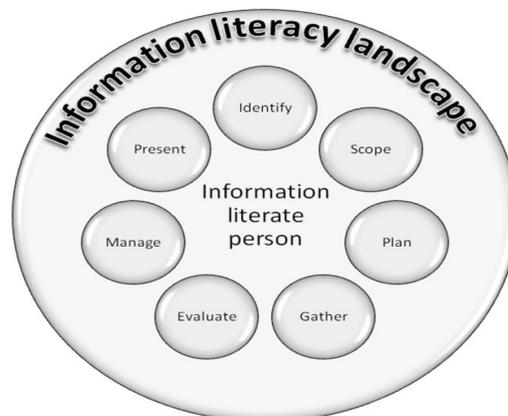

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Figure 1: Skills of an information literate person

Definitions of digital literacy are also linked to social, cultural and contextual situations for examples in the United Kingdom and Europe frequently depict digital literacy as electronic or e-literacy. Martin (2009) defines e-literacy as "awareness, skills, understanding and reflective evaluative approaches to operate in an information rich and IT supported environment" (p. 97). According to the author, the variety of terms used to represent the new literacies underscored the importance of users' understanding of the culture and the context of the digital environment. This perspective supports a perspectives that see digital literacy as "socially situated practices supported by skills, strategies and stances that foster an individual's ability to represent and understand ideas with numerous modalities and digital tools" (O'Brien & Scharber, pp. 66-67). The DigEuLit Project, an initiative of the eLearning Programme of the European Commission, proposed a definition that contained varying stages including: digital competence, digital usage, and digital transformation (see Table 1).

Table 1: Proposed level of digital literacy as defined in the DigEuLit project

Level 3	Digital transformation	Creative use of technologies, including the development ok knowledge and new tools
Level 2	Digital usage	Using digital tools for professional and personal needs
Level 1	Digital competence	Mastery of basic skills and competence

Martin (2009) notes that digital literacy comprises multiple skills and competencies as follows:
1. Literacies of the digital encompass (at least): *ICT or computer literacy; information literacy; media literacy* including for example visual literacy; *communication and collaboration* using digital means.

2. Since it was first coined by Paul Glister (1997), use of the term digital literacy has implied a *critical* approach to digital information and media: in his words, digital literacy is about mastering ideas, not keystrokes.

3. Literacy needs to be understood developmentally. As reflected in Table 1, it encompasses three developmental stages: *competence*, *use* and *transformation*. Awareness, attitude and ability are all developed in the individual initially through structured experiences which produce *competence*, but subsequently through practice in a variety of contexts these skills lead to (self)-*transformation*.

This definition is comprehensive as it includes information literacy – knowledge and use of digital resources – but in addition it entails the construction of new knowledge, creation of new forms of expression, and communication with others. It is also significant that familiarity with a variety of media is taken as the norm for communicating in the digital age. With level 3 there is the associated dimension of e-competence, or the capacity to demonstrate a raft of skills as follows:

Figure 2: Personal e-competence

Skills for employability including ability to create a web presence, ensure information productivity, undertake market research, management of information .

Generic occupational skills: such as remote working, online communication, information research, lifelong learning and, not least, management of their digital environment.

Essential skills for living and learning in a digital age: including communication, accessing public services and underpinning personal e-confidence

Participation in social networks

The widespread use of web 2.0 technologies and accompanying social practices have shifted the focus away from a 'read-write" model, a 'consume-create approach" or a research-publish model, and towards a model of knowledge creation and sharing. This means that any definition of digital literacy needs to include participation in social networks as a central element of knowledge production and idea sharing.

Academic practices and values such as reviewing, commenting, referencing, arguing, presenting information and making data openly available for scrutiny are all relevant and mediated by digital tools and affordances. ICT is now integral to the development of literacy, numeracy and media literacy suggesting that ICT skills are central to the notion of digital literacy and at the of what it means to learn, study and know. Indeed, David Buckingham (2006) has argued, that '*we need a much broader reconceptualization of what we mean by literacy in a world that is increasingly dominated by electronic media.*

Based on the research of Søby (2003) there are coherent arguments for a very broad conception of digital literacy, which includes a range of skills as follows -

- *ICT/computer literacy*
- *information literacy* (see figure 1 above)
- *media literacy* including for example visual literacy
- *communication and collaboration* using digital tools to participate in digital networks of knowledge
- *academic and learning literacies* integrated with use of digital tools to access and manage information
- *critical thinking* as evidenced in the skills of using
- *life-planning* including PDP, career planning, identity management and showcasing achievements, evidenced through personal and professional digital practices

In educational settings, developing digital literacy skills means giving students the opportunity to use digital tools to learn in an active, creative way in order to further their cognitive and social skills, while ensuring that they have the ability to operate various digital technologies.

Three models of digital literacy

A broad and multifaceted definition of literacy is important, since they focus on the individual's engagement with and articulation of the symbols and meanings of daily life. The evolution of digital literacy can be seen in terms of three approaches or models

- The *functional model* views literacy as the mastery of simple cognitive and practical skills, and ranges from the simple view of literacy as the mechanical skills of reading and writing to a more developed approach regarding literacy as the multimodal skills required to function effectively within a global community
- The *socio-cultural practice* model takes as its basis that the literacy is only meaningful in its social context, and that to be literate is to have access to cultural, economic and political structures of society.
- T he *intellectual empowerment* model argues that literacy can bring about the transformation of thinking capacities, particularly when new cognitive tools, such as writing, or new processing tools relying on digital technology, are developed.

In viewing literacy within the context of a digital society as, at one level functional, at another engaged with the social context, and at a third as transformative, we can see it as a powerful tool for the individual and the group to understand their own relationships to affordances of digital tools that enable these skills and competencies to develop.

Conclusions: The centrality of ICT and media literacy

According to the many theorists reviewed in this paper, the ideas of media literacy, information literacy, visual literacy and digital literacy and are closely connected, and include the notion of very traditional literacy. Digital literacy in this sense is a framework for integrating various other literacies and skill-sets. Several prominent theorists have argued that familiarity with web 2.0 technologies opens up a completely new space for and style of learning, focusing on collaborative knowledge building; shared assets; breakdown of distinction between knowledge and communication (Jenkins, 2007). In all of these definitions of digital literacy competencies, ICT skills are essential. Being digitally literate means communicating effectively in a global world where a great deal of communication is mediated by digital technology. A digitally literate person is one who is a critical and discerning user of digital communication tools with the knowledge, skills and understanding to be able to choose appropriate formats, tools and media to represent meaning. As stated above, some of these skills are functional, but they also involve critical thinking about how digital tools relate to social, cultural and political contexts. Characterisation of young people as 'digital natives' does not reflect the wide range of skills that digital literacy entails, and learners' engagement with digital media is complex and differentiated. Active knowledge building and sharing, e.g. writing wikis, tagging, reviewing, recommending, repurposing, remain minority activities to which most learners are introduced in educational settings (Selwyn 2009). There is still a need, then, for institutions to help learners to bridge the gap between their informal knowledge practices and the demands of study, and to teach digital literacy skills and ICT competencies as essential core attributes and essential learning outcomes.

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