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New Literacies in a Digital World

Literacy and technology. These two words strike a chord within every educator. They evoke a myriad of emotions, ideas, and dispositions. As pillars of modern education, each stands to be an essential tenet of any educational movement or initiative. Together, they hold the power to impact not only the educational system but an entire society.
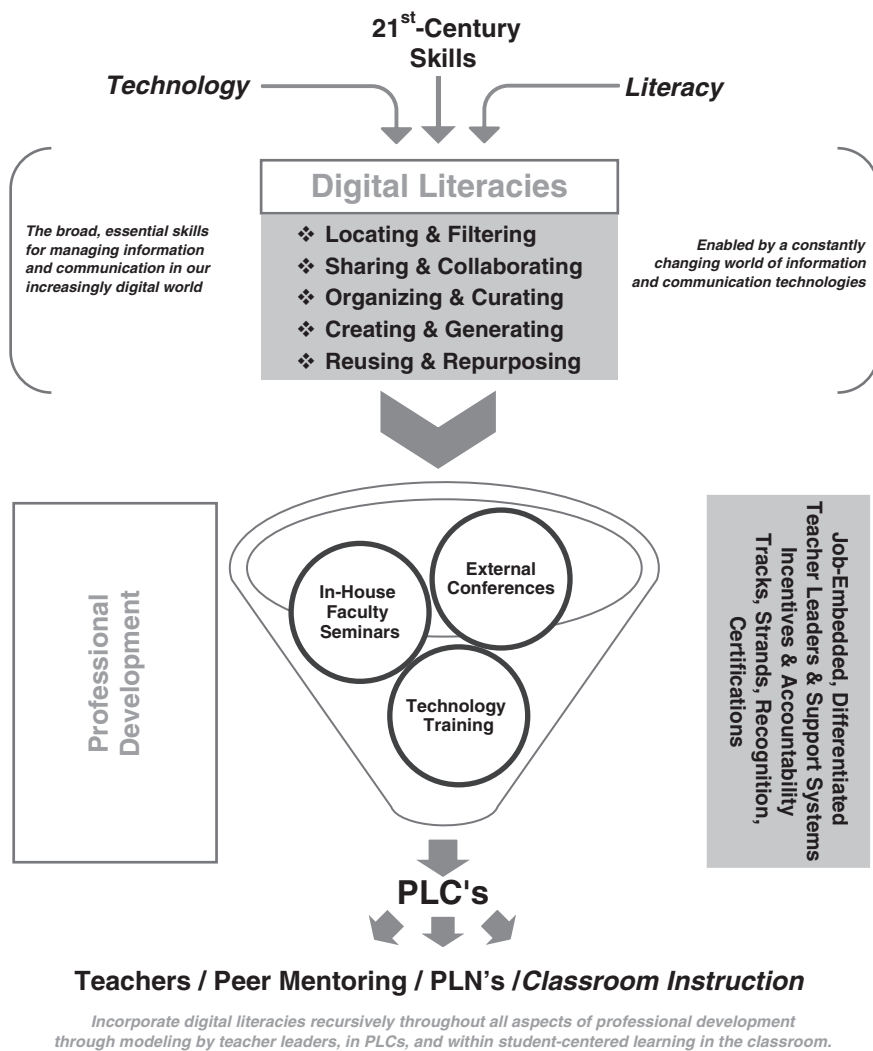
This is not a book about building a vision for an idealistic educational utopia. Instead, this book acknowledges the realities and challenges that educators face every day and presents practical strategies for producing real results. In the business world, results typically focus on customer satisfaction, return on investment (ROI), and of course the bottom line. In education, the bottom line is student learning. Realizing an increase in student performance indicators requires a strategic, concerted effort toward instructional improvement. This usually involves teacher professional development.

This book describes a framework for planning and implementing an authentic, job-embedded professional development program for in-service teachers that focuses on incorporating *digital literacies* into the comprehensive curriculum of a school or organization. The framework is modular and highly adaptable in order to meet the unique needs of diverse contexts. It capitalizes on personnel and resources that are already available internally, and it is within reach of anyone who is willing to put the necessary time and effort into implementing it within his or her institution.

This professional learning framework is illustrated in Figure 1.1, but its discussion spans throughout the seven chapters of this book. It may be helpful to refer back to Figure 1.1 regularly in order to gain a clear understanding of the relationship between each of the elements as they are presented.

Before embarking on an in-depth discussion of digital literacies and professional development, let's take a brief look at literacy itself, establish a scope and context for *digital literacies*, and explore some other terms that are becoming increasingly prevalent with regard to literacy in the 21st century.

Figure 1.1   Developing Digital Literacies: A Framework for Professional Learning

21st-Century Skills

Technology   *Literacy*

Digital Literacies

The broad, essential skills for managing information and communication in our increasingly digital world

- ❖ **Locating & Filtering**
- ❖ **Sharing & Collaborating**
- ❖ **Organizing & Curating**
- ❖ **Creating & Generating**
- ❖ **Reusing & Repurposing**

Enabled by a constantly changing world of information and communication technologies

Professional Development

In-House Faculty Seminars

External Conferences

Technology Training

Job-Embedded, Differentiated Teacher Leaders & Support Systems Incentives & Accountability Tracks, Strands, Recognition, Certifications

PLC's

Teachers / Peer Mentoring / PLN's /*Classroom Instruction*

Incorporate digital literacies recursively throughout all aspects of professional development through modeling by teacher leaders, in PLCs, and within student-centered learning in the classroom.

Literacy

At the core of literacy are reading and writing. They are essential tenets of literacy in any society. Any other aspect of literacy builds upon the ability to read and write. However, this just barely scratches the surface. A broader look at literacy reveals that it includes not only reading and writing but truly the ability to engage in *all* types of communication—whether textual, graphical, auditory, or otherwise. Furthermore, literacy involves not just communication but also managing the information that is transmitted by any communication medium. The discernment to choose the appropriate means—whether print, digital, or otherwise—by which to communicate and manage information in a given context is also essential to active citizenship and individual prosperity in a literate society.

A partial and very incomplete list of digital communication mediums might include blogs, text messages, Internet memes, social networks, and multiuser virtual environments (MUVEs). Often overlooked print-based communication formats include comic books, recipes, and appliance service manuals, just to name a few. Indeed, even these items, which have traditionally been available primarily in printed format, are now migrating to the digital realm in the form of web content, e-books, and more.

Surely by now it is apparent that teaching students to read, write, speak, and listen is not nearly sufficient in order to prepare them for success in the highly digital world that is the 21st century.

Defining Digital Literacies

Digital literacies represent in whole the essential skills for managing information and communication in the rapidly changing and increasingly digital world that is the 21st century. The term *digital literacies* is plural (e.g., literacies) because it encompasses a broad spectrum. There is not merely one single digital literacy. Furthermore, *digital* is the most appropriate descriptor because it acknowledges the irrevocable impact that technology has made—and will continue to exert—on literacy. The term *new literacies* is being used increasingly in a similar context to that which is being described here. However, to replace the word *digital* with *new* would risk implying that something might fall off the list at some point when it is no longer on the cutting edge. Any other substitute would only narrow the scope of literacy and further exclude essential elements that cannot be overlooked in a comprehensive treatment of literacy.

I am concerned that there might be a tendency to approach digital literacies from the angle of technology skill acquisition. Teachers and students alike struggle to stay abreast of new technologies and chase frantically as rapid advancements leave them behind. Digital literacies are not merely about gaining new technology skills, learning to use new tools, or even simply applying those tools in teaching and learning. Instead, digital literacies are the highly adaptable skills that actually *enable* us to leverage those technical skill sets and navigate the information superhighway. Rather than locking us into skills and techniques that are relevant now but may change tomorrow, digital literacies make us ready for the present *and* the future, regardless of what it looks like.

> **Digital literacies represent in whole the essential skills for managing information and communication in the rapidly changing and increasingly digital world that is the 21st century.**

Indeed, digital literacies are not static benchmarks that can be arrived at and maintained. The ability to constantly adapt existing skills and develop new ones when appropriate is essential in a rapidly changing society with technologies that are advancing at an unfathomable pace.

Standards

Digital literacies have played a part in the inspiration of numerous sets of standards established by as many experts and professional organizations. The International Society for Technology in Education (ISTE) has its National Educational Technology Standards (NETS) for students, teachers, and administrators. The American Association of School Librarians (AASL) authored its own set of Standards for the 21st Century Learner. The Partnership for 21st Century Skills (P21) supports a Framework for 21st Century Learning. These are just three examples among many more that could be mentioned here.

Subject-matter and discipline-specific organizations often develop standards related to digital literacies (often with slightly different terminology) which complement their content-area standards. All of these can be located easily online, as can pages and pages of search results with blogs, wikis, and articles that attempt to encapsulate digital literacies (again, usually under a different banner) in a list of competencies.

The Digital Literacies

The five digital literacies are expressed as action verbs, which point to methods of managing information and communication of all kinds in any context. They are as follows:

- Locating and Filtering
- Sharing and Collaborating
- Organizing and Curating
- Creating and Generating
- Reusing and Repurposing

Locating and filtering involves finding and identifying resources and paring down those resources in order to arrive at exactly the information that is desired. Digital technologies have enabled *locating and filtering* at a much higher level of accuracy and efficiency than has ever been possible in the past when printed media were the primary means of research and communication. Examples of technologies that form the backbone of *locating and filtering* include Internet search engines, online research databases, and the ability to tag and categorize digital resources.

Sharing and collaborating highlights the social movement that has swept the globe, thanks to the advent of social media and the interactive, collaborative web. Certainly, *sharing and collaborating* has always been an essential element of literacy (even the early cave drawings were a form of sharing information and communicating with others), but it truly encompasses the full range of digital literacies. (Figure 1.2 illustrates the relationships between each of the digital literacies later in this chapter.) A few key technologies that facilitate *sharing and collaborating* include social bookmarking, online document platforms, wikis, blogs, social networks, augmented reality (AR), and multiuser virtual environments (MUVEs).

Organizing and curating involves the recursive process of making orderly sense of resources and content that is otherwise fragmented and scattered. It consists of more than cataloguing or bookmarking; instead, it leads to new meaning and a deeper understanding of information and communications due to the strategic presentation of such material. In terms of Bloom's Taxonomy, *organizing and curating* requires teachers and students to engage in higher order thinking through analysis and evaluation. Technologies pertaining to *organizing and curating* include, but are not limited to, e-portfolios, social bookmarking, blogs, and microblogging.

Creating and generating as digital literacies acknowledges the responsibility that every digital citizen holds as a content contributor in our 21st-century global society. The Internet—and furthermore, social media—have accelerated a movement toward collaborative content creation, thereby resulting in the need for focused attention at a high level within the context of teaching and learning. *Creating and generating* is an excellent example of how digital literacies truly encompass nondigital forms of literacy as well. Indeed, we are *creating and generating* as we write a letter, keep a journal in a spiral notebook, or draw illustrations on paper. In the digital realm, *creating and generating* is facilitated through technologies such as wikis, blogs, podcasts, e-portfolios, augmented reality (AR), and multiuser virtual environments (MUVEs).

Reusing and repurposing has seen its rise, along with advancements in digital technology, as the ability to mashup and remix content from multiple online sources has become a reality. Low-tech versions of this would include fanfiction literature and the work of pop artist Andy Warhol, including his famous Marilyn Monroe pieces. Virtual globes, interactive time lines, and numerous online mashup tools represent a sample of the modern technological tools that enable *reusing and repurposing* as digital literacies.

Table 1.1 summarizes the five digital literacies along with their associated information and communication technologies.

Table 1.1　Digital Literacies and Their Associated Information and Communication Technologies

Digital Literacies	*Information and Communication Technologies*
Locating and Filtering	Internet search, research, tagging
Sharing and Collaborating	Social bookmarking, online document productivity, wikis, blogs, social networking, AR, MUVEs, identity and privacy management, Creative Commons
Organizing and Curating	E-portfolios, social bookmarking, wikis, blogs, microblogging, AR
Creating and Generating	Wikis, blogs, podcasts, e-portfolios, MUVEs, Creative Commons
Reusing and Repurposing	Virtual globes, interactive time lines, mashups, remix, fanfiction

Emergent Literacies

Why *digital literacies*? A variety of terms have emerged in recent years that attempt to expand upon traditional literacy. Digital *literacy* can be recognized as one of those niches; but this book addresses digital *literacies*—and for a very specific reason. That reason will be revealed later in this chapter, but first let's take a quick trip around the block to size up this neighborhood of emergent literacies before we zone in on our home base—*digital literacies*. We will define several other types of literacy and literacies, and in doing so, provide a context within which to situate the concept of digital literacies as it is addressed throughout this book. These emergent literacies include the following types:

- Computer literacy
- Cultural literacy
- Game literacy
- Media literacy
- Multimedia literacy
- Network literacy
- Social literacy
- Visual literacy
- Web literacy
- Multiliteracies
- Information literacy
- New literacies
- Digital literacy

Computer Literacy

Computer literacy refers to the ability to use computers and related technology—such as software and hardware devices—with a certain level of efficiency. Just as competency requirements for any type of literacy are typically defined differently by various entities, so are the exact skills and abilities that are deemed necessary in order to be considered computer literate. Some views of computer literacy focus on software skills related to Microsoft Office and performing basic computer functions. However, a more complete definition of computer literacy acknowledges not just one's ability to operate computers and use specific programs. Instead, it identifies individuals who have the fluency required to learn to use new software and hardware with considerable independence by employing appropriate methods of learning such as hands-on exploration and locating and obtaining relevant learning resources.

It makes sense that an individual's level of computer literacy might be correlated with the degree of hands-on computer experience that he or she is afforded. Those who have access to modern technology—and those who do not—are separated by a so-called *digital divide*. Schools

are faced with the challenge of bridging the digital divide in order to instill computer literacies and ultimately digital literacies into their students.

Cultural Literacy

Decades ago when the push for the arts in education began in full force, there was an emphasis on encouraging the development of well-rounded students through exposure to and participation in music, art, theater, and the like. This was an early push for the expansion of traditional literacy—a sort of cultural literacy—much like these other forms of literacy are today in our digital society.

Game Literacy

Individuals who demonstrate game literacy are familiar with the conventions of games and are able to assimilate gaming concepts into otherwise distant contexts, such as academic and professional scenarios. Whereas basic literacy involves decoding and interpreting texts within a broad range of contexts, game literacy encompasses the ability to decode the content of a game and interpret it within the context of human culture, the game itself, other games and genres, and the gaming technology. While discussion of game literacy often focuses on videogames, a more comprehensive definition might also touch on the use of badges and other game mechanics for the gamification of learning and other experiences that would otherwise bear no resemblance to a game.

Media Literacy

Media literacy is first and foremost about being a savvy consumer in terms of how media and marketing messages are received. It is the ability to identify, interpret, and analyze the seemingly endless array of messages conveyed through increasingly diverse media that have become pervasive in today's society. A list of examples could span many pages but would include television commercials, billboards, magazine ads, graphic tees, robocalls, product placement in films, door hangers, and even those sponsored Twitter and Facebook posts that are pinned to the top of your social media feed. While media literacy is primarily about how messages are perceived, it also encompasses the ability to strategically produce and distribute media

messages using appropriate channels of communication (and these channels may or may not be digital). The Internet, social networking, and new online niche entrepreneurs have enabled the average citizen to become a media-literate producer by launching YouTube videos that become viral, advertising products through Facebook pages, and having custom T-shirts screen-printed for pennies and posted for sale online at the click of a button.

Media literacy is sometimes discussed in combination with critical literacy, although critical literacy certainly expands beyond the realm of media.

Multimedia Literacy

Multimedia literacy might be used synonymously with media literacy, but multimedia literacy can also be applied with greater specificity to the use of multimedia tools such as video, audio, animation, and slideshows to convey information and manage communication. Too often is the poorly authored slideshow or haphazardly assembled video used in the classroom, on stage, or online to convey otherwise legitimate information to an audience that will be swayed more significantly by the multimedia than by the content. Like so many of the other literacies described in this section, multimedia literacy certainly involves the skilled use of technology tools, but its overarching idea is in *how* those tools are used and the messages that are conveyed and perceived.

Network Literacy

Network literacy in the 21st century recognizes the complex virtual networks which have become so prevalent online. Individuals who develop network literacies are able to identify networks that are relevant to their personal interests and professional activities and engage actively in not only participation but also contribution to the network for the benefit of all members. They have a solid understanding of how these networks form, operate, and evolve over time. Such networks may be formal or informal in nature. Educators often develop personal learning networks (PLN) as a form of professional development. These will be discussed in depth in later chapters. E-mail listservs, online forums, and LinkedIn Groups are also examples of networks that are made possible by the Internet.

Social Literacy

Individuals who possess the characteristics associated with social literacy are able to not only interact but in fact thrive in social environments. This is neither limited to recreational situations nor formal interactions. Indeed, socially literate people are familiar with the diverse cultural and situational norms that might possibly come into play in daily life, both personally and professionally. They are able to make decisions that give respect to all parties involved and engage cooperatively to solve problems and achieve common goals. Social literacy involves collaboration.

With the advent of online social networking, social literacy began to evolve into much more than personal interactions and surface communication. Each type of online social network—and new ones are popping up constantly—is designed to approach social interaction from a unique angle, supposedly filling a purpose not met elsewhere in the virtual realm. With that, there are different shades of social literacy that must be considered when engaging in activity within each of those online environments. Anyone who has spent much time perusing Facebook has surely noticed users and their content that seemingly distort its intended purpose and reflect poorly on the individual. While this happens all the time without drawing great attention, the larger incidents have become the impetus behind new professional ethics policies at the institutional level, targeted legislation from state and federal lawmakers, and a rapidly growing case law. Likewise, users on LinkedIn—a professional networking site— should educate themselves on the unique norms associated with communication and collaboration on that highly targeted site and gain an understanding of how to use the tools and features in a manner that is both professional and productive. Examples like these could be shared for every social network.

Visual Literacy

Visual literacy denotes the ability to draw meaning from visual images of any type—whether print or digital. Some consider visual literacy to be the earliest form of literacy—predating even linguistic literacy (having to do with words)—as the Cro-Magnons drew visual depictions on the walls of caves. Like other literacies, visual literacy is about both receiving and transmitting information. That is, individuals who have a solid grasp on visual literacy are able to not only interpret visualizations but also create visuals to share ideas and knowledge. Just as social literacy has been radically impacted by

online technology, so has visual literacy been augmented to include digital media that changes constantly.

Web Literacy

Web literacy is about being an intelligent consumer on the Internet and engaging productively in content creation that contributes to the collective intelligence of the World Wide Web. There are certainly overlaps between web literacy and information literacy. *Indeed, by now it is, no doubt, obvious that each of these emergent literacies intersects with the others in one way or another*. It is vital that users evaluate the accuracy of any and all information found online by considering the authority of the authors, determining how current the resource is, checking for bias, and looking for sources that give a comprehensive treatment of the subject matter.

Web literacy also addresses the importance of online safety and issues such as crime, privacy, and virtual communication (e.g., chat rooms, social networks, e-mail, forums, etc.). It is about the ability to differentiate between legitimate advertisements and scams and recognize when other people are not

> **Each of these emergent literacies intersects with the others in one way or another.**

who they say they are. Now that the Internet is a pervasive part of everyday life, there is an urgent need for web literacy among all citizens, young and old.

Multiliteracies

Multiliteracies first of all address the need to communicate across cultures, languages, and dialects in our increasingly interconnected world. But a more complete treatment of the term encompasses the type of multimodal communication that has been enabled through modern technologies such as the Internet and mobile devices. Information transmissions and communication events seldom involve just one medium anymore. For example, a single person-to-person interaction facilitated by the use of a smartphone might leverage text, digital graphics, sound, gestures, and tactile interaction simultaneously. A person who can engage in both operating within those communication formats and also decoding their meaning is demonstrating fluency in multiliteracies. While this example involves the use of digital technology, it is important to keep in mind that multiliteracies do not necessarily have to involve a digital component.

Information Literacy

Information literacy describes the acts of locating, interpreting, organizing, and sharing information in such ways that it is meaningful not only to the communicator but also the audiences who are intended to receive the information. It involves applying the correct techniques in order to engage in research. In an age of information overload, it is more important than ever that students become proficient at using appropriate methods of obtaining and transmitting information by locating sources that are both relevant and reliable and then manipulating and disseminating information according to the highest standards of academic integrity and intellectual property. It is worth mentioning here that the Internet is not the only focus of information literacy and neither are print resources. Indeed, mobile technologies and even gaming platforms present avenues of obtaining and transmitting information that demand special attention with regard to literacy development in the 21st century.

Information literacy is often addressed jointly with critical literacy. It is sometimes combined or used interchangeably with communication literacy. Research literacy might be considered a subset of information literacy, and information literacy a subset of computer literacy. Media and information literacies are sometimes paired together within certain contexts.

New Literacies

New literacies is a broader term than many of the others mentioned in this section. It is connected closely to the New Literacies Research Team at the University of Connecticut, which studies the new reading comprehension and learning skills associated with online and other modern technologies. New literacies are also seen through another lens as being reflective of the digitally driven and highly social nature that characterizes all types of 21st-century discourse. In any case, the term places a forward emphasis on the newly emerging implications of literacy in society. Of all the emergent literacies discussed here, new literacies bear the closest resemblance to the digital literacies that form the basis for this book.

Digital Literacy

Digital literacy (notice the singular form of the second word) is often used to refer to the broad ability to work with digital tools and

select the appropriate tools to use for a given task. It represents one's preparedness to engage actively within a digital environment. Digital literacy encompasses data management, media objects, and all types of digital manipulation for the purpose of dealing with information and communication. It represents a certain type of literacy that involves digital technology, but its scope is much narrower than that of the *digital literacies* which will be expounded upon in the latter part of this chapter and throughout the book.

Commonalities Among Emergent Literacies

Table 1.2 summarizes the emergent literacies in order to provide an at-a-glance look at these niches of literacy, which both complement

Table 1.2   Emergent Literacies at a Glance

Computer Literacy	The ability to learn and use computers and related technology
Cultural Literacy	A certain level of exposure and familiarity with the creative arts
Game Literacy	Diverse gaming experience and the ability to interpret games in many contexts
Media Literacy	Interpreting all meaning contained within media messages
Multiliteracies	Communication fluency across cultures, societies, and technological modalities
Multimedia Literacy	Using multimedia tools to convey information effectively
Network Literacy	Navigating, interacting, and discerning within virtual and human networks
Social Literacy	Thriving in diverse social contexts, both online and offline
Visual Literacy	Drawing meaning from visual depictions; also, to create such imagery
Web Literacy	Handling content and collaboration safely and productively online
Information Literacy	Locating, interpreting, organizing, and sharing information appropriately
New Literacies	Online reading comprehension and learning skills; social adaptability
Digital Literacy	Working intelligently with digital tools and data

and contrast with digital literacies, as will become evident throughout this book. Consider the following themes, which seem to emerge when exploring a cross section of emergent literacies:

- Fluent literacy involves being both an intelligent *consumer* and a skilled *producer* of information and communication.
- A comprehensive view of literacy pays respect to the long-established information and communication modalities (e.g., pencil and paper, books, etc.) while duly acknowledging those brought forth by the advent of modern and progressive technologies (e.g., texting, virtual worlds, etc.).
- While literacies must at some level include specific skill sets—such as those required for the use of technology tools—*the real emphasis is placed on the ability to learn and adapt on a continual basis as society changes and technology evolves.*
- Decoding and interpreting content varies across contexts, often drastically. Each subset of literacy casts a different light on the tasks involved in managing information and communication, which may otherwise seem similar.
- There is no predominate form of literacy, but there are potentially infinite subsets of literacy. Society and technology largely influence the emergence of new facets of literacy.

The Five Digital Literacies

A brief survey of various emergent literacies provided a bit of *context* as well as some *contrast* with which to situate the digital literacies that are the focus of this book. Indeed, they describe several subsets of literacy and acknowledge many (but not all) of the pieces that fit together as digital literacies. They serve as somewhat of a foundation

Digital literacies encompass all of the emergent literacies . . . and more.

but actually more of a launching point. Put another way, digital literacies encompass all of the emergent literacies just described—and more. But digital literacies are not merely a slice of the pie.

The remainder of this chapter focuses on establishing a conceptual basis for each of the five digital literacies. It begins to touch on how they apply to both teaching and learning and life in general. No doubt, this discussion alone could easily expand to fill many volumes. Figure 1.2 illustrates the relationship between each of the digital literacies and depicts the ways in which the various information and communication technologies can be leveraged for multiple purposes.

Figure 1.2 Understanding the Relationship Between the Digital Literacies
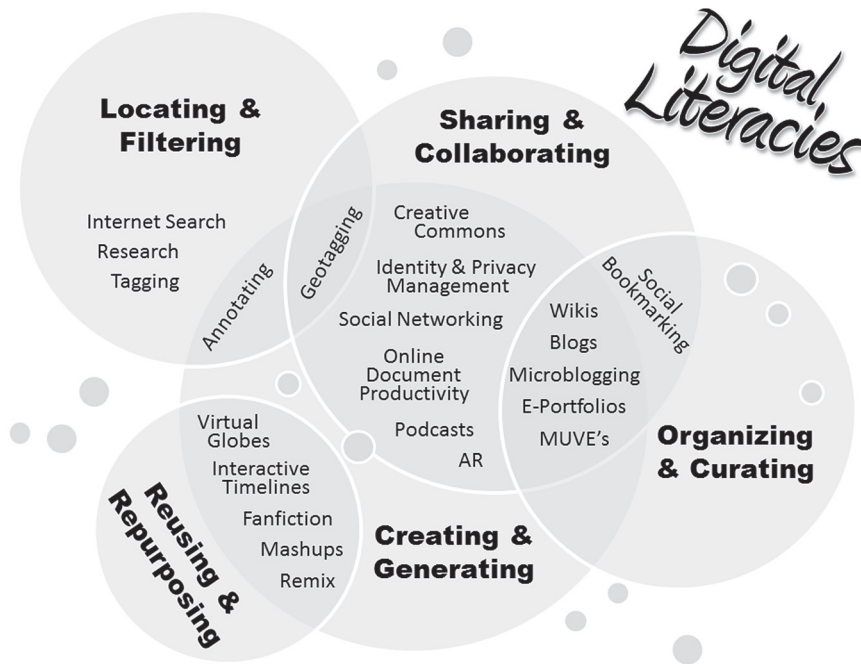
Locating and Filtering

Locating and filtering is a natural starting point for digital literacies as it addresses the task of locating resources and sifting through extraneous content amidst today's state of information overload. It begins as a cognitive disposition—a way of thinking—where a person does not simply default to performing a plain language Google search in order to find something online. Instead, it requires using carefully crafted queries in targeted search engines (which may or may not fall under the umbrella of Google!). Users might call upon a library's web-based research database, a knowledge engine such as Wolfram | Alpha, or perhaps even a printed information resource that is not otherwise available online. Individuals who are skilled at *locating and filtering* know how to employ a high level of critical analysis in order to identify accurate, reliable resources and red flag those that are not. Web-based tagging and annotation tools are harnessed for their power to manage research, share it with others, and make future research easier for everyone. New ways of creatively organizing and displaying information bring learning to life like never before. Individuals feel a sense of social responsibility to contribute actively by collectively managing the vast expanse of information that exists across the web.

Locating and filtering also encompasses geotagging and augmented reality where location awareness melds research and real objects virtually seamlessly thanks to cutting-edge mobile technologies.

Locating and filtering is like taming the web. A good analogy is that of a person panning for treasure at Crater of Diamonds State Park in Murfreesboro, Arkansas. It is touted to be the world's only public diamond mine, and visitors travel for miles and miles in order to sift through acres of soil in hopes of finding a tiny gem. Just as the tourists must have a deliberate strategy in their search for diamonds (such as not sifting the same bit of soil over and over again), so must consumers of information take an intelligent approach to *locating and filtering* (like looking beyond the first page of search results) in order to find the resources that often seem to be that needle in the haystack.

Within the context of teaching and learning, students engage in *locating and filtering* when they select and use appropriate search engines and databases to perform online research and then evaluate both information and information sources for accuracy, relevance, and validity.

Sharing and Collaborating

While digital literacies certainly do not demand a sequential approach, there does seem to be a somewhat logical pathway in terms of how they relate to each other. While *locating and filtering* involves primarily managing information from the consumer's perspective, *sharing and collaborating* brings communication into play and stretches a person to begin exploring the role of a producer of content. *Sharing and collaborating* builds upon the idea of the collective intelligence, where the global knowledge base grows exponentially due to collaboration, cooperation, and competition. This may be both formal and informal in nature. It occurs both naturally and deliberately. *Sharing and collaborating* encompasses the vast realm of social networking but also involves more specific venues like web-based document platforms, e-portfolios, and multiuser virtual environments, just to name a few. And of course, low-tech methods of *sharing and collaborating* should not be overlooked. While they may play a different and possibly lesser role in information and communication management, their persistent existence demands inclusion in this subset of digital literacies known as *sharing and collaborating*. After all, they maintain an irrefutable relationship with other, more digitally driven modalities.

Sharing and collaborating is of utmost importance because it is where identity and privacy management comes into play. The social

and web literacies described earlier peek in under this guise as a reminder of the potential dangers presented by the unprecedented ease of sharing and communication now possible, thanks to online and mobile technologies.

Sharing and collaborating online has become part of the 21st-century culture. Businesses feel compelled to leverage as many social networking channels as possible in order to draw the attention of the masses, and individuals feel obliged—or at the very least, pressured by society—to participate in online social communities in order to stay relevant.

As educators, we must abandon the misnomer that our slideshows and other self-developed instructional materials are a sort of private property that should be locked up and protected by a guard dog. Too many teachers claim as their reason for banning students' personal devices in the classroom, the fear of students stealing their intellectual property by recording lectures or capturing images of whiteboard diagrams. The era of open educational resources is here, and educators should be eager to ramp up the global knowledge base—and that of their own students—by this very *sharing and collaborating* that constitutes the second facet of digital literacies. Creative Commons licensing presents a way by which to manage sharing intellectual property while maintaining rights and ownership. More on this in Chapter 7.

In the classroom, students engage in *sharing and collaborating* when they learn together with iPads or interactive whiteboards, connect with authors via Skype, maintain a blog for reflective discourse while reading a short story or novel, or take an interactive virtual field trip.

Organizing and Curating

Organizing and curating can be likened to a neatly arranged spice cabinet. It is like a medley of resources made available within easy reach and situated in a digital array that is both visually pleasing and cognitively intuitive. No, this does not describe a web browser's sidebar with an endless list of chronologically arranged Internet favorites. (By all means, close that pop-out and never expand it again.) Instead, *organizing and curating* picks up where *locating and filtering* left off with regard to taming the wild, wild web. Social bookmarking tools such as Diigo allow users to not only created subject-tagged lists of website bookmarks, but they also enable these lists to be shared with others and enhanced through ongoing collaboration. (Disorganized favorites saved locally do little to benefit a personal user, much less the broader learning community.)

A plethora of new curation platforms are popping up almost daily. Each purports to be a revolutionary venue for organizing, editorializing, and sharing topical web content. Scoop.it, Paper.li, and Bundlr are just three examples. Blogs, wikis, and the already-mentioned e-portfolios also fall into the category of *organizing and curating*.

Curation takes organization to a new level. Curating involves not simply categorizing, grouping, or sharing, but also editorializing, reviewing, rehashing, and even archiving. Historians and scientists have been active curators for ages. Now, the concept of curation has presented itself within the realm of digital literacies and information and communication technologies.

Organizing and curating serves to add additional meaning to information that has been procured through *locating and filtering* and further enhances the benefits that can be reaped by others when such knowledge is disseminated through *sharing and collaborating.*

Students engage in *organizing and curating* when they develop a wiki site profiling the Great Depression, engage in digital storytelling about local culture, or create an Internet radio station with commentary featuring music from the Big Band Era.

Creating and Generating

Creating and generating online content became a reality for everyone with the emergence of the second-generation Internet (often referred to as Web 2.0) where web-based platforms made content creation as easy as desktop word processing. Today, *creating and generating* involves whole new worlds (literally!) of possibility, with virtual worlds such as Second Life, Open Sim, and World of Warcraft, and augmented reality that seamlessly combines digital content and tactile objects in ways that earlier virtual reality technologies cannot begin to touch. Imagine developing a gallery of exact-replica artwork inside a virtual world and inviting actual experts of the field to join students *in-world* for a virtual gallery walk and symposium.

Still, the importance of teachers and students alike engaging in *creating and generating* blogs, wikis, and podcasts should not be undersold. Blogging is a valuable form of reflection and a great way to build writing skills in general. Wikis provide a medium for developing multimedia-rich digital projects. Podcasting allows anyone to develop syndicated media that can be consumed just-in-time and on the go by interested enthusiasts. Never before has it been so easy to become a global broadcaster.

But with opportunity comes great responsibility. The ease of contributing to the online content base means that there will be an inherent tendency to do so without attention to the quality of that content which is being posted online. Therefore, teachers have an urgent call to instill in students the digital literacies of *creating and generating* with the highest level of attention to the means by which such content is generated and contributed to the digital community.

As Figure 1.2 illustrates, *creating and generating* overlaps with all but a few facets of the digital literacies. This further serves to highlight the importance of being a contributing member of society, not only in terms of social responsibility, but also with regard to knowledge at the micro and macro levels. Indeed, 21st-century technologies unlock this potential for everyone.

Students are *creating and generating* as they maintain a class blog with original poetry, produce short podcasts of simple rhythmic improvisations, or create digital flash cards in order to study bird species.

Reusing and Repurposing

Mashups and remix form the basis for *reusing and repurposing*. The concept of taking content and reworking it to serve a new purpose might seem a bit obscure or even out of line. Certainly, this should only be done within the scope of intellectual property rights; but as was mentioned earlier, there is a strong movement toward open source data and open educational resources. Consider the fact that anyone with an intermediate level of technical ability can draw upon the premier online map services in order to develop their own web applications. A large-scale example of this is the metropolitan transportation provider, but there are a multitude of home-grown spinoffs as well. A simpler example of *reusing and repurposing* is the interactive time line that brings together text, images, video, and other media objects into a mashed-up, linear multimedia presentation.

Fanfiction has for some time been a boon for getting young people to write. Fortunately, the Internet has only further enabled fanfiction and remix to flourish. Literary and big-screen sensations such as Star Wars, Lord of the Rings, and The Twilight Saga have inspired enthusiasts of all ages to engage in creative writing and collaborative authorship that represent the epitome of digital literacies. These works of content remix are not limited to only texts but also include graphical anime, video montages, and even Hollywood films. Professional music groups often remix pieces from other musician's work (with permission) in order to create derivative works. There are

a variety of motivations behind such actions, including building hype among fans, paying tribute to other well-known figures, and of course, parodies.

Perhaps it is becoming evident how this type of literacy activity can cause online communities to mature beyond casual chat rooms and discussion forums to become a place where intellectual growth occurs and creativity abounds. Much like the salons of the classical era, these digital environments are the birthplaces of new ideas that have the capacity to make a significant impact on society at large. They also represent a means by which to develop literacy skills within the context of teaching and learning.

Students engage in *reusing and repurposing* when they write fanfiction online, create an interactive time line profiling the U.S. Supreme Court Justices, design a digital poster collage with embedded multimedia featuring Impressionist composers, or assemble a video montage that conveys healthy diet and exercise lifestyles.

Memes

One additional concept that deserves mentioning here is the meme—something that has seen a rise along with the growth of the collaborative web. A meme is an idea of some sort that is spread from person to person to the point that it actually becomes a piece of culture. Memes were around long before the dawn of the Internet, but they have taken a new prominence in today's culture in the form of viral videos, image macros (How many different phrases have you seen superimposed on a photo of Willy Wonka?), and of course, web celebrities such as Rebecca Black. Memes are as much a part of digital literacies as the ability to understand clichés in context has always been. Wondering if you have spotted a meme? Find out at http://www.knowyourmeme.com.

Digital Literacies in the Context of Teaching and Learning

The digital literacies are extremely relevant and highly applicable in all grade levels. While the complexity will vary, the tools and strategies are accessible even in the elementary grades. As a complement to the instructional examples described within this book, the companion website (http://www.digitalliteracies.net)

Educators often *teach with technology*, which does little to equip students with the skills they need beyond the classroom.

lists additional ideas and provides links to web sites and tools that support student learning activities leveraging digital literacies.

The purpose of this book is to provide a framework by which educators can systemically integrate digital literacies into teaching and learning—a process which begins with and is supported by teacher professional development. Educators often *teach with technology* as they use document cameras, interactive whiteboards, and web-enhanced project-based learning to facilitate instruction. This, however, does little to equip students with the skills they need beyond the classroom.

Teaching *with* a piece of technology merely demonstrates a device or application, even with hands-on student participation. Teaching students *how to use* a technology tool loads them with skill sets that will likely be obsolete in a short time as technology changes rapidly.

On the other hand, *infusing* digital literacies within the very fabric of content-area instruction will result in authentic learning experiences that not only teach the relevant subject-matter and incorporate 21st-century technology but also address the vital literacy skills that are so strongly emphasized in the Common Core State Standards.

QUESTIONS FOR REFLECTION AND DISCUSSION

1. How does the concept of digital literacies provide a lens through which literacy becomes even more applicable across disciplines than it might seem within the context of a more classical definition of literacy?

2. In what ways can teachers and administrators approach the digital literacies so that the emphasis is placed on real-world relevance rather than merely technology-driven instruction?

3. What are some ways in which each of the five digital literacies can be integrated into the existing curricula immediately, even before beginning an in-depth initiative?