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Research Digest

Digital Literacies for Digital Health Realities

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This research digest addresses digital health literacies, demonstrating the important role that adult basic education instructors can play in supporting learners to adapt to a changing digital world. We structure this review by first examining the relationship between the internet and health. We then discuss the digital health information landscape offering some definitions. We go on to describe four components of digital health literacies and close the review by linking research and practice, offering implications for adult education.

Internet and Health

Internet access is nearly universal for highly educated individuals with at least a moderate income (Pew Research Center, 2024). Demographic groups such as seniors, those with fewer years of formal education, and low-income individuals have less digital access (Federal Communications Commission, n.d.; Tappan et al., 2022). They may require more support in navigating the digital landscape to manage their health. Limited internet access can exacerbate existing health disparities. Therefore, internet access is considered a super determinant of health (Seick et al., 2021).

Digital access alone is not sufficient to acquire digital health literacies. The demands of digital health systems require flexible digital literacies and digital health literacies. Digital literacies include the ability to find, evaluate, understand and use digital information and digital tools (American Library Association, 2013), and digital health literacies contextualize these skills within an online health context (Fitzpatrick, 2023; Norman et al., 2016). Due to the evolving nature of online texts, contexts, tools, and networks for meaning making, we refer to these literacies in their plural form.

Digital health literacies play an important role in health outcomes. Accessing health information online is one of the main reasons individuals use the internet (Di Novi et al., 2024). For example, learning options for staying healthy, maintaining wellness, and managing health care appointments and prescriptions are but a few areas where digital health literacies are important. However, not all online health information is easy to navigate, interpret, or comprehend. Organization, density, and use of hyperlinks to other resources, among other navigational characteristics, can make health concepts more difficult for the general public with average reading ability to grasp (Daraz et al., 2019). Adults need support to develop the skills that are necessary for navigating online health contexts, giving rise to an instructional call to action.

Defining Terms

In the fast-paced, complex, and ever-changing digital landscape, no single set of definitions is sufficient nor universally adopted. In the sections that follow, we offer definitional starting points, recognizing there are obvious overlaps across terms.

Digital skills refer to the use of devices like a computer, tablet or phone for tasks such as finding and using information online, understanding how to be safe and responsible online, communicating socially and professionally using email, messaging and social media (Digital Resilience in the American Workforce [DRAW], 2022). However, digital skills alone are not all that is needed to navigate the complexities of digital health literacies. Digital fluency, the ability to successfully move with ease in and across digital environments, is also important.

Digital problem solving refers to the nimble use of skills, strategies, and mindsets to navigate online using

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novel resources, tools, and interfaces in flexible ways to accomplish goals (Jacobs & Castek, 2018). Collaboration can serve to support digital problem solving when learners participate together and learn a range of strategies.

Digital resilience is referred to as an essential mindset which involves having the awareness, skills, agility, and confidence to be empowered users of new technologies and adapt to changing digital skill demands (DRAW, 2022; Digital US Coalition, 2020). Resiliency improves confidence to problem-solve, navigate digital contexts, and engage in tasks that involve critical thinking. Individuals need multiple opportunities to develop digital problem solving and resilience within and beyond health care. These learning aims are an important extension of digital health literacies and are not gained without support.

Adult learners need the opportunity for contextualized instruction (Jurmo & Mortrude, 2020; Perin, 2011) specifically within online health settings. Teaching digital health literacies means moving beyond the basic functions of web browsers or the steps for using a search engine. Teaching digital skills, strategies, and mindsets should be embedded within broader health situations. By exploring online health information with support, instructors can provide contextualized, just-in-time instruction.

Components of Digital Health Literacy

Castek et al. (2021) conducted a study to examine adults' digital health literacies knowledge and challenges. They designed nineteen scenario-based tasks situated in everyday health contexts in the areas of: (a) navigating online health resources, (b) critical evaluation of online information, and (c) internet safety and security. The scenarios presented real-life situations where critical evaluation, the management of interfaces, and use of digital tools were applied. Results indicated that regardless of age or education level, 93% of participants scored below the minimum competency threshold, with the lowest scores on tasks that required critically evaluating online health information. These findings suggest that many people struggle with digital health literacies and need support and guidance to acquire and apply them.

Drawing on this pattern of results, in combination with findings from our work examining adults' digital problem-solving strategies (Jacobs & Castek, 2018, 2022) we identified four components of digital health literacies: (a) navigating online health resources, (b) checking the reliability of information, (c) managing interfaces and digital tools, and (d) learning digital problem solving. Planning instruction in these areas, and offering contextualized guided practice, can support adult learners in gaining facility with these important skills. In the sections that follow, each of the components is described and anchored to research.

Navigating Online Health Resources

While the use of digital technologies has been broadly associated with being informed, the complexity of navigating online health resources that are unbiased and reliable is challenging. Daraz et al. (2019) found the quality of online health information was not consistently excellent. Internet health resources require careful examination to determine high quality from low quality information, which could have harmful consequences on health.

Determining whether health information is relevant in a given situation involves reading widely to gain knowledge about health, examining multiple sources of information and determining who is an expert, and locating trustworthy sources. About 85 million internet users take online health advice without assessing the quality of the content found on the internet, which can affect the doctor-patient relationship (Luo et al., 2022).

Navigating health concerns requires facing novel challenges, which are enhanced by the need to understand medical terminology. Moreover, ensuring their data privacy and troubleshoot technical issues are also important learning aims.

Checking the Reliability of Health Information

Unreliable claims about health are everywhere online and shared widely by friends, family, news media, and commercial interests. Many of these health claims about products and services are unsubstantiated but many adults may lack the skills needed to evaluate them. The ability to critically evaluate online health information requires attention to the content of the information, the presentation of ideas, and determination of who is considered an expert (Hegeman et al., 2024).

Developing a critical mindset involves paying attention to relevancy, accuracy, reliability, source credibility, and commercial bias (Coiro, 2015). Checking reliability requires questioning stances found in texts (Korona, 2020), reading laterally to corroborate claims using multiple sources (Breakstone et al., 2021), and analyzing health resources to look for effects of commercial bias (Peñafiel-Saiz et al., 2024). Critically evaluating information becomes even more essential when navigating across numerous interfaces and tools to access health information and health care systems. These vital aspects of digital health literacies should be folded into adult education.

Managing Interfaces and Digital Tools

Adult learners not only face the challenge of evaluating the health information they find online but also must navigate a plethora of interfaces and digital tools, including search engines and AI chatbots (Sun et al., 2023). Kim et al., (2023) argue that navigating interfaces are part of the core competencies of digital health literacies.

Management of interfaces and digital tools involves working through tasks systematically while remaining focused on the end goal, keeping in mind ethics and safety, and utilizing networks for continued learning and support. Given the dynamic and ever-changing digital health world, with the constant rise of new platforms and information, adults need support to learn and practice digital health literacies (Harris et al., 2019; Paige et al., 2018).

Learning Digital Problem Solving

Merga (2024) found that adult learners need to acquire specific knowledge, skills and attitudes to work with data, digital information, and digital technologies. Our work in digital problem solving (Jacobs & Castek, 2018) engages learners in situations they have not encountered in the past where they need to problem solve in the dynamic and ever-changing setting of the online world. Learning digital problem-solving means learning-how-to-learn in an evolving digital world. Adapting to evolving digital contexts requires flexibility in the face of challenges that abound online such as maintaining safety and security of private health information. Jacobs and Castek (2022) demonstrate that working in collaboration with more knowledgeable peers can be important for individuals with limited access and skills in using digital tools.

Implications: Research-Based Pedagogies

Building on the foundations described in this research review, we encourage practitioners to support digital health literacies by situating instruction and practice in meaningful, real-life contexts. The need for contextualized practice across the four areas described above can be accomplished through a variety of approaches to instruction. We organize these approaches within three research-based pedagogies, each of which recognizes literacies as a social practice (Barton et al., 2005) and views learning as socially mediated (Lin et al., 2016).

Collaborative Learning

Van Laar et al. (2017) define collaboration as the ability to use digital technology to develop a social network, work in a team to exchange information, and make decisions to achieve a common goal. When teaching adult learners how to navigate online health resources, collaborative learning a beneficial approach to learning from one another (Johnson et al., 1998). Collaborative learning emphasizes the importance of working in groups, building on the strengths of all members, and valuing the lived experiences of adult learners. Structuring collaborative learning invites learners to bring their background knowledge and experiences to bear while evaluating health information, exploring websites and interfaces, learning digital tools, and problem solving with digital health resources found online.

Teaching learners in the dynamic and expansive digital world brings challenges and new situations in which to problem solve. Collaborative learning leverages the diverse knowledges and perspectives of all learners working together as they navigate websites, resources, and interfaces. Learners can support each other in recognizing navigational features, exploring potentialities, and making strategic choices. Opening up space for working collaboratively can help learners develop investigative abilities to track sources and corroborate claims as they read laterally (McGrew, 2020). Additionally, open discussions encourage learners to share real-world applications and strategies that help develop critical skills for evaluating online information (Jacobs & Castek, 2022).

Community-Based Adult Education

Community-based adult education (European Centre for the Development of Vocational Training, 2014) emphasizes the importance of working with adult learners in the context of their communities. It builds on the strengths of those communities to solidify connections. Sui and Facca (2020) argue for the importance of developing digital health instructional materials in collaboration with community members, emphasizing the importance of local relevance, for example in rural communities.

Teaching digital health literacies provides adult learners with the knowledge and skills they need to address the specific issues and challenges they face in their communities. Engaging community members, such as community health workers, in the process of developing instructional materials allows for an authentic focus on learners' relevant health concerns. Surfacing these concerns provides space for learners to voice their experiences and make connections to their lives.

Co-Teaching

Co-teaching emphasizes the importance of teachers working together to support the diverse needs of a wide range of adult learners (Friend & Cook, 2009). Co-teaching reflects a shift towards decentralized and participatory learning models and can be a useful approach for planning instruction for digital health literacies. The flexibility and collaboration of co-teaching encourages instructors to better meet students where they are, which is especially important given the multiplicity of skills, settings, and decisions involved in navigating digital health literacies. Co-teaching empowers diverse learning approaches and provides many opportunities for just-in-time learning. Moreover, co-teaching supports learners in ways that are responsive to their needs.

A useful resource to build on is *The Library Toolkit for Addressing Health Misinformation* (San Diego Circuit, 2023). Not only do these activities offer guidance for avoiding misinformation, but they also include editable versions of handouts. Learners can edit and expand the examples in the materials. During learning projects, adults can further develop these materials, engaging in editing digital documents and learning digital tools to communicate about health misinformation.

Learn more: https://libguides.sdsu.edu/library-toolkit-addressing-health-misinformation

Conclusion

In closing, adult educators know and understand their learners' backgrounds and are skilled in designing responsive instruction. The areas of digital health literacies outlined in this review are not simple to learn or teach but hold significant potential to impact the lives of adult learners. While research findings provide general guidance, our advice for educators is to find ways to engage the diverse backgrounds, knowledge, and abilities of learners (Ladson-Billings, 1994). By drawing on adult learners' knowledge and experiences, educators can create contextualized digital health literacies learning that forges personal connections for learners with meaningful life impacts.

Adult basic education educators are making great strides in learning with and from their students, but these efforts are sometimes overlooked largely because the work is not often published in peer-reviewed journal articles (Santos et al., 2019). The challenges adult learners face in navigating and learning digital health literacies are an imperative that calls for continued knowledge sharing among adult educators.

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