Developing Digital and Media Literacies in Children and Adolescents

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abstract

In today's global culture and economy, in which individuals have access to information at their fingertips at all times, digital and media literacy are essential to participate in society. But what specific competencies must young citizens acquire? How do these competencies influence pedagogy? How are student knowledge, attitudes, and behaviors changed? What are the best ways to assess students' digital and media literacy? These questions underscore what parents, educators, health professionals, and community leaders need to know to ensure that youth become digitally and media literate. Experimental and pilot programs in the digital and media literacy fields are yielding insights, but gaps in understanding and lack of support for research and development continue to impede growth in these areas. Learning environments no longer depend on seat time in factory-like school settings. Learning happens anywhere, anytime, and productivity in the workplace depends on digital and media literacy. To create the human capital necessary for success and sustainability in a technology-driven world, we must invest in the literacy practices of our youth. In this article, we make recommendations for research and policy priorities.

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We live in a connected world where information is plentiful, and experts are, literally, at our fingertips. With ubiquity in mobile technologies around the globe, we see a new vision of education: learning anywhere, anytime, with equal access for all as a fundamental human right.[1]

This vision is predicated on the idea that children are capable of and prepared for lifelong learning and that they are equipped with the skills they need to access, analyze, evaluate, create, and participate in civic life through digital media. Research over the last 2 decades has shown that reading and writing in digital spaces may require a more complex application of skills than print-based literacy[2,3]; yet most formal institutions of education still cling to traditional definitions of literacy and pedagogical approaches, focusing solely on print and teacher-centered instruction.[4] In these institutions, children are often not empowered to learn, nor are they connected to the world outside their classroom walls.

Outside of school, however, children increasingly use mobile devices, video games, and the internet to explore their worlds.[5] To successfully navigate and participate in these interconnected spaces, youth must acquire digital and media literacies; they must be able to critically consume and create digital, multimodal texts. The Aspen Institute[6] highlights the fact that "all learners and educators need a sufficient degree of digital age literacy, where media, digital and social-emotional literacies are present, to be able to use these learning resources to learn through multiple media confidently, effectively and safely." However, the majority of students graduating from high school lack basic skills to help them navigate the digital landscape safely and responsibly.[7] The fallout about "fake news" from the 2016 US presidential election is but 1 example of the consequences we face when citizens do not engage critical digital and media literacies.

These problems call for education that goes beyond mastery of traditional content silos that have existed for centuries.[8] The gap between a vision of interconnected learning and the reality of education today is wide, and research and policy initiatives are needed to provide education that will prepare youth for basic needs in a technologically driven future.

CURRENT STATE

Defining Digital and Media Literacies

To be literate in today's world involves skills that include fairly granular tasks, such as copying and pasting digital content, and more complex work, such as critical analysis and synthesis of information accessed through a variety of texts. Digital literacy takes into account the full range of skills needed to read, write, speak, view, and participate in online spaces. All of these practices require media literacy, which includes the ability to access, analyze, evaluate, create, and participate with media in all its forms. Although various terms are used in literature surrounding these skills (eg, new literacies, web literacies, or multiliteracies), we take the stance that digital and media literacy should be taught as literacy and that the fields of digital and media literacies can no longer exist in isolation from each other.

Concern about the impact of media on children and adolescents has led to research that documents negative effects on young people's health and well-being.[9,10] However, developing digital and media literacies is one of the most viable intervention strategies to minimize media's negative consequences and maximize its positive influences on beliefs, attitudes, and behaviors. An extensive meta-analytic review found that these interventions counteract effects related to risky and antisocial behaviors, including violence and aggression, alcohol and tobacco use, body image issues, eating disorders, and commercialism.[11] In other studies, researchers showed that interventions increased civic responsibility and democratic participation.[12]

In short, interventions that equip youth to critically navigate their digital lives have positive impacts that mitigate potentially harmful effects of participation in digital spaces. These literacies are fundamental in helping youth to become critical consumers and creators in a digital world; sadly, large-scale efforts to develop these skills have not been adopted politically or educationally.

Policy Initiatives

Global efforts are underway to reinforce the importance of digital and media literacies, with initiatives led by the United Nations Educational, Scientific, and Cultural Organization, and countries such as Canada, New Zealand, Australia and the United Kingdom are targeting these literacies as essential for their citizens' success. In the United States, we have a vision; we need understanding and collective action by policy makers, health practitioners, educators, parents, and students to realize it. The time to focus on digital and media literacies is now.

To date, media and information literacy policy advocates have brought together coalitions of stakeholders to propose policy at the international, national, and community levels.[13] In the United States, media and information literacy legislation has been introduced in 15 states (adopted in 9), addressing such topics as digital citizenship, internet and social media safety training, the incorporation of media literacy standards into

the core curriculum, and training programs for teachers.[14]

These gains are promising, but we are not moving nearly fast enough. The concept of digital and media literacy as a broad construct has not yet entered political discourse. Policy makers must recognize digital and media literacy as literacy in today's world. In an information-based society, our competitive advantage relies on a digital and media-literate citizenry. It is not enough for students to read books and write essays. A literate citizenry must read multimodal, hyperlinked texts critically, create these texts, and participate ethically in a networked world. Education and workplace training policies should reflect this reality.

FUTURE RESEARCH

The rapidly changing technological world inspires many questions about the skills and developmental trajectories we can expect of children as well as equal opportunities for all to develop these skills. We have identified 3 research priorities moving forward:

Conduct Longitudinal Studies That Identify the Essential Knowledge and Skills Needed to Foster Digital and Media Literacy Competencies for Diverse, Lifelong Learners

Although literacy has always evolved with new technologies,[15] no technology has impacted literacy with the same scope and speed as the internet.[16] Having access to the internet is one thing; knowing how to think critically, create, innovate, and participate ethically in digital spaces may be social differentiators of unprecedented proportion. The Organization for Economic Cooperation and Development[17] reports that increased literacies correlate with higher income levels, increased participation in government and volunteer activities,

and informed health and welfare decisions, but we do not yet have a collective understanding of how these skills develop, especially in school.

Although the field has provided insight into the literacies developed in authentic, out-of-school settings,[4,18] we have not yet defined developmental trajectories of such skills. The field of literacy studies in print-based contexts is rich in this area[19]; we need parallel research and recommendations for digital and media literacies.

Investigate Instructional Methods and Other Programs That Equalize Opportunities for All

In 2000, the Clinton-Gore administration warned that "unequal access to technology and high-tech skills by income, educational level, race, and geography could deepen and reinforce the divisions that exist within American society,"[20] and the 2016 National Educational Technology Plan[21] identified a significant digital use divide that separates students who use technologies in active, creative, and critical ways from those who use technologies for "passive content consumption."

A considerable body of work now suggests that socioeconomic status predicts digital literacy skills.[22] Leu et al[15] found that low-income middle-schoolers were much less able than higher-income peers to locate online information, evaluate information critically, synthesize understanding from multiple digital texts, and communicate ideas using digital media. Other studies report racial, cultural, linguistic, and sex-based inequalities in online participation and skill development.[23,24]

The field raises fundamental questions of equity, social justice, and citizenship. If we believe that all children deserve the chance to develop the skills needed for high-paying jobs and engaged citizenship,

then research on literacy instruction must articulate methods that close this gap. Creating equal opportunities for all must be a top priority.[25]

Investigate the Potential Connections Among Out-of-School Learning, Formal Learning, and Civic Engagement

Finally, we must identify methods of instruction that will enable young people to enhance the innovative digital and media literacies they acquire outside of school for work in the classroom and beyond.[26] By softening the boundaries between the classroom and the outside world, we can build a citizenry that is informed, thoughtful, and responsible.

Children do engage in creative and innovative digital and media literacy practices outside of school,[27] and technology skills correlate positively with engaged citizenship[17]; however, we still know little about how teachers can tap into that work in productive ways that serve higher-order skill development and civic engagement. To prepare all youth, regardless of background or socioeconomic status, to contribute, we cannot expect that digital and media literacies develop only in natural settings. Schools must adapt.

RECOMMENDATIONS

By identifying broad actions to be taken at federal, state, or local levels that focus on a future that holds a fully digitally and media-literate citizenry, we hope to spark much needed conversation in the political arena about the nature of literacy in a technological, global world. In response to this need, we recommend 3 priority actions for policy makers:

Eliminate High-Stakes Tests That Define Literacy Too Narrowly

Issues of digital and media literacy are lost in conversations focused on high-stakes testing. Nearly all

standardized tests have shifted to online, adaptive tests that, even with the incorporation of audio and video components, still focus largely on multiple-choice and short-answer responses. Although these tests are being delivered on computers, they are not inviting students to demonstrate the full complexity required to be digitally and media literate. They do not assess real-world literacy skills.

Continued reliance on outdated modes of assessment will stifle "educators' efforts to focus on the broad range of learning experiences that promote the innovation, creativity, problem solving, collaboration, communication, critical thinking and deep subject-matter knowledge that will allow students to thrive in a democracy and an increasingly global society and economy."[28] In other words, an era of new tests does not mean that we are bringing in new paradigms for assessment.

Tests influence what gets taught in schools, and in many ways they reinforce traditional structures that keep disciplines in silos. This bifurcation of learning does not support the kind of connected learning that occurs outside of school. If children are to become literate citizens who are actively engaged and contribute positively to society, these kinds of traditional structures and tests must be dismantled and replaced by structures that build and reinforce digital and media literacies.

Address Problems Contextually, Not With 1-Size-Fits-All Programs

Because policies are often drafted as 1-size-fits-all solutions, variability in context and community needs are not considered. For instance, some kindergarten through 12th grade districts face teacher shortages and limited physical space, others face fiscal challenges and high dropout rates, and many struggle with the digital use divide. These problems are symptoms of a larger challenge: the challenge of educating diverse, digitally connected youth in a variety of contexts.

Policies at the federal and state levels should empower local officials to make decisions about instruction and assessment in schools. To make informed decisions, however, funding structures must change. Schools have little, if any, money for research and development. In many cases, districts spend large amounts on wide-scale purchases without the consideration of teacher training or the potential for structural transformation. These kinds of purchases often fail (eg, Los Angeles Unified School District's iPad initiative). Contextually driven decisions that are based in quality research and development are desperately needed; 1 size fits all simply does not work.

Create Flexible Parameters for Defining and Using Texts

Because of the time and expense involved in adjudicating conflicts regarding intellectual property, it is essential that Congress clarify current copyright laws and strike a balance between protecting the rights of authors and allowing flexibility for new, adaptive, and transformative uses of digital texts.

Invention comes from remixing content, and new legal frameworks for intellectual property should permit the development, recreation, and sharing of digital assets. Researchers, educators, and students all need new and more flexible parameters for operating within ethical boundaries that are embedded in acceptable use policies and terms of use for digital texts and tools.

These policy initiatives will open opportunities for education with the intent of creating a literate citizenry in a digital age.

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