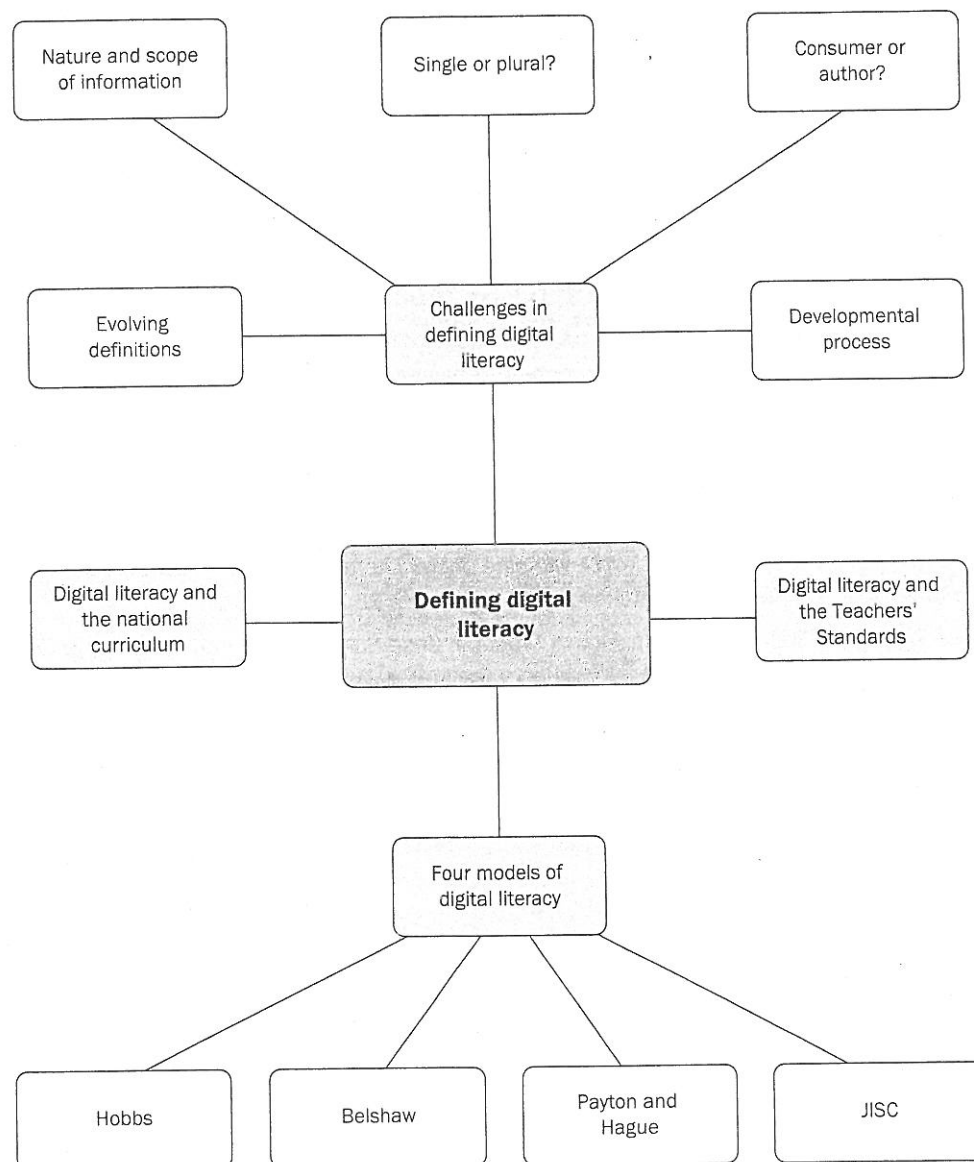


Digital Literacy for Primary
Teachers 2015 SAVAGE + SAMANETH
CRITICAL THINKING

1 Defining digital literacy



Introduction

Has the nature of literacy changed now that a great deal of information and content is digitised? Facer (2009) reminds us that 'learners will continue to need to learn the principles of reading and writing print and writing will always be a significant form of communication with high cultural value' (p 101). However, representing and communicating meaning in today's primary classrooms is increasingly mediated by technology. Both the learner and the teacher can opt to use digitally enhanced combinations of visual, audio and text modalities. Therefore, the 'process of writing will inevitably change with technological developments that will facilitate extensive on-screen writing' (Facer, 2009, p 101). That screen comes in many different sizes and shapes including PCs, laptops, tablets, smartphones, phablets, cameras, iPods, etc. The formats include SMS, instant messages, status updates, blogs, wikis, games, websites, programs, microblogging (eg tweets), music, podcasts, photos, graphics, videos, webinars, animations, vlogs (videologs), mashups, etc. Text can be augmented with auditory, static and dynamic visuals, interactive and non-linear content. As an educator you should resist disregarding these new approaches and instead embrace them, *in addition* to traditional forms, accompanied with an understanding of impact, time, place, purpose and audience.

The range of multimodal texts and technologies in use are likely to lead to modes other than writing becoming persuasive when undertaking daily activities. Likewise, repertoires of literacy practice will continue to expand and diversify across different technologies, creating a complex environment and challenging the dominance of writing.

(Facer, 2009, p 101)

Challenges in defining digital literacy

Many of you will already have an understanding of the term literacy and what it means to be literate. In the traditional interpretation it means to be able to read and write. This definition largely reflects the time in which it came in to common use and the dominant tools for accessing and communicating knowledge and understanding beyond verbal discourse, ie written and printed text in physical forms. One simple way to extend this traditional definition would be to say it is about '*reading media and writing (producing) media*' (Ryberg and Georgsen, 2010, p 91). An understanding of digital literacy can be developed from these earlier definitions; after all it is still about accessing, interpreting, understanding and communication of information, knowledge and understanding. However, now digital technologies mean that there is greater choice in the mode and platform of that interaction (with) and communication (of) information in all its possible forms. Throughout this book the term *information* is taken as meaning any symbolic representation of meaning in any form; including numbers, text, visual artefacts and sound.

This chapter suggests that digital literacy is far more than a list of technical competencies in which to train both teachers and children. A competency-only perspective is limiting, as it does not fully appreciate the potential impact on learners: for example, empowering creative

forms of expression and access to decentralised information in multiple formats. Several key questions to be explored include:

- should we be discussing digital literacy or literacies?
- does digital literacy evolve alongside technology?
- are certain values and attitudes implied?
- are we consumers or producers of digital content?

Critical questions

To help you understand your starting point, take a few moments to reflect upon your thoughts about the rise of technology in society and education. Spend some time examining what beliefs and values underpin those opinions.

- » Are they based on fact, popular opinion or research?
 - » Are there any emotional responses involved; for example, fear of technology or fear that children you will be teaching may have a greater capability level?
- When you have finished reading this book you may want to reflect back on your initial responses.

The nature and scope of information

Critical questions

- » What forms of information do primary-aged children typically have access to?
- » How and where have they accessed that information?
- » What level of teacher input/guidance has there been?

It is important for you as a teacher to consider how children's access to information has changed over time. In pre-internet schooldays access to information was often limited to a range of books with printed text and pictures which had been preselected (filtered) by teachers or parents, occasionally augmented by a weekly live television programme or visit to the local library. Generally the information range was comparatively narrow and pre-filtered. It wasn't always portable and generally didn't allow for revisiting or remixing.

Critical question

- » To what extent do you agree/disagree with the following statements by Facer about literacy?

'... some argue that the use of technology might result in losses of traditional (literacy) skills. Others claim that traditional literacy skills (reading and synthesising) are more central than ever in engaging with complex and huge amounts of data' (Facer, 2009, p 100).

Single or plural?

Critical question

- » Try writing your own definition for digital literacy. On what grounds have you included or excluded items?

The term digital literacy itself is the subject of much discussion and generally the term is broken down into several sub-components and many will use the term digital literacies to emphasise this plurality. Did you find your list impossible to fit into one neat statement? Throughout this book when the term digital literacy is used it is intended that you acknowledge this plurality and interpret the term as meaning digital literacies.

Consumer or author?

When talking about digital literacy it is easy to dwell on children and adults as consumers; for example, carrying out research online on a topic for a school project; extracting text and searching for pictures to add, etc. Whilst this information accessing, retrieval and processing is an important component, digital literacy goes far beyond these acts as you will see throughout this book. One important mindset to explore is that to be digitally literate means being both a consumer and an author (producer) of digital content and having the skills, knowledge, understanding, values and attitudes embodied within both roles.

* Resnick (2012a) was very much influenced by Papert's view that children should go beyond being consumers and be able to 'design, create and express themselves with new technologies'. Resnick (2013), when talking about the online Scratch community (a visual educational programming language for children), details how children 'begin to see themselves as creators and designers, as people who can make things with digital media, not just browse, chat and play games'. Chapter 5 explores creating content in detail and suggest classroom-appropriate forms this may take.

Evolving definitions

The Joint Information Systems Committee (JISC) describes *digital literacies* as 'those capabilities which fit an individual for living, learning and working in a digital society' (2014). This theme is echoed in the computing national curriculum statement:

Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

ENCORAM
(DfE, 2013)

The term future is important here: one certainty about technology is change and many would argue that an absolute fixed definition is not possible as the tools and mechanisms constantly evolve. JISC (2014) articulate this need for a fluid conceptualisation:

What it means to be digitally literate changes over time and across contexts, so digital literacies are essentially a set of academic or professional situated practices supported by diverse and changing technologies.

Given this uncertainty, one useful way for you to navigate the complexity is to focus upon the cognitive process or purpose underlying the action/activities and acknowledge that precise forms will vary and evolve. We would suggest there is a self-limiting danger in you trying to see digital literacy as gaining competency in a particular application or online service.

Developmental process

It is useful for you to think about digital literacy as a continuum. You will be on a journey and in the modern world there is not a point where absolute mastery is attained. JISC (2014) make reference to Beetham and Sharpe's 2010 work, which suggests a 'process where individuals become increasingly proficient eventually reaching a level of fluency'. Therefore, 'digital literacy can be considered a developmental process from access and functional skills to higher-level capabilities and identities'.

Belshaw (2011) agrees that 'digital literacy is a condition, not a threshold and, as with all conditions requires maintenance and context' (p 214). Although specific references to digital literacy are made in the computing curriculum we would encourage you to consider it in a cross-curricular sense, activities need to be authentic and have purpose for children.

Four models of digital literacy

The following four popular models of digital literacy explored in this section will assist you in gaining a rounded understanding of what is meant by digital literacy:

- Hobbs (2010);
- Belshaw (2011);
- Payton and Hague (2010) for Futurelab;
- Joint Information Systems Committee (JISC) (2014).

You will notice that despite differences in terminology there is considerable overlap in the models.

Hobbs' model

The Hobbs (2010) model defines 'digital and media literacy as a constellation of life skills that are necessary for full participation in our media-saturated, information-rich society'. These include the ability to do the following:

- *Make responsible choices and access information by locating and sharing materials and comprehending information and ideas*
- *Analyse messages in a variety of forms by identifying the author, purpose and point of view, and evaluating the quality and credibility of the content*

- *Create content in a variety of forms, making use of language, images, sound, and new digital tools and technologies*
- *Reflect on one's own conduct and communication behaviour by applying social responsibility and ethical principles*
- *Take social action by working individually and collaboratively to share knowledge and solve problems in the family, workplace and community, and by participating as a member of a community.*

(pp vii–viii)

Critical questions

- » *In the Hobbs model can you identify the cognitive processes (eg comprehension) involved and arrange these in a hierarchy similar to the traditional Bloom's taxonomy model? (See en.wikipedia.org/wiki/Bloom's_taxonomy if you are not already familiar with this model from your professional studies.)*
- » *What values and attitudes can you identify embedded within this definition?*
- » *How does this contrast with your definition of digital literacy that you wrote at the beginning of this chapter?*

JISC model

JISC (2014) (see Figure 1.1 overleaf) states that 'digital literacy looks beyond functional IT skills to describe a richer set of digital behaviours, practices and identities'. There are significant areas of overlap with the Hobbs model.

For example:

- *information literacy: find, interpret, evaluate, manage and share information* (JISC, 2014)

echoes Hobbs:

- *Access: finding and using media and technology tools skilfully and sharing appropriate and relevant information with others* (2010, p 19).

Belshaw's model

Another popular model is by Belshaw (2011) in which he details eight components of digital literacy:

1. *Cultural: digital literacy is seen as contextual and situational with co-constructed norms of conduct.*
In each of these contexts are found different codes and ways of operating, things that are accepted or encouraged as well as those that are frowned upon and rejected.

(2011, p 207)

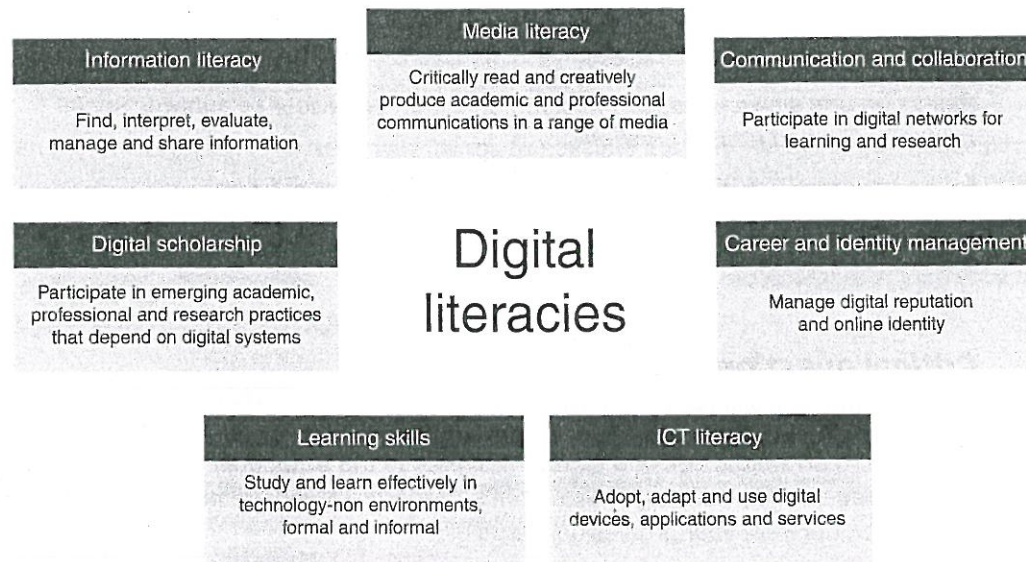


Figure 1.1 Seven elements model of digital literacies

Source: JISC (2014).

Examples would include the use of capitals to suggest shouting in SMS messages, informal language and terminology in a gaming forum compared to the choices of language and phrasing which might be used in a class topic wiki to be shared with parents. Rather than jumping to criticise children as being impolite or unable to speak standard English, etc, we would suggest understanding the complex nuances that young learners are applying in understanding the impact on the audience and making sophisticated choices in terminology and phrasing in these different situations. All individuals are prone to adopting characteristics of a sub-culture to gain a sense of belonging and this reflects a deep understanding of context. As a teacher part of your role is to help children explore the rich variety of communication and what is appropriate for different contexts. Texting in abbreviations does not mean inability to spell, despite opinions in the popular media, it is just an efficient form of communication alongside symbols such as emoticons within a particular genre. Belshaw sums this up nicely: *'Digital literacies are not solely about technical proficiency but about the issues, norms and habits of mind surrounding technologies used for a particular purpose'* (2011, p 207).

A pedagogical point made by Belshaw is that acquisition of digital literacy in cultural terms is best done *'through immersion in a range of digital environments'* (2011, p 207). Therefore, you should consider the range of digital environments you are providing opportunities for children to explore in the classroom with an awareness of the environments they access beyond the classroom.

2. **Cognitive:** here Belshaw prompts us to think about the cognitive dimension of digital literacy beyond *'using a set of technical tools'* (eg carrying out an internet search on a search engine) and focus on the ability to *'use a set of cognitive tools'* (2011, p 208).

Exposure to various ways of conceptualising and interacting in digital spaces helps develop the cognitive element of digital literacies. It is not the practise of using tools, but rather the habits of mind such use can develop. (2011, p 208)

This emphasis on *mind expansion* by Belshaw (2011, p 208) resonates with a statement from Resnick (2012b) explaining why the *activity of making* (being an author) is so important in the learning process:

When you make something in the world, it becomes an external representation of the ideas in your head. It enables you to play with your ideas and gain a better understanding of the possibilities and limitations of your ideas. Why didn't it work the way I expected? I wonder what would happen if I changed this piece of it? By giving an external form and shape to your ideas, you also provide opportunities for other people to play with your ideas and give suggestions on your ideas? Why didn't I think of that? How can I make it more useful to people? (Resnick, 2012b, pp 50–1)

3. **Constructive:** Belshaw explains this component as *'pertaining to creating something new, including using and remixing content from other sources to create something original'* (2011, pp 208–9). Further, *'one part of the constructive element of digital literacies is therefore understanding how and for what purposes content can be appropriated, reused and remixed'* (2011, p 209). New forms of copyright including Creative Commons licensing will be explored in Chapter 7 on digital citizenship.
4. **Communicative:** in Belshaw's model this focuses upon *'understanding how communications media work. It is, in essence, the nuts and bolts of how to communicate in digital networked environments'* (2011, p 209). A tension here exists for teachers, *'as developing a true understanding of networks ... involves not only learning about them but being part of them'* (2011, p 210). In this respect safeguarding and e-safety issues need to be carefully navigated and strategies for doing this are suggested in Chapter 9 on e-safety. Interestingly the computing national curriculum now requires that Key Stage 2 children are taught to:

Understand computer networks including the internet; how they can provide multiple services ... and the opportunities they offer for communication and collaboration.

(DfE, 2013)

Communication and collaboration will be explored in Chapter 6. Whilst safeguarding continues to be paramount a cultural change may be needed in schools that have traditionally tended to ban outright access to online interactive communities.

5. **Confident:** Belshaw here refers to the unique affordance of digital technologies, compared to physical world equivalents, ie the low-risk opportunity to experiment. The opportunity to try something without knowing the final outcome and the capacity to undo, redo, etc, until the desired result is achieved. This provisionality component is one of the most powerful affordances of digital technologies and pedagogically creates a freedom for children to experiment, particularly in relation to problem solving.

... a confidence based on the understanding that the digital environment can be more forgiving in regards to experimentation ... which ... allows individuals to approach situations in digital environments differently.

(2011, p 210)

Affordances of digital technologies will be covered in greater detail in Chapter 2.

6. **Creative:** Belshaw expands that the creative element is about 'doing new things in new ways. It is about using technologies to perform tasks and achieve things that were previously either impossible or out-of-reach of the average person' (2011, p 212). From a pedagogical perspective this is about 'redefinition (e.g. a multimodal, collaborative webpage)' rather than 'substitution (e.g. typing out in best activities)' (2011, p 212). Chapter 2 will explore the SAMR (Substitution, Augmentation, Redefinition and Modification) framework for considering the nature of tasks using digital technologies (Puentedura, 2013).
7. **Critical:** in Belshaw's work this dimension involves acknowledging and questioning conventions, assumptions, power relationships, etc, and is closely linked with civic (2011, pp 212–13).
8. **Civic:** 'The civic element is about participation, social justice and civic responsibility' (2011, p 212). This is echoed in the primary computing curriculum with reference to the aim that all pupils should be 'responsible users' (DfE, 2013).

Critical question

- » Belshaw (2013) proposes that 'digital literacies are plural, subjective and highly context dependent'. To what extent do you agree/disagree with this statement?

Payton and Hague's model

This model was published by Futurelab and, unlike the societal level of the Hobbs and Belshaw models, has educational contexts as a specific focus. Several primary case studies are recommended at the end of the chapter to illustrate dimensions of this model.

Table 1.1 Components of digital literacy

(table created from extracts from Payton and Hague, 2010, p 10)

Components of digital literacy	Creativity	The ability to think creatively and imaginatively, and to use technology to create outputs and represent knowledge in different formats and modes.
	Critical thinking and evaluation	Being able to use reasoning skills to engage with digital media and its content, to question, analyse, scrutinise and evaluate it and to formulate and support arguments about it and the way it is used. Critical thinking involves being reflective, developing insight about underlying assumptions, interpreting meaning and determining significance in order to understand and make sense of the world.

Table 1.1 (cont.)

Components of digital literacy	Cultural and social understanding	The ability to recognise that there are social, cultural and historical influences that shape the creation of digital content and our understanding of it. This involves understanding how your own and others' perspectives have been informed by cultural heritages and being aware of the social and cultural contexts in which digital media is created and used.
	Collaboration	The ability to work successfully with others to collaboratively create and share meaning and understanding. To develop the skills of team-work, to be able to work together when using technology and to understand how technology can support collaboration both inside the classroom and in the wider world.
	The ability to find and select information	To define what sort of information you need for a task or activity, to know where and how to find information, to critically engage with sources to select relevant, valuable and reliable information and to be aware of intellectual property issues related to plagiarism and copyright.
	Effective communication	Being able to clearly express ideas and feelings so that others can understand them. Having an understanding of the different modes (visual, audio, textual, etc) in which meaning can be represented and showing an awareness of the needs of particular audiences. Understanding how technology can support this and how to communicate effectively using different types of technology.
	e-safety	The ability to stay safe when using digital technologies, such as the internet and mobile phones, and to understand what constitutes appropriate use and appropriate content.
	Functional skills	Knowing how to use a range of different technologies competently and having the skills and flexibility to adapt this knowledge to learn how to use new technologies.

CASE STUDY 1

Digital captain's log: key stage 2 literacy and science activity

Payton and Hague (2010, pp 17–22). The full case study and discussion can be accessed at: www2.futurelab.org.uk/resources/documents/project_reports/digital_literacy_case_studies.pdf.

Table 1.2 Summary of digital captain's log activity (Payton and Hague, 2010, pp 17–22)

Task given to children	Digital captain's log Your mission: create a video diary to describe to your class the experience of exploring another planet. Use internet research to boost your imagination and creativity.
Context	Year 3 children working on a cross curricular unit of learning entitled 'space: the final frontier'.
Teacher aims	The overall teaching aim was to describe for their peers the fictional experience of exploring the planet using what they had learnt from the internet research to inform their imagination and creativity. The teacher aimed to improve children's digital literacy including: • internet research skills; • ability to assess the relevance and reliability of digital sources; • effective communication; • representing information in a visual format.
Equipment/resources	Digital video cameras and editing software Rocket launch video as a stimulus

Critical question

» Using the Payton and Hague model given in Table 1.1, identify those aspects of digital literacy you feel you could develop carrying out a similar activity in your own classroom.

One strength of activities of this nature is that they require the children to search with a purpose and, most importantly, use the information they find to achieve a particular goal. We have often heard trainees and teachers complain that children simply print pages or copy and paste sections from the internet for homework tasks. Here the child is only partly to blame as the task probably did not include an application stage, ie asking the child to do or achieve something with that new information. The captain's log example also employs the useful tip of requiring that new information acquired be presented in a different media. These activities require the child to engage with the new information at a much higher level.

Digital literacy and the national curriculum

The national curriculum for computing begins with the following statement regarding the purpose of study:

Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

ENGLAND (DfE, 2013)

The phrase 'active participants in a digital world' recognises the increasing value placed academically, socially and in employment of being digitally literate. Facer observed that for young people (2009):

New purposes for literacy will continue to emerge from the ability to communicate across space and time with known and unknown people. These will be supported by developments of mobile and social networking technologies and the increasingly embedded character of these in the everyday will produce emergent and fluid sub-cultures and sharing networks which enable a broad set of practices with text. Overall, the blurring of traditional distinctions between producer (author) and consumer (reader) will escalate, and will require a complex range of skills, knowledge and understanding. (Facer, 2009, p 100)

Digital literacy is also referred to in the computing curriculum aims to ensure that all pupils:

- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems;
- are responsible, competent, confident and creative users of information and communication technology.

(DfE, 2013)

Table 1.3 details the programme of study requirements from Key Stages 1 and 2 that have strong digital literacy components. The emphasis has been added by the author and you will notice many terms from the models of digital literacy that have been discussed above.

Table 1.3 Digital literacy components of the Key Stage 1 and 2 computing programmes of study (DfE, 2013)

Key Stage 1 pupils should be taught to:	Key Stage 2 pupils should be taught to:
• use technology purposefully to create, organise, store, manipulate and retrieve digital content; • recognise common uses of information technology beyond school; • use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	• understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration; • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content; • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information; • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Critical question

According to Facer (2009), as a twenty-first century citizen 'it will be increasingly valuable to create multimodal texts that can operate across a range of platforms, to recognise the affordances of a mode will become a key competency, along with the choice of media, skills in use of various modes, and the ability to analyse multimodal texts, and to rapidly critique information from a range of sources' (p 100).

- » Which of the elements raised by Facer can you identify in the programmes of study?

Viewing the national curriculum through the Hobbs (2010) model it is possible to identify where many of the domains of digital literacies have been picked up for primary children (see Table 1.4, emphasis added by the author).

Table 1.4 Links between the Hobbs model and the computing programmes of study

Hobbs 2010 (pp vii–viii)	Computing curriculum references for Key Stage 1 and Key Stage 2 (DfE, 2013)
Make responsible choices and access information by locating and sharing materials and comprehending information and ideas.	KS2 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
Analyse messages in a variety of forms by identifying the author, purpose and point of view, and evaluating the quality and credibility of the content.	
Create content in a variety of forms , making use of language, images, sound , and new digital tools and technologies.	Key Stage 1 use technology purposefully to create , organise, store, manipulate and retrieve digital content. Key Stage 2 select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
Reflect on one's own conduct and communication behaviour by applying social responsibility and ethical principles.	Key Stage 1 use technology safely and respectfully . Key Stage 2 use technology safely, respectfully and responsibly ; recognise acceptable/unacceptable behaviour .
Take social action by working individually and collaboratively to share knowledge and solve problems in the family, workplace and community, and by participating as a member of a community .	Key Stage 1 recognise common uses of information technology beyond school. Key Stage 2 understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration .

Critical question

- » Can you identify where the eight digital literacies (cultural, cognitive, constructive, communicative, confident, creative, critical and civic) proposed by Belshaw occur in the computing curriculum? Are there any missing?

Digital literacy and the Teachers' Standards

(England)

Digital literacy is an important entitlement for all young people in an increasingly digital culture ... Indeed, if formal education seeks to prepare young people to make sense of the world and to thrive socially, intellectually and economically, then it cannot afford to ignore the social and cultural practices of digital literacy that enable people to make the most of their multiple interactions with digital technology and media.

(Payton and Hague, 2010, p 9)

The legal entitlement for children to be taught elements of digital literacy is clearly embodied in the computing programmes of study. Beyond this there is a general agreement with Payton and Hague's statement that if we are preparing learners for their future academic and work lives then teaching digital literacy in a meaningful way in primary schools is a key stepping stone. Often one of the best ways to teach is to set an example in your own teaching behaviours in the classroom.

Despite notions of young people today being *digital natives* (Prensky, 2001) or part of the *net generation*, this is not always universally true due to a variety of factors affecting access or patterns of use (Oblinger and Oblinger, 2005, cited in Ryberg and Georgsen, 2010, p 89). Therefore, Ryberg and Georgsen pertinently remind us:

Whilst the ideas of young people as particularly digitally literate do have some merit, it is also becoming increasingly clear that not all young people acquire the necessary competencies or literacies through informal use of technology. Educational institutions therefore play a pivotal role in ensuring that all young people attain the necessary competencies.

(Ryberg and Georgsen, 2010, p 89)

As a teacher, recognising differential access, experiences and competencies is always key and likewise in relation to digital literacy. Ensure your decisions are based on formative assessment and dialogue and not assumptions that all children are digitally literate from their out-of-school experiences. As with any subject the Teachers' Standards require that you are 'aware of pupils' capabilities and their prior knowledge, and plan teaching to build on these' (DfE, 2011, p 10).

Hopefully, the definitions explored in this chapter have persuaded you of the academic rigour and extent of digital literacy. The Teachers' Standards remind you that as a professional you are required to 'keep your knowledge and skills up-to-date and be self-critical' (DfE, 2011, p 10).

Digital literacy pushes the educational boundaries for teachers. In addition to content decisions an effective teacher must have a repertoire of communication strategies. This demands that you have a good, and continually evolving, level of competency in different modes of communication and an understanding of modal (textual, visual, aural, etc) affordances. Beyond that, a truly twenty-first century teacher will have some understanding of how these modalities complement, layer and enrich each other in teaching and learning activities. Technology can be one approach in creating 'a stimulating environment for pupils' (DfE, 2011, p 10).

Critical questions

Spend a few moments considering theories of learning you may have encountered already in your training: for example, constructivism or learning styles.

- » How does digital literacy fit within your understanding of these pedagogical approaches?
- » Can digital tools be considered scaffolding techniques for learners?

The Teachers' Standards require you to 'demonstrate knowledge and understanding of how pupils learn and how this impacts on teaching' and this includes digital literacy (DfE, 2011, p 10). In the following quote from Facer (2009) she is not directly talking about teachers but makes a parallel point about the need for understanding and research about the interplay of multimodality, cognition and communication:

The choice of mode and thus modal affordances will become more important for the work of design with respect to knowledge, creativity and communication. The layers of visual symbols, audio, print and hyperlinked meaning-making pathways will highlight the need for a deeper understanding of how modal layers create meanings. Added to this the development of the skills to bring these modes into different kinds of configurations and relations will increase in value.

(Facer, 2009, p 100)

Multimodality as a topic is explored in Chapter 3.

Conclusion

Several of the definitions argue that 'digital literacies are composite and situational accomplishments, which should not be reduced to piece-meal curricular units, but taught as organic, complex engagement with different literacy practices' (Ryberg and Georgsen, 2010, p 90). It is recommended that you don't view the digital elements of the computing curriculum as an isolated subject but as core to learning in all subjects. Therefore effective teaching will be cross-curricula and purposeful. Offering children choices in the form, frequency and audience to express their ideas is powerful motivationally. The Teachers' Standards require you to 'reflect systematically on the effectiveness of lessons and approaches to teaching' (DfE, 2011, p 11). Not all your initial attempts teaching with technology will be an outright success but reflection will serve as a tool to ensure your digital literacy evolves with a growing understanding of its pedagogical potential.

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Developing digital literacy across the curriculum is about more than motivating and engaging learners with digital technology; it is about supporting young people to make sense of the world and to take a full and active part in social, cultural, economic, civic and intellectual life both now and in the future.

(Payton and Hague, 2010, p 9)

Critical points

- » You should avoid thinking of traditional notions of literacy and digital literacy as an either/or. You should embrace both, and view digital literacy as a development of traditional notions of literacy reflecting the current context for primary-aged learners.
- » You should think of digital literacy as representing a plurality of wide ranging elements including knowledge, skills, understanding, values and attitudes.
- » The book seeks to expand your interpretation of digital literacy beyond being a consumer to being an author alongside the children in your classroom.

Further reading and useful resources

There are many websites devoted to digital literacy. Here are a few to explore, you may want to bookmark ones you find particularly helpful.

For an international perspective useful generic resources on digital literacy include:

- US Digital Literacy: America's Internet Resource for Instructional Technology, digitalliteracy.us. Particularly useful are the digital toolkits available (accessed 31 October 2014).
- New Zealand Inquiry into 21st Century Learning Environment and Digital Literacy: Report to Parliament 2012, www.parliament.nz/en-nz/pb/sc/documents/reports/50DBSCH_SCR5695_1/inquiry-into-21st-century-learning-environments-and-digital (accessed 31 October 2014).
- edtechpd.sdcoe.net/home/glossary hosts a technology glossary (accessed 31 October 2014).

Resources for teaching digital literacy in the primary computing curriculum include:

- Computing at School & Naace, 2013. *Computing in the National Curriculum: A Guide for Primary Teachers*, www.naace.co.uk/curriculum/primaryguide (accessed 31 October 2014). These reflect the current curriculum requirement for 2014.
- JISC suggest a range of UK digital literacy frameworks on this page: jiscdesignstudio.pbworks.com/w/page/46601840/DL%20conceptual%20frameworks (accessed 31 October 2014).
- The conceptual framework for mapping common tasks and practices is useful in terms of deciding which tool/application for particular activities. There are some great diagrammatic representations accessed via the embedded links: cmapspublic3.ihmc.us/rid=1KY550GR7-1YNJ9RF-CYP5/overview.html (accessed 31 October 2014).
- Payton and Hague (2010) provide some practical classroom examples with primary aged children in their publication: *Digital Literacy in Practice: Case Studies of Primary and*

Secondary Classrooms. A PDF version of the document can be accessed from their website at: www2.futurelab.org.uk/resources/documents/project_reports/digital_literacy_case_studies.pdf (accessed 31 October 2014). I would recommend viewing these examples from across the curriculum: *Digital Captain's Log Key Stage 02, Literacy & Science* (p 11; referred to earlier in this chapter); *Animated Stories Key Stage 02, Literacy* (p 15); *Recording, Reviewing and Evaluating Learning Key Stage 02, Science* (p 18); *Digital Prospectus Key Stage 02, Cross Curricular* (p 22).

- Another Payton and Hague publication for Futurelab, *Digital Literacy across the Curriculum: A Futurelab Handbook*, can be downloaded as a PDF at archive.futurelab.org.uk/resources/documents/handbooks/digital_literacy.pdf (accessed 31 October 2014).

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