



THE ESSENTIAL ELEMENTS OF DIGITAL LITERACIES

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About

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Doug wrote his doctoral thesis¹ on the subject of digital literacies, beginning investigations into the area after noticing as a classroom teacher the differences in attitude between those with greater and lesser exposure to digital environments.

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Preface

In 2012 I had just finished my Ed.D. thesis. It had been on the web for anyone to read since I wrote the first word, but I wanted to create something a bit more accessible for the 'lay reader'. I set about work on a book which would explain the concepts in a more easy-going way.

Having already self-published one book using the 'OpenBeta' model I had devised, I decided to try it again. OpenBeta is a process in which the earlier you buy into a book, the cheaper it is.⁴

I'm humbled to say that almost 300 people bought into the book from the first — where it was little more than a title and a contents page — through to this version 1.0. Along the way, the book has changed scope a little and it now also includes some work I've done in my role at the Mozilla Foundation around web literacy.

This book and the work it's based on would not have been possible without my wife's patience, my children's understanding, and my parents' encouragement. Thank you to them, and also to the people who have given me great feedback and support over the last couple of years. I couldn't have done this without you all!

A handwritten signature in black ink, appearing to read 'Doug', with a long, sweeping underline that extends to the left and then curves back under the main part of the signature.

⁴ <https://dougbelshaw.com/blog/ebooks/openbeta/>

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Chapter 1: Introduction

I'm going to begin with a bit of a warning. This is the kind of book that still requires some work on the part of the reader to translate into practical action. In other words, this isn't a handbook. There's nothing resembling an off-the-shelf solution here. Parts of this book probably belong in other, even more philosophical works. As the fictional author Lemony Snicket says in *A Series of Unfortunate Events*, if you keep reading, then don't say I didn't warn you.

For those still with me, then I hope you find this a useful book. It's the kind of thing I wished someone had written for me to read several years ago. When I began writing this after completing my doctoral studies, my aim was to create a book of ~10,000 words to

summarise my thesis. It was going to be a primer, a more accessible way for educators to get to grips with digital literacies. As so often happens with these kinds of things, it's taken longer to finish than I expected and the word count has doubled!

“This is the kind of book that still requires some work on the part of the reader.”

Along the way, I hope that this book has turned into something even more useful. I see it as the raw material from which you can start thinking about what digital literacies might mean in *your* context. That may be part of a personal journey. It may be that your organisation has staff needing to update their digital skills. It might be an educational institution looking to develop digital literacies in their students. Whatever you're looking to do, my aim is for this book to leave you *asking the right questions*. I can't provide the specific answers you're looking for as I don't know your context. However, I hope that, whenever you're prompted by the following chapters, you'll jot down some of the ideas that come into your head.

The chapter that gives the book its title is Chapter 5, *The Essential Elements of Digital Literacies*. I developed an approach to digital

literacies based on eight elements in response to the myriad frameworks I came across during my studies. I think you'll find it's a more productive way of approaching the area within your particular setting. Feel free to dive straight into that Chapter 5, but your understanding may increase if you start from the beginning of book.

Chapter 2 introduces the 'problem' of digital literacies. Part of the problem is that we don't really understand traditional 'literacy'. We'll look at literacy as a social phenomenon as well as what happens when you add a modifier like 'digital' in front of 'literacy'.

Chapter 3 is an odd beast; I debated back and forth whether to include it, but after discussing with some people who seemed to 'get it', decided that it was for the best. If you get lost in the discussion of ambiguity and *Alice in Wonderland*, feel free to skip the chapter. It helps some people understand what's coming next, but it's purely optional.

Chapter 4 provides some reasons why I believe some of the digital literacy frameworks you may have come across don't work. We'll discuss non-linearity, the work of Stephen Heppell, skill acquisition, and the SOLO Taxonomy. Most important, though, is realising that literacies are *plural* and *context-dependent*.

Chapter 5 is the pivotal chapter of the book. In it, I introduce the eight essential elements of digital literacies that I came up with in my thesis. I explain what each one means, also discussing in passing things like SAMR model and skeumorphism.

Chapter 6 introduces memes. These are a great way to understand how digital texts are different from their analogue counterparts. Along the way we'll deconstruct a couple of particularly successful memes.

Chapter 7 outlines my belief that at the heart of digital literacies is the concept of 'remix'. I discuss licensing issues as well as giving some practical examples of sample remixes you can do right now.

Chapter 8 focuses on my post-doctoral work at Mozilla where I've been focusing primarily on web literacy. We'll look at how 'coding' and web literacy differ. Also, why interest-based pathways to learning are important.

Chapter 9 is the conclusion, as much as there can be one. Be warned, you're going to be encouraged to 'rip and remix' the ideas (and text) found in the next ~20,000 words!

Chapter 2: What's the problem?

Introduction

What's the problem here? Why do we even need to talk about 'digital literacy'? And why 'digital literacies'? Why the plural? What's wrong with just talking about 'literacy' and applying that to the digital world?

These questions and more are addressed in this chapter. We'll begin by looking at what is traditionally understood by traditional notions of 'literacy' before going on to problematise the concept. From this we'll consider which is the most important aspect of 'digital literacy' - the 'digital' aspect or the 'literacy' aspect? The final part of this chapter explores the importance of the *social* part of literacy, as opposed focusing merely on the cognitive.

What is 'literacy'?

Literacy is commonly understood to be the ability to 'read and write'. Underneath that seemingly-innocuous and straightforward statement, however, lies much depth. Some questions immediately spring to mind, for example:

- ★ Reading and writing for what purpose?
- ★ Reading with what level of understanding?
- ★ Writing with what degree of clarity?
- ★ Being able to read and write in what kind of circumstances? (with what kind of support?)

Given the ambiguity inherent in the concept — something we will explore in more depth in the next chapter — it is fair to consider 'literacy' as a kind of *conceptual shorthand*. Although we can (and do) create

tests to measure literacy we have to *add* to the original understanding of ‘being able to read and write’ to get to any sort of precision.

Problematising traditional ‘print’ literacy

As UNESCO found over 50 years ago, it’s almost impossible to consider ‘literate’ and ‘illiterate’ persons as being part of two separate groups:

“Literacy is a characteristic acquired by individuals in varying degrees from just above none to an indeterminate upper level. Some individuals are more or less literate than others but it is really not possible to speak of illiterate and literate persons as two distinct categories.”

(UNESCO, 1957)

Instead, literacy should be considered on a spectrum — as individuals being ‘more literate’ or ‘less literate’ than others. I am, for example, more literate than my seven year-old son. He is more literate than my three year-old daughter, and so on. Although age does not have a one-to-one relationship with literacy it, too, is a useful conceptual shorthand for ascertaining how literate someone is likely to be. A person’s chronological age is usually strongly correlated with years of schooling. And school, hopefully, is where we learn to become literate.

Next comes the issue of the *purpose* of reading and writing. If you asked me to compose an essay, right now, on a subject of my choice, I’d be able to do so quickly and relatively easily. Society, therefore, considers me to be literate. Part of this is due to the number of years I

“It is really not possible to speak of illiterate and literate persons as two distinct categories.”

spent as a learner in formal education, but it's mostly to do with *what society counts as 'being literate'*. If using markup, scripting and programming languages was what counted, then I'd perhaps be considered less literate. If communicating using networked texts and social media, then perhaps a little more so. We'll consider this social aspect of literacy in more depth in the final section of the chapter.

Several related ideas are elided (and hidden) by our commonsense definition of literacy as 'being able to read and write'. Literacy involves:

- ★ Reading for understanding
- ★ Writing to be understood by others
- ★ Using a tool to write

Traditionally, literacy has been a great leveller. The spread of books after the invention of the printing press, and the ability to read them, is credited with a decline in support for the Catholic church and a rise in non-conformism. Before books went digital, they were created either by using a pen or by using a printing press. These tools are *technologies*. Literacy, therefore, is inextricably linked with technology even before we get to 'digital' literacies.

I've already mentioned the difference between writing code (e.g. for a web page) and writing an essay. However, does a 'text' have to be 'written'? Is there a literacy, a process of decoding and understanding, when it comes to dealing with images? There's certainly a research base for the idea of *visual literacy*. Of course, as soon as we allow non-written artefacts to be equated with 'literacy' we open Pandora's box. Visual literacy? Health literacy? Information literacy? Gardening literacy? *Digital literacy*?

There's a related issue, which I won't consider in much depth here, but which fascinates me, as to what extent the audience for your 'writing' has to be human. Think about essays being scanned in and being

graded by robots; if no-one sentient ever reads what you have written, does it count as being the product of *literacy*? Do *you* count as your own audience — as with, for example, a daily journal?

As you can see, the concept of ‘literacy’ is problematic, even when understood traditionally. When we talk about literacy we’re talking about using a tool for a particular purpose. That purpose is to communicate with other people and, potentially, other *things*. When we add modifiers such as *digital* literacy into the mix, things get even more interesting.

The social aspect(s) of literacy

Ordinarily, when we consider ‘literacy’, we think of an individual reader consuming the work of an individual writer. Our assumptions tend to be that literacy is an inherently *cognitive* activity. We assume that any ‘social’ aspects are bolt-ons: reading groups, social networks, poetry recitals, and so on. I would argue that *literacy is inherently a social phenomenon*. In fact, I’d argue that, in isolation, an individual cannot be literate at all:

“Even if we are alone, reading a book, the activity of reading — knowing which end to start at, whether to read a page left-to-right or right-to-left, top-down or bottom-up, and how to turn the pages, not to mention making sense of a language, a writing system, an authorial style, a genre form (e.g. a dictionary vs. a novel) — depends on conducting the activity in a way that is culturally meaningful to us. Even if we are lost in the woods, with no material tools, trying to find our way or just make sense of the plants or stars, we are still engaged in making meanings with cultural tools such as language (names of flowers or constellations) or learned genres of visual images (flower drawings or star maps). We extend forms of activity that we have

learned by previous social participation to our present lonely situation.

(Lemke, 2002, p.36-37)

Literacy is very closely aligned with the knowledge and use of tools. I shall call this *tool-knowledge*. This first involved inscribing words or symbols upon rock or stone, then moved on to the use of quill/pen and ink, and finally the printing press. Literacy, however, also depends upon a different kind of knowledge. There has to be both something that is being communicated through the writing *as well as* an ability to use tools to do that communicating. I shall call this *content-knowledge*.

Literacy, then, involves both *tool-knowledge* and *content-knowledge*. Some would wish to equate literacy with these forms of knowledge. They would say that literacy is the sum total of the existing *tool-knowledge* and *content-knowledge*. However, this is problematic as it depends upon a static conception of knowledge. Both forms of knowledge change over time because of external factors out of our control such as societal norms and trends.

“I would argue that literacy is inherently a social phenomenon. In fact, I’d argue that, in isolation, an individual cannot be literate at all”

For hundreds of years *tool-knowledge* has been fairly static, centred around the printing press and the pen. *Tool-knowledge* has been taken for granted whilst we’ve come to accept that advances in *content-knowledge* affect literacy. We represent new ideas using existing tools and methods of expression. Things, however, have changed with new electronic forms of communication and, in particular, the dawn of the World Wide Web. Indeed, the author and educator George Siemens (2006) talks of knowledge having “broken away from its moorings, its shackles”.

There can never be a single literacy' to rule them all. The common-sense 'literacy' to which we refer would be better described as *traditional print literacy* as it depends upon the technology of the printing press. As new tools for communication have been introduced — for example, email, social networking, video-sharing sites — so new forms of literacy are needed to understand them. For the sake of brevity and for us to be able to talk about these (what I term) 'micro-literacies' we tend to wrap them up into larger bundles. So when theorists talk about 'New Literacies' or when I refer to 'Digital literacies' that is, in effect, what we are talking about.

What underlies all of this is that being literate is not only an ongoing process, but necessarily a *social* activity. We use tools for the purpose of communicating with one another. This requires both *tool-knowledge* and *content-knowledge*. Crucially, both of these aspects of knowledge are in flux in the 21st century meaning that, "Tomorrow's illiterate will not be the man who can't read; he will be the man who has not learned how to learn."⁵

Which part of 'digital literacy' is important?

It's my intention for this book to be as non-technical and non-specialist as possible. At the same time, however, I don't want to make unjustified conceptual leaps without explaining them. You can probably safely skip this section (and Chapter 3) and still make sense of the rest of the book.

Jargon is language defined explicitly in relation to a particular activity. We come across it every day. Jargon is a normal part of human life. Sometimes it takes the form of an acronym, sometimes the

⁵ As far as I can tell, this was a quotation from psychologist Herbert Gerjuoy that Alvin Toffler used in *Future Shock* (1970)

foreshortening of a word, and on occasion is expressed as euphemism. The most important use of jargon, however, is when it helps explain something in one word or phrase that would otherwise take a paragraph or two.

It is with that in mind that I introduce you to the following jargon term. ‘Zeugmas’ are figures of speech that join two or more parts of a sentence into a single noun or verb. These figures of speech, these *zeugmas*, involve the omission of words and leave the reader (or listener) to fill in the gaps.

“The most important use of jargon... is when it helps explain something in one word or phrase that would otherwise take a paragraph or two.”

As soon as we add a modifier to literacy — ‘visual literacy’ or ‘information literacy’ or ‘digital literacy’ — we’re in the realm of zeugmas. We’ll consider ambiguity in more depth in the next chapter, but for now it’s enough to note that there’s a lack of clarity in using such terms without further explanation. Is the emphasis upon the ‘digital’ aspect of ‘digital literacy’? (making it a *prozeugma*) Or is the emphasis upon ‘literacy’? (making it a *hypozeugma*). Which is the adjective and who gets to decide?

We saw earlier in this chapter that literacy is already a problematic term. Therefore, adding a modifier (e.g. *digital* literacy) not only adds another layer of ambiguity, but raises the question of the relationship between the two words. We’re unsure as to how the modifying word does its modifying. We’re also unsure as to whether the modifying word is more important than the word it’s modifying. We’ll explore this ambiguity in more depth in the next chapter.

This chapter in a nutshell:

- ★ Traditional concepts of literacy are problematic
- ★ Literacy *a/ways* involves technology
- ★ Literacy practices are inherently social activities
- ★ Digital literacy is an ambiguous concept

Chapter 3: Everything is ambiguous

Introduction

*“The Hatter opened his eyes very wide... but all he said was,
‘Why is a raven like a writing-desk?’*

*‘Come, we shall have some fun now!’ thought Alice. ‘I’m glad
they’ve begun asking riddles. — I believe I can guess that,’
she added aloud.*

*‘Do you mean that you think you can find out the answer to
it?’ said the March Hare.*

‘Exactly so,’ said Alice.

‘Then you should say what you mean,’ the March Hare went on.

*‘I do,’ Alice hastily replied; ‘at least — at least I mean what
I say — that’s the same thing, you know.’*

*‘Not the same thing a bit!’ said the Hatter. ‘You might just
as well say that “I see what I eat” is the same thing as “I
eat what I see”!’ ”*

(Lewis Carroll, Alice’s Adventures in Wonderland)

We’re surrounded by ambiguity in everyday life. Words not only have multiple meanings, but the *context* in which we use words can greatly change their meaning. Even words that both sound the same and are spelled the same way can be understood very differently depending upon context.

My favourite example of this is the word ‘buffalo’ as most people consider this to be unproblematic. However, when you point out that the sentence ‘Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo’ is actually grammatically-valid they look a bit bemused. This is because ‘Buffalo’ can pertain to bison-like mammals, the city of Buffalo in the USA, and the action of bullying or intimidating someone. Say the word ‘Buffalo’ in the UK and it’s almost certain that the person who hears the

word will think of an animal. Say the word in New York and the person you're speaking to might first think of the US city.⁶

Given how context-dependent language can be, it's a wonder we manage to successfully communicate our ideas at all! Like Alice in the quotation introducing this chapter, we assume that if we *mean what we say* then everything will be alright. So long as we use what we consider to be appropriate words then others will understand what we're trying to convey. Indeed, even as I'm writing this I have to edit and re-write sentences so as to avoid being misunderstood. Like democracy, language isn't perfect, but it's the best system we've got at the moment!

In this chapter I want to argue that ambiguity is actually something to be *embraced* rather than to be avoided — and especially when it comes to digital literacies. I'm going to introduce a continuum of ambiguity I that I have come up with, something that I found necessary to make sense of the digital literacies landscape. While you can happily skip this chapter if you're just interested in getting on with digital literacies in *practice*, I do think it's of value to consider how we can use ambiguity in our favour.

Types of Ambiguity

It was 2009, and I was struggling to get to grips with the literature around digital literacy. It seemed somewhat disparate and not at all cohesive, despite authors using similar terminology. What one author meant by 'digital' wasn't what another meant by the same term.

Thankfully, a chance visit to a shop for remaindered books helped me enormously. There, on a shelf of this discount bookstore, was a reprint of a book from the 1930s by William Empson. Entitled *Seven Types of Ambiguity*, it was a work of literary criticism providing a basis for

⁶ More about this at: http://en.wikipedia.org/wiki/Buffalo_buffalo_Buffalo_buffalo_buffalo_buffalo_Buffalo_buffalo

understanding how there are different forms of ambiguity. All I had to do was apply it to my own field.

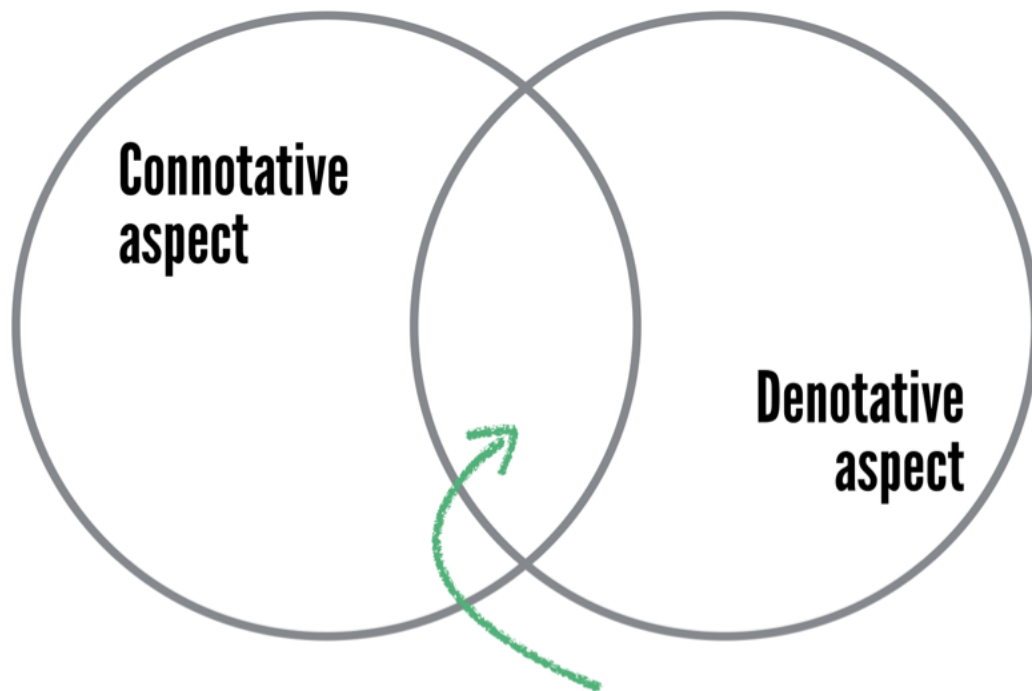
Although this took slightly longer than I thought, and involved some wonderfully interesting detours, I was delighted when my post-it notes, mindmaps and crazy drawings coalesced into something that I think is worthwhile. My breakthrough came when I gave up trying to come up with one overarching definition of a single ‘digital literacy’. Instead of trying to avoid ambiguity I embraced it as an inevitable feature of human discourse. I came up with a **continuum of ambiguity**.

Before jumping straight into explaining the continuum, let me give some background by way of explanation. Every term that we use has both what’s known as a *denotative* aspect and a *connotative* aspect. The denotative aspect points to the surface-level meaning of the term whereas the connotative aspect points to its symbolic meaning.

“Every term that we use has both what’s known as a *denotative* aspect and what’s known as a *connotative* aspect.”

So, for example, when I say ‘chair’ the surface-level (denotative) meaning might be ‘object with four legs upon which people sit’. The symbolic meaning of a chair (the connotative aspect) might be ‘this is somewhere I can sit down’. Because we can never know exactly what other people are thinking, we can never deal in terms that are purely denotative; there will always be some symbolic aspect to what we say or write down. Continuing the example, you might see the presence of a chair as an *expectation* for you to sit down. You may see this as something to do with a power relationship. The other person, meanwhile, could be blissfully unaware of this connotation.

The diagram below shows the overlap between the denotative and connotative aspects of terms that we use everyday:



It's the middle bit of this diagram that interests us. That's the bit where normal everyday human communication takes place. Towards the left of that overlap is conversation about ideas that are more abstract. Further to the right are discussions about more concrete matters. Note, however, that because of the reasons given above, you can never be *absolutely* certain that you're talking about exactly the same thing as another person. People see the world differently.

If we consider that overlapping area in the diagram above as a continuum from more abstract to more concrete then I think we can divide it loosely into three distinct areas:

- ★ Generative ambiguity
- ★ Creative ambiguity
- ★ Productive ambiguity

The first of these areas, **Generative ambiguity**, includes the types of terms and ideas dependent upon tenuous links. No aspect of the term or idea is fixed or well-defined. Terms and ideas within Generative ambiguity are one step away from being *vague*.

“The Oxford English Dictionary defines ambiguity as the ‘capability of being understood in two or more ways’.”

The *Oxford English Dictionary* defines ambiguity as the ‘capability of being understood in two or more ways’ whereas if something is vague then it is ‘couched in general or indefinite terms’ being ‘not definitely or precisely expressed’. There’s a subtle difference between these terms, but I would suggest, whereas we might want to embrace ambiguity as a fact of life, we should avoid being vague.

An example of Generative ambiguity would be the kind of blue-sky thinking that leaders tend to do. Let’s use a digital literacies initiative within an educational institution as a homely example. One day the Principal of the institution might have a flash of inspiration due to the coalescing of an idea from a conversation she had the night before, along with the strategy paper she’s writing. It might be difficult for her to explain her vision to others in precise terms, but that doesn’t mean that it isn’t a good idea. It just means that she needs to work on the idea to express it in terms that will make sense in her particular context.

Once the Principal has done this, once she has started using the language of her immediate peers — which might be the rest of her senior leadership team — then she is in the realm of **Creative ambiguity**. Here, one part of the term or idea is fixed and well-defined. It is similar to a plank of wood being nailed to the wall near one end and allowing 360-degrees of movement around that point. When we’re talking about an initiative around digital literacies this might mean deciding what they’re talking about when they’re talking about ‘digital’. In

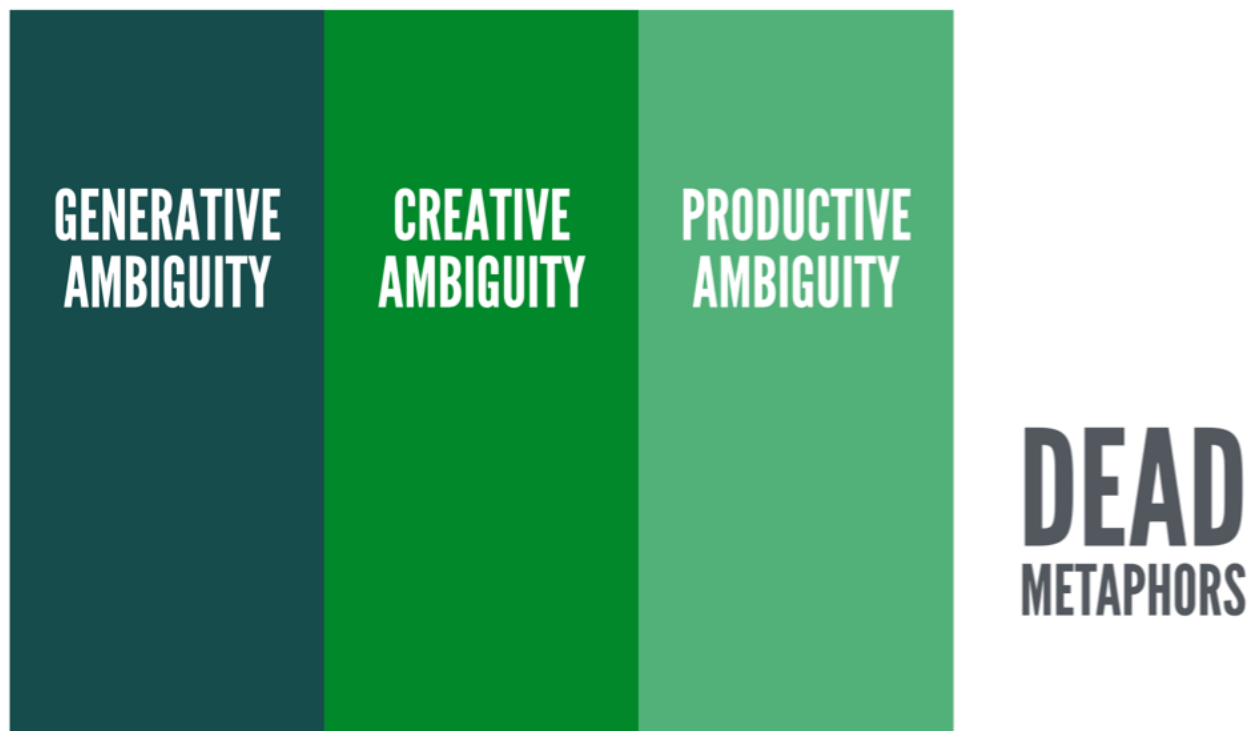
their context, for example, this might mean ‘computers’ or ‘the learning platform’. In another context it might mean ‘anything electronic’.

Finally, we have the area I call **Productive ambiguity**. This part of the continuum involves terms and ideas of the *least* ambiguous variety. Examples here include everyday metaphors and one idea serving as a convenient shorthand for another. So when the Principal of the educational institution, along with her senior leadership team, present the idea to staff they’ve defined the broad parameters for engagement. They might, for example, decide not to call the initiative a ‘digital literacies’ initiative because of a previously-failed venture. Alternatively, now might be a very *good* time to call it a ‘digital literacies’ initiative as the institution can build upon the zeitgeist, a swell of coverage and interest by the media.

It is worth noting that terms and ideas can eventually lose almost all of their connotative aspect. These terms ‘fall off’ the spectrum of ambiguity and become what Richard Rorty has termed ‘dead metaphors’. These terms are formulaic and unproductive representations of ideas that die and become part of the ‘coral reef’ upon which further terms and ideas can depend and refer to. Invoking terms such as these tends to be avoided due to over-use or cliché. The terms usually cause people to roll their eyes when they hear them, or to say them with a smirk. ‘Digital natives’ would be a good example of this. It signifies nothing useful, not because it’s overly-ambiguous, but because it’s *overly-specific* and references an outdated way of looking at the world.

The Continuum of Ambiguity

The continuum I have referenced above was a key part of my doctoral thesis. I'll spare you the details, but the simplified version is below.⁷



This continuum of ambiguity builds not only upon the work of Empson (1930), but also later thinkers such as Robinson (1941) and Abbott (1997). Empson's formulations of the seven types of ambiguity are probably the most accessible.⁸

I will argue in subsequent chapters that definitions of digital literacies are *plural*, *context-dependent* and need to be *co-constructed* to have power. It's important to note here that when you're attempting to frame a definition of digital literacies the aim should *not* be to make it completely

⁷ At the time of writing, I'm working on a potentially better 'volcano' metaphor. See <http://dougbelshaw.com/wiki/Ambiguity> for more on this as I develop the idea.

⁸ For a deeper dive into the types of ambiguity discussed by these three thinkers, have a look at Chapter 5 of my doctoral thesis at <http://neverendingthesis.com>.

unambiguous. Doing so would be merely to re-arrange Rorty's 'dead metaphors' in an unproductive way. Instead, it is more useful to embrace the ambiguous nature of language. Within the setting of an educational institution you could do this by charting a course through the continuum of ambiguity, beginning with Generative ambiguity and ending with Productive ambiguity. For example:

1. The senior leadership or small steering group generate a vision for the 'digital direction' of the institution.
2. A group of interested people (wider steering group) think about what this would mean in practice. They use the Essential Elements (see Ch.5) to map out the vision into eight different areas.
3. The wider steering group invite input from the rest of the institution (staff, students, parents, governors, anybody who's interested!) and talk about how this would work in practice. The temptation to limit the conversation to senior and middle managers should be avoided wherever possible. You never know where innovative ideas will come from!

The result of this three-step process would be a definition of digital literacies that is productive in that particular context. Over time, the definition may become either more or less ambiguous depending on changes within the community and wider society. That's why it's useful to revisit strategies and definitions on a regular basis to ensure they're still useful and productive.

References

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This chapter in a nutshell:

- ★ Human communication is ambiguous
- ★ Ambiguity is something to be embraced when it comes to digital literacies
- ★ Use different types of ambiguity for different purposes

Chapter 4: Why existing models of digital literacy don't work

Introduction

As we saw in the previous chapter, given the amount of ambiguity in the world it's a wonder that human beings manage to communicate at all! One way we manage to do so is by hugely simplifying our experience — packaging it up in ways that can be understood easily by others. So, for example, instead of trying to explain what the colour 'red' *feels* like to observe, we simply agree that when we point to a stop light and say 'red' we're actually talking about the same thing.

The problem comes, of course, when we need to refer to things that *can't* be seen. What do we do when we need to refer to concepts such as 'hunger' or 'pain'? With these we tend to infer them from what we *can* see. So, for example, if we put food in front of someone and they devour it quickly, we infer they were hungry. If we touch someone several times on the shoulder and they say 'ow!' each time, then we infer that they have a sore shoulder.

Referring to an even more meta-level concept such as 'patriotism' or 'literacy' however becomes more problematic. Actions can be interpreted in several ways depending upon your understanding of the situation. As the TV series *Homeland*⁹ shows, for example, the supposedly patriotic actions of a soldier can be seen in a very different light when you know the truth. Likewise, when it comes to understanding 'literacy' we need some way of understanding what's going on. We need a model.

The purpose of this chapter is to recognise that whilst we need conceptual models, the ones we currently have in the arena of 'digital literacy' are problematic. I will propose what I consider to be a better way of approaching the problem in Chapter 5, but in this chapter I first want to point out the shortcomings of existing models.

⁹ See <http://www.imdb.com/title/tt1796960/>

Linear progress?

One of the most problematic concepts in formal education is the notion of *linear progress*. All but the most progressive schools organise young people's instruction by the accident of when they were born rather than by their mental, emotional and physical development. We all — even educators — tend to internalise this model as 'the way things should be' rather than just the way they currently are. We assume that because schools present us with a linear pathway that this is the *best* way of learning.

Many models of educational development pre-suppose that we learn in a strictly linear way. They posit learning as akin to a staircase: there is only one set of stairs, they assume, and you have to climb them in order. I find this approach, especially when it comes to *digital* skills, to be highly disingenuous. When you question people applying this model about whether *they* learned digital skills in this way, they tend to flounder.

More enlightened educators think differently. Take Stephen Heppell, Professor of Education at Bournemouth University and an educational consultant. As well as advising educational institutions around the world, he's helped set up the Isle of Portland Aldridge Community Academy closer to home. This is a 3-19, 'stage not age' school where students are grouped according to interest and ability rather than when they emerged from their mother's womb.¹⁰

I am lucky to see new learning emerging all round the world. Regions and communities throughout the world are embracing and developing new "ingredients" of learning: superclasses of 90 to 120 students; vertical learning groups; stage not age; schools within schools or 'Home Bases'; project-based work; exhibition-based assessments; collaborative learning teams; mixed-age mentoring; children as teachers; teachers as learners; and so

¹⁰ <http://www.fastcodesign.com/1662358/the-end-of-education-is-the-dawn-of-learning>

much more. Obviously, in a world where every culture, context and community is unique there will be no one-size-fits-all solution, however enlightened that solution might be.

(Stephen Heppell)

We know from research — and in fact it is obvious — that we learn best when we're interested and engaged in something. The psychologist Mihály Csíkszentmihályi famously defined the concept of *Flow* as being: when we're completely absorbed in what we're doing; when we're energised and involved; and when we're enjoying what we're doing. Perhaps the most obvious arena for flow states is when we're playing games.

To some degree, all games have a logic, a narrative and a structure. That, however, is not necessarily the experience of gamers. Games such as the *Grand Theft Auto* series, the epic multi-award winning *Journey*, and *The Sims* all give us wide-ranging freedoms to create, destroy and collaborate. They are a wonderful example of informal, stage-not-age, interest-based learning. Whether it's through fast-paced console-based action games like *Halo*, Massive MultiPlayer Online Roleplaying Games (MMPORGs) such as *World of Warcraft*, or casual games like *Farmville*, game environments give us a glimpse at ways in which learning can be different.

We'll explore games and interest-based pathways later in the book. However, right now, I want to dig a little deeper into what's wrong with the way we currently approach the teaching of digital skills.

Skills are not learned in isolation

I'm a firm believer that learning requires a *context*. In fact, I'd go so far to say that attempts to teach skills in a contextless way are not only doomed to failure, but that any supposed 'successes' using such an approach are indistinguishable from charlatanism.

I can still remember a conversation I had as a student teacher with an in-service trainer. His argument was that skills were *all that mattered* and the rest was just ‘content’. My counter-example, as a History teacher, was the Holocaust. Surely teaching the actual events of the persecution of the Jews under Hitler’s regime matters as much as the ‘historical skills’ being developed. He disagreed, stating that any genocide would work equally well. At the time I didn’t know what to say; he was just plain *wrong*.

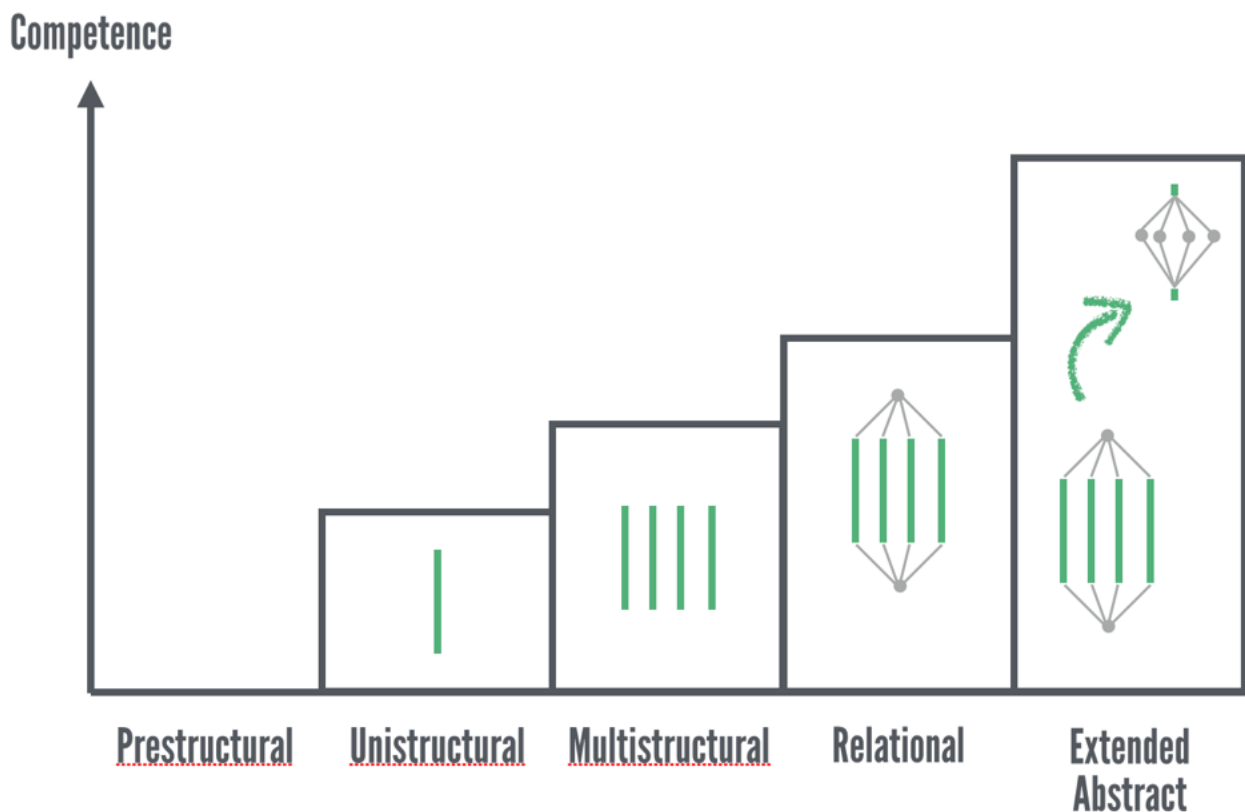
Like all good rebuttals, mine came to me about five years after the conversation. Once I had established myself as a teacher, I could see in practice that *skills are not learned in isolation*. A trivial example of this would be the very real example of 11 year-olds being able to draw a graph when sitting in a Mathematics classroom — but not straight

afterwards in my History classroom. This problem seemed to be *independent* of which teachers and classes were involved; it wasn’t just my poor teaching! If the Mathematics skills had in fact been learned separately from the content then learners would have had no problem transferring their skills to a new context. Context matters.

When I’ve thought about it a bit more, the way that we are able to eventually separate skills from their contexts is through *pattern-recognition as a result of immersion*. We know that the best way to learn a new language is to move to the country where it is spoken natively — to immerse yourself in the language and culture. In other words, the best way of learning hard skills (vocabulary, syntax, pronunciation) is constant practice within a relevant context.

“[T]he way that we are able to eventually separate skills from their contexts is through *pattern-recognition as a result of immersion*.”

When presented with something for the first time it's almost impossible to learn the skill independently from the context in which it's performed.¹¹ We learn in a concrete way first and can only abstract *from* this later as we become more proficient. The **Structure of Observed Learning Outcomes (SOLO) taxonomy** helps to explain this development:



Based on: http://www.johnbiggs.com.au/solo_graph.html

In this representation of learning, individuals move from a 'Pre-structural' conception through to an 'Extended abstract' understanding. That is to say learners start off not really understanding, then focusing only upon one relevant aspect before slowly making sense of the various facets of the topic/area. Finally, the relations between the various parts is fully understood and can be generalised to a new topic or area.

¹¹ A counter-example to this would be the 'multi-skills' classes that Primary school age children (including my son) do these days. Catching a ball is catching a ball, I suppose. I'd suggest, however, that muscle memory is of a different order to conceptual understanding.

This is all well and good, but how does this relate to digital literacies? Is the same true in the digital world?

Sequential vs. Progressive ‘encoding’

This section, as well as my discussion of memes in subsequent chapters, draws heavily on my TEDx Warwick talk from March 2012. You can find this at: <http://www.youtube.com/watch?v=A8yQPoTcZ78>

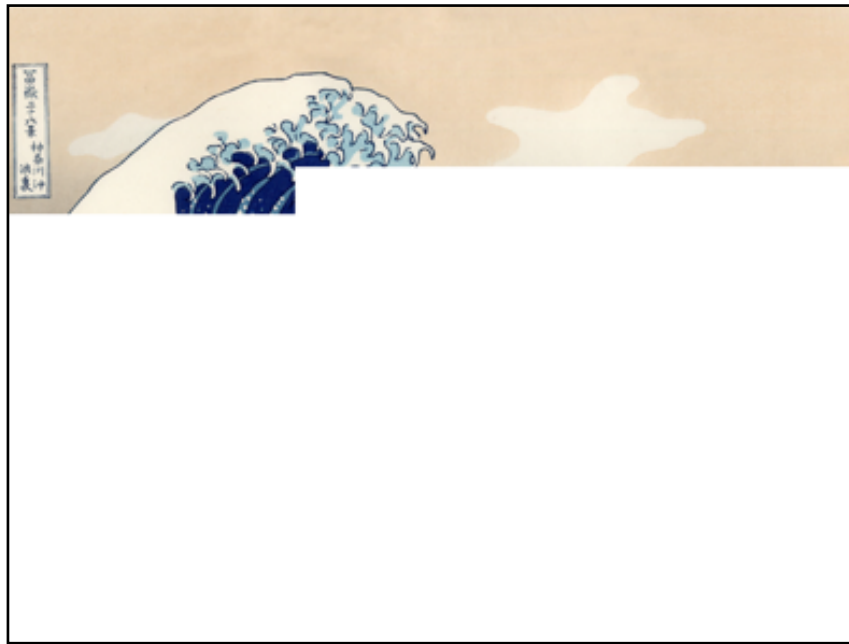
These days the majority of us in the western world are fortunate to have a fast Internet connection at both home and work. We may become occasionally frustrated by how ‘long’ a website takes to load but, on the whole, we can navigate around the web faster than we can think about what we’re accessing.

This hasn’t always been the case. Those who were online prior to the turn of the century will remember speeds of 56kbps and below. My first modem was a blazingly-fast 28.8kbps monster that I used to download pictures of *Ukiyo-e* by Japanese artists such as Hokusai and Hiroshige:

Because of the speeds involved, you actually saw the images downloading. Broadly speaking, images can be encoded (compressed) in two ways: *sequentially* or *progressively*.

When you’re downloading a sequentially-encoded image on a slow connection it looks like this:





When you're downloading a progressively-encoded image on a slow connection it looks like this:



The sequentially-encoded image loads each line one at a time from the top whereas the fidelity of the progressively-encoded image improves as the data is downloaded. I'm sure you can guess which I preferred: looking at sky for several minutes while the rest of the image loads becomes a bit tedious.

I think that the difference between sequentially-encoded and progressively-encoded images serves as a useful metaphor for learning digital literacies. Our tendency in education in general is to package-up blocks of learning on a linear pathway. The learner literally does not see the ‘big picture’ of learning — only what comes next. On the other hand, letting the learner roam, whilst providing just-in-time support, can lead to a much richer and more enjoyable experience. They can see how it all fits together, even if they haven’t got all of the detail and nuance just yet.

Literacies are plural

I’ve argued that skills cannot be learned in a vacuum, that they’re highly contextual. Now I want to go one step further. In a similar vein to the SOLO taxonomy I believe there’s a continuum from skills through competencies to literacies. As individuals can abstract from specific contexts they become more literate. So, in the digital domain, being able to navigate a menu system when it’s presented to you — even if you haven’t come across that exact example before — is a part of digital literacy.

The problem with standard views of digital literacy is that they equate literacy with a ‘skill’ to be learned. This is known as the ‘unitary’ view of literacy. As Hannon points out, those who hold this position believe that “the actual uses which particular readers and writers have for that competence is something which can be separated from the competence itself.” (Hannon, 2000, p.31). On the other hand, the pluralist view believes there to be many different literacies:

We should recognise, rather, that there are many specific literacies, each comprising an identifiable set of socially constructed practices based upon print and organised around beliefs about how the skills of reading and writing may or, perhaps, should be used.

(Lankshear, 1987, quoted in Hannon, 2000, p.32)

Going back to that conversation I had as a student teacher, part of the problem I had with the in-service trainer who wanted to focus merely on ‘skills’ was that he didn’t seem to recognise that literacy practices are *not neutral* when it comes to power, social identity and political ideology. As Paulo Freire (1968) pointed out, to wash one’s hands of the conflict between the powerful and the powerless means, in effect, siding with the powerful.

What does this mean in practice? It means that we *should recognise a multiplicity of literacies*, and especially in the digital realm. It is easy to paint a utopian picture of what can happen when learners connect to information and to one another via digital tools. There’s plenty of rhetoric about learning and jobs being available to all through the internet. What is often missing is the recognition of the multiple literacies needed to not only turn desire into action, but even to know what is obtainable.

“Literacy practices are *not neutral* when it comes to power, social identity and political ideology.”

In the next chapter I want to examine this idea of there being *multiple* literacies and look at what they are and how we might help develop them in others.

References

- ★ Freire, P. (1968:1970) *Pedagogy of the Oppressed* London: Continuum
- ★ Hannon, P. (2000) *Reflecting on Literacy in Education* London: RoutledgeFalmer

This chapter in a nutshell:

- ★ Skills are not learned in isolation, but rather developed within a context.
- ★ Literacies are plural and *not neutral* when it comes to power, social identity and political ideology.
- ★ There is a continuum of skills, through competencies up to literacies.
- ★ Literacies are best taught when the learner can see the whole picture of what they are learning and where they are going ('progressive encoding').

Chapter 5: The Essential Elements of Digital Literacies

Introduction

Given the failure of existing models of digital literacy to fully and adequately describe what it is that we're trying to do, a different model is called for. In broad brushstrokes, the difficulty (as we found in the previous chapter) is that most models of digital literacy don't consider literacies in their *plurality*.

It is because most models are straight-jacketed by considering only a single 'digital literacy' that they can be accused of being either too prescriptive or overly vague. If a definition or model is too detailed then it begs the question around who's doing the prescribing. What privileges *their* perspective?

On the other hand, if definitions or models don't provide enough detail, then it's extremely difficult to put them to *work*. They remain an academic and intellectual curiosity; something to be marvelled at and discussed, perhaps, but of little value in the classroom.

It's with this in mind that I have come up with what I consider to be the **eight essential elements of digital literacies**. These haven't been plucked out of thin air; these are based on my research over the past seven years and constitute a synthesis (as much as is possible) of leading thinkers in the field.

Where I think the eight essential elements approach differs from existing frameworks and models, however, is in the way they should be used. The elements are like ingredients — and you need to come up with the recipe. Just as anyone wishing to bake bread is going to need flour, water, yeast and heat, so to develop digital literacies you're going to need to develop skills, attitudes and aptitudes in the eight areas I outline below:

1. Cultural
2. Cognitive
3. Constructive

4. Communicative
5. Confident
6. Creative
7. Critical
8. Civic

In some contexts, some of these elements may need to be privileged above others. I'm yet to come across a context, however, that didn't require each of these elements to *some* extent.

I want to spend the rest of this chapter explaining and teasing out what lies behind each of these elements. It would, of course, be disingenuous to claim that the 'definition' of each of these is anything other than provisional. Just as there should be conversations about which are the most important elements in any given context, so too there should be discussions around what it means to be 'Creative', 'Communicative' and so on in that context.

Cultural

First of all it's important to say that, while the rest of the elements are listed in alphabetical order, *Cultural* is placed top of the list. Had I placed it at the bottom of the list (as it should be, alphabetically) it would likely have been considered last — which is definitely not when it should be considered. A large part of what I mean by the *Cultural* element is bound up by an understanding of *context*. That's why it's such a good starting point.

There are many different contexts that an individual may experience, not only over the course of a lifetime, but *simultaneously*. For example, I'm writing this particular paragraph whilst on a train using a non-linear word processing program called Scrivener.¹² Every now and then I get a notification that I've got a reply or direct message on Twitter. This means

¹² <http://www.literatureandlatte.com/scrivener.php>

several things, not least choosing whether to be distracted by those messages right now, but also (and more pertinently) how to navigate between the context of using a program such as Scrivener and TweetDeck,¹³ the app I use to interact with my Twitter network.

A note in passing. I always felt when I was teaching — and helping others to learn how to teach — that it's the *transitions* that are the hardest to learn. It's fairly straightforward to master facilitating group work or giving some lecture-style input. How to move seamlessly *between* these, however, is much more difficult. Likewise, moving between different digital environments is the thing that is problematic and takes time to learn.

It can be very difficult to separate out all of the issues surrounding the personal and social aspects of technology. Something I am consciously avoiding in this book are issues surrounding access to digital devices and technologies. That's a whole other (and probably much weightier) book.¹⁴

As devices become cheaper and easier to use, the barrier to entry becomes less to do with technology and affordability and more to do with cultural and social factors. Digital literacies are not solely about technical proficiency but about the issues, norms and habits of mind surrounding technologies we use for a particular purpose.

“As devices become cheaper and easier to use, the barrier to entry becomes less to do with technology and affordability and more to do with cultural and social factors.”

¹³ <http://www.tweetdeck.com>

¹⁴ If you have an interest in these issues, look for discussions around the so-called 'digital divide'.

The *Cultural* element of digital literacies is best acquired by being immersed in a *range* of digital environments. These environments should include those where different issues, norms and habits of mind are present. This ensures individuals have to modify their approach. Development can therefore be seen by the extent to which individuals can move increasingly quickly and seamlessly between these different digital environments.

This, of course, is why it is such a fallacy to hold that young people are 'digital natives' who just 'get' how to use digital technologies. While it may very well be true that they know how to use, for example, their mobile device in a social context, cultural expectations for using it in the workplace (or for learning) are vastly different. If educational institutions are to prepare young people for the wider world, they need to be showing them how to navigate across various digital contexts and cultures.

Focusing on the *Cultural* element of digital literacies can be transformative and empowering. In a similar way that learning a new language can give individuals a new 'lens' to view the world, so having an understanding of various digital cultures and contexts can give people different lenses through which to navigate new and familiar spaces.

More on this in the next chapter.

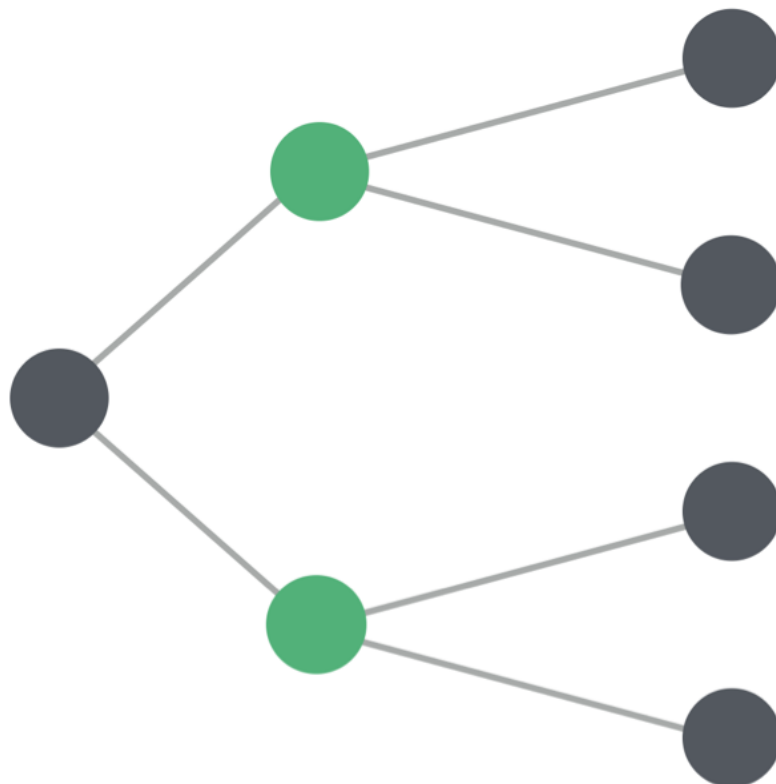
Cognitive

Another essential element of digital literacies is the *Cognitive* element. As much as literacy has a social and communicative aspect, it is also very definitely about *expanding the mind*. As alluded to at the end of the previous section, having more tools (or 'lenses') allows individuals to enjoy and comprehend a greater slice of the digital world. After all, if you

only have a (conceptual) hammer then all you see are (metaphorical) nails.

To use the language-learning metaphor once again, there is a very real sense in which technical and cognitive processes need to be mastered in order to become 'fluent'. These processes aren't the goal in and of *themselves*, but grappling with them will always be a necessary part of developing digital literacies.

One example of the importance of the *Cognitive* element of digital literacies comes from the ubiquitous 'software menu'. This is a concept that relies on **branching logic**, something that I'm fairly certain doesn't exist in nature. You choose one option which leads to a series of sub-options. If you don't want any of those options then you need to back-up to the previous menu. Without any previous knowledge or experience of this, navigating such menus can be tricky.



A slide adapted from my TEDx Warwick talk¹⁵

¹⁵ <http://youtu.be/A8yQPoTcZ78>

How can the *Cognitive* element be developed? To some extent this involves using a range of devices, software platforms and interfaces. As with all of these essential elements of digital literacies, they're best developed through immersion. Bite-size, step-by-step, sequential approaches don't work for the reasons given in the previous chapter.

Ultimately, the *Cognitive* element of digital literacies is developed by encouraging sound 'habits of mind'. Exposure to various ways of conceptualising digital spaces and ways of interacting within them certainly helps. Additionally, reading *around* such practices helps crystallise understanding. We must be careful, however, to ensure that a variety of authors and approaches are represented in any material made available to learners.

Constructive

A third essential element of digital literacies is the *Constructive* element. As Colin Lankshear and Michele Knobel (2006) have pointed out, literacy is always about reading and writing *something*. To construct a thing is therefore a test for literacy. Allan Martin (2005) expands upon this when he states that literacy in a digital world involves using digital tools appropriately to enable constructive social action.

It may seem like stating the obvious, but the physical world is very different from the digital world. There is, for example, no 'undo' feature in the physical world. Likewise, copying something takes effort and will be an analogue, imperfect version in the physical world. Doing so in the digital world, on the other hand, takes virtually no effort and results in a perfect copy. An understanding of what it means to 'construct' something in a digital environment, therefore, must be differentiated from its counterpart in the physical world. The digital and the analogue are *qualitatively* different.

The ability to reproduce perfectly other people's work with a minimal amount of effort, changes what it means to 'construct' something. New forms of licensing such as Creative Commons¹⁶ allow publishers and individuals sharing their content online to specify the conditions under which it may be used. Being *Constructive*, therefore, does not necessarily need to be from scratch, but can be building upon someone else's work, giving them credit for what they contributed to the project.

Developing this *Constructive* element of digital literacies involves knowing how and for what purposes content can be appropriated, reused and remixed. It is as much about knowing how to put together other people's work in new and interesting ways as it is about understanding the difference between the digital and physical worlds.

We will explore this further in Chapter 7 when we consider 'Remix'.

Communicative

Literacy always involves communicating *for a particular purpose*. As a result, the *Communicative* element of digital literacies is always closely aligned to the *Constructive* element as it involves making something — a thing some may term a social object.¹⁷ Having the knowledge, skills and understanding to do this constitutes the nuts and bolts of literacies in digital networked environments. Indeed, some (including Howard Rheingold) talk of a separate 'network literacy'.¹⁸

As the ways in which we can communicate using digital devices proliferate, so too do the ways in which we need to develop the

¹⁶ <http://creativecommons.org>

¹⁷ A social object is "the reason two people are talking to each other, as opposed to talking to somebody else." I'm using the concept slightly tangentially here. See <http://gapingvoid.com/so/> for more on social objects.

¹⁸ See, for example, <http://bit.ly/JhkhVH>

Communicative element of digital literacies. All of the ‘essential elements’ are deeply interconnected, but it is evident just how symbiotic the *Cultural* and *Communicative* elements are.

After all, communicating effectively using a particular digital technology involves knowing, understanding and applying certain norms and assumptions. These can vary subtly from (for example) social network to social network, or even between using a mobile phone compared to a landline.

I have added my voice many times to the chorus of people calling for the removal of arbitrary filtering restrictions in educational institutions. Whilst I understand that they have a ‘duty of care’ to protect young people, developing a true understanding of the power of networks (and, indeed, *networks of networks*) requires more immersion than they are often currently allowed.

How can young people be expected to behave appropriately if they have not been guided through the communication protocols and norms of a given platform? We are setting them up to fail.

Although none of the essential elements of digital literacies are more or less important than any of the others, the *Communicative* element is nevertheless pivotal. That is to say that whilst any of the elements can be paired with others to be developed, the *Communicative* element will almost always be involved. It may, therefore, be a good idea when

“Communicating effectively using a particular digital technology involves knowing, understanding and applying certain norms and assumptions.”

developing this element to plan to go slightly deeper each time in a particular area.¹⁹

Confident

One of my favourite films is *The Matrix* (1999). In it, there's a scene where Neo, the hero of the story, realises that he is indeed 'The One'. He learns that he can re-make the 'matrix' as he sees fit. There is a visible change in his body language and demeanour as he realises he has control over the world he inhabits. Knowledge truly is power.

The digital world can be a scary place for those unused to it. We use skeuomorphs — details and designs that make the new look old and familiar — in an attempt to blur the boundaries. The calendar application on Mac OSX, for example, until recently had faux-leather elements right down to the 'stitched' detail. We prefix things from the analogue world with e- in an attempt to make a digital concept more understandable. Take e-books, for example. It makes little sense to talk of them as 'books' but, until we get to a stage where we are comfortable about talking about them as something qualitatively different, we need to make sense of the transition. We need to soften the edges so that the jump from one form to another does not feel discombobulating.

All of this actually makes our job of developing digital literacies *more* difficult. When X is actually different to Y, but is made to seem somehow similar, then problems arise. Instead of attempting to understand the ways in which Y is different to X, individuals will often become frustrated. They will assume that Y 'should behave' like X, not understanding that it is qualitatively *different*.

What has this to do with the *Confident* element of digital literacies? Far from being merely the result of developing the other elements, the

¹⁹ David Buckingham, an academic in this field, talks of developing "a systematic awareness of how digital media are constructed and of the unique 'rhetorics' of interactive communication" (Buckingham, 2007, p.155).

Confident element is instead something that can be focused upon in a similar way to the others. Whilst no element should be worked on purely in isolation, the *Confident* element involves connecting the dots. It involves understanding and capitalising upon ways in which the digital world differs from the analogue. This can range from the simple (e.g. pressing CTRL-Z to undo an action) to more complex (e.g. creating a personal 'brand' using social media).

Developing the *Confident* element of digital literacies involves solving problems and managing one's own learning in digital environments.²⁰ This can be encouraged by the kind of practices that work well in all kinds of learning experiences. Namely, self-review focusing on achievement and areas of development, paired with mentoring. I believe P2PU's 'schools'²¹ to be an extremely good example of an arena in which the *Confident* element of digital literacies can be developed. Not only are learners encouraged to reflect on their practices, but to form a community. Such communities can help build confidence.

Creative

There is a huge amount of myth and mysticism around the fairly straightforward concept of 'creativity' upon which the *Creative* element of digital literacies depends. In reality, creativity is a straightforward concept involving the making of something new that has some kind of value.²² What counts as 'valuable' and/or 'new' depends upon the context.

I believe we face two problems when talking about creativity. Firstly, we hold it in too high esteem. Creativity is an everyday act. Secondly, we

²⁰ "Modern society is increasingly looking to [people] who can confidently solve problems and manage their own learning throughout their lives, the very qualities which ICT supremely is able to promote." (OECD, 2001, p.9)

²¹ <http://p2pu.org>

²² See the Wikipedia article on 'Creativity' for a no-nonsense definition: <http://en.wikipedia.org/wiki/Creativity>

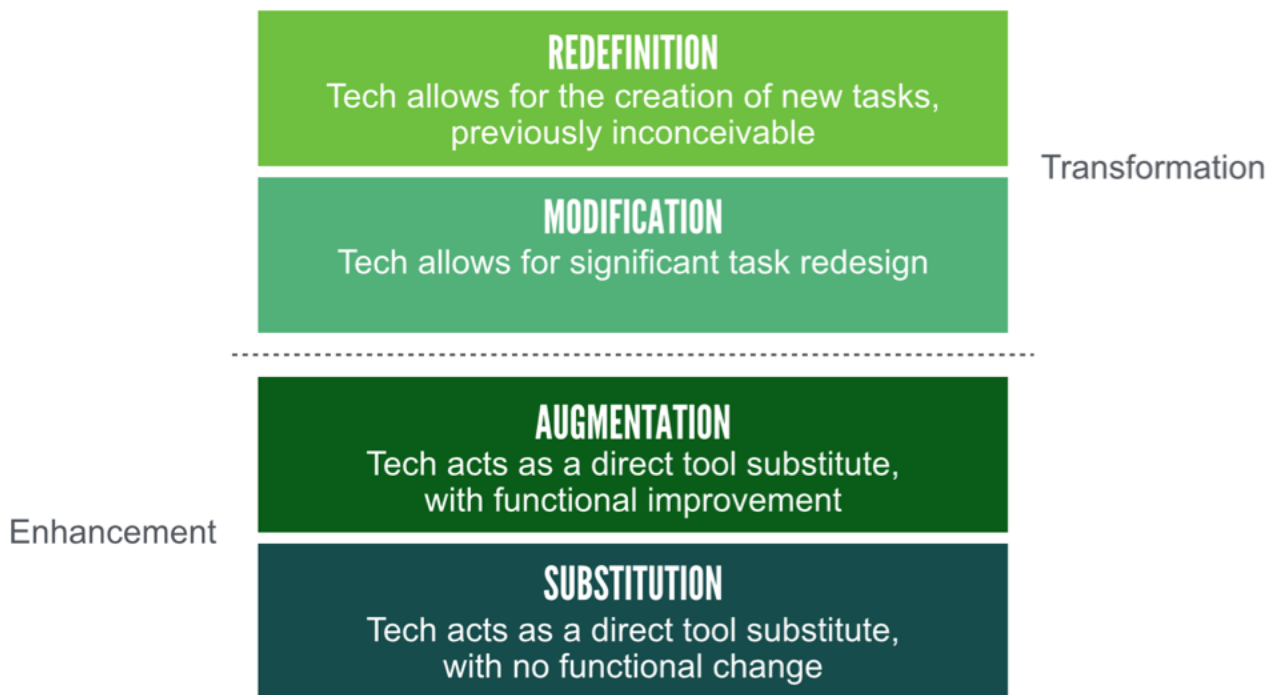
conflate creativity with *originality*, a highly problematic concept. There is nothing new under the sun — especially in the digital world — meaning we can dispense with endless discussions as to whether or not something is ‘original’. This means that when we talk about the *Creative* element of digital literacies we should focus upon the ‘value’ created in a given context.

The *Creative* element of digital literacies is about doing new things in new ways that somehow add value. It is about using digital technologies and techniques to create or achieve things previously impossible — or at least out-of-reach to most people. It is, to use a phrase borrowed from Ewan McIntosh, about turning people into ‘problem-finders’ rather than just ‘problem-solvers’.²³

While solutions to problems can (and should) be creative, finding a problem to solve adds an extra dimension. In the classroom, this requires a shift in thinking and approach. For students to feel they can take risks requires educators who feel empowered to themselves take risks. Sadly, this is rare in our current testing-focused and prescriptive climate of formal education.

A model I have found useful when talking with educators is Puentadura’s **SAMR model**:

²³ Ewan’s TEDx Talk on ‘The Problem Finders’ can be found on his website, along with some context: <http://edu.blogs.com/edublogs/2011/11/tedx-london-the-problem-finders-video.html>



Adding value in the digital domain comes through the *transformation of task design*. Mere tool substitution is akin to the skeuomorphism mentioned earlier. Instead of focusing on the particular software or hardware involved in a learning activity, we should concentrate instead upon the processes, procedures and systems *behind* them. So *wiki platforms* rather than Wikipedia; *app stores* rather than Apple's App Store; *email* rather than Gmail.

I have argued that creativity in digital domains arises through making something new (not necessarily 'original') that is of value in a particular context. Developing this *Creative* element of digital literacies involves two elements, both of which follow from the SAMR diagram. Firstly, existing learning activities should be significantly redesigned to take account of the affordances of digital technology. Secondly, the ability of people to be creative (as defined above) requires a level of freedom and a change in the dynamic between teacher and learner.

Aspects of randomness and discovery should flow through learning experiences, finishing with opportunities to synthesise these experiences. This sense-making is often where the 'creativity' occurs.

The learner joins the dots in new, interesting and *contextually-relevant* ways.

Critical

The seventh essential element of digital literacies, *Critical*, is about analysing the power structures and assumptions behind literacy practices. Communication in the online, digital world is markedly different from the offline, analogue world. Literacy practices in the latter centre mainly around the written text. If reading and writing is about encoding and decoding texts, then in the offline world, books, manuscripts and documents constitute these texts.

Online, however, ‘texts’ are encoded and decoded that are very different from books, manuscripts and documents. The simplest, but probably most profound change is with hyperlinked documents. These take a notion familiar from the offline world and add an important twist. Hyperlinks allow documents to be *non-linear*. They allow the reader to be in control of the structure of what they read. An example is in this very book, which includes hyperlinked footnotes you can follow if reading on a device connected to the internet.

In addition, multimedia objects such as videos can be texts. Audio can be a text. Anything that encodes experiences in a way that is packaged up and communicated to another can be a ‘text’. Just as there are different approaches to reading works such as *Alice’s Adventures in Wonderland*, so there are different ways of reading every text. There is a surface-level understanding of the narrative format, and then layers and layers of meaning.²⁴

The Critical element is the closest digital literacies it comes to conception of ‘Media Literacy’. Relevant questions here are those such

²⁴ See Chapter 2 for more on the denotative/connotative divide.

as: *who is the audience? who is included? who is excluded? what are the assumptions behind this text?* and so on. In order to develop this element of digital literacies, many approaches can be used.

The most basic, ‘crap-detection’ techniques may involve demonstrating indicators of trustworthiness and security online. This may involve exploring the different types of top-level domains (TLDs) such as .com, .edu, .ac.uk, etc. It may also include the difference between http and https — or what ‘the little padlock’ means when shopping online.

“Becoming more advanced in the *Critical* element of digital literacies involves thinking about your own literacy practices.”

Becoming more advanced in the *Critical* element of digital literacies involves thinking about your own literacy practices. It involves reflecting on how they have come about, what has influenced you, and how your actions affect others.

It concerns the way that you structure texts yourself, as well as the techniques by which you deconstruct other texts. This is important offline as well as online, but many more (and different kinds of) texts are available in the digital world. ²⁵

²⁵ When I used to teach History, this was easy to build into lessons. For example, I used to show the execution of Charles I from the perspective of an eyewitness, the films *Cromwell* (1970) and *To Kill a King* (2003), along with an episode of *The Simpsons* and *Blackadder*. This kind of ‘multi-perspectivity’ helps to develop a critical reading of texts.

Civic

Last, but not least, we have the *Civic* element of digital literacies. The focus here is upon literacy practices supporting the development of Civil Society.²⁶ Digital literacies involve more than merely elegantly consuming the media of big business and government. Closely aligned to the *Critical* element, the *Civic* element is about using digital environments to self-organise. This can be done on a large scale to devastating effect (for example, the so-called ‘Arab Spring’ of early 2011) or on a more local level. Examples of the latter include everything from ‘unofficial’ school councils to co-operative movements and the organisation behind mutually beneficial projects such as the Queen Street Commons.²⁷

It may be an over-used comparison, but the ability for people to connect to one another using digital technologies is a revolution akin to the invention and use of Gutenberg’s printing press in the 15th century. Interestingly, the history of literacy practices broadly correlates with the spread of democracy. Just as with the ‘Arab Spring’ example above — where connections via social networks such as Twitter and Facebook helped lead to the downfall of Middle Eastern regimes — literacy practices are *empowering*.

This empowerment, however, does not always lead to positive consequences, as the rioting across English cities in the same year as the Arab Spring proved.²⁸ In addition, the rise of Al-Quaeda-like ‘cells’ across the world is predicated upon digital communications. These practices and associated literacies are *disruptive* — leading to consequences both positive and negative.

²⁶ Wikipedia has a useful definition of Civil Society as “the arena outside of the family, the state, and the market where people associate to advance common interests.” (http://en.wikipedia.org/wiki/Civil_society)

²⁷ See <http://queenstreetcommons.org> and also Harold Jarche’s Renaissance Sackville project: <http://bit.ly/l7iEPT>

²⁸ Although there were many and varied reasons for the English riots in August 2011, the means of communication behind them (BlackBerry Messenger, Twitter and the Sony PlayStation Network) are interesting in their own right.

If literacies are always for a particular purpose, if they're always about reading and writing *something*, then, to my mind, the *Civic* element *is* that 'something' that is being read and written. Preparing both ourselves and others to participate fully in society should, to my mind, be the goal of literacies.

Conclusion

In this chapter I have explained what I believe to be the eight essential elements of digital literacies. I have explained that all are important, but some may be privileged or more relevant in certain contexts. In addition, I've mentioned that the *Cultural* element should perhaps be considered first — if only to foreground the importance of *context*.

I've been asked many times for a diagram of the eight essential elements, something that will fit nicely on a PowerPoint slide. While I can do so — and have done on occasion — I feel that this perpetuates a problem I've seen time and time again in my research. People over-specify an answer to a question that differs massively according to the context. That is why you won't see a *definition* of 'digital literacy' in this book. Such definitions should be emergent from the particular context in which you find yourself. The essential elements allow you to co-construct your own definition.

The first step when putting any of this into practice is to start a dialogue about what you mean by each of these eight elements. What does it mean, for example, to talk of a *Critical* element to digital literacies in a school that backs onto one of the most deprived housing estates in Europe? What does it mean in the context of a Russell Group university? What does it mean for parents raising young children?

Once a dialogue around contextualising the elements has started, it becomes easier to foreground some whilst backgrounding others. A

definition of digital literacies could be forthcoming at the end of this process. This definition, of course, will be provisional, revisable and temporary as it relies upon contexts remaining the same — which they seldom do for long!

The advantage of an emergent approach to digital literacies is that stakeholders don't see the process as being done *to* them. They feel *part* of it, as if digital literacies are something inclusive, something they have control over, and something continually changing. Which, of course, is absolutely correct.

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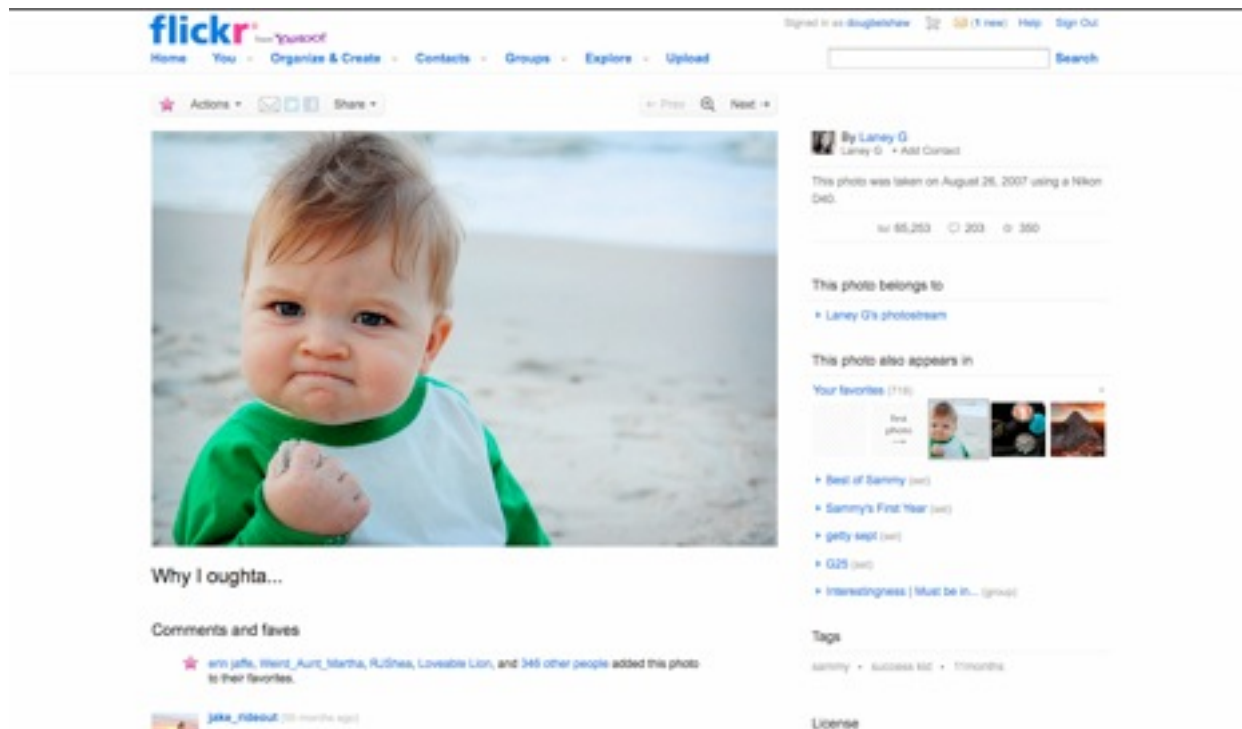
This chapter in a nutshell:

- ★ There are many different, competing definitions of ‘digital literacies’.
- ★ Co-created definitions have more power than those that are simply adopted or imposed.
- ★ A definition of digital literacies can be found by applying the eight essential elements of digital literacies to a particular context.

Chapter 6: Curiosity created the LOLcat

Introduction

On 26th August 2007, Flickr user 'Laney G.' uploaded a photograph of her then eleven month-old son, Sammy, to her profile. It showed Sammy on a beach with a determined expression and a clenched fist full of sand. Appropriately, Laney G. entitled the photo *Why I Oughta...* and also made it available via Getty Images, a site where people can purchase photographs for commercial use. A few weeks later, the photograph of her son had been remixed thousands of times, with the original image paired with text for humorous effect. It had become a *meme*.



Flickr user Laney G's original upload

A 'meme' is, according to the *Oxford English Dictionary*, "an element of a culture or system of behaviour passed from one individual to another by imitation or other non-genetic means". It was a term coined by Richard Dawkins in his 1976 work *The Selfish Gene* to explain how ideas are transmitted in an evolutionary way. The *Urban Dictionary's* definition is, however, more colourful, defining a meme as, "a pervasive thought or thought pattern that replicates itself via cultural means; a parasitic code,

a virus of the mind especially contagious to children and the impressionable.” What’s missing from both of these definitions, of course, is that memes are often a lot of fun!

A (very) brief history of memes

We’ll come back to *Success Kid* (as the meme became known) later in this chapter, but first let’s look at the history of memes. They’ve been going longer than you might think.

One very popular meme is the ‘LOLcat’. These are photographs of cats with funny, usually anthropomorphic, phrases attached to them. Here’s what I would class to be an example of one of the earliest LOLcats:



A LOLcat from 1905. The caption reads “What’s delaying my dinner?”

At its most simple, there are three elements to this LOLcat: an **idea**, a **tool** and a **means of communication**. In the example above it’s a

photograph taken using a film camera of a cute cat dressed as a human, with a humorous (well, for then) strapline. In terms of the method of communication this may have appeared as a grainy image in a newspaper at the time. The idea is not a very sophisticated one — there are no in-jokes, for example — and it would take a very long time and skills in short supply for someone to be able to ‘remix’ this image.

Contrast the image above from 1905 with a popular LOLcat from recent years:



LOLcat from recent years

This photo has a similar structure: a photograph of cat doing something funny with a strapline added. However, there is *much* more going on here. For example, deconstructing this image requires knowledge of grammar conventions (‘UR’) that have emerged from SMS, instant messaging and other fast-paced communications systems. Additionally, it requires knowledge not only of Microsoft’s Office Assistant (‘Clippy’), but its place as an object of ridicule in many online communities. There’s also the humour involved in juxtaposing Clippy — which often popped up in Microsoft Word if you were writing a formal letter — with the

creation of a LOLcat. Finally, the first two options Clippy gives reference other memes. It's a surprisingly rich genre.

Memes are fundamental to understanding why digital literacies (and in particular *web* literacies) are different to traditional print literacy. Reading and writing have never been so intrinsically *social*. We've moved from a position where until a few hundred years ago literacy was something practised by only an elite few. Now, with almost universal literacy in the developed world, and near-instantaneous communication, someone with an idea and access to a digital device can create a 'text' and send it to a potentially-huge audience.

When I talk about digital literacies one of the sticking points some people have is around what constitutes a 'text'. As I mentioned in Chapter 2, until recently 'creating an artefact for the purposes of communication' was synonymous with 'creating a written text'. Literacy, therefore, could be defined as being able to encode and decode the written word, that

"Memes are fundamental to understanding why digital literacies (and in particular web literacies) are different to traditional print literacy."

which is dependent upon the alphabet. Given that you can be better or worse at this encoding it follows that you can be *more* or *less* literate.

I want to argue that if we understand 'writing' as 'creating' then we should understand a 'text' as not just meaning the *written word* but any artefact created for the purposes of communication. This would make memes (quite rightly, in my opinion) legitimate texts to study and deconstruct. I'm sure Jacques Derrida and other postmodernists/poststructuralists would heartily agree!

Success Kid

Now that (I hope) we can agree that memes can be considered ‘texts’ worthy of deconstruction, let’s return to the *Success Kid* meme. As we’ve already discovered, the mother of the child in the picture did not *intend* for the photograph to be re-appropriated. Yet it was.²⁹ Why? Because, once re-appropriated, like every successful meme, it perfectly encapsulated something with which a large number of people could empathise.³⁰ It expresses an emotion in a humorous way.

One of the best places to go to find out more about memes is the website Know Your Meme³¹ which not only lists many examples of thousands of memes, but gives you the backstory to each meme:



The ‘Success Kid’ meme on knowyourmeme.com

29 It’s worth noting that Laney G’s photo of her son was eventually licensed by Virgin Media for billboard advertisements, so the exposure did have some benefits!

30 A meme can take almost any kind of form, a visual motif, an audible habit of speech, or even body language. In what follows, however, we’ll concentrate on the visual as it’s the best suited to the constraints of this book.

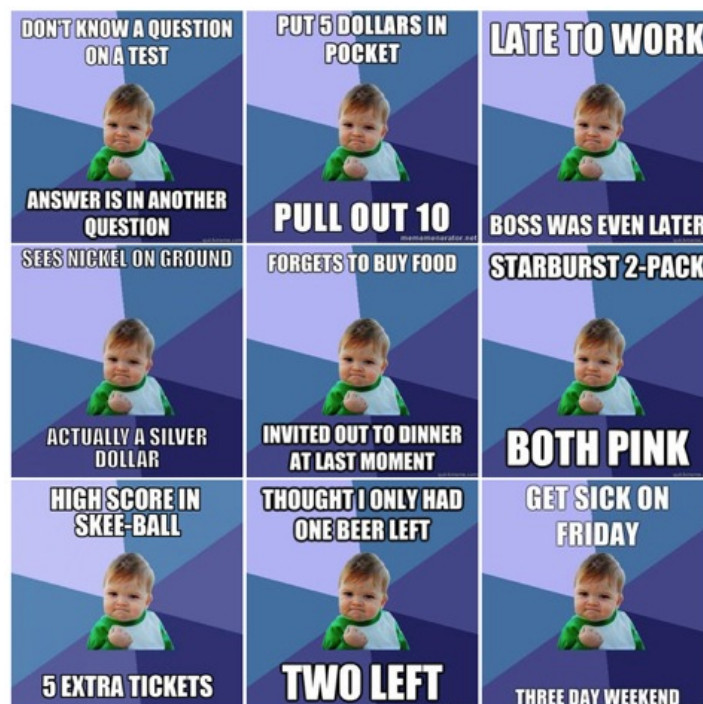
31 <http://knowyourmeme.com>

The following version of the meme, with the added child in the background and text, is an early version of the Success Kid meme:



An early version of the Success Kid meme

Know Your Meme lists Success Kid as an ‘advice animal’-style meme in that it fits the role of a *stock character*. The meme was later completely de-contextualised and made available as an option on the memegenerator.net website. This allows anyone to very quickly and easily create their own Success Kid meme — for example:



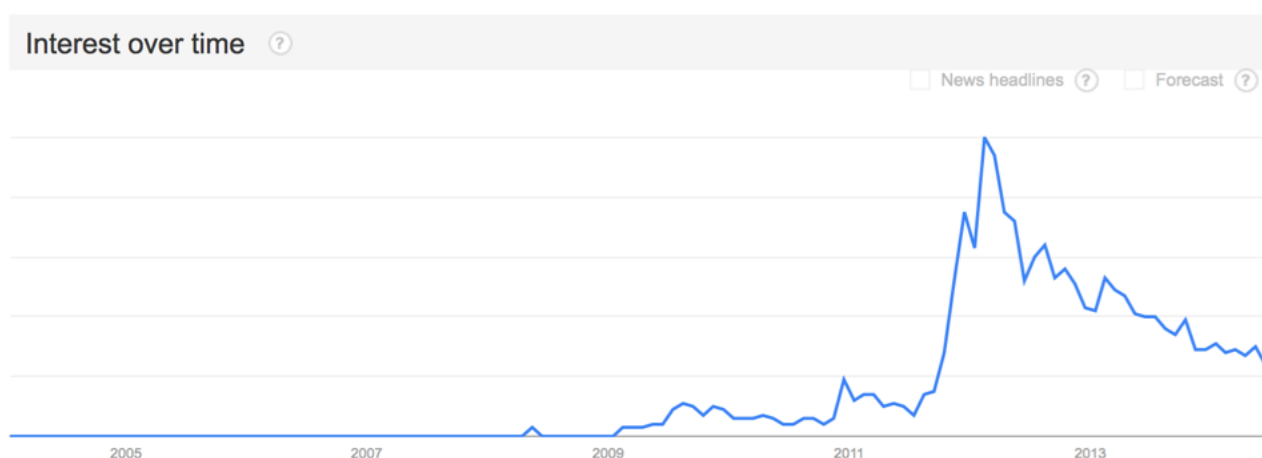
De-contextualised 'Success Kid'

It would be remiss of me as a parent not to include my absolute favourite:



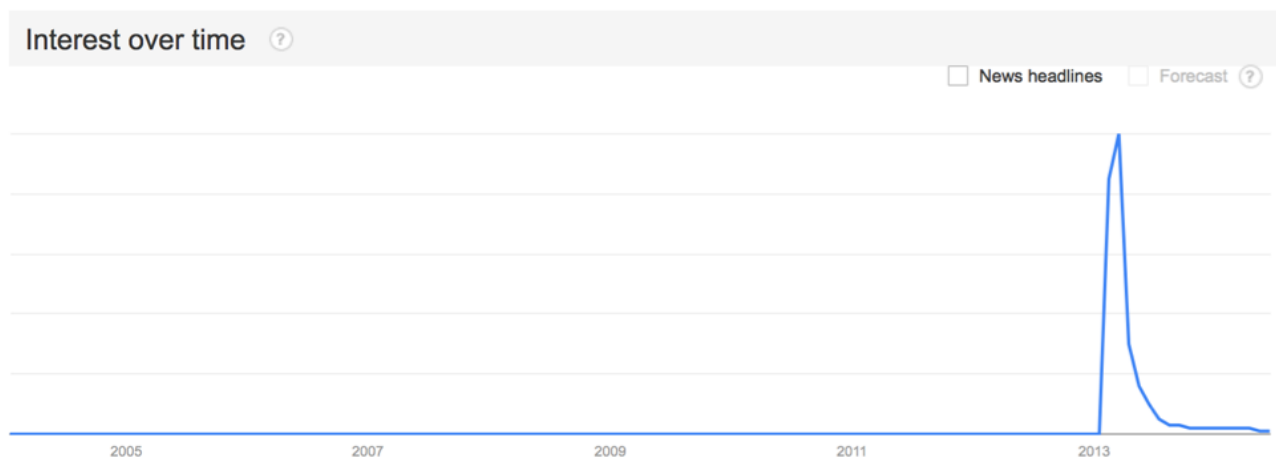
Doug's favourite variant of the 'Success Kid' meme

Interest in the Success Kid meme is slowly declining since its peak in February 2012, as evidenced by this Google Trends³² graph:



³² <https://www.google.com/trends/explore#q=success%20kid>

Some memes, for example the ‘Harlem Shake’ phenomenon,³³ can have an even shorter shelf-life. This video-based meme went from nothing in February 2013 to a quick peak and then rapid decline in popularity:



Novelty, it would appear, is a highly desirable feature of a meme — but that in itself does not sustain its popularity. To survive it must be able to evolve into new contexts.

Memes and digital literacies

Can you remember that picture of an early LOLcat? I mentioned at the time that its production required an idea, a tool and a means of communication. To *remix* it required these three aspects plus having received it in a timely enough manner for the remix to make sense.

At the time of writing (2014), it makes little sense to create your own Harlem Shake video. The moment has passed. Time, the *zeitgeist* is one form of context. Geography and culture are other examples of context. Those that work well in Asia, for example, usually translate poorly to the Western world. This, however, is not necessarily to do with language: some memes that begin life in the US seem puzzling to those

³³ The Harlem Shake is a video meme whereby a group of people perform a dance to a short excerpt from the song "Harlem Shake". For further details, see: [http://en.wikipedia.org/wiki/Harlem_Shake_\(meme\)](http://en.wikipedia.org/wiki/Harlem_Shake_(meme))

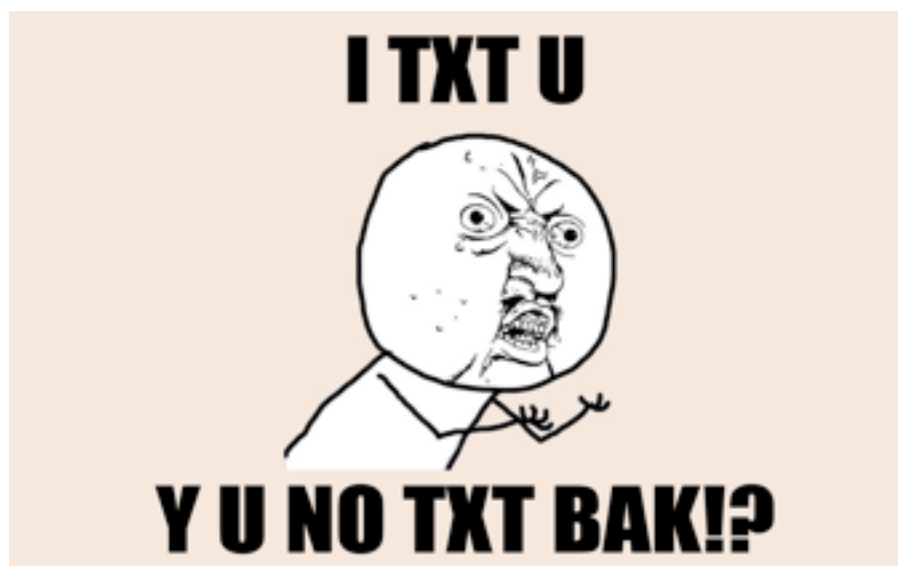
in the UK. Memes tap directly into our understanding of the world around us.

Creating a meme — essentially a remix of someone else's work — therefore requires being able to execute your idea successfully in a very short amount of time. To that end it is the 'perfect storm' for digital literacies as an individual must deploy a good number of the essential elements of digital literacies that were introduced in Chapter 5.

Just to keep things interesting, let's take a different meme to that which we've considered so far and look to see how the essential elements played a part in it being created and sustained.³⁴

Deconstructing a meme: Y U NO?

One of my favourite memes is the *Y U NO?* guy.³⁵ Here's an example:



The first Y U NO meme image (allegedly)

³⁴ Choosing this meme was difficult. I didn't want something that was still extremely popular, but nor did I want something that had either become a sub-culture (e.g. My Little Pony: Friendship is Magic) or turned into a cliché (e.g. Gangnam Style). Finally, given that we've already had an 'advice animal'-style meme in Success Kid, I was looking for something a little different!

³⁵ <http://knowyourmeme.com/memes/y-u-no-guy>

As with many memes, this one is particularly useful when you want to express something serious in a comic way.³⁶ According to Know Your Meme, the *Y U NO?* guy meme (now abbreviated to just *Y U NO*) began in 2009 with the English translation of a Japanese sci-fi manga / anim  series called *Gantz*. The *Y U NO* character's facial expression comes from a tracing of one of the cells of the comic book (warning: NSFW language³⁷):



Gantz Ch. 55: Naked King, originally released 2002 (English translation 2009)

36 I remember, for example seeing on the beer fridge at the Mozilla London office: "#MozLDN Y U NO LIKE SAN MIGUEL?". This referred to the fact that bottles of that particular product tended to be left on the shelf while bottles of other brands were popular with Mozillians. The sign bearing the meme had a practical message underneath and San Miguel was removed from the list of stocked brands.

37 NSFW stands for 'Not Safe For Work' and is applied to any kind of content that some people may find offensive. I'm using it deliberately here to emphasise a point I want to make later about the emergence of jargon and Web-specific abbreviations.

Let's remind ourselves of the Essential Elements of Digital Literacies from the previous chapter:

1. Cultural
2. Cognitive
3. Constructive
4. Communicative
5. Confident
6. Creative
7. Critical
8. Civic

Which of these elements are involved with the *Y U NO* meme? I'd suggest *all* but the **Civic** element — but it depends at which stage an individual is involved. I'm certainly not trying to shoehorn *all* of these elements into a single creative act or remix, but I do think most of them are involved somewhere in the process. Let's consider the elements involved in the original author's creation first before considering remixes.

Original author

In creating the meme, the original author has understood at least two different contexts — the world of animé and the world of humour on the Web. What works offline, after all, doesn't always work online (and vice-versa). To that end the original author has been **Constructive** while understanding the **Cultural** nuances of the respective communities.

In creating the meme the original author has shown themselves to be **Confident** in their ability to not only use digital tools effectively, but to re-appropriate content from one medium to another. In other words, they have used digital knowledge, skills and understanding to be **Creative**.

**“What works offline, after all,
doesn't always work online.”**

They have, of course, also been **Communicative** by not keeping their creation to themselves, instead allowing it to be spread far and wide. The choice of Tumblr³⁸ for the original *Y U NO* meme is an instructive one as the micro-blogging site allows for one-click resharing. Although it can only be inferred, choosing digital tools for a particular purpose suggests an ability to be **Critical**, discerning and reflective.

Remixer

When it comes to the remixer of the *Y U NO* meme, we may wonder just how many of the elements can be involved in reconfiguring and adapting another person's work. The notion of an 'original creative act' is an interesting one — especially when we consider that in this case the 'original work' was actually itself a remix. It's turtles all the way down.³⁹

The elements involved in remixing a meme depends, in the first instance, upon the *success* of the remix: *does it work? is it funny?* Whether or not it works is likely to be relevant to the context and community of the intended target audience. This again brings up the **Cultural** and **Communicative** elements as, if successful, the meme makes sense (i.e. is funny) for people sharing certain assumptions and ways of looking at the world.

I'd also argue that given how problematic it is to define 'creativity' as creating something *from scratch* there's certainly the **Creative** element involved here. All of the essential elements, of course, can be involved to a greater or lesser extent: it's easier (and therefore possibly less creative) to use a meme generator website than come up with a new version of the meme using other methods.

The reason I hesitated to include the **Critical** element when examining the elements involved here is that they may have created something

³⁸ <http://tumblr.com>

³⁹ A way of saying that we end up with infinite regression. See: https://en.wikipedia.org/wiki/Turtles_all_the_way_down

successful almost by accident. However, to *remix* that meme requires an understanding of why it works; it involves *critical reflection*. We have to ascribe intentionality, even if it's theoretically possible that enough monkeys could create the works of Shakespeare.⁴⁰

Conclusion

In this chapter I have applied the essential elements of digital literacies identified in Chapter 5 to memes. I've argued that constructing and remixing these culturally-significant artefacts can help scaffold and develop digital literacies.

Most 'digital literacy' frameworks are overly-prescriptive and have an undue focus upon *procedural* factors in using digital tools. While it's undoubtedly important to be able to use these tools, the *conceptual* understanding of what is involved is equally important. Creating and remixing memes successfully forces individuals to understand these conceptual elements, while using procedural skills.

There are many and varied ways to develop the essential elements of digital literacies, but I wanted to give an example that would not ordinarily be featured in digital literacy frameworks. Memes are often seen as ephemeral and therefore as unimportant. However, they allow for emotion, cultural commentary, and community cohesion which, to my mind, means that they are worth studying.

⁴⁰ Also known as the Infinite Monkey Theorem: https://en.wikipedia.org/wiki/Infinite_monkey_theorem

This chapter in a nutshell:

- ★ A meme is “an element of a culture or system of behaviour passed from one individual to another by imitation or other non-genetic means” (Oxford English Dictionary).
- ★ Memes play a big role in online popular culture and, although often short-lived, can evolve and express something that it may otherwise be difficult to convey.
- ★ Successful meme generation or remix involves developing some or all of the essential elements of digital literacies.

Chapter 7: Remix: the heart of digital literacies

Introduction

Digital things are fundamentally different from analogue things. This is a fact obvious and easy to spot with new digital technologies that are without an analogue counterpart. However, when we're talking about a movie on cinefilm or VHS tape versus one on DVD or Blu-Ray, it's easy for our thinking about the differences to become fuzzy. We have to start teasing and separating out what's going on.

In the previous chapter I gave the example of a LOLcat from 1905. Although I focused on the similarities between that image and recent LOLcats, they're quite different. After all, to remix the 1905 LOLcat would be a long and laborious process, with the subsequent remixed image necessarily being of a lower quality than the original. This is the nature of the analogue world: copies have less fidelity than the original. In addition, the analogue world relies upon physical media. Copying a cassette tape means having access to the physical media holding the music and putting up with a recording with less fidelity than the original.

Copying digital artefacts, on the other hand, is entirely different. Each copy is *identical* to the original. My downloaded music album is a perfect copy of the original and can be transported and stored over networks at a cost approaching zero. The barrier to *everyone* having a copy of the album no longer has anything to do with distribution costs or fidelity and everything to do with copyright.

Copyright and attribution

There is a fundamental difference between someone being credited for their work and that person having full say over what happens to it. The *Oxford English Dictionary* defines copyright as:

“The exclusive right given by law for a certain term of years to an author, composer, designer, etc. (or his assignee), to print, publish, and sell copies of his original work.”

...and attribution as:

“The ascribing of an effect to a cause, of a work to its author, date, place, or of date and place to a work. esp. in Art-criticism: The ascription of a work of art to its supposed author.”

“As odd as it may sound, one of the best places to start when thinking through the ramifications of these differences is with recipes.”

As odd as it may sound, one of the best places to start when thinking through the ramifications of these differences is with recipes. As the US copyright website⁴¹ makes clear, a recipe cannot be copyrighted:

“Copyright law does not protect recipes that are mere listings of ingredients. Nor does it protect other mere listings of ingredients such as those found in formulas, compounds, or prescriptions. Copyright protection may, however, extend to substantial literary expression—a description, explanation, or illustration, for example—that accompanies a recipe or formula or to a combination of recipes, as in a cookbook.

Only original works of authorship are protected by copyright. “Original” means that an author produced a work by his or her own intellectual effort instead of copying it from an existing work.”

⁴¹ <http://www.copyright.gov/fls/fl122.html>

So while an individual recipe cannot be copyrighted, when bundled together as a ‘literary form’ then that book (or website, or app) becomes copyrightable. Even without copyright, professional ethics dictates that chefs and cooks attribute each others’ work. They mention the original, discuss how they were inspired to create their own version, and talk about the changes they’ve made. If they don’t, and try to pass it off as their own then (given how well-connected we are these days), it wouldn’t be long before they were caught out. In other words, even without copyright there exists a system to ensure that people who perform creative acts receive attribution.

My intention here is not to go into the specifics of copyright but rather to illustrate how copyright differs from attribution. It’s important if we are to get to why remixing is fundamental to digital literacies.

The two biggest formative influences on copyright have been Caxton’s 15th-century printing press and the Web. The printing press lowered the barrier to disseminating work meaning that, in the space of 50 years, the number of books in Europe increased from several thousand to around ten million.⁴² This led to the Statute of Anne (1710) in the UK that provided for copyright regulation by the government — and, by extension, the courts.⁴³

Remixing is how the Web works

The Web, the “system of interlinked hypertext documents accessed via the Internet,”⁴⁴ changes the balance of power between copyright and attribution. While multimedia resources can be taken down, websites blocked, and copyright infringers sued, new ways to license material

⁴² See <http://www.historyofcopyright.org>

⁴³ See https://en.wikipedia.org/wiki/Statute_of_Anne

⁴⁴ <https://en.wikipedia.org/wiki/Www>

have begun to change the default position away from *All Rights Reserved*.

Creative Commons⁴⁵ is a non-profit organisation founded in 2001. It provides a series of licenses from the least restrictive (CC0 — effectively ‘public domain’) to the most restrictive (CC BY-NC-ND⁴⁶). These mark a shift towards *Some Rights Reserved*, recognising that creative works are often inspired by what has gone before. Licensing one’s work under a Creative Commons license means that others can use your work as a starting point for (or to augment) theirs. Other permissive licenses include the MIT License⁴⁷ and Copyleft.⁴⁸

Many of these licenses have their origins in the free software movement.⁴⁹ The birth of the Web allowed for a shift from individuals or companies working in isolation on software projects towards distributed, co-ordinated teams. Perhaps the most famous of these is the emergence of the Linux operating system,⁵⁰ originated by Linus Torvalds, but now worked on by a worldwide army of individual volunteers and organisations.

“Licensing one’s work under a Creative Commons license means that others can use your work as a starting point for (or to augment) theirs.”

⁴⁵ <http://creativecommons.org>

⁴⁶ See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>

⁴⁷ https://en.wikipedia.org/wiki/MIT_License

⁴⁸ <https://en.wikipedia.org/wiki/Copyleft>

⁴⁹ https://en.wikipedia.org/wiki/Free_software_movement

⁵⁰ <https://en.wikipedia.org/wiki/Linux>

As Linux was released under the GNU Free Public License⁵¹ anyone was free to use, copy, modify and share the software — leading to innovation. Linux powers systems all around the world (including most web servers) and is the basis for the Android mobile phone operating system.

As we have already seen, the analogue world is very different to the digital world, and this is especially true when it comes to the web. Cory Doctorow, both a bestselling science fiction writer and copyright activist releases his books for free on his website.⁵² He also sells them in physical format. His fans contribute translations, audiobook versions, and conversions into niche formats. Doctorow had this to say in the preface to his first book, *Down and Out in the Magic Kingdom* (2003):

“P2P [peer-to-peer] nets kick all kinds of ass. Most of the books, music and movies ever released are not available for sale, anywhere in the world. In the brief time that P2P nets have flourished, the ad-hoc masses of the Internet have managed to put just about everything online. What’s more, they’ve done it far cheaper than any other archiving/revival effort ever.

Yeah, there are legal problems. Yeah, it’s hard to figure out how people are gonna make money doing it. Yeah, there is a lot of social upheaval and a serious threat to innovation, freedom, business, and whatnot. It’s your basic end-of-the-world-as-we-know-it scenario, and as a science fiction writer, end-of-the-world-as-we-know-it scenaria are my stock-in-trade.”

We’ve had hundreds of years to get used to the analogue way of interacting with one another through texts. This is why we find it difficult to get used to the affordances of the digital realm; we attempt to use analogue metaphors for digital practices. As the media theorist Marshall McLuhan used to say, “We look at the present through a rear-view

⁵¹ <https://www.gnu.org/licenses/>

⁵² <http://craphound.com/>

mirror. We march backwards into the future.”⁵³ Our default analogue approaches and ways of reasoning don’t translate very well.

Developing digital literacies by remixing

If the digital world is fundamentally different to the analogue, then the skills, competencies, literacies, behaviours and attitudes required must differ too. We cannot just take those we learned offline and expect them to translate well online. Interacting within a social network offline, for example, is different from interacting with one online. There are different norms, behaviours, methods of expression and suchlike that those who are new to the network must learn and abide by if they are to be ‘successful’ in their interactions.

Even if a social network exists both online and offline, the way in which the interactions are mediated between its constituent members is different depending on the space being used. Just as a meeting held in a pub or a bar would be very different in tone to one held in a monastery, so the environment dictates what can or cannot (or is more/less likely to) happen online.

When it comes to developing digital literacies, therefore, negotiating online social networks becomes important on many levels. At the most *basic* procedural level there is the understanding that, for example, Twitter allows only 140 characters whereas other social networks do not tend to limit text input. More conceptual is an understanding of hashtags as ‘channels’ of communication and how these can be appropriated and re-appropriated by groups and loose networks of individuals.

⁵³ Taken from <http://www.marshallmcluhan.com/mcluhanisms/>

The central difference between the digital and analogue worlds that I have experienced during my lifetime has to do with *reverence*. There appears to be a finality about analogue communication and media that does not translate to the digital world.

“The central difference between the digital and analogue worlds... has to do with *reverence*.”

Part of that may be to do with the ease of manipulating bits and bytes, but a great deal of it is attitudinal. Remixing, re-appropriation and riffing off other people’s work just seems to be part of what we do as human beings. Instead of that being hidden, as to some extent it was previously, this has been foregrounded as a positive thing in the web era. Media companies are still playing catch-up.

Getting practical

This is not a textbook. It is, however, meant to be a more practical guide than my doctoral thesis as to how to get started with developing digital literacies in yourself and others. To that end, now that I have argued for the importance of remixing to develop digital skills, competencies and awareness, it’s time for some practical examples. These range from the simple to the complex.

1. **Take an image and add a predefined filter to it.** This can be done online through sites such as Instagram⁵⁴ and Flickr⁵⁵ or offline using applications such as Photoshop⁵⁶ and The GIMP.⁵⁷

54 <http://instagram.com>

55 <http://flickr.com>

56 <http://www.photoshop.com> (can also be used online)

57 <http://www.gimp.org>

2. **Open some music as a waveform and alter part of it so that it sounds different.** Tools such as Audacity⁵⁸ and GarageBand⁵⁹ can perform these actions offline and sites like SoundCloud⁶⁰ and Remixoid⁶¹ can be used on the Web.
3. **Alter a website to say the opposite of what it originally said.** Although you can do this by downloading a web page and playing about with the HTML/CSS, the friendliest way to get started is by using Mozilla's X-Ray Goggles.⁶² Offline, try KompoZer.⁶³
4. **Take several videos and mash them together to create something new.** This can be done offline using Windows Movie Maker,⁶⁴ iMovie⁶⁵ and OpenShot.⁶⁶ Online, YouTube⁶⁷ has a built-in editor and Mozilla's Popcorn Maker⁶⁸ allows you to really go to town with web-native video remixing.
5. **Use RSS feeds from around the Web to create a custom dashboard.** Basic tools like ChimpFeedr⁶⁹ allow you to manage multiple feeds. Going (much) further, Yahoo! Pipes⁷⁰ allows you "aggregate, manipulate, and mashup content from around the

58 <http://audacity.sourceforge.net>

59 <https://www.apple.com/ilife/garageband>

60 <http://soundcloud.com>

61 <http://remixoid.com>

62 <http://goggles.webmaker.org>

63 <http://kompozer.net>

64 <http://windows.microsoft.com/en-us/windows-live/movie-maker>

65 <https://www.apple.com/ilife/imovie>

66 <http://www.openshot.org>

67 <https://www.youtube.com/editor>

68 <http://popcorn.webmaker.org>

69 <http://www.chimpfeedr.com>

70 <http://pipes.yahoo.com/pipes>

web”. Sites like Netvibes⁷¹ then allow you to create a dashboard from the feeds you have created!

Conclusion

While we can learn by formal instruction, through step-by-step instructions and well-trodden paths, *interest*-driven learning is (I would argue) one of the best ways to learn in digital spaces. Not only are there a multitude of resources to provide just-in-time learning, but taking what someone else has produced and appropriating it for your own ends is empowering. More than that, it means you don’t have to start from scratch.

We learn through imitation. Whether it is a toddler learning how to feed themselves by watching her parents eat, or a budding artist painting in the style of one of the masters, we copy what has gone before. The difference in the digital world is that we can take a *perfect* copy of what has gone before and tinker with it, alter it fundamentally, or mash it up with something else. When added to our ability to instantly share what we have created, the creative possibilities are endless.

⁷¹ <http://www.netvibes.com>

This chapter in a nutshell:

- ★ The digital world is very different from the analogue world, meaning that the skills, competencies, attitudes and behaviours required are also different.
- ★ Copyright and attribution are related by importantly different. The Web is problematic for copyright holders meaning there is a shift towards attribution.
- ★ Digital literacies can be developed by remixing other people's work.

Chapter 8: Coding and the web

Introduction

A hot topic of the last couple of years has undoubtedly been the ‘learn to code’ movement. It began in earnest at the start of January 2012, with people pledging to make THAT the year they learned to code. Even the New York mayor ⁷² took part:



I do wonder how he got on.

This chapter is about two related concepts: what ‘coding’ is and how it’s related to digital literacies, and the similarities and differences between digital and web literacies.

Digital vs. Web Literacies

So far we’ve been focused entirely on digital literacies. I’ve argued that they’re plural, highly contextual and that it’s important to co-construct definitions with others. Given that more and more of the ‘digital’ things that we do relate to the World Wide Web, to what extent should we just talk of ‘web literacy’?

⁷² <https://twitter.com/MikeBloomberg/status/154999795159805952>

Let's just remind ourselves of the eight essential elements of digital literacies:

1. Cultural
2. Cognitive
3. Constructive
4. Communicative
5. Confident
6. Creative
7. Critical
8. Civic

The Web is not only, as Kevin Kelly⁷³ puts it, a giant 'copying machine' but it's also one of the greatest methods ever devised for individuals and groups of people to interact with one another. In other words, the web is inherently *communicative*. It also allows for human flourishing on a unprecedented scale through allowing human beings to be creative. And, as we have seen through its use for the Occupy movement, many people use the Web for important *civic* actions.⁷⁴ Given just these three examples, it's obvious that digital literacies and web literacy at least overlap in some ways. The question to address now is to what *extent* they overlap.

From mid-2012, I've been working with the Mozilla community to create a Web Literacy Map. Initially, we identified five 'areas', 'strands' or 'buckets' (the nomenclature changed over time). These

were eventually whittled down to *Exploring*, *Building*, and *Connecting* and are the three areas that we believe it's important to pay attention to



**"The Web is inherently
communicative"**

⁷³ <http://kk.org/thetechnium/2008/01/better-than-fre/>

⁷⁴ More about the Occupy movement at http://en.wikipedia.org/wiki/Occupy_movement

when you want to get better at reading, writing and participating on the web.⁷⁵

While I won't map the eight elements onto the Web Literacy Map (it's like comparing apples and oranges) it's easy to see how they're related. This is necessarily so, as 'digital' pertains to so many things that web literacy *has* to be a subset of it.

So why 'web literacy' instead of 'web literacies'? While I've certainly made an argument⁷⁶ for the latter in the past, I'm currently of the opinion that it's fruitful to talk of a single literacy that's made up of a subset of competencies, with these in turn made up of a number of skills. *While 'digital' has multiple referents the web has only one.* That is to say as we've seen in previous chapters, it's difficult to know what you're actually referring to sometimes when you say 'digital'. It's not so difficult when you refer to 'the web'. That may change, of course, as what we experience goes beyond browsers and apps and to more of an Internet of Things.⁷⁷

The final thing to say on the difference between digital and web literac(ies) is to reiterate the point that the web is a 'bounded' concept in the way that 'digital' is not. Focusing on web literacy therefore develops your digital literacies.

The relationship between coding and digital literacy

The 'learn to code' movement has gathered a lot of momentum recently, with Computer Science Education week in December 2013 being

⁷⁶ <https://wiki.mozilla.org/Learning/WebLiteraciesWhitePaper>

⁷⁷ https://en.wikipedia.org/wiki/Internet_of_Things

rebranded ‘Hour of Code’. The idea was for organisations and people to pledge to help people with their first hour of learning to code. It’s a noble effort and, along with the celebrity-filled video at code.org shows that the zeitgeist has been well and truly captured.

In the introduction to this chapter I mentioned how the Mayor of New York pledged to learn to code in 2012. What interests me is what would constitute a *test* of this: what does it mean to have ‘learned to code’? As a notion it’s not so much ambiguous as just downright *vague*. What I suggest is that we treat the learning of machine languages much as we treat the learning of human languages, so:

Coding means the ability to read and write a machine language.

Just as some human languages are more difficult to learn than others, some machine languages involve trickier grammar or more complex syntax. The test in both cases is *whether the language learner can create something that makes sense to others*. I’ve written something that looks to me like Spanish, but can a native speaker decode what I’m saying? With machine languages there’s (at least) *two* levels of testing: is the code structured in a way that another human (who understands that language) can understand? When you compile the code does the machine run it in the way you expected?

Human languages are chronological and tend to be structured on a sentence-level basis. Many machine languages, on the other hand, do not require everything to be written in strict chronological order and include loops, arrays and other devices not used in human languages. So another important thing we can say is:

Coding means the ability to think computationally.

Returning to digital literacies it’s plain to see that if we define ‘coding’ as *the ability to read and write a machine language and think computationally* then learning to code hits many, if not all, of the eight elements. The three that I would pick out in particular would be ‘Critical’,

‘Confident’, and ‘Civic’. If you know a bit of code in the way we’ve just defined then you’ll be able to solve more problems by thinking differently about them, be more confident in the digital realm, as well as better understanding the world around you.

Part of the aura and the mystique around ‘learning to code’ is unnecessary and comes through a lack of clarity as to what is involved. The main benefits of coding come not from learning grammar and syntax - although these of course are necessary. They stem from a different outlook on the world, a different way of approaching and conceiving of it. Just like web literacy, then, coding is a necessary, but not sufficient, part of digital literacies.

“Coding is the ability to read and write a machine language and think computationally.”

Interest-based pathways to learning

There are some subjects and areas that perfectly lend themselves to strictly sequential learning. With some things it’s all about having knowledge in your head and being able to regurgitate it on demand. Compliance training often looks like this which is why corporate e-learning systems often involve reading and clicking on slides.

With the things that really matter, authentic learning comes through knowledge and skills working in tandem, leading to *action*. This type of learning, although often taught sequentially, is often better learned in an interest-based way. Coding and web literacy are examples of this, I would argue.

The trouble with learning sequentially is that we do so at somebody else’s pace and on somebody else’s terms. It often means that we don’t

get to find out how we learn best, trading structure and ‘progression’ for self-awareness. One thing that’s important to note is that this isn’t something to do with the level of education you’ve achieved. Even those with terminal degrees (like myself) struggle to know how to approach new things they wish to learn.

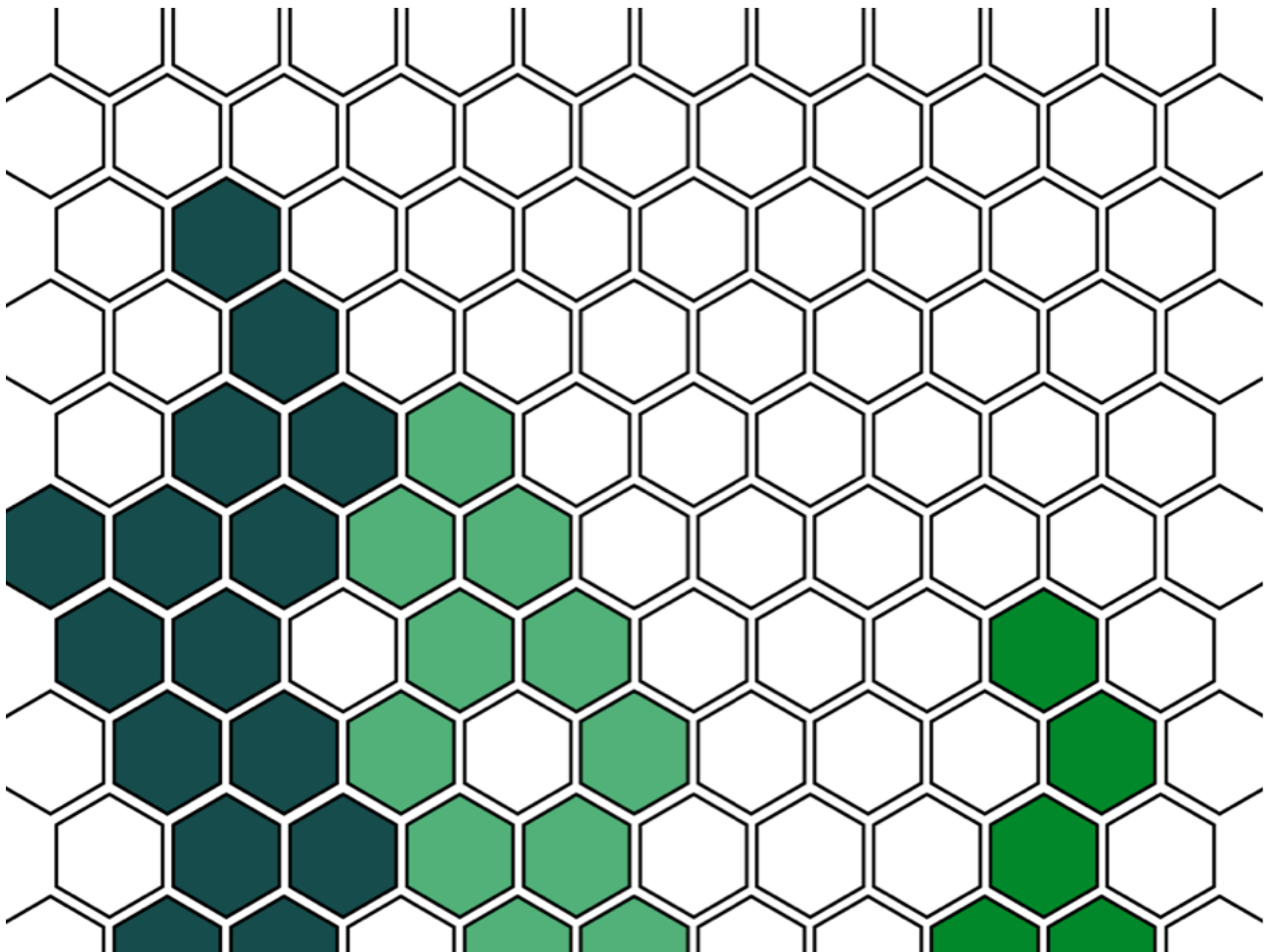
While I’d struggle to tell you how I learn best, there is one question that I’d always be able to answer enthusiastically: *What would you like to learn next?* The barrier between knowing what you want to learn and how to go about learning has, I would suggest, three main barriers:

- ★ **Curriculum** - the series of activities that build towards a learning goal
- ★ **Credentials** - the ability to show what you know
- ★ **Community** - the cohort of peers you feel you are part of, along with access to ‘experts’

We live in a time of abundance but still have, in the words of Martin Weller, a ‘pedagogy of scarcity’.⁷⁸ At a time when we have pretty much the sum total of human knowledge via the devices in our pockets we need to find a way to do more than LOL at amusing pictures of cats. The problem is not gaining access to resources and learning activities; the problem is finding out which ones work best for *you*.

Back in 2012, when I was working on a web literacy whitepaper for Mozilla, I came up with the following diagram. It’s an imperfect abstraction of the messiness of learning, but I think it illustrates a few things:

⁷⁸ http://nogoodreason.typepad.co.uk/no_good_reason/2009/09/a-pedagogy-of-abundance.html



An example of a non-linear pathway

First of all, we tend to treat knowledge, skills and understanding in fairly siloed subject areas. If there's one thing that the web has done for us it's to make the barriers between these areas a little more fuzzy and a lot more permeable. Many, if not most, ideas are improved by thinking in a cross-disciplinary way.

Second, 'leveling-up' in one area can also mean leveling up in another. So, for example, improving your understanding of certain areas of mathematics (e.g. modular arithmetic) can help you get your head around cryptography, and in turn how security on the web works.

Third, I think the web has (arguably) showed us that one doesn't have to learn *everything* about a subject. Just as you might choose a few songs rather than the whole album, many topics and areas allow us to follow our interests rather than plod through sequential learning activities.

“Learning may involve some ‘jumping around’, some rabbit-holes, blind alleys and tangents — and that’s OK.”

Finally, learners can - and should - decide their own learning goals. This may involve some ‘jumping around’, some rabbit-holes, blind alleys and tangents — and that’s OK. In my experience the human brain learns better through curiosity and some serendipitous linkages than a constant diet of pre-packaged morsels.

I’m optimistic for the future of online learning. We’ve had centuries to figure out formal schooling, but only a few years to begin to think differently about what the web can do for learning. I think alternative courses like Massive Open Online Courses (MOOCs), while not the answer, are potentially asking the right questions. The trouble is that we tend to think through old metaphors — why ‘course’?

The reason all this is relevant to a book about digital literacies is that, to a great extent, these new learning experiences are symbiotic with new skills and competencies. Just as one has to learn how to ‘do school’, so we need to learn how to learn online before we can actually do so.

This chapter in a nutshell:

- ★ Digital literacies and web literacy are different because we can identify boundaries for the latter.
- ★ Coding is the ability to read and write a machine language and think computationally.
- ★ Learning how to learn and how to use the web as a resource is symbiotic with digital literacies.

Chapter 9: Conclusion

An attempt at a conclusion

In many ways, the conclusion to this book isn't mine to write. In fact, I was sorely tempted to just leave a few blank pages at the end and ask you, the reader, to write it. Instead, I'm encouraging you to take the ideas and the text of this book and to remix it. Apply this work to your own context!⁷⁹

Perhaps you'll get rid of the rather experimental Chapter 3 on ambiguity. You might swap the memes deconstructed in Chapter 6 for different

examples. Maybe you want to go into more depth with some

of the taxonomies and learning theories I've mentioned in passing. This book is yours to read, but also to rip and remix.

“This book is yours to read, but also to rip and remix.”

Without wanting to ape the structure of kids' TV shows, I will quickly go over what we've learned.

- ★ We saw that traditional conceptions of literacy are problematic, and that literate practices always involve some form of technology.
- ★ Like all human communication, 'digital literacy' is an ambiguous concept. However, ambiguity is something to be embraced when it comes to digital literacies as we can use different types of ambiguity for different purposes.
- ★ Digital literacies, importantly, are plural and not neutral when it comes to power, social identity and political ideology. They are best taught when the learner can see the whole picture of what they are learning. The skills underpinning digital literacies are not learned in isolation, but developed within a context.

⁷⁹ A reminder that this book is made available for remixing and repurposing under a Creative Commons Creative Commons Attribution 4.0 International License. See: <http://creativecommons.org/licenses/by/4.0/>

- ★ In order to make sense of digital literacies, we need another approach than weighing up different, competing definitions. One approach is to co-create definitions using the 'essential elements' introduced in Chapter 5. These will vary depending on context.
- ★ Memes are a way to understand digital literacies as they involve many, if not all, of the essential elements. Memes are important because, although often short-lived, they evolve and express things that it may otherwise be difficult to say.
- ★ The digital world is very different to the analogue world — and this means different literacies are required. Digital literacies can be developed almost entirely by remixing other people's work.
- ★ Digital literacies and web literacy are different because we can identify boundaries with the latter in a way that we can't with the former. Coding is the ability to read and write a machine language and think computationally. In this way it differs from web literacy, which is a more holistic approach.

Finally, let me thank you again for taking the time to read this book and support my work. I'm always grateful for those people who take the time to get in touch to point out typos, suggest sections that may need reworking, or just to say hello. I look forward to hearing from you — especially if you've used any of the ideas successfully in your context!

Appendix 1: What to do next

I often find myself finishing a book ready to put some of the ideas it contains into action. Sometimes that happens; sometimes it doesn't. I've discovered that if I connect with a community of people discussing the ideas the book contains, the likelihood of me following-through on those ideas increases massively.

To that end, I've created a wiki for readers to find out what others have thought, what they have *done*, and to connect with them. It's running on MediaWiki, the same wiki software that powers Wikipedia. I will be a regular visitor, and will curate a 'Frequently Asked Questions' (FAQ) page.

You can access the wiki at the link below:

<http://digitalliteraci.es/wiki>

In terms of concrete next steps, I would suggest:

1. **Browse the wiki.** Have a look at the 'Recent changes' page⁸⁰ and generally take a look around.
2. **Create a profile.** Consider including an avatar, a description of yourself, and how people can get in touch. Take a look at mine as an example.⁸¹
3. **Add a page.** It's a wiki, so you're welcome to create a page to chart your progress in putting ideas into action. The MediaWiki guide to creating a new page is useful.⁸²

I look forward to following your progress!

⁸⁰ <http://digitalliteraci.es/wiki/Special:RecentChanges>

⁸¹ <http://digitalliteraci.es/wiki/User:Doug>

⁸² https://www.mediawiki.org/wiki/Help:Starting_a_new_page

Appendix 2: License, credits, and how to cite this work

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Harvard

Belshaw, Doug, 2014. *The Essential Elements of Digital Literacies*. [pdf] Self-published. Available from: <<http://digitalliteraci.es>>. [Accessed: DATE].

MLA

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