

Identifying Essential ICT Skills and Building Digital Proficiency Through Appropriate Certification

Overview

The term 'digital literacy' has been in common use since the mid-1990s, but it has never had a uniform and agreed upon definition. Digital literacy resists a simple definition because what it means to be digitally literate is subjective and, as the technological landscape is continually evolving, applying an overly rigid definition to it is too restrictive. In identifying what it means to be digitally literate, it may be more useful to consider digital literacy as a relatively stable set of knowledge and skills that are essential for participation in any modern, knowledge-based society. By defining digital literacy as this relatively stable set of skills and knowledge – that are periodically reviewed - that everyone must possess, it is then possible to develop a model of digital proficiency through which an individual is enabled to develop the levels of Information and Communication Technology (ICT) skills and knowledge that are required of them, depending on the context in which they intend to apply them. This approach acknowledges the fact that all people must possess a certain level of ICT skills and knowledge to fully participate in a modern society, and also permits the individual the opportunity to develop these skills and knowledge should they wish or need to engage with ICT more deeply. The digital proficiency model also supports international policy efforts, such as those instituted by the European Union, to standardise digital competences within a much broader key competencies framework.

Defining Digital Literacy - its Resistance to a Simple Definition

A definition of digital literacy such as “the ability to use ICT effectively” is both neat and simply understood, but it is not complete. It does not go far enough to explain the complexity of the relationship between being traditionally literate and being digitally literate; also, it does not explain what skills and knowledge an individual must possess to be able to exploit the potential offered through the use of ICT in their daily life.

In examining the concept of digital literacy, it is important to review the current status of traditional literacy and the skills that an individual needs to possess if they are said to be literate in a modern context; the impact of technology on these 'traditional skills'; and indeed, the impact of traditional literacy on our interaction with new technologies.

The ways in which we read and write, acquire knowledge, and communicate at all levels are changing. Consider the fact that, in an educational context, many current college graduates started their school career with 'pencil and paper' literacies but finish their education cycle having encountered, and often having been required to demonstrate a degree of proficiency in, the literacies demanded by a wide variety of ICT. These could include: Web browsing, word processing, e-mail, and proficiency in the basic use of presentation applications and spreadsheets. In tracing the evolution of the literacies required to prepare younger people for successful participation in a knowledge economy, one 2004 study foresaw that:

“...in an information age...it becomes essential to prepare students for these new (ICT-related) literacies because they are central to the use of information and the

acquisition of knowledge. Traditional literacy and literacy instruction will be insufficient if we seek to provide students with the future they deserve”¹.

Some studies also suggest that traditional literacy skills are essential to the development of digital literacy². While ICT skills may depend on technological proficiency to a certain extent, they also require cognitive skills, such as those underlying literacy, numeracy and problem solving, which are critical for using ICT effectively. Content on the World Wide Web remains predominantly text-based, and the format and content of web pages often demand skills similar in nature to those assessed by the document literacy domain.

It can therefore be argued that the skills and knowledge that an individual would have been required to demonstrate to be termed ‘literate’ have evolved; this evolution has, in turn, a profound impact on any attempt to define digital literacy. As technology and users’ interaction with it evolves, the potential of this technology becomes more apparent. As such, the definition of how digital literacy is constituted and what it includes resists any static, individualistic definition.

The Identification of Essential Skills that Comprise Digital Literacy and Competence

Despite this near-constant state of flux in technologies, policymakers, educators, and those who seek to certify end-users’ ICT skills must identify a commonly used, essential set of skills and knowledge that an individual must have if they are to take part in common activities that depend on or are defined by ICT. These skills are ‘essential’ in the sense that not having them may restrict, in many societies, full participation as a citizen. They are also ‘essential’ in that they enable individuals to develop more specialised skills and knowledge. These essential skills are not fixed, but will change over time as both technology and the common uses of technology change. Emerging technologies create new skills requirements while making other skills redundant³. Once we move beyond this basic shared set of skills and knowledge, we pass into a shifting domain that is more related to the context of the individual. The individual’s requirements will determine the knowledge and skills that are important for him or her. In a work context, these will frequently support the need to be ‘competent’ in a particular role through the demonstration of knowledge and skills, coupled with the appropriate attitudes. A significant component of many job roles relates to ICT – therefore, digital competence will make an important contribution to whether an individual is ‘competent’ in his or her role. This can equally apply in an educational context or a social context as well – in these instances, for example, ability to use interactive learning technologies or maintain a hobbyist website could be required competences, in the same way that creating a budget in a spreadsheet application could be in a work context.

This position is also reflected in the recommendations of the European Commission’s Digital Literacy Group⁴. In this, digital literacy is defined as the basic set of skills required to support

¹ ‘Toward a Theory of New Literacies Emerging From the Internet and Other Information and Communication Technologies’: Donald J. Leu, Jr., Charles K. Kinzer, Julie L. Coiro, and Dana W. Cammack (2004)

² ‘Literacy in the Digital Age’ – R.W. Burniske (2007)

³ For example, reformatting a floppy disk is no longer a valuable skill, whereas using a USB flash drive is.

⁴ Digital Literacy Report: a review for the i2010 eInclusion Initiative

http://ec.europa.eu/information_society/eeurope/i2010/docs/digital_literacy/digital_literacy_review.pdf

the development of digital competencies, which is one of the set of competencies that have been identified as key for every European to have to operate successfully in a knowledge-based economy and society.

In summary, we can say that digital literacy encompasses:

The knowledge and skills required to participate in essential ICT user activities

Digital competence, in turn, encompasses:

The knowledge and skills required to use ICT competently in a particular social, educational, or work context

Building Essential Skills into ICT Certification Programmes

These related concepts of digital literacy and digital competence have two main implications for skills development programmes⁵ that wish to comprehensively develop and promote proficient use of ICT.

Firstly, the core set of skills and knowledge that encompass the digital literacy area needs to be elaborated. These skills and knowledge will have a degree of persistence – for example, basic browsing, text entry, and text formatting skills will remain relatively stable over time. Nevertheless, these skills and knowledge must be periodically reviewed and updated – for example, to include the range of devices beyond the personal computer that people typically now interact with. For skills development programmes, this means that there should be a valid and robust way to determine the learning outcomes associated with this digital literacy area, and there should be mechanisms for keeping these learning outcomes up-to-date.

Secondly, a boundary needs to be drawn between these core, or essential, skills, and a more elaborate set of competences that relate to more specialised skills and knowledge. By specialised, we mean ‘not required for all’; this does not necessarily imply that the skill or knowledge is more complex or cognitively challenging. For skills development programmes, the implication of this is that essential skills will be a requirement for all and may be a prerequisite for more specialised learning components that will be relevant for some but not necessarily for all. These specialised skills and knowledge need to be bundled in a way that suits the requirements of individuals and organisations. For example, there may be specialised sets of skills and knowledge areas relating to a key element of a job role (e.g. report creation) or to an application that are particularly important for a particular sector (e.g. a health informatics system). If a skills development programme is to be comprehensive, it must therefore deal with both the essential skills required by all to ensure digital literacy, and also address the principle areas in which digital competence is needed.

⁵ The term “skills development programme” is used to encompass all training and certification relating to end-user ICT skills.

Appropriate ICT Skills Competences – a Stepped Approach to Certification

From ECDL Foundation's perspective, what has become clear is that the skills and knowledge gained after successful completion of, for example, the ECDL / ICDL programme, are not adequately reflected by the term digital literacy – the skills demonstrated by completion of ECDL / ICDL exceed those reflected by most current interpretations of the term itself⁶.

This disparity has resulted from a tendency to set digital literacy at too low a level. For example, in a supporting document to the recent Digital Agenda Assembly⁷, the European Commission outlines a broad concept of digital competence that address the fact that, for the confident and effective use of ICT, an individual does require a level of competence in applications, such as, word processing and the use of spreadsheets. However, in the same document, the ability to navigate the Internet effectively is equated with digital literacy, creating an overly narrow interpretation of the term.

This trend can again be seen in the general interpretation of a recently published report by the Organisation for Economic Co-operation and Development (OECD). This report measures the ability of 15 year-old students in 16 OECD member countries to read, understand and apply digital texts⁸, including emails and websites, and compares this with their traditional (paper-based) literacy abilities. While the results of this study are important and useful to have, they may be interpreted as constituting the target group's digital literacy levels, and the report itself, even on the OECD's website, has been referred to as a 'digital literacy' report⁹. Despite the fact that ever-increasing amounts of content is being read online, the danger is that the broader range of skills and knowledge that an individual must possess to fully participate in essential end-user ICT activities is not being accounted for. Examples of these skills and knowledge are: the ability to manage files, and to create and save documents. These are skills and knowledge that, in addition to being able to operate effectively and securely online, an individual must possess if they are to be considered digitally literate.

ECDL Foundation's certification programmes enable individuals to develop the skills that they need, depending on how, and in what environment, they intend to apply them. We know that everyone does not need to master all ICT skills areas at a deep, comprehensive level, but all groups in society must possess some skills and knowledge in relation to ICT. The structure of our programmes supports the development of appropriate digital proficiency, which contains a range of different levels (see Figure 1 below).

Prior to developing digital proficiency, some people may need to develop the foundational ICT skills and knowledge to allow them to build essential skills. These individuals may have had little exposure to technology and may need an informal introduction to the digital world, which can be described as acquiring a level of what can be termed 'digital awareness'.

⁶ For a detailed explanation of the range of ECDL Foundation's certification programmes, visit www.ecdl.org

⁷ 'Digital Competence in the Digital Agenda': The Digital Assembly Scoreboard 2011 - Eurostat

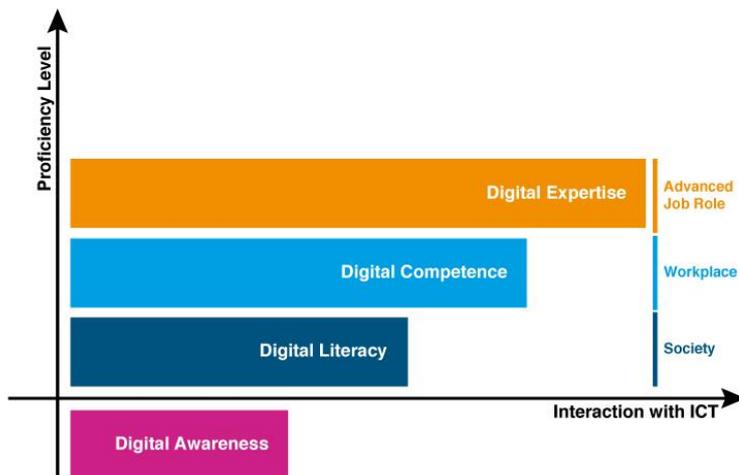
⁸ 'Students on Line: Reading and Using Digital Information' OECD (June 2011)

⁹ Retrieved 5 September 2011 from:

http://www.oecd.org/document/42/0,3746,en_21571361_44315115_48267882_1_1_1_1,00.html

By creating a level of 'digital awareness', a foundational skill level is introduced, which prevents the metric for digital literacy being set too low, and allows an individual to build up their skill levels as their interaction with ICT increases.

Figure 1: Levels of Digital Proficiency



The different levels of digital proficiency, and the skills and knowledge that an individual would possess at the different levels, could be described in the following way:

Digital Literacy

An individual possesses essential ICT skills and knowledge: he/she can use some common applications effectively. Without these skills and this knowledge, individuals will find it difficult to carry out common tasks that arise in the workplace or society, and are at risk of exclusion. These skills are also essential in that they enable individuals to develop more specialised skills and knowledge. Typical skills would include working with numbers and documents, and using the Web securely and effectively.

Digital Competence

An individual possesses the required skills and knowledge specific for one's role in the workplace: he/she can operate a range of applications effectively. Without these skills and knowledge, individuals will not be able to perform effectively in a particular work scenario. The specific skills and knowledge required will vary considerably from person to person. Typical skills would include working with image files, using spreadsheets, or creating presentations.

Digital Expertise

An individual possesses high level of ICT skills and knowledge in the use of specific applications and tools, over and above levels commonly required: he/she can fully exploit the potential of ICT. These skills and knowledge make the individual a recognised expert in the use of a particular application. These specific skills may be required for a specialised role, such as a finance officer working on complex tasks in spreadsheets, or a communications executive working with presentations or managing an extensive database.

Establishing Outcomes for Knowledge and Skills Development

In addition to the development of ICT skills in the narrower domain of certification, ECDL Foundation continues its active involvement in international initiatives to identify a broader set of key competences – including ICT competences – that an individual should possess for meaningful participation in society. Not only are these competences important for an individual's personal development, they contribute significantly to the productivity of organisations, and ultimately, to the economic growth and competitiveness of nations.

At an EU level, there have been extensive, ongoing efforts to formalise learning outcomes across all disciplines, in both the employment and education sectors. The European Qualifications Framework (EQF) is a common European reference system which will link different countries' national qualifications systems and frameworks together¹⁰. In practice, it will function as a translation device making qualifications more comparable. The intention of the EQF is to help learners and workers wishing to move between countries or change jobs or move between educational institutions at home. The EQF uses reference levels based on learning outcomes (defined in terms of knowledge, skills and competences), and shifts the focus from input (lengths of a learning experience, type of institution) to what a person holding a particular qualification actually knows and is able to do.

The structure of ECDL Foundation's certification programmes fully supports this paradigm shift towards learning outcomes; upon successful completion of, for example, the ECDL / ICDL programme, an individual is able to demonstrate a level of ICT competence, in the practical sense, in an array of commonly used applications. These measurable outcomes can therefore be immediately demonstrated to, for example, a prospective employer, irrespective of what country the candidate/individual was certified in. Additionally, ECDL Foundation has been a key stakeholder in the 'CEN Workshop on ICT Skills' since its creation in 2003¹¹. This workshop brings together relevant stakeholders from industry, human resources, academia and IT associations, and it aims to address e-Skills shortages, gaps and mismatches as well as a persistent digital divide that affects productivity growth, competitiveness, innovation, employment and social cohesion in Europe.

The practical output of this CEN workshop has been to produce a European e-Competence Framework (e-CF) for IT professionals that has identified the competences that will be required of IT professionals (in all industries) to enhance European productivity and to ensure that Europe remains competitive¹². The success of this IT professional framework has led to the development of a similar framework for end-users¹³ which is due to be completed in 2012. This 'End-User e-Competence Framework' will identify the key ICT competences that an individual should possess if they are to be considered proficient in the use of ICT, depending on the context in which they intend to apply them.

¹⁰ The European Qualifications Framework for Lifelong Learning - Official Publications of the European Communities, 2008

¹¹ Read more here: www.cen.eu/CEN/sectors/sectors/isss/activity/Pages/wsict-skills.aspx

¹² European e-Competence Framework – see: www.ecompetences.eu/

¹³ End User e-Skills Framework Requirements - Draft CWA 27/05/2010

Because of its position as a leading advocate for digital literacy, and because of the content, structure, and reputation of its certification programmes, ECDL Foundation has been able to be a key stakeholder in all high-level EU efforts to identify essential ICT skills and competencies. This top-level involvement enables ECDL Foundation to ensure that its certification programmes are periodically updated with the skills and knowledge that are required of an ICT end-user to demonstrate proficiency, either in a work or 'life' context, thus ensuring the continued relevance of its programmes.

Conclusion

Despite the fact that the term 'digital literacy' resists a simple and agreed upon definition, it has been possible to identify a reasonably stable key set of ICT skills and knowledge that all individuals must possess for full and meaningful participation in a modern society, and without which an individual is in danger of social exclusion. These skills and knowledge areas can then be further developed depending on the context in which the individual intends to apply them, and can be expanded to meet developments in technology. ECDL Foundation's development of a model of digital proficiency and of the relevant programmes that support this stepped approach enables the end-user to demonstrate their ICT competence in their required environment. Additionally, by being involved in high-level efforts to identify essential end-user ICT competencies, ECDL Foundation can ensure that its certification programmes remain relevant and that they continue to enable individuals to demonstrate their ICT skills to a leading international standard.