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Access, Equity, and Empowerment: Supporting Digital Literacies for All Learners

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EXECUTIVE SUMMARY

The rapid and continued global proliferation of internet usage and digital tools and technologies over the last 26 years since the introduction of the World Wide Web has been well documented. Equally well documented are ever-changing shifts in skills necessary for learning, working, and engaging in the world with new networks, digital tools, and technologies. Researchers and policymakers agree that deep learning experiences with digital texts and tools shape life options. Accordingly, supporting students' development of what we refer to as digital literacies is critical for teachers, school leaders, community educators, and other educational stakeholders. However, many educational settings, including schools and community centers, do not have the necessary resources – including trained teachers and personnel as well as access to technologies and digital networks – to make digital literacies a central component of instruction and learning. The lack of clear policies to guide teaching and learning, professional development, leadership, infrastructure building, and research is a key factor driving these disparities. Based on a review of research related to digital literacies, this policy brief identifies five action items related both to supporting the development of digital literacies through improving literacies instruction and increasing access to digital literacies for all learners.

INTRODUCTION

In the 26 years since the creation of the World Wide Web, the introduction of new digital technologies, tools, platforms, networks, and devices has continued rapidly and unceasingly. Cell phone ownership is now nearly ubiquitous for adults in the United States.[1] And ownership and usage of digital tools and technologies has changed the way Americans work, live, and learn. Knowledge about technology, including an understanding of a range of devices (e.g., laptop, tablet, phone, gaming system, GPS device), platforms (e.g., iOS, Android), applications (e.g. Word, Adobe, Skype), and social networking sites (e.g., Facebook, LinkedIn, Twitter, Instagram) and how to use them independently and with each other when appropriate is essential knowledge for participating in civic, professional, and social life today. But in addition

1 Pew Internet and American Life Project, *Pew Research Center* (2012). Retrieved March 10, 2015 from http://www.pewinternet.org.

...in addition to knowledge of what technologies exist and how to use them, knowledge of when and why to use digital texts and tools for learning and acting in the world is equally important.

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Agreeing on a way to describe the collection of necessary knowledge, skills, and competencies for engaging and acting in the world with ever-changing technologies and tools has been a difficult task for researchers and policy makers. The following names have all been used to identify these competencies: "information literacy," "twenty-first-century learning skills,"[2] "twenty-first-century competencies,"[3] and "new literacies."[4] With this background in mind, we refer to the broad notion of knowledge of technology for learning and acting in the 21st century as *digital literacies*. *Digital* in that learning and acting makes use of texts, tools, and technologies that are online, mobile, and/or networked. *Literacies* in that individuals leverage multiple literacy practices (i.e., interpreting and producing) when learning and acting with digital texts and tools. In short, we define digital literacies as the use of digital tools to consume and produce knowledge as well as the mindset and competencies needed to make choices, interact, and engage in an open, networked society.[5]

Supporting the development of proficiency with digital texts and tools in society is critical for teachers, school leaders, community educators, and other educational stakeholders. No matter how digital literacies are identified, researchers agree that deep learning experiences with digital texts and tools shape life options.[6] Both improving digital literacies instruction and increasing access to digital literacies are essential to preparing young people for a future workforce that is expected to be increasingly focused on "information labor"[7] and to improving the life opportunities of people of all ages who need highly functioning digital literacies competencies in order to engage socially and in civic and community processes that have import for their lives. Recognizing this priority, all of the state and national standards documents that guide K-12 instruction in Illinois and nationally, including recently implemented Common Core State Standards (CCSS) focused on English language arts and mathematics, identify digital literacies as an expected element of instruction across content areas and grade levels.

However, despite both the obvious need for digital literacies learning

2 Partnership for 21st Century Skills, *P21 Framework Definitions* (2009). Retrieved March 10, 2015 from http://www.p21.org/storage/documents/P21_Framework_Definitions.pdf.

3 James W. Pellegrino and Margaret L. Hilton (Eds.), *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century* (Washington, DC: National Academies Press, 2012).

4 Colin Lankshear and Michele Knobel, "Introduction: Social and Cultural Studies of New Literacies from an Educational Perspective." In Colin Lankshear and Michele Knobel (Eds.), *A New Literacies Reader: Educational Perspectives* (New York: Peter Lang, 2013): 1-19.

5 Colin Lankshear and Michele Knobel, *New Literacies: Changing Knowledge in the Classroom* (New York: Open University Press, 2006).

6 Kimberly Gomez, Brigid Barron, and Nichole Pinkard, "Introduction: The Digital Media Landscape." In Brigid Barron, Kimberly Gomez, Nichole Pinkard, and Caitlin K. Martin (Eds.), *The Digital Youth Network: Cultivating Digital Media Citizenship in Urban Communities* (Cambridge: MIT Press, 2014): 1-13.

7 Frank Levy and Richard J. Murnane, *The New Division of Labor: How Computers Are Creating the Next Job Market* (Princeton, NJ: Princeton University Press, 2004).

and the inclusion of digital literacies in curricular standards, many educational settings, including schools and community centers, do not have the necessary resources – including trained teachers and personnel and access to technologies and digital networks – to make digital literacies a central component of all instruction and learning. This is especially true of educational settings in under-resourced communities. Indeed, those people who do not have access to digital literacies learning experiences may not have opportunities to develop competencies that will be required for work and civic action.

The lack of clear policies to guide teaching and learning, professional development, leadership, infrastructure building, and research is a key factor driving these disparities. While all state and national standards identify digital literacies as an expected element of instruction across content areas and grade levels, these standards are not stand-alone statements and may be difficult for teachers and administrators to identify as explicitly related to digital literacies. In part because of how standards address digital literacies, there are no clear policies ensuring that Pre-K-12 educators have the support, resources, and skills they need to leverage digital literacies in designing day-to-day curricula. Similarly, while policies address the development of school leaders for ends such as increasing student achievement, they fail to address the development of leadership capacity to support the development of digital literacies. Yet, leadership and vision at the school and district levels in this field are crucial for the curricular implementation needed to develop digital literacies. Moreover, even if policies explicitly address digital literacies, provide support to educators, and provide for the development of leaders, a technological infrastructure must be in place that enables access for learners of all ages–an infrastructure that bridges the "digital divide." Yet, no such infrastructure is in place. Finally, although we are developing knowledge about digital literacies, we need to develop more knowledge more quickly. Given the changing nature of digital literacies and the relatively little research to date, more knowledge is needed to guide policies at national, state, and local levels.

Coordinated changes in policy should significantly increase access to and improvement of digital literacies instruction and learning. In other words, such changes should equitably support digital literacies development for all learners. Based on a review of research related to digital literacies, this policy brief identifies five action items related both to supporting the development of digital literacies through improving literacies instruction and to increasing access to digital literacies for all learners:

Action 1: Promote *teaching and assessment* of digital literacies across grades and content areas as identified in state and national standards.

Action 2: Provide *professional development* experiences that ensure Pre-K-12 educators have support, resources, and skills to leverage digital literacies in designing day-to-day curricula.

Action 3: Build *leadership capacity across educational contexts* to allow for shared decision making that leads to equitable access to instructional supports and technologies for all learners.

Action 4: Provide structural and financial support that enables *equitable access* to instruction and technologies related to digital literacies for all learners in schools, in communities, and in families.

Action 5: Collaborate in and support the development of needed *research* in digital literacies.

Inequalities in Digital Literacies

In describing the inequalities in digital literacies development for people in the U.S., Kimberly Gomez, Brigid Barron, and Nichole Pinkard[8] evoke the notion of a digital Matthew effect, the idea that the digital literacies divide widens over time between those with early opportunities to develop digital literacies and those without early opportunities. Just as traditional measures of reading comprehension have identified persistent divides between white and non-white students with access to economic resources and those without access,[9] the most current research indicates similar divides when measuring online reading and research.[10] The presence of these inequalities in digital literacies development and the recognition that they will persist and widen over lifetimes, points to the necessity of addressing digital literacies development early and systematically.

The inequalities in students' digital literacies can be highlighted in several different ways, including students' development of digital literacies and the associated learning opportunities students have. If students are not given access to high quality learning experiences involving digital tools and technologies, they have a lower chance of experiencing significant development of digital literacies.

One way to describe the development of digital literacies is as a process involving three stages:[11]

digital competence denotes skills, concepts, approaches, and dispositions toward digital texts and tools
digital usage refers to the application of digital competence within a specific context (such as school, after-school activities, work, recreation, etc.)
digital transformation identifies digital usage that enables innovation and creativity within a domain

These developmental stages are not intended as mutually exclusive categories nor ones that a learner must move through sequentially. Further, even for individuals, aspects of digital competence, usage, and transformation will differ within different domains (e.g., professional, academic, recreational). But these developmental stages do help us to consider the breadth of competencies associated with digital literacies learning. To this end, below we have organized a snapshot of recent research related to digital literacies competencies across all three stages. The purpose of this snapshot is to paint a picture of the ways in which digital literacies currently intersect with teaching, learning, equity, and access in the lives of young people in the U.S.

Digital Competence

- 96% of teachers agree (including 52% who strongly agree) that digital technologies "allow students to share their work with a wider and more varied audience."
- National Writing project teachers reported disparate access to and skill with digital tools among their students.
- 50% of surveyed teachers (across all subjects) say the internet and digital tools make it easier for them to teach writing.[12]
- Offline reading comprehension scores are significantly correlated with online reading comprehension scores.[13]

Digital Usage

As of 2013,

- 95% of teens access the Internet.
- 78% of teens own a cell phone.
- 93% of teens own or have access to a computer.

8 Kimberly Gomez, Brigid Barron, and Nichole Pinkard, "Introduction: The Digital Media Landscape."
9 National Center for Education Statistics, *The Nation's Report Card: A First Look: 2013 Mathematics and Reading* (Washington, DC: Institute of Education Sciences, U.S. Department of Education, 2014). Retrieved March 19, 2015 from http://nces.ed.gov/nationsreportcard/subject/publications/main2013/pdf/2014451.pdf.
10 Donald J. Leu, Elena Forzani, Chris Rhoads, Cheryl Maykel, Clint Kennedy, and Nicole Timbrell, "The New Literacies of Online Research and Comprehension: Rethinking the Reading Achievement Gap," *Reading Research Quarterly* 50, no. 1 (2014): 37-59.
11 Allan Martin and Jan Grudziecki, "DigEuLit: Concepts and Tools for Digital Literacy Development," *Innovation in Teaching and Learning in Information and Computer Sciences* 5, no. 4 (2006): 249-267.
12 Pew Internet and American Life Project, *Pew Research Center* (2013). Retrieved March 10, 2015 from http://www.pewinternet.org.
13 Julie Coiro, "Predicting Reading Comprehension on the Internet: Contributions of Offline Reading Skills, Online Reading Skills, and Prior Knowledge," *Journal of Literacy Research* 43, no. 4 (2011): 352-392.

- 81% of teens use some kind of social media.[14]

However, only

- 47% of low-income households have broadband access at home.
- 37% of teachers of low-income students use tablet computers.
- 35% of teachers of lower-income students say their students use cell phones as a learning device in class.[15]

Digital Transformation

- More than 200 million users share 60 million photos per month on Instagram.
- 100 hours of video are uploaded to YouTube every minute.
- 95% of teachers from the National Writing project have students research online.

However, only

- 29% edit others work or provide feedback using a collaborative web based tool like Google docs.
- 22% post their work online where people other than their classmates can read it.[16]

This data snapshot clearly identifies perhaps the most relevant finding for policy makers related to digital literacies learning and development: Nearly all young people are engaging in activities that involve digital literacies, but access to high quality learning experiences with up-to-date digital tools and technologies is highly unequal. It is precisely this access to digital literacies learning that students most need in order to develop competencies for career preparation and civic engagement.

Additionally, there seem to exist disparities between young people's engagements with digital technologies outside of school (i.e., significant engagement) and with opportunities to learn and engage with digital technologies inside of school (i.e., little to no engagement). Just as the Common Core State Standards have focused on developing students who are college and career ready, researchers argue that students also need to be networked for a globalized world.[17] Several studies have documented the types of digital practices students engage in outside of school.[18] However, these practices are not often congruent with current classroom practice.[19]

To overcome these disparities and to concertedly and collaboratively work to improve equity and access for all learners to digital literacies learning, we need clear policies to help guide teaching and learning, professional development, leadership, infrastructure building, and research.

Nearly all young people are engaging in activities that involve digital literacies, but access to high quality learning experiences with up-to-date digital tools and technologies is highly unequal.

14 Pew Internet and American Life Project, *Pew Research Center* (2012). Retrieved March 10, 2015 from http://www.pewinternet.org.

15 Digital Youth Network, *Digital Literacy is the New Literacy*. Retrieved March 10, 2015 from http://digitalyouthnetwork.org/.

16 Pew Internet and American Life Project, *Pew Research Center* (2012). Retrieved March 10, 2015 from http://www.pewinternet.org.

17 Linda Darling-Hammond, *The Flat World and Education: How America's Commitment to Equity Will Determine Our Future* (New York, NY: Teachers College Press, 2010).

18 For example, see Danah Boyd, *It's Complicated: The Social Lives of Networked Teens* (New Haven, CT: Yale University Press, 2014); Glynda A. Hull and Mark E. Nelson, "Locating the Semiotic Power of Multimodality," *Written Communication* 22, no. 2 (2005): 224-261; Mizuko Ito, Sonja Baumer, Matteo Bittanti, Danah Boyd, Rachel Cody, Becky Herr-Stephenson, Heather A. Horst, Patricia G. Lange, Dilan Mahendran, Katynka Z. Martínez, C. J. Pascoe, Dan Perkel, Laura Robinson, Christo Sims, and Lisa Tripp, *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media* (Cambridge, MA: MIT Press, 2010).

19 Amy Hutchison and David Reinking, "Teachers' Perceptions of Integrating Information and Communication Technologies Into Literacy Instruction: A National Survey in the United States," *Reading Research Quarterly* 46, no. 4 (2011): 312-333.

Action 1: **Promote teaching and assessment of digital literacies across grades and content areas as identified in state and national standards.**

All of the state and national standards documents that guide K-12 instruction nationally and in Illinois identify digital literacies as an expected element of instruction across content areas and grade levels. However, these digital literacies standards are not stand-alone statements disconnected from other content requirements.[20] Rather, digital literacies principles are woven into and embedded in other standards and are also sometimes written in language that may be difficult for teachers and administrators to identify as explicitly related to digital literacies. For example, the Common Core State Standards authors note that "to be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and nonprint texts in media forms old and new."[21] This statement emphatically and explicitly calls for digital literacies instruction to be embedded throughout content areas and grade levels, but using language such as "life in a technological society" and "range of print and nonprint texts in media forms old and new" may obscure the message that digital literacies instruction is explicitly required as an essential element of everyday instruction in all content areas and grade levels.

Because digital literacies elements are embedded across standards and because the language of the standards can obfuscate the focus on principles of digital literacies instruction, teachers and administrators may interpret standards with embedded digital literacies elements as not requiring digital literacies instruction or multimedia and multimodal texts.[22] And while revising standards to use language that makes it more clear that digital literacies instruction is expected across grade levels and content areas would be beneficial, current standards already explicitly require the integration of digital literacies elements in all grade levels and content areas.

It is outside the scope of this brief to identify all of the standards related to digital literacies across state and national standards documents, but below we provide several examples,

Standards document	Example standard	Alignment with digital literacies
Common Core State Standards, College and Career Readiness Anchor Standards for Reading, K-5[23]	7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.	• evaluate visual content • diverse media and formats
Next Generation Science Standards, Dimension 1: Scientific and Engineering Practices[24]	8. Obtaining, Evaluating, and Communicating Information	• communicate ideas using multimodal texts • derive meaning from multimodal and multimedia texts • evaluate and integrate information learned from scientific texts
Illinois Learning Standards: Fine Arts, Foreign Languages, Physical Development & Health, and Social Sciences[25]	Using Technology	• use digital equipment and tools to access information, process ideas, and communicate results • prepare for career-readiness through use of computers, synthesizers, film, and video • technology connects classroom students to global audiences
College, Career & Civic Life C3 Framework for Social Studies State Standards[26]	Suggested K-12 Pathway for College, career, and Civic Readiness Dimension 4, Communicating Conclusions and Taking Informed Action	• present arguments using digital technologies and multiple media • present information visually

20 Common Core State Standards Initiative, *Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects* (Common Core State Standards Initiative, 2010), 4. Retrieved March 10, 2015 from http://www.corestandards.org/ELA-Literacy.

21 Ibid.

22 Paul Barnwell, "The Common Core's Digital-Literacy Gap," *Education Week* (2012, August 22). Retrieved March 10, 2015 from http://www.edweek.org/tm/articles/2012/08/22/barnwell_digital.html.

23 Common Core State Standards Initiative, *Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects,* 10.

24 National Research Council, National Science Teachers Association, American Association for the Advancement of Science, and Achieve, *Next Generation Science Standards, Appendix F: Science and Engineering Practices in the NGSS* (2013). Retrieved March 10, 2015 from http://www.nextgenscience.org/next-generation-science-standards. Additionally, the Next Generation Science Standards include Common Core State Standards literacy connections for each standard at each grade level. These connections include interpreting and producing diverse text formats and media.

25 Illinois State Board of Education, *Illinois Learning Standards* (1997). Retrieved March 10, 2015 from http://www.isbe.net/ils/.

26 National Council for the Social Studies (NCSS), *The College, Career, and Civic Life (C3) Framework for Social Studies State Standards: Guidance for Enhancing the Rigor of K-12 Civics, Economics, Geography, and History* (Silver Spring, MD: NCSS, 2013). Retrieved March 10, 2015 from http://www.socialstudies.org/system/files/c3/C3-Framework-for-Social-Studies.pdf.

across content areas, standards documents, and grade levels. The purpose of this chart is to give examples of the breadth of digital literacies learning principles required in standards documents and to make clear that policy makers must promote the inclusion of digital literacies across grades and content areas as identified in national and state standards documents.

Because the standards are clear that digital literacies are expected across all grades and content areas, the following actions, if taken, will promote the teaching and learning of digital literacies in schools and communities.

1.1 Identify and distribute appropriate digital literacies curricula materials that focus on evolving skills and practices that enable productive inquiry.

Because technologies and tools will continue to change and evolve, digital literacies instruction cannot focus on static knowledge regarding the use of available tools. Rather, digital literacies instruction must focus on supporting students in acquiring competencies that can adapt to new circumstances and to ever-changing technologies.[27] Access to digital literacies curricula that prepare young people to "communicate, produce, and design with technology"[28] rather than merely connect socially or consume media is particularly important for students in under-resourced communities, many of whom do not otherwise have access at home or in the community to opportunities to learn and engage in adaptable digital literacies competencies. Several professional and educational organizations have prepared curriculum guides and standards alignment documents that comprehensively identify national standards that map onto digital literacies principles and provide materials for teaching digital literacies across grade levels and content areas. As examples, see Common Sense Media's "Alignment and Standards: Standards Alignment in the K-12 Digital Literacy and Citizenship Curriculum,"[29] National Council of Teachers of English's (NCTE) "Framework for 21st Century Curriculum and Assessment,"[30] or the National Association for Media Literacy Education's (NAMLE) "Media Literacy Education and the Common Core State Standards."[31] These and other curriculum guides represent the kinds of resources that would support teachers in focusing instruction on areas that will have the most impact for digital literacies learning. Additionally, because these curriculum guides are aligned to standards documents, teachers will both recognize the otherwise potentially obfuscated need to address digital literacies and will be able to validate their choices to focus on digital literacies instruction to administrators, parents, and students. Getting these kinds of resources, which are readily available, into the hands of teachers should be a priority.

1.2 Empower teachers, schools, and districts to use formative assessments that improve instruction related to digital literacies.

High quality and effective digital literacies instruction, of the kind described above, is only possible if teachers, schools, and districts are empowered to assess learning, capacity, and student digital literacies development utilizing assessment tools in addition to existing standardized assessments. The Partnership for Assessment of Readiness for College and Careers (PARCC) assessments,[32] rolling out for the first time during the 2014-2015 school year, include digital literacies competencies as an element of mathematics and language arts assessments. For example, in terms of the test format and structure there is an expectation of low-level digital competence (e.g., digital tools for responding to questions), but there are no task items connected to digital competence. It also appears that digital usage will be assessed in a

27 Donald J. Leu, Jr., "Caity's Question: Literacy as Deixis on the Internet," *Reading Online* (1999, July). Retrieved March 10, 2015 from http://www.readingonline.org/electronic/rt/caity.html.

28 Kimberly Gomez, Brigid Barron, and Nichole Pinkard, "Introduction: The Digital Media Landscape," 3.

29 Common Sense Media, Inc., *Alignment and Standards: Standards Alignment in the K-12 Digital Literacy and Citizenship Curriculum*. Retrieved March 10, 2015 from https://www.commonsensemedia.org/educators/classroom-curriculum/alignment.

30 National Council of Teachers of English, *NCTE Framework for 21st Century Curriculum and Assessment* (2013). Retrieved March 10, 2015 from http://www.ncte.org/positions/statements/21stcentframework.

31 David C. Moore and Emily Bonilla, *Media Literacy Education and The Common Core State Standards* (National Association for Media Literacy Education, 2014). Retrieved March 10, 2015 from http://namle.net/wp-content/uploads/2013/12/NAMLEMLECCSSGUIDE.pdf.

32 See http://parcconline.org.

Because state- and national-level standardized tests have led to a narrowing of curriculum and learning opportunities in classrooms, national assessments based on standards must include items and tasks connected to digital literacies. If they do not, students will continue to be disadvantaged.

limited way (e.g., tasks that require making meaning from multiple texts across multiple media). But expecting digital competence from test takers and assessing digital usage, however deeply, still does not address assessment of digital transformation—of the ways in which students are innovative and creative within domains with digital tools and technologies.

It is clear that teachers, schools, and districts will need additional data to inform and target instruction to identified gaps in students' digital literacies learning opportunities. For example, teachers, schools, and districts will want to know which students have not yet had experience producing digital texts, critically interpreting multiple media, or utilizing mobile devices for scientific data collection. Additionally, teachers, schools, and districts will want to measure competencies acquired during digital literacies learning opportunities at home, in community settings, and in schools.

To create assessments that can guide instruction in this way, teachers, schools, and districts should be given space, opportunity, and resources to develop and implement local, formative assessments. Formative assessment, which is "a planned process in which assessment-elicited evidence of students' status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics,"[33] can best address measurement of digital literacies competencies that are not accounted for in current standardized testing. Further, teachers and students can quickly adjust instructional and learning practices based on formative assessment results. In order to support this effort, teachers should be given resources to support the creation and implementation of formative assessments. Model assessments of digital literacies competencies have been developed that teachers can use. For example, the Online Research and Comprehension Assessments (ORCAs),[34] developed at the University of Connecticut, are available to teachers to use with their students. ORCAs are problem-based scenarios that engage middle school students in online information requests and measure students' digital literacies performance. In addition to utilizing model assessments such as ORCAs, we urge teachers, schools, and districts to develop assessments that make possible more complex representations of students' digital literacies beyond comprehension of reading online. Specifically, assessments are needed that take into account innovation and creativity with digital texts, technologies, and tools (i.e., digital transformation).[35]

1.3 Ensure that all national, state, and local assessments based on standards include items and tasks connected to digital literacies.

While empowering teachers, schools, and districts to create and implement formative assessments that guide

33 W. James Popham, Transformative Assessment (Alexandria, VA: ASCD, 2008), 6.

34 Donald J. Leu, Elena Forzani, Chris Rhoads, Cheryl Maykel, Clint Kennedy, and Nicole Timbrell, "The New Literacies of Online Research and Comprehension: Rethinking the Reading Achievement Gap." See also www.orca.uconn.edu.

35 Allan Martin and Jan Grudziecki, "DigEuLit: Concepts and Tools for Digital Literacy Development," *Innovation in Teaching and Learning in Information and Computer Sciences* 5, no. 4 (2006): 249-267.

instruction will improve equity and access to digital literacies learning opportunities at the classroom level, this effort will not ensure that national and state assessments based on standards include items and tasks related explicitly to digital literacies. Because state- and national-level standardized tests have led to a narrowing of curriculum and learning opportunities in classrooms,[36] national assessments based on standards must include items and tasks connected to digital literacies. If they do not, students will continue to be disadvantaged. For example, Darling-Hammond[37] argued, "Students in schools that organize most of their efforts around the kinds of low-level learning represented by most widely used tests are profoundly disadvantaged when they need to engage in the extensive writing, critical thinking, and problem solving required in college and the workplace."[38] This is all the more true when instruction in preparation for these standardized tests does not include access to digital literacies technologies, tools, and dispositions but focuses instead on narrow or static knowledge of technology or digital practices that is likely to change. It remains to be seen how the PARCC assessments will explicitly integrate digital literacies competencies, but however that looks, policy makers need to clearly articulate and doggedly pursue a change to all standardized assessments so that they include items and tasks connected to digital literacies.

***Action 2:* Provide *professional development* experiences that ensure Pre-K-12 educators have support, resources, and skills to leverage digital literacies in designing day-to-day curricula.**

For any school-based initiative to be understood and implemented, adequate professional development is necessary. Educators are the key change agent for student success. To build support for teacher practice, professional development experiences need to be systematically implemented, sustained, and ongoing. Effective professional development is multi-tiered and focuses on affecting beliefs, knowledge, change in individual practice, and cohesive implementation.[39] The types of professional development that we advocate span preservice teachers, advance degree and certification programs, in-school professional development, professional learning communities, and self-driven professional development with a goal to develop teachers' technological pedagogical content knowledge (TPACK).[40]

2.1 Align teacher licensure and program accreditation requirements to standards that address digital literacies.

Starting early in preservice teacher preparation, teacher candidates need

Starting early in preservice teacher preparation, teacher candidates need guidance to infuse digital literacies into their instruction.

36 Sheila W. Valencia and Karen K. Wixson, "Policy-oriented Research on Literacy Standards in Assessment." In Michael L. Kamil, Peter B. Mosenthal, P. David Person, and Rebecca Barr (Eds.), Handbook of Reading Research Vol. 3 (Mahwah, NJ: Erlbaum, 2000): 909-935.

37 Linda Darling-Hammond, The Flat World and Education: How America's Commitment to Equity Will Determine Our Future.

38 Ibid., 282.

39 Laura M. Desimone, "Improving Impact Studies of Teachers' Professional Development: Toward Better Conceptualizations and Measures," Educational Researcher 38, no. 3 (2009): 181-199; Thomas R. Guskey, "Professional Development that Works: What Makes Professional Development Effective?" Phi Delta Kappan 84, no. 10 (2003), 748.

40 Punya Mishra and Matthew J. Koehler, "Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge," Teachers College Record 108, no. 6 (2006): 1017-1054.

If teachers are to instruct and support students' development of digital competencies then they need opportunities to develop their own competencies.

guidance to infuse digital literacies into their instruction. The most direct way to ensure digital literacies are a part of preservice teacher preparation is to have digital literacies standards aligned to program and certification requirements. Currently, the Illinois Professional Teaching Standards[41] contain nine overarching standards and several knowledge and performance indicators under each individual standard. For example, under Standard 5, "Instructional Delivery," there are eight knowledge indicators and 11 performance indicators. Only Knowledge Indicator 5C, "the competent teacher knows how to implement effective differentiated instruction through the use of a wide variety of materials, technologies, and resources,"[42] explicitly addresses digital literacies. The standards themselves make limited mention of digital literacies competence for preservice teachers. Therefore, these types of standards need to be explicitly foregrounded in preservice teacher preparation. It would be productive to not simply offer stand-alone educational technology courses but also to intentionally weave digital literacies instruction and practices in all pedagogy courses.

Groups have begun to create frameworks for developing digital literacies competencies. For example, the International Society for Technology Education (ISTE) has a series of standards for teachers, students, administrators, and coaches (i.e., instructional, technology, and literacy coaches).[43] And the non-profit Mozilla Foundation has begun a collaborative effort to develop a web literacy map[44] (i.e., a map of the skills and competencies needed for reading, writing and participating on the web) that preservice teachers could benefit from as integrated into their teaching materials.

2.2 Provide professional development experiences for all educators that prepare them to leverage the affordances of current and future technologies for learning as they design day-to-day curricula.

Because digital texts and tools evolve so rapidly, practicing teachers deserve sustained professional development in the area of digital literacies. A nationwide survey of practicing teachers revealed that teachers reported low levels of technology integration in their curriculum as well as obstacles to technology integration.[45] This suggests that teachers need far greater support than they receive. This support can come in a number of forms.

One potential avenue for providing robust support is through the use of job-embedded coaching.[46] Coaching could take many forms, including providing technology coaches to build capacity at the building level by

41 Illinois State Board of Education, Illinois Professional Teaching Standards (2013). Retrieved March 10, 2015 from http://www.isbe.net/peac/pdf/IL_prof_teaching_stds.pdf.
42 Ibid., 4.
43 International Society for Technology in Education (ISTE), ISTE Standards. Retrieved March 10, 2015 from http://www.iste.org/standards.
44 Mozilla, Mozilla Webmaker, Web Literacy Map – 1.1.0. Retrieved March 10, 2015 from https://webmaker.org/en-US/literacy.
45 Amy Hutchison and David Reinking, "Teachers' Perceptions of Integrating Information and Communication Technologies Into Literacy Instruction: A National Survey in the United States."
46 Jim Knight, Instructional Coaching: A Partnership Approach to Improving Instruction (Thousand Oaks, CA: Corwin, 2007).

specifically connecting technology coaching with literacy coaching or instructional coaching. A second avenue is to connect digital mentors with teachers. Examples of digital mentors include the Convergence Academies in Chicago[47] where digital media artists work side-by-side with teachers to create units of instruction that integrate digital media arts into the curriculum.

A third possibility is to create professional learning opportunities akin to the National Writing Project[48] where teachers become digital curators and creators with support from fellow teachers. If teachers are to instruct and support students' development of digital competencies then they need opportunities to develop their own competencies. Teachers need opportunities and time to construct media, to play, to think about how technologies function, and how to engage with them personally and pedagogically.

Ultimately, professional development for practicing teachers in the area of digital literacies should empower teachers to make design choices with their curricula so that as technologies change, curricular change can remain fluid. When teachers received substantial professional development (an average of 49 contact hours spread over six to twelve months) they were able to boost their students' achievement scores an average of 21 percentage points. Sporadic or low dose professional development (5 to 14 hours total) correlated to no statistically significant effects on student achievement.[49] Thus, professional development opportunities for digital literacies should be sustained and coherent.

2.3 Fund and pilot new credentialing systems for educators at all levels that recognize the changing nature of technologies and changing roles of educators in teaching and supporting student learning.

In addition to professional development opportunities, teachers would benefit from opportunities to acquire additional credentials for gaining digital competencies. Credentialing systems can be formal or informal. Examples of formal credentialing include certificates of graduate study or certifications from technology companies like Google. These types of formal certifications require additional coursework or time in training. Because they are at the formal institutional level there are specific parameters to obtain additional credentials. As such, we recommend multiple pathways for educators to learn and share their specialized knowledge about digital literacies. Some possibilities are to create partnerships with different learning networks throughout the state in order to leverage resources for digital literacies learning. One example is the Hive Chicago Learning Network,[50] a network of youth-serving civic, cultural, and educational institutions focused on supporting Connected Learning[51] experiences for youth in Chicago. Through its School-Hive Connections working group,[52] Hive Chicago is bridging network resources for digital literacies learning with classroom teachers and schools through online and face-to-face professional development opportunities. These types of partnerships provide opportunities for teachers to access innovative tools and technologies for teaching and to showcase to the network and to their peers what is working in their practice and what can be replicated. Additionally, regional events around the state that link teachers with colleges and universities can provide opportunities for learning and professional development. One and two day events with partnerships between school districts and institutions of higher education afford opportunities to showcase teachers' practice and connect with the latest developments in research and pedagogy. Finally, we advocate for ways to connect teachers online and through social media. Connected Learning TV[53] is an example of a national effort to showcase promising digital literacies practices. Funding for local offshoots of connected web-based learning opportunities could connect teachers across the state. Regardless of the type of

47 See http://convergenceacademies.org/.

48 See www.nwp.org.

49 Linda Darling-Hammond, Ruth Chung Wei, Alethea Andree, Nikole Richardson, and Stelios Orphanos, "State of the Profession: Study Measures Status of Professional Development," Journal of Staff Development 30, no. 2 (2009), 42.

50 See http://hivechicago.org.

51 Mizuko Ito, Kris Gutiérrez, Sonia Livingstone, Bill Penuel, Jean Rhodes, Katie Salen, Juliet Schor, Julian Sefton-Green, and S. Craig Watkins, Connected Learning: An Agenda for Research and Design (Irvine, CA: Digital Media and Learning Research Hub, 2013).

52 See http://hivechicago.org/moonshot/hive-school-connections/.

53 See http://connectedlearning.tv.

While certain filters may be required for schools, we advocate that shared decision-making be open and transparent when filtering or blocking websites.

credentialing, teachers who pursue professional development related to digital literacies instruction should be formally recognized as technology leaders in their schools and districts.

2.4 Fund and encourage partnerships among universities, community colleges, schools, communities, school district consortiums, and regional networks to pool resources and broaden opportunities for educator learning.

As stated in the previous section, we recommend greater cooperation between university, community colleges, school district consortiums, and regional networks to integrate digital literacies as a part of college and career readiness. If we consider digital literacies as a set of emerging competencies rather than all-or-nothing skillsets, then partnerships across grade levels from Pre-kindergarten through college are vital. One example of a sustained collaboration is the Alliance for College Readiness through Elgin Community College and their local feeder districts.[54] This is one example of the types of possibilities to also infuse digital literacies as a critical element of college and career readiness as well as leverage digital literacies as a mechanism for more partnerships Pre-K-16.

***Action 3:* Build leadership capacity across educational contexts to allow for shared decision-making that leads to equitable access to instructional supports and technologies for all learners.**

Any curricular implementation needs to have a clear vision that is guided by strong leadership. In this section we propose that Pre-K-12 school leadership capacity in the area of digital literacies needs to be expanded. First, institutions need to provide more access and equity to digital technologies. School leaders, community, and state leaders can provide unified leadership and access to digital technologies for schools and the communities they serve. Second, preparation of school leaders should include digital literacies as a core component of preparations. Third, policies should be crafted that expand access to personal and school provided technology to ensure inclusion in day-to-day learning activities. The following action items address the powerful role school leaders play in promoting and ensuring digital literacies instruction.

3.1 Urge school, district, state, and community leaders to implement shared decision-making with regard to any efforts to block or curtail access to technologies.

Access to the Internet and websites is critical for teaching and learning. While certain filters may be required for schools, we advocate that shared decision-making be open and transparent when filtering or blocking websites. These decisions should be made by committees with input from all stakeholders including students. While blocking internet sites like YouTube or Twitter may seem to create more safe environments, impediments to their use can create more issues. First, many students have access to cellular data that can override a district block filter granting access anyways. This

54 See http://elgin.edu/community.aspx?id=2664.

then can encourage students to break school rules leading to more of a disciplinary focus on digital use rather than creating instructional opportunities. Second, blocking sites wholesale that include useful content can send an unintentional message that students are not to be trusted. Keeping sites open can lead to more opportunities to teach to students how to responsibly and safely navigate the web. Third, blocking of sites can also hamper teachers' efforts to construct and share robust digital literacy lessons and curricula.

There are examples of schools that have empowered students to access the internet along with more responsible participation. Leyden High School[55] has been featured nationally as a leader in fostering more connected learning. Their principal has incorporated ways to mentor students in digital environments like Twitter. Each week, students have access to the school Twitter handle and tweet their activities and experiences through the hashtag #leydenpride. Students are granted more voice and participation in a safe and mentored way rather that through wholesale blocking of a site.

We propose that whenever possible, access to the Internet remain open with instructional supports and monitoring rather than banning. A critical part of preparing students to be college and career ready is they need to be ready for the digital demands of college and the workforce. Decisions should be curricular, not simply the purview of network managers.

3.2 Ensure that preparation programs for leaders of learning organizations at all levels include digital literacies as an essential element of day-to-day learning and instruction and identify structures and practices that promote inquiry with and equitable access to technologies.

School leaders also need to be proficient in digital technology use in order to lead students and staff. Research demonstrates that specific leadership characteristics affect student achievement outcomes: focused instruction, professional community, shared leadership, instructional leadership, and trust in principal (as caring, ethical, and competent). When combined, they are positively related to student achievement outcomes.[56] In order to provide instructional leadership and build competence, school leaders, like teachers, need sustained and coherent professional development around digital learning. School leaders can also promote digital literacies learning by recognizing areas in which they lack expertise and inviting teachers to lead. By empowering teachers who already effectively employ technologies in their teaching, school leaders can distribute leadership to exert upward and horizontal influences on school capacity for digital literacies instruction and learning.

3.3 Promote policies at the school, district, community, and state levels that explicitly allow for personal and provided technologies as part of day-to-day learning and instruction.

While on the surface it may seem intuitive to protect students online by limiting in-school access, the result may lead to further gaps in access and achievement in reading online. A recent study found that reading achievement gaps between low and high income students on offline reading measures are also found with online reading tasks.[57] Schools cannot afford to focus solely on offline reading as students who are behind suffer a second consequence of being behind in their online reading as well. Policies that explicitly allow and support technology use are critical.

School leaders can forward policies that allow for personal devices such as cell phones and tablets as well as provide access to tablets and laptops. Such policies can benefit students' online reading achievement by providing more opportunities for online reading instruction. Second, when school and institutions provide access to technology devices, it may help mitigate technology access issues that do exist.[58]

***Action 4:* Provide structural and financial support that enables equitable access to instruction and technologies related to digital literacies for all learners in schools, in communities, and in families.**

55 See www.leyden212.org.

56 Karen S. Louis, Beverly Dretzke, and Kyla Wahlstrom, "How Does Leadership Affect Student Achievement?: Results From a National US Survey," School Effectiveness and School Improvement 21, no. 3 (2010): 315-336.

57 Donald J. Leu, Elena Forzani, Chris Rhoads, Cheryl Maykel, Clint Kennedy, and Nicole Timbrell, "The New Literacies of Online Research and Comprehension: Rethinking the Reading Achievement Gap."

58 Pew Internet and American Life Project, *Pew Research Center* (2012). Retrieved March 10, 2015 from http://www.pewinternet.org.

While the thrust of this brief has focused on digital literacies in the context of schools and school students, equitable access to learning opportunities with digital tools and technologies requires technological infrastructures that enable access for learners of all ages, children to adults, in schools, in homes, and in communities. The primary takeaway for policy makers from recent research into access to technology is that what was known as the "digital divide"—the difference in homes, communities, and schools between those who had physical access to a computer and those who did not—is less of an issue than it was ten years ago.[59] The current digital divide is around access to high quality opportunities to learn with new technologies. This new digital divide exists for two reasons: First, even when technologies are physically available, they may not be used;[60] and second, access to technologies does not ensure learning how to use technologies to leverage competencies for work and civic engagement in the twenty first century. For students in under-resourced communities, this digital divide is stark. For example, Margolis et al.[61] found that even though students in under-resourced communities in Southern California took computer classes, these classes focused on static skill building and low-level experiences with computers. The divide also plays out in students' preparedness to conduct research and comprehend when reading online.[62]

Homes are an important site to consider as hubs of digital literacies learning. While internet access in the U.S. is increasingly available via mobile devices such as smartphones (56% of American adults own a smartphone), internet access at home continues to be the primary way that Americans connect online.[63] And there is a large gap in access to the internet in homes with lower household income (32% of all households with incomes of less than $15,000 have broadband access compared to 90% of households with incomes over $150,000).[64] Additionally, parents have a significant impact on children's and youth's digital literacies learning by providing technologies, tools, resources for learning, and technical and non-technical support.[65] Because many children and youth do not have access to families that can support digital literacies learning, policy makers can have a significant impact on improving access by funding infrastructures in homes, communities, and schools as identified below.

4.1 Fund infrastructure that enables equitable access to instruction and technologies related to digital literacies for young children and families at preschools, child care centers, Head Start programs, and other early childhood learning sites.

Adolescents are not unique in engaging with digital literacies in multiple ways out of school and having little to no access to digital literacies in school. Young children (0-6 year olds) are also highly engaged and agentive in digital literacies while away from preschool (e.g., 83% use screen media, 77% turn on the TV by themselves and 67% ask for particular shows, 33% use the computer by themselves and 12% ask for specific websites)[66] but have little to no access to digital literacies learning in preschool settings, even when technologies are present.[67] Policy recommendations[68] and a joint position statement from the National Association for the Education of Young Children and the Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College[69] argue that

59 For example, see Mark Warschauer, Laptops and Literacy: Learning in the Wireless Classroom (New York, NY: Teachers College Press, 2006).

60 Kevin M. Leander, Nathan C. Phillips, and Katherine Headrick Taylor, "The Changing Social Spaces of Learning: Mapping New Mobilities," Review of Research in Education 34, no. 1 (2010), 329-394; Mark Warschauer and Tina Matuchniak, "New Technology and Digital Worlds: Analyzing Evidence of Equity in Access, Use, and Outcomes," Review of Research in Education 34, no. 1 (2010), 179-225.

61 Jane Margolis, Stuck in the Shallow End: Education, Race, and Computing (Cambridge, MA: MIT Press, 2008).

62 Donald J. Leu, Elena Forzani, Chris Rhoads, Cheryl Maykel, Clint Kennedy, and Nicole Timbrell, "The New Literacies of Online Research and Comprehension: Rethinking the Reading Achievement Gap."

63 Pew Internet and American Life Project, *Pew Research Center* (2012). Retrieved March 10, 2015 from http://www.pewinternet.org.

64 Economics and Statistics Administration and National Telecommunications and Information Administration, Exploring the Digital Nation: Computer and Internet Use at Home (Washington, DC: U.S. Department of Commerce, 2011). Retrieved March 10, 2015 from http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_computer_and_internet_use_at_home_11092011.pdf.

65 Kimberly Gomez, Brigid Barron, and Nichole Pinkard, "Introduction: The Digital Media Landscape"; Kevin M. Leander, Nathan C. Phillips, and Katherine Headrick Taylor, "The Changing Social Spaces of Learning: Mapping New Mobilities."

66 Victoria J. Rideout, Elizabeth A. Vandewater, and Ellen A. Wartella, Zero to Six: Electronic Media in the Lives of Infants, Toddlers and Preschoolers (Menlo Park, CA: Kaiser Foundation, 2003). Retrieved March 10, 2015 from http://files.eric.ed.gov/fulltext/ED482302.pdf.

67 Karen E. Wohlwend, "A is for Avatar: Young Children in Literacy 2.0 Worlds and Literacy 1.0 Schools," Language Arts 88, no. 2 (2010): 144-152.

68 Ibid.

69 National Association for the Education of Young Children (NAEYC) and Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College, Technology and Interactive Media as Tools in Early Childhood Programs Serving Children from Birth through Age 8 (Washington, DC: NAEYC, 2012). Retrieved March 10, 2015 from http://www.naeyc.org/content/technology-and-young-children.

young children in early childhood educational settings should have access to technology and interactive media that enable them to play, create, interact, and collaborate. Specifically, mobile devices are recommended as ideal tools in preschool settings because they are child-sized.

In early childhood settings, then, policy makers should fund infrastructure that would make engagements with digital literacies learning possible. Infrastructure includes not only tools, devices, internet access, and technologies, but also professional development and training for early childhood educators so that they have the capacity for and examples of successful practices for integrating digital literacies learning in early childhood educational settings.

4.2 Fund infrastructure that enables equitable access to instruction and technologies related to digital literacies in community settings available to children, youth, adults, and families.

One way of addressing disparities in access to digital literacies in homes and communities, as described above, is through funding infrastructure in community literacy settings available to children, youth, adults, and families. The Information Policy and Access Center[70] promotes *digital inclusion* as a concept for considering how public libraries do and can better address issues of opportunity and access at the level of policy. The Center's annual Digital Inclusion Survey focuses on evaluating ways that libraries promote digital inclusion within the communities they serve. Findings from the 2013 survey[71] indicate urban/rural divides in access to technologies, broadband, and training, with urban libraries making available more computers, higher bandwidth (over 100Mbps average download speed in city libraries, just over 21Mbps in rural libraries), and more training (77.6% of city libraries offer formal computer skills training compared to 32.5% of rural libraries). But 58.8% of all libraries report that budget constraints keep them from increasing bandwidth. While nearly all libraries offer training, the kinds of high-level digital literacies learning indicative of digital transformation[72] is far less common, with only one in 10 libraries offering training in website development, digital content creation, or cloud computing. Maker spaces, which are physical locations with resources for people to gather to work on digital and other media projects, sharing knowledge and resources, are located in 16.8% of public libraries with a significant divide between urban libraries (one in four) and rural libraries (one in 10).

Libraries clearly act as community centers for digital literacies resources and opportunities to learn. But even as use of libraries has increased (36% increase in

The current digital divide is around access to high quality opportunities to learn with new technologies.

70 Information Policy and Access Center (IPAC), 2013 Digital Inclusion Survey: Survey Findings and Results Executive Summary (College Park, MD: IPAC, 2014). Retrieved March 10, 2015 from http://digitalinclusion.umd.edu/sites/default/files/uploads/2013DigitalInclusionExecutiveSummary.pdf.

71 Ibid.

72 Allan Martin and Jan Grudziecki, "DigEuLit: Concepts and Tools for Digital Literacy Development," *Innovation in Teaching and Learning in Information and Computer Sciences* 5, no. 4 (2006): 249-267.

Libraries clearly act as community centers for digital literacies resources and opportunities to learn.

public use of technology classes during fiscal year 2011-2012, 58% increase in use of electronic resources, 60% increase in use of computers, 74% increase in Wi-Fi use), 57% of libraries reported flat or decreased funding.[73] All of this points to a decisive need for increased funding to public libraries for infrastructure, including the tools, technologies, and resources detailed in this section.

4.3 Fund infrastructure that enables equitable access to instruction and technologies related to digital literacies in schools.

A framework for addressing the gap we have identified related to young people's engagement in digital literacies outside of school compared with disengagement with digital literacies in school is presented in "Connected Learning: An Agenda for Research and Design."[74] There, the authors argue for learning that connects classroom, community, and home through integration of digital literacies and interest-driven learning in formal and informal settings in and out of school. Funding for infrastructure that supports connected learning efforts in schools will have a significant impact on improving access to digital literacies learning.

One promising development for nurturing connected learning in schools is the creation of *digital atelier*, or digital studio, spaces in two Chicago Public Schools. These digital studio spaces are one element of a whole-school reform initiative funded by an Investing in Innovation (i3) grant from the U.S. Department of Education to the Center for Community Arts Partnerships at Columbia College Chicago. The initiative, called Convergence Academies,[75] in collaboration with Chicago Public Schools, is building supports for digital literacies learning by integrating digital media and technology into curriculum and culture across entire schools. The digital atelier space, built into each school, "is a marriage of formal and informal learning within the culture and space of what we call school. It is a place for convergence that asks us to re-imagine learning spaces as fun, playful, and engaging."[76] Through a toolkit,[77] Convergence Academies provides resources for planning and creating digital atelier spaces in schools. We encourage policy makers to fund innovative efforts like this one to increase opportunities for digital literacies learning in schools.

4.4 Provide and promote opportunities for learners of all ages to access skills, opportunities, experiences, and knowledge to engage in full participation with digital literacies.

Although not exclusively an effort

73 American Library Association, U.S. Public Libraries Weather the Storm: Innovative Services Continue Despite Continuous Budget Cuts (Chicago, IL: American Library Association, 2012). Retrieved March 10, 2015 from http://www.ala.org/research/sites/ala.org.research/files/content/initiatives/plftas/issuesbriefs/issuebrief-weatherstorm.pdf.

74 Mizuko Ito, Kris Gutiérrez, Sonia Livingstone, Bill Penuel, Jean Rhodes, Katie Salen, Juliet Schor, Julian Sefton-Green, and S. Craig Watkins, Connected Learning: An Agenda for Research and Design.

75 See http://convergenceacademies.org/.

76 Archeworks, Toolkit for Planning a Digital Atelier (Chicago, IL: Archeworks, 2014), 16. Retrieved March 10, 2015 from http://convergenceacademies.org/2015/wp-content/uploads/2015/03/Toolkit-Digital-Atelier-Archeworks-New-Practice-team_sm.pdf.

77 Available at http://convergenceacademies.org/2015/wp-content/uploads/2015/03/Toolkit-Digital-Atelier-Archeworks-New-Practice-team_sm.pdf.

to support opportunities for digital literacies learning, Chicago City of Learning[78] is an example of the kind of city-wide effort policy makers should be supporting in order to promote digital literacies learning for all. Chicago City of Learning is a city-wide initiative to bring together learning opportunities for young people in a way that allows them to pursue interests. The initiative brings together more than 100 youth-serving organizations, many of them with focuses on digital literacies learning, in the city of Chicago to both promote access to learning across the city but also to create a city-wide digital badging platform. Digital badges, online representations of learned skills or achievements, can be earned and collected by anyone participating in Chicago City of Learning who completes specific training, programs, skills orientations, or learning pathways of other kinds developed by any of the participating youth-serving organizations. Chicago City of Learning uses Mozilla's Open Badges[79] infrastructure to create, issue, and display these badges, with the hope that they will gain currency on social networks and among employers and educational institutions. The goal is for badges to be recognized as evidence of learning that occurs anywhere and by learners of any age. While it remains to be seen whether or not digital badges will be recognized in this way across multiple systems of accreditation, credentialing, schooling, and learning, this kind of an innovative city-wide approach to supporting access for all learners to opportunities for digital literacies learning is precisely what cities, communities, neighborhoods, and policy makers at all levels should be providing and promoting.

Action 5: Collaborate in and support the development of needed research in digital literacies.

Policy and practice alike can and should be informed by research. Research is useful for instrumental purposes, conceptual insight, and political strategies. Collaborating on research and evaluation projects also offers policymakers and practitioners insights into the logic of research, which may ultimately inform their own work in new and useful ways.[80]

However, policymakers and practitioners do not always turn to research as much as to other resources to inform their work,[81] though not necessarily for lack of interest or desire,[82] and thus there is frequently a disconnect between research and policy/practice. As a result, research that is produced may have little to no practical utility outside of academia. Finding ways to bridge the divide is key to developing better policy and practice that are grounded in research evidence.

5.1 Engage with researchers in Illinois, nationally, and internationally to develop a coherent research agenda related to digital literacies for the children, youth, adults, and families of Illinois.

Given the changing nature of digital literacies and the relatively little research to date, there is a clear need for a depth and breadth of studies that examine digital literacies practices locally and globally as well as over short and long periods of time with individuals and communities.

78 See https://chicagocityoflearning.org.

79 See http://openbadges.org/.

80 Sandra M. Nutley, Isabel Walter, and Huw T.O. Davies, Using Evidence: How Research Can Inform Public Services (Britsol, UK: The Policy Press, 2007).

81 Janis Elliot, Arthur Emlen, Karen Tvedt, and Bobbie Weber, Research and Child Care Policy: A View from the States (Albany, OR: Oregon Child Care Research Partnership, 1999). Retrieved March 10, 2015 from http://health.oregonstate.edu/sites/default/files/sbhs/pdf/1999-Research-and-ChildCare-Policy.pdf.

82 Karen Bogenscheider and Thomas J. Corbett, Evidence-Based Policymaking: Insights from Policy-Minded Researchers and Research-Minded Policymakers (New York, NY: Routledge, 2010).

Illinois is home to the National Center for Supercomputing Applications, over 75 institutions of higher education, a robust network of community colleges, and nationally ranked K-12 schools. The potential for a digital literacies research agenda that is rigorous. Concerted efforts to bridge research and practice is vital to improving the lives of Illinois citizens. Digital literacies research in Illinois would benefit from local and statewide partnerships that center communities as an integral part of the research. Given the changing nature of digital literacies and the relatively little research to date, there is a clear need for a depth and breadth of studies that examine digital literacies practices locally and globally as well as over short and long periods of time with individuals and communities.

5.2 Develop a system for adequately funding research related to digital literacies.

Given a national focus on college and career readiness for the 21st century, it is pressing that research be funded to inform what it means to be digitally literate and how schools and communities can foster digital literacies learning for all. Conducting high quality research along these lines requires significant funding in order to be rigorous and impactful. The National Research Council's Policy Primer on Educational Research proposes six guidelines for rigorous educational research[83] that emphasize research that is carefully designed, rigorously tested, replicable, and disseminated widely. We urge policy makers to continue to fund rigorous research that meets these guidelines and is focused on a collaboratively identified research agenda related to digital literacies learning.

CONCLUSION

The action items presented here are intended to be treated interdependently rather than as a set of disparate items. Coordinated changes in policy could significantly increase access to and improvement of digital literacies instruction and learning. The coordination of these changes should be driven by the priorities of students, families, and communities rather than by special interests (e.g., technology companies, political groups, content providers). These recommendations have implications for all those involved in school and community instruction and learning including children, adolescents, and adults who interact daily with digital texts and technologies; teachers and instructors in school and community settings; local and district school leaders; neighborhood, ward, city, and state leaders; researchers; and private and government funding agencies.

83 //www.ecs.org/html/educationissues/research/primer/appendixB.asp

policy BRIEF

ABOUT US

The Research on Urban Education Policy Initiative (RUEPI) is an education policy research project based in the University of Illinois at Chicago College of Education. RUEPI was created in response to one of the most significant problems facing urban education policy: dialogue about urban education policy consistently fails to reflect what we know and what we do not about the problems education policies are aimed at remedying. Instead of being polemic and grounded primarily in ideology, public conversations about education should be constructive and informed by the best available evidence.

The UIC Center for Literacy is a public service and research center that works to improve literacy education, policy and research at the local, state and national levels. We provide leadership and technical assistance to Chicago area schools and community- based organizations for the purpose of enhancing the quality of literacy services. We also work with public and private entities to formulate policies that support effective literacy programs. The Center responds to issues in literacy education by serving as a public clearinghouse for literacy information; establishing partnerships with university departments and external agencies; contributing to enhanced graduate education for future leaders in literacy education; and creating innovative, research-based programs that serve as exemplary models for public practice. Our activities are especially focused on helping to reduce literacy as a barrier to full societal participation for all individuals.

OUR MISSION

RUEPI's work is aimed at fostering more informed dialogue and decision-making about education policy in Chicago and other urban areas. To achieve this, we engage in research and analysis on major policy issues facing these areas, including early childhood education, inclusion, testing, STEM education, and teacher workforce policy. We offer timely analysis and recommendations that are grounded in the best available evidence.

OUR APPROACH

Given RUEPI's mission, the project's work is rooted in three guiding principles. While these principles are not grounded in any particular political ideology and do not specify any particular course of action, they lay a foundation for ensuring that debates about urban education policy are framed by an understanding of how education policies have fared in the past. The principles are as follows:

- Education policies should be coherent and strategic
- Education policies should directly engage with what happens in schools and classrooms
- Education policies should account for local context

RUEPI policy briefs are rooted in these principles, written by faculty in the University of Illinois at Chicago College of Education and other affiliated parties, and go through a rigorous peer-review process.

Learn more at http://ruepi.uic.edu and http://cfl.uic.edu

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