Improving Digital Literacy Through Student-Created Content and Teacher Professional Learning

Nancy A. Watson

Lamar University

Abstract

This paper explores the definitions of digital literacy, the typical reasons that students do not learn digital literacy skills, and the detriment to students that occurs when they do not have the opportunity to explicitly learn about the many aspects of digital literacy. Digital literacy is an emerging and important literacy in which many students show clear deficits. Students' wide-ranging backgrounds affect not only the traditional literacy skills with which they enter school, but also their digital skills. The concept of "digital native" is explored, as is the often erroneous assumption that digital natives know everything there is to know about technology. Special attention is paid to digital equity and the digital divide, and how those issues are related to digital literacy. Based on the observed value of what students learn from creating content and teaching other students, the ways that student-created content might help others to improve their digital literacy skills is explored as a possible solution to address deficits in digital literacy. An opportunity to learn digital skills through content created by other students could potentially help to narrow the gap in digital literacy skills. This content creation will help student creators to solidify their own skills as teachers and presenters while contributing to a culture of growing digital competence within a classroom and beyond. Recommendations for further study include whether students actually do learn digital literacy skills from the student-created content site, and what other methods for improving digital literacy might be equally or more effective.

Keywords: digital literacy, digital citizenship, digital leadership, digital native, student-created content, literature review

Improving Digital Literacy Through Student-Created Content

Review of the Literature

Digital literacy and its many elements make up a significant body of skills, dispositions, and attitudes that are crucial for the success of today's learners. Because teachers often lack time or confidence (McLeod & Carrabott, 2016), don't themselves understand or know the components of digital literacy (Levy, 2016), or make assumptions about their students' digital capabilities (Boyd, 2014; Levy, 2016; Schaffhauser, 2015), the teaching of these skills often falls through the cracks. Students could learn the skills of digital literacy in non-traditional ways, such as in a blended learning approach, if given the opportunity (Raise Your Hand Texas, 2016). One idea for improving digital literacy is to create a website of student-created content (videos, podcasts, graphics) that demonstrate these skills. The student creators will gain important presentation skills and accumulate artifacts for their own digital portfolios (Greene, 2014; Hurley, 2007; Yollis, 2010) and visitors to the website (who could include not only students, but also parents, teachers, and other community members), have a place to go to access information about skills that could be beneficial for them in any digital context.

Definitions, Characteristics, and Subgroups of Digital Literacy

Digital literacy and the development of an understanding of the effective use of technology are vital in preparing today's students for the 21st century global economy (Hylen, 2012). Digital literacy involves more than merely having access to technology or being able to use a computer (Hague & Payton, 2010; Martin, 2015; Tang & Chaw, 2016); it also involves

possessing an understanding of information management and information literacy, critical thinking skills, and appropriate online behaviors (Tang & Chaw, 2016). Visser (2007) notes that a digitally literate person is one who possesses both the technological and cognitive skills required to find, understand, evaluate, create, and communicate digital information in a variety of formats. Visser (2007) goes on to assert that digital literacy involves an understanding of the relationships among technology, lifelong learning, personal privacy, and information curation. Udoewa et al. (2016) argue that it's important to define the context of digital literacy: what should people in a particular context be able to do in order to be described as digitally literate?

The Joint Information Systems Committee (JISC)'s article titled Developing Digital Literacies (2014) notes that digital literacy is made up of the abilities which empower an individual for living, learning, and working in a digital society. Chase and Laufenberg (2011) state that digital literacy is just another format and set of tools found within the domain of "regular" literacy, rather than a concept standing at odds with traditional literacy. Digital literacy is finally being understood as an essential component of overall literacy, and education leaders now understand the need to create opportunities for the meaningful integration of technology into learning experiences (Kirkland, 2014). The development of digital literacy does not simply require the acquisition of technology skills, but the development of one's knowledge and understandings about computers and media, the application of these tools and resources to a variety of subjects and contexts, and the understanding of the role of technology and media use in real world contexts (Hague and Williamson, 2009). Digital literacy involves how we use our judgment to maintain awareness of what we are reading, writing, and creating - and why (Bali, 2016).

Simsek and Simsek (2013) have identified six sub-disciplines of digital literacy: information literacy, computer literacy, media literacy, communication literacy, visual literacy, and technology literacy; they describe digital literacy as being the sum of all six of these literacies. These six categories are quite similar to the seven elements of digital literacy as described in JISC's article on Developing Digital Literacies (2014), which include media literacy, collaboration and communication, career and identity management, ICT literacy, learning skills, digital scholarship, and information literacy.

Digital and media literacy have been described as a system of life skills that are necessary for full participation in our information-rich society, including the skills to make responsible choices when accessing information, analyze messages, create content, reflect on one's own conduct, and take social action (Hobbs, 2010). Hague and Payton (2010) describe a digitally literate person as a discerning user of digital communication tools with the knowledge, skills, and understanding that enables them to choose the most appropriate communication tool for the task at hand and how to use that tool effectively.

Although there is a logical progression from more fundamental skills to higher, more transformative ones, the progression is not necessarily sequential; much depends on a user's needs at any given time (Digital Literacy Fundamentals, n.d.). The development of digital literacy is an ongoing process, and should be part of students' learning as they progress throughout their education; there is no quick fix for developing digital literacy (Hague & Payton, 2010).

“Digital Natives” and Their Digital Skills

Prensky first coined the term “digital native” in 2001, and this term persists today (Boyd, 2014; Leonard, Mokwele, Siebrits, & Stoltenkamp, 2016). Although the term connotes a certain understanding and fluency with digital culture, many authors argue that the term is misleading. In a blog post from 2007, for example, Jenkins noted that the term “digital native” implies that young people have somehow achieved mastery of an online world that is (or at least was at the time of that writing) in reality unfamiliar to all of us. The research of Leonard, Mokwele, Siebrits, and Stoltenkamp (2016) suggests that Prensky’s theory about an entire generation being wired differently due to technological exposure is quite flawed. There tends to be an assumption that merely spending a great deal of time connected prepares students for the challenges of working in a digitally-driven world (Escobar, 2015). Millennials are the first generation that has grown up with technology, but that doesn’t automatically translate to technology competence (Schaffhauser, 2015). Boyd (2014) notes that rhetoric about digital natives is worse than inaccurate; it is actually dangerous, as it allows adults to abdicate their responsibility for helping youth to navigate the networked world. Kavanagh and O’Rourke (2015) note that now more than ever, young people need guidance in the areas of treating others with respect, avoiding bullying, being safe, and critically evaluating information found online. Crowley (2014) also observes that students benefit from guidance, instruction, and practice in digital literacy, just as they do in traditional literacy.

Teachers may feel that their students know more about ICT skills than the teachers themselves, and we should be open to learning from our students if that is the case (Kavanagh & O’Rourke, 2015). Zielezinski (2016) also advises that teachers should honor students as experts

if in fact they are. However, Nagel (2016) notes that U.S. millennials placed nearly last in digital literacy as compared to other developed nations. Nagel goes on to say that one in four millennials want to improve their digital literacy but 37% find the Internet "scary." Students may have trouble locating information on spreadsheets by sorting rows or columns, or might experience difficulty sorting email responses into folders (Does Not Compute, 2015). In 2014, only about half of Australian teens achieved minimum standards of digital competence (McLeod & Carrabott, 2016). Even though students use technology frequently, they may not possess the skills needed to take full advantage of technology's potential for learning (Escobar, 2015). Given the uneven digital literacy skills of youth, we cannot abandon them to learn these lessons on their own (Boyd, 2014).

Poor digital literacy presents problems that are not solving themselves; although young people are immersed in technology and consider it mundane, they are not necessarily any more adept at using it effectively (Nagel, 2016). Students in many instances are savvy with texts, instant messages, games and YouTube, but not with the academic applications of digital technologies (Swaggerty, Atkinson, & Cannon, 2015). Digital technologies present many more opportunities to be creative in the classroom (Hague & Payton, 2010). Some students are creating digital stories, podcasts, slideshows, blogs, websites and other multimodal composition genres (Dalton, 2015). Among 10-13 year olds, 70% use computers or the Internet to do something creative, such as make their own art or music (Rideout & Katz, 2016). Teachers and students can select digital tools that promote interactivity and discovery, those that encourage students to represent thinking in multiple forms (Zielezinski, 2016). Schools have always tried to develop students' communication skills; now those communication skills also include using

visual images and multimedia effectively (Hague & Payton, 2010). Schools also have a role to play in providing safe and supportive environments for students to explore their passions and experiment with text and media production (Burnett & Merchant, 2015).

Romero, LaFerriere, and Power (2016) have identified five levels of ICT usage on a continuum from the simple to the complex; these levels reflect the degree of student engagement. These levels are described as passive consumer, interactive consumer, individual content creator, collaborative content creator, and participatory knowledge co-creator, which is oriented toward understanding and solving problems within learning communities. These higher levels of ICT use are in line with Simsek and Simsek's (2013) identification of the social characteristics of new media as choice, curation, creation, and collaboration.

It is these social and participatory aspects of the new literacies that may be what is motivating to students (Jacobs, 2012-13). Meaningful and authentic learning environments provide practical experience in communication, collaboration, critical thinking, problem-solving, goal setting, and time management (Scheffer, 2016). However, digital literacy is about more than just adding technology to the teaching we already do; certain teaching practices, like counting the number of slides in a project or using "cool" technology to deliver a lesson, may kill students' motivation to develop higher levels of technology use (Hicks and Turner, 2013).

The Value of Creation Versus Consumption

ISTE's revised student standards (2016) include categories for Digital Citizen, Knowledge Constructor, Innovative Designer, and Creative Communicator; each of these standards speak to students' roles as active participants in their own learning and as persons with

creative potential. The Digital Citizenship Institute's newly published (2016) whitepaper on digital citizenship notes that the only way to empower students to be good digital citizens is for teachers to provide authentic opportunities to make digital citizenship action-based. The Institute report (2016) goes on to state that students can't just read about digital citizenship and content creation as abstract concepts; they need to be directly involved in those pursuits on a regular basis.

Hobbs (2012) notes that the development of multimedia creation skills is among the life skills encompassed by digital literacy. Technology should be used in schools not just to advance subject knowledge, but also to empower youth to become effective and safe participants in a world that is increasingly digital (Hague & Williamson, 2009). When students are allowed to create original digital content, they engage deeply in the projects within and across platforms, says Zielezinski (2016). Zielezinski goes on to say that instead of using technology to drill kids on grade level standards, it should be used to help students engage in authentic tasks: those that are grounded in relevant, ongoing work that has some purpose beyond the immediate completion of a classroom activity. Charania and Davis (2016) note that an Integrated Technology in Education (ITE) approach to teaching calls on teachers to design lesson plans focused on encouraging students to engage in and create learning projects on curricular topics using digital technologies and the Internet. The creation of video encourages collaborative learning, increases motivation, deepens understanding, and increases learners' self-confidence, according to Hurley (2007). Greene (2014) also notes that learning is enhanced when students create content videos to explain learning objectives. Additionally, Greene notes, by asking students to show their videos to an authentic audience, students expend greater effort and produce a higher quality

product. Others have also observed that creating content for a relevant purpose and a real audience can have a profound effect on student motivation and learning (Digital Citizenship Institute, 2016; Literacy for a Connected World, 2015).

The truly digitally literate person is one who moves beyond passively absorbing information to actively participating in its creation, and it is this active participation that needs to be incorporated into our curriculum and assessment practices (Kavanagh & O'Rourke, 2016). Curriculum and Instruction plans should enable students to create content as well as to learn material; when students have opportunities to create their own content using technology, they become more motivated and develop stronger skills (Darling-Hammond, Zielezinski, & Goldman, 2014). Swaggerty, Atkinson, and Cannon (2015) also note that the realization that other people would view their work motivates students to improve the quality of their work.

At the highest level of ICT use, learners are engaged with others in their learning or neighborhood community in an effort to address or solve a challenging issue in the community or world; this team approach values local community initiatives, promotes diversity, and can generate intergenerational and intercultural links that may not occur in analog versions of the situation (Romero, LaFerriere, & Power, 2016). Students and teachers note that it is important to have variety in their learning choices, including contexts in which to create multimedia projects and to learn through inquiry and personal expression (Darling-Hammond, Zielezinski, & Goldman, 2014). These examples of the learning that takes place through content creation provide support for the idea of a plan to use content creation to develop digital literacy.

Digital Divide

Although content creation is important, nearly half of elementary teachers in one study (Okaloosa County Schools, 2013) use technology primarily to deliver content, and the only technology opportunity for their students is for drill and practice. Evidence suggests that it is principally low-income students who are predominantly subjected to drill and practice software, while higher socioeconomic students have more opportunities to use technology for broader purposes of research, simulation, data analysis, and content creation (Warschauer, 2007). Drill and practice activities favored in low socioeconomic schools tend to be ineffective, whereas higher-level thinking tasks that are necessary for content creation are more typically seen in higher SES schools (Darling-Hammond, Zielezinski, & Goldman, 2014). Digital technology can expand opportunities for lower-income parents and their children, but unless we make concerted proactive efforts to reduce digital inequality, these remarkable technological advances will have the unintended consequence of widening the opportunity gap rather than narrowing it (Rideout & Katz, 2016). Age, gender, race, and socioeconomic standing are all determining factors in whether youth have an opportunity to develop digital literacy skills (boyd, 2014), with white, female, upper SES students more proficient ICT users (Ritzhaupt, Liu, Dawson, & Barron, 2013). A recent study of media use in lower-income minority youth and parents from Common Sense Media (2016) indicates little if any digital content creation typically happens, even though many of the subjects of the study have access to many forms of technology. Schools have a role to play in providing risk-free environments in which students follow passings, experiment, explore, gain feedback, and consider alternatives (Burnett & Merchant, 2015).

Being under-connected means that critical opportunities to develop creative projects, take advantage of educational media, explore personal interests, and complete homework are limited, and these limitations can compound over a child's lifetime (Rideout & Katz, 2016). Teaching the skills of digital literacy and digital participation is one way of ensuring that all youth, not just the more privileged, can use technology meaningfully and be fully included in digital culture (Hague & Williamson, 2009). However, the same low socioeconomic students who often lack opportunities to use technology creatively at home - because of a lack of computer access, Internet access, or social support - also too often lack similar opportunities at school (Warschauer, 2007). Digital inequality can contribute to educational inequality which perpetuates economic inequality (Rideout & Katz, 2016), with a person at the lowest skill level earning 40% less on average than a person at the highest skill level (Schaffhauser, 2015). Those most in need of finding services, obtaining jobs, and increasing educational opportunities are the least likely to have full access to the digital technologies and skills that can level the playing field (Rideout & Katz, 2016).

School access policies differ widely both in terms of content consumption and content creation; schools often allow very few opportunities for publishing student work to a global audience, even if the students are allowed to create artifacts related to their learning (Digital Citizenship Institute, 2016). The challenge, writes Escobar (2015), is to develop digital skills that will allow our students to derive benefits from the use of technology; with this approach we also make progress in closing digital skills gaps and the unequal use of media. Paying special attention to English language learners when considering technology opportunities could help both the child and his or her parents to become more fluent in English as well as in technology

skills (Poremba, 2015). Closing this digital skills gap can be viewed as a civil rights issue (Maiers, 2016).

Human Rights, Democracy, and Digital Citizenship

The Internet has become a primary platform for children and young people to exercise their most basic participatory rights: the right to freedom of expression and information, and freedom of organization and participation (Kavanagh & O'Rourke, 2016). Learners are unable to take advantage of the unprecedented opportunities afforded to them in the digital age if they are not encouraged to embrace their role as digital citizens (Maiers, 2016). The core values of inquiry, research, collaboration, presentation, and reflection are not digital values; they are based on timeless goals for education and citizenship (Chase & Laufenberg, 2011).

Digital citizenship is based on contemporary literacy skills in which technology plays an important role (Simsek & Simsek, 2013). Promoting 21st century literacies does not involve replacing one set of learning goals with another, Burnett and Merchant (2015) note, but rather necessitates a recognition that many communication modes and resources exist. As educators, it is incumbent on us to ensure that the students we encounter are being prepared to live as responsible adults and citizens in the emerging society and evolving workplace of the digital age (Kavanagh & O'Rourke, 2016). We must make a point of incorporating technology into how students learn to tackle problems and help them to understand the full potential of technology as a critical aid to human productivity and invention (Does Not Compute, 2015). Digital and media literacy are life skills necessary for full participation in our media-saturated, information-rich

society (Hobbs, 2010). Students need today's leaders to fight for their digital literacy rights with the same ferocity and urgency as they do for traditional literacy (Maiers, 2016).

Planning for Success

In helping to articulate a vision for digital literacy, JISC's Developing Digital Literacies (2014) article suggests several factors to consider: the institutional mission's recognition of the importance of digital skills; the learner/graduate attributes that are developed, promoted, and supported; the role of digital technologies in the learning experience; how learners are involved in decisions about digital literacy; and how we help learners thrive in digital spaces. Influencing strategies is impossible unless senior managers can be convinced that a vision has merit; digital aspirations need to be clearly articulated and words turned to action through strategic planning (Developing Digital Literacies, 2014). Udoewa et al. (2016) note that reading-writing literacy can be a stepping stone to digital literacy and vice versa, and also that significant numbers of people can not become digitally literate on their own. Therefore, carefully conducted case studies and experimental designs are needed to further tease out which types of instructional activity best support the development of digital literacy through student-created content (Martens and Hobbs, 2013).

To maximize the potential of technologies to enhance education, policy makers need to imagine how these informal learning activities can be used in formal learning environments (Hylen, 2012); for example, teachers might refer students to the website of student-created content to encourage students to learn digital literacy skills at their own pace. Criteria for successful projects include four elements: infrastructure, professional development for teachers,

digital learning materials, and a pedagogical vision (Hylen, 2012). Investment in staff professional development is an important factor in the strategic development of digital literacy (Developing Digital Literacies, 2014). The Developing Digital Literacies article goes on to state that a key message from institutions is to involve students in technology implementations, as does the Digital Citizenship Institute's whitepaper (2016); this student input helps the development of technology that meets students' needs and helps make the system more usable and personal.

Action Research: Methodology and Methods

Mills (2011) defines Action Research as "any systematic inquiry conducted by teachers, administrators,counselors,or others with a vested interest in the teaching and learning process or environment for the purpose of gathering information about how their particular schools operate, how they teach, and how their students learn." Mertler (2016) outlines four stages in an Action Research initiative: planning, acting, developing, and reflecting. Mertler goes on to elaborate nine steps to be achieved within these four stages. The planning stage consists of four steps: identifying and limiting the topic; gathering information, reviewing the related literature, and developing a research plan. This paper addresses primarily the planning stage of the action research process.

The research question that accompanies this literature review has been identified as "How might a course on Digital Literacy impact teachers' ability to teach digital skills and digital citizenship alongside their curriculum content?" A course for teachers will serve as a professional learning opportunity and will be studied at the same time the site with

student-generated artifacts is being created. This course is currently in development, and the action research for this portion of the plan to improve digital literacy will take the form of a pretest and posttest, field notes, questionnaires, and scoring rubrics, as suggested by Mertler (2016).

Since the concept of digital literacy is rather "squishy" (Chase & Laufenberg, 2011), and definitions are varied, this type of qualitative research design will likely work best, since they are broad, holistic, in-depth, and carried out over a long period of time (Mertler, 2016). The organic quality of action research means that the questions evolve over time (Rainville & Enriquez, 2016), and require teachers to make adaptations and keep good anecdotal records. Rainville and Enriquez go on to note that the messy and recursive process of action research require a paradigm shift for teachers as they begin to see themselves as uniquely positioned to gather data on their students' developing [digital] literacy learning. The participants of the developing course for digital literacy will be educators in the school district; these teachers and librarians will likely have some interest in or understanding of the topic to start with, so the sample might not be representative of the district as a whole.

Conclusions and Suggestions for Further Study

Although there is much research cited in this paper for the importance of digital literacy, the value of student-created content, the myth of the "digital native," the significant digital equity issue, and the importance of teacher professional learning in conjunction with any new initiative,

there is no evidence of efforts to create entire websites with content designed and created by students for the purpose of improving digital literacy skills. Additionally, no studies citing teachers' or other adults' efforts to incorporate the direct instruction of digital skills were found, nor any evidence of professional learning initiatives addressing digital literacy. Therefore, this paper examined only in general terms the elements that have led to other successful technology implementations, such as having the necessary infrastructure, planning and communication with stakeholders across the continuum (students, parents, teachers, administrators, etc), and professional development for teachers.

Applying these elements to an initiative for improving digital literacy through student-created content, it will be important to continue to communicate ideas and progress to the teachers who have already committed to having their students participate by creating content. It is crucial to keep administrative personnel informed of progress as well. Getting student and parent buy-in and suggestions for content type and subjects will also be steadily pursued. A conscious and proactive effort must be made to solicit content from all student types so that participants of all ages, races, and socioeconomic categories will be represented and will feel ownership for the creation and upkeep of the site. An examination of the effects on students of teachers' enrollment in online professional development will be a significant component of action research studies. Finally, once the site of student-created content is available, professional development for teachers in the ways that they could successfully use the site for their students' benefit (and their own) will be necessary to ensure its successful rollout.

Future action research might include determining the effectiveness of the website of student-created content and whether its use - as either a creator or a consumer, or both - actually

does positively impact digital literacy skills. It would also be of interest to determine what other methods are available for students to learn digital literacy skills, especially if they have teachers who do not encourage the development of those skills. Measuring the impact of such technology initiatives is not straightforward since so many variables are typically at play.

References

Bali, M. (2016). Digital skills and digital literacy: Knowing the difference and teaching both. Literacy Today, Jan/Feb 2016, 24-26.

boyd, D. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.

Burnett, C., & Merchant, G. (2015). The challenge of 21st century literacies. *Journal of Adolescent & Adult Literacy 59 (3)*. 271-274.

Charania, A., & Davis, N. (2016). A smart partnership: Integrating technology for underserved children in India. *Educational Technology & Society 19* (3), 99-109.

Chase, Z., & Laufenberg, D. (2011). Embracing the squishiness of digital literacy. *Journal of Adolescent & Adult Literacy 54* (7), 535-537.

Common Sense Media (2016).Connection and control: Case studies of media use among low-income minority youth and parents. Retrieved from https://www.commonsensemedia.org/sites/default/files/uploads/pdfs/csm_connection_and_control_research2016.pdf

Crowley, B. (2014,). What digital literacy looks like in a classroom. Education Week Teacher. Retrieved from http://www.edweek.org/tm/articles/2014/10/29/ctq_crowley_digitalliteracy.html

Dalton, B. (2015). Charting our path with a web literacy map. *The Reading Teacher 68* (8), 604-607.

Darling-Hammond, L., Zielezinski, M.B., & Goldman, S. (2014). Using technology to support at-risk students' learning. *Stanford center for Opportunity Policy in Education.* Retrieved from https://edpolicy.stanford.edu/sites/default/files/scope-pub-using-technology-report.pdf

Developing digital literacies. (2014, December 16). *JISC.* Retrieved from https://www.jisc.ac.uk/full-guide/developing-digital-literacies

Digital Citizenship Institute. (2016). Digital citizenship: A holistic primer. Retrieved from http://www.digitalcitizenshipinstitute.com/wp-content/uploads/2016/10/Digital-Citizenship-A-Holistic-Primer-v1.2.pdf

Digital literacy fundamentals. (N.d.). *Media Smarts: Canada's Centre for Digital and Media Literacy.* Retrieved from http://mediasmarts.ca/digital-media-literacy-fundamentals/digital-literacy-fundamentals

Does not compute: The high cost of low technology skills in the U.S. - and what we can do about it. (2015). Retrieved from http://changetheequation.org/does-not-compute

Escobar, M.C. (2015, July). 21st century skills: What has been accomplished, and why should we care? *Entrsekt 2* (1), 17.

Greene, H. (2014). Learning through student created content videos. *International Journal of Arts & Sciences 7* (2), 469-478.

Hague, C. & Payton, S. (2010). Digital literacy across the curriculum. Futurelab. Retrieved from https://www.nfer.ac.uk/publications/FUTL06/FUTL06.pdf

Hague, C. & Williamson, B. (2009). Digital participation, digital literacy, and school subjects: A review of the policies, literature, and evidence. Futurelab. Retrieved from https://www.nfer.ac.uk/publications/FUTL08/FUTL08.pdf

Hicks, T. & Turner, K.H. (2013). No longer a luxury: Digital literacy can't wait. *English Journal 102* (6): 58-65.

Hobbs, R. (2010). Digital and media literacy: A plan of action. Retrieved from http://www.knightcomm.org/wp-content/uploads/2010/12/Digital_and_Media_Literacy_A_Plan_of_Action.pdf

Hurley, R. (2007). A different direction for video in teacher preparation: An online library of resources by and for teachers and students everywhere. SITE Conference proposal.

Hylen, J. (2012). Turning on mobile learning in Europe. UNESCO. Retrieved from http://unesdoc.unesco.org/images/0021/002161/216165E.pdf

ISTE (2016). Standards for students. Retrieved from http://www.iste.org/docs/Standards-Resources/iste-standards_students-2016_one-sheet_final.pdf

Jacobs, G.E. (2012, December-2013, January). Rethinking common assumptions about adolescents' motivation to use technology in and out of school. *Journal of Adolescent & Adult Literacy*, 271-274.

Jenkins, H. (2007, December 5). Reconsidering digital immigrants… [Web log]. Retrieved from http://henryjenkins.org/2007/12/reconsidering_digital_immigran.html

Kavanagh, A. & O'Rourke, K.C. (2016). Digital literacy: Why it matters. Dublin Institute of Technology. Retrieved from http://arrow.dit.ie/cgi/viewcontent.cgi?article=1036&context=ltcart

Kirkland, A.B. (2014, Fall). Digital literacy: Opportunities in the learning commons. *School Libraries in Canada*, 31-34.

Leonard, L., Mokwele, T., Siebrits, A., & Stoltenkamp, J. (2016). 'Digital natives' require basic digital skills. IAFOR International Conference on Technology in the Classroom. Retrieved from https://repository.uwc.ac.za/bitstream/handle/10566/2372/Leonard_Digital_2016.pdf?sequence=5&isAllowed=y

Levy, L.A. (2016). Eleven digital literacy myths, debunked. Retrieved from https://rossieronline.usc.edu/blog/digital-literacy-myths/

Literacy for a Connected World. (2015 September). Retrieved from http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_LiteracyConnected.pdf

Maiers, A. (2016, April). Digital literacy is about power and privilege. Retrieved from http://www.angelamaiers.com/2016/04/digital-literacy-power-privilege/

Martens, H. & Hobbs, R. (2013). How media literacy supports civic engagement in a digital age. *Atlantic Journal of Communication*, 120-137.

Martin, A.M., & Roberts, K.R. (2015, February). Digital native ≠ digital literacy. *Principal.* 18-21.

McLeod, A., & Carrabott (2016). Students struggle with digital skills because their teachers lack confidence. Retrieved from http://theconversation.com/students-struggle-with-digital-skills-because-their-teachers-lack-confidence-56071

Mertler, C. (2016). *Action research: Empowering schools and empowering educators (5th ed.)*. SAGE Publications.

Mills, G.E. (2011). *Action research: A guide for the teacher researcher (4th ed.*). Boston, MA: Pearson.

Nagel, D. (2016 March). 6 major barriers impeding technology adoption in education. *Campus Technology*, 29-33.

Okaloosa County Schools. (2013). Technology Plan 2013-2016. Retrieved from http://www.okaloosaschools.com/files/school-district/_docs/Technology_Plan%202013-2016%20FINAL.pdf

Poremba, S.M. (2015, April). Young and connected: How today's tech is impacting the earliest learners. *Entrsekt 1*(4), 30-34.

Prensky, M. (2001). Digital natives, digital immigrants. Retrieved from http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

Rainville, K.N., and Enriquez, G. (2016). Researching and reshaping literacy learning: Three urban K-6 teachers' ongoing transformations through everyday action research. Networks: An Online Journal for Teacher research 18 (1), 1-14.

Raise Your Hand Texas (2016). Scaling student-centered instruction: the power of blended learning. Retrieved from http://www.raiseyourhandtexas.org/blended-learning/scaling-student-centered-instruction-power-blended-learning/

Rideout, V.J. & Katz, V.S. (2016). *Opportunity for all? Technology and learning in lower-income families.* A report of the Families and Media Project. New York: The Joan Ganz Cooney Center at Sesame Workshop. Retrieved from http://www.joanganzcooneycenter.org/wp-content/uploads/2016/01/jgcc_opportunityforall.pdf

Ritzhaupt, A.D., Liu, F, Dawson, K., & Barron A.E. (2013). Differences in student information and communication technology literacy based on socio-economic status, ethnicity, and gender: Evidence of a digital divide in Florida schools. *Journal of Research on Technology in Education 45* (4), 291-307.

Romero, M., LaFerriere, T., & Power, T.M. (2016 March). The move is on! From the passive multimedia learner to the engaged co-creator. *eLearn Magazine*. Retrieved from http://elearnmag.acm.org/featured.cfm?aid=2893358

Schaffhauser, D. (2015). Report: 6 of 10 millennials have 'low' technology skills. THE Journal. Retrieved from https://thejournal.com/articles/2015/06/11/report-6-of-10-millennials-have-low-technology-skills.aspx

Scheffer, J. (2016). Leverage technology to give students a voice, choice in their learning. *Entrsekt 2*(4), 8-9.

Simsek, E. & Simsek, A. (2013). New literacies for digital citizenship. *Contemporary Educational Technology 4*(2), 126-137.

Swaggerty, E., Atkinson, T, & Cannon, T. (2015). Making a true shift into 21st century literacy learning with multimodal digital response projects. *Literacy Practice & Research*, 14-18.

Tang, M. T., & Chaw, L. Y. (2016). Digital literacy: A prerequisite for effective learning in a blended learning environment? *The Electronic Journal of e-Learning 14*(1), 54-65.

Udoewa, V., Mathew, N., Al-Hafidh, L., Bhog, L., Gupta, A., Patel, P., … Humar, V. (2016). Helping the next 4 billion go online part 1: Design research for digital literacy education. *International Journal for Service Learning in Engineering, Humanitarian Engineering and Social Entrepreneurship 11* (2), 18-37.

Visser, M. (2012). Digital literacy definition. *ALA Connect.* Retrieved from http://connect.ala.org/node/181197

Warschauer, M. (2007). A teacher's place in the digital divide. *Yearbook of the National Society for the Study of Education 106(2)*, 147-166.

Yollis, L. (2010). How to write a quality comment. [video file] Retrieved from https://www.youtube.com/watch?v=UDVSw54VU1A

Zielezinski, M. (2016.) What a decade of education research tells us about technology in the hands of underserved students. *Edsurge*. Retrieved from

https://www.edsurge.com/news/2016-05-19-what-a-decade-of-education-research-tells-us-about-technology-in-the-hands-of-underserved-students