



Research Brief

Digital Literacy

Question: What is digital literacy? What should principals know about digital literacy initiatives?

In a Nutshell

21st Century students need a complex set of skills to be successful in a digital environment. Digital literacy, similar to traditional definitions of literacy, is a set of skills students use to locate, organize, understand, evaluate and create information. The difference is that it occurs in an environment where a growing set of digital tools provides students with the capacity to use these skills in new and unique ways. Two documents provide detailed recommendations on the essential knowledge and skills required of 21st Century students---a report from enGauge detailed four sets of skills (www.metiri.com/21/21%20Century%20Skills%20Final.doc) and a set of National Educational Technology Standards for Students (NET*S) (<http://www.iste.org/standards.aspx>).

Summary of Findings:

Digital literacy is defined as the ability to locate, organize, understand, evaluate, and create information using digital technology. It involves both an understanding of the technology and how that technology can be used to communicate and work more effectively. As with most things involving technology, the definition and understanding of digital literacy continues to evolve to reflect the creation of new hardware and software.

Most schools are striving to assure that their curriculum includes digital literacy. This involves purchasing additional hardware and software, and providing teachers and students with the resources such as smartboards and audience response systems that can maximize digital literacy skills. The dilemma facing schools is that today's classrooms are filled with digitally literate students, skilled at using technology, but less skilled at the nuances of using technology to communicate persuasively or creatively, and using the skills of analysis, synthesis and evaluation. Using digital literacy as a way to apply the elements of critical thinking has come to describe the goal of digital literacy initiatives (Jones-Kavaller & Flannigan, 2006).

Digital Literacy Skills

While there are many commonalities among reports on digital literacy, there is no common approach to teaching, learning or assessing digital literacy skills (EDC, 2005). Most often recommendations suggest that digital skills provide the tools for students to participate in traditional literacy activities. The Education Development Center, working with the Atlanta Philanthropies, developed the Digital Literacy Toolkit. The toolkit was designed to provide a shared language that could be used to assess whether a digital author used an image or a sound appropriately so that it conveyed the meaning, nuance and intent of the communication. EDC found that many teachers and students possessed the technical skills to prepare presentations and to use images and sounds to communicate. What was lacking was an understanding of how an image's meaning can change depending on the purpose for which it was used.



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The Digital Literacy Toolkit (EDC, 2005) developed a protocol for thinking about the use of images, sounds and movement (http://cct2.edc.org/dig_lit/web/).

Images (photographs, drawings, maps and graphs) can be used:

- as evidence to provide documentation of something;
- as example to provide a way to visualize something;
- as opinion to show a point of view about something;
- as decoration to create a visual frame for something;

Sounds (background, speech, music and sound effects) can be used:

- as illustration to identify the function of something;
- as context to emphasize an aspect of something;
- as opinion to indicate a point of view about something;
- as decoration to enhance the meaning of something;

Movement (transitions, moving objects and moving text) can be used:

- as focus to highlight a feature of something;
- as illustration to identify how something behaves;
- as opinion to indicate a point of view about something;
- as decoration to enliven the presentation of something;

The National Telecommunications and Information Administration in the US Department of Commerce suggests that digital literacy skills fall into five categories---using a computer or mobile device, using software and applications, using the internet, communicating on the web and helping children learn responsible and safe use of online resources. Their site provides links to information on specific digital literacy skills such as spotting a virus, avoiding phishing scams, searching the web, identifying credible online resources, and free online office and presentation software. (www.digitalliteracy.gov/content/learner)

21st Century Skills

enGuage 21st Century Skills for 21st Century Learners (2009), a joint product of the Metiri Group and Learning Point Associates, identified four categories of skills along with specific sub-skills. The report states that “our children live in a global, digital world – a world transformed by technology and human ingenuity. Given the rapid rate of change, the amount of information to be managed, and the influence of technology on life in general, students need to acquire different, evolving skill sets to cope and thrive in this changing society.” The following charts list the skills. The complete report including a detailed description of the skills is available at www.metiri.com/21/21%20Century%20Skills%20Final.doc.



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Digital-Age Literacies:
• Basic literacy – fluency with language and numbers
• Scientific literacy – knowledge of scientific processes to make good decisions
• Economic literacy – understanding of economic issues, weighing costs and benefits
• Technological literacy – how it works and how to use it effectively and efficiently
• Visual literacy – interpret, use, create images and video for specific purposes
• Information literacy – locate, synthesize, use and evaluate information from different media
• Multicultural literacy – understand and appreciate diversity in world culture
• Global awareness – recognize and understand relationships among international groups
Inventive Thinking:
• Adaptability/Managing Complexity – modify thinking, attitudes and behavior to adapt to current or future environments
• Self-Direction – set goals, plan to achieve goals, manage time and effort, assess quality of outcomes
• Curiosity – a desire to know that leads to inquiry
• Creativity – bring something into existence that is new and original
• Risk-Taking – make mistakes, take unconventional positions, tackle challenging problems to advance learning
• High-Order Thinking and Sound Reasoning – adept at analysis, comparison, inference/interpretation, evaluation and synthesis; problem-solving orientation
Effective Communication:
• Teaming and Collaboration – cooperatively interact with others to solve problems, create novel products, or learn new content
• Interpersonal Skills – read and manage their own and others motivations, emotions and behavior during social interaction
• Personal Responsibility – knowledge of legal and ethical issues related to technology; ability to achieve integrity in personal, academic and work life
• Social and Civic Responsibility – manage technology to promote the public good, protect society, the environment and democratic ideals
• Interactive Communication – generate meaning through exchanges using contemporary tools and processes;
High Productivity:
• Prioritizing, Planning and Managing for Results – organize to efficiently achieve goals of projects or problems
• Effective Use of Read World Tools – use hardware, software, networking to communicate, collaborate, solve problems, and accomplish tasks
• Ability to Produce Relevant, High-Quality Products – create products that serve authentic purposes to advance own and others' understanding or capacity

Adapted from: *enGauge 21st Century Skills for 21st Century Learners* (2009) and Williamson & Johnston (in press). *The School Leaders Guide to the Use and Abuse of Social Media*.



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The International Society for Technology (ISTE) in Education published National Educational Technology Standards for Students (NET*S) in 2007. The complete set of standards is available at <http://www.iste.org/standards.aspx>. They include six components of student learning.

1. Creativity and Innovation – Students are able to demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
2. Communication and Collaboration - Students are able to use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
3. Research and Information Fluency - Students are able to apply digital tools to gather, evaluate, and use information.
4. Critical Thinking, Problem Solving, and Decision-Making - Students are able to use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources.
5. Digital Citizenship - Students are able to understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
6. Technology Operations and Concepts - Students demonstrate a sound understanding of technology concepts, systems and operations.

Summary

It is essential that schools prepare students for success in the 21st century. That requires developing skill at using digital tools to engage in critical literacy activities. Other *Research Briefs* about digital issues are available at www.educationpartnerships.org/resources_researchbrief.html.

Online Resources:

21st Century Skills

21st Century Skills for 21st Century Learners – This report from engage outlines four categories of skills with specific subskills.

www.metiri.com/21/21%20Century%20Skills%20Final.doc

National Educational Technology Standards for Students (NET*S) The International Society for Technology (ISTE) in Education published a set of standards in 2007. The complete set of standards is available at <http://www.iste.org/standards.aspx>.

Connecting the Digital Dots: Literacy of the 21st Century – This article by Barbara Jones-Kavaller and Suzanne Flannigan discusses the importance of linking a traditional literacy curriculum to digital literacy.
www.educase.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/ConnectingtheDigitalDotsLitera/157395



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21st Century Digital Literacy Skills – A PowerPoint by Sandra Lathem of the University of Vermont describes the importance of developing digital literacy skills among teachers.
www.uvm.edu/~slathem/literacy.ppt

Digital Literacy Information and Resources

Microsoft Digital Literacy Curriculum – Microsoft provides a link to an online curriculum in digital literacy. It includes three levels---basic, standard and advanced. The curriculum includes an online assessment, the Digital Literacy Certificate Test.
<http://www.microsoft.com/about/corporatecitizenship/Citizenship/giving/programs/UP/digitalliteracy/default.mspx>

University of Illinois at Urbana-Champaign – Digital Literacy Definition and Resources – This site provides links to various resources such as Digital Literacy in a 2.0 World, the Four Types of Information Literacy, and others.
<http://www.library.illinois.edu/digitlit/definition.html>

What is Digital Literacy – Pam Berger – This site links to other resources on digital literacy including the Center for Digital Literacy at Syracuse University.
<http://infosearcher.typepad.com/infosearcher/resources/digitalliteracy.htm>

Digital Literacy – This public portal provides additional resources on digital literacy.
<http://www.ictliteracy.info/index.htm>

EdGalaxy.Com – Cool Stuff for Nerdy Teachers – This site provides 14 digital literacy activities for teachers.
<http://www.edgalaxy.com/journal/2010/2/16/14-digital-literacy-activities.html>

Center for Digital Literacy – Located at Syracuse University, this center provides information and resources about digital literacy.
<http://digital-literacy.syr.edu/>

Digital Literacy Toolkit: Skills for the 21st Century – This site describes needed digital literacy skills and provides resources for teachers. It includes modules on how to determine whether an image or a sound is used to suit the communicate purpose and intent of the author.
http://cct2.edc.org/dig_lit/web/

Digital Literacy.gov – This site is provided by the National Telecommunications and Information Administration in the US Department of Commerce. It includes information and resources on digital literacy.
<http://www.digitalliteracy.gov>

Technology in Schools: What the Research Says – This 2009 report from the Metiri Group describes the technology issues facing schools.
www.metiri.com/PDFs/2009_technology_in_schools_what_research_says.pdf



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Multimodal Learning Through Media: What the Research Says – This 2008 report from Cisco describes strategies for increasing digital literacy in schools.

www.cisco.com/web/strategy/docs/education/Multimodal-Learning-Through-Media.pdf

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