

Integrating Digital Literacy in Elementary Classrooms.

How integrating digital literacy skills in classroom instruction increases engagement and outcomes.

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echnology is ingrained in every part of society, and has never been more vital in schools and classrooms, and is entwined into the lives of elementary school students both in the classroom and outside of formal schooling. The changing landscape of learning through digital tools, and the shifting nature of how students access knowledge and information in and out of the classroom requires that they learn not only how to use the technology, but also to develop competencies that make them think, question, and wonder how to understand it. Technology is no longer sufficient as a separate lesson with disjointed learning goals; students as young as kindergarten benefit when digital literacy skills are taught explicitly in the context of their classroom. Though technology has been present in education for many years, the COVID-19 pandemic in 2020 threw control of these tools into the hands of teachers and children in a way that had never been imagined. This accelerated the integration of technology into the daily lives and lessons of children, and highlighted the need to merge digital learning and strategies into classroom practices. This shift transformed the role technology plays in education and the ways that teachers use digital tools and media to enhance students' learning experiences. The role of technology in society, in local and global communities, and in the lives of students and teachers is constantly



evolving, as students begin engaging with it from a very young age. The role of technology in elementary school classrooms, and the need for instruction about how and why to use technology effectively, has never been more important.

What is Digital Literacy?

The term 'digital literacy' was introduced by Gilster (1997) to describe "the ability to understand and use information in multiple formats from a wide range of sources...presented via computers" (p. 1) In the years since its introduction, researchers have probed and expanded that definition, and the terminology surrounding digital literacy has become multifaceted with many interpretations and applications (Nichols & Stornaiuolo, 2019). Organizations such as the American Library Association now describe digital literacy as "the ability to use information and communicate information, evaluate, create, and communicate information,



requiring both cognitive and technical skills" (2011). Others, such as P21 outline various skills or competencies that make up digital literacy using an array of terms to describe them. P21 specifically points to the ability for students to access and evaluate information, to use digital tools and information to learn and generate information, and to use technology to create new ways to share their learning.

Similar to the expansion of terminology, the role of digital literacy has also been amplified and transformed with advances in technology alongside massive shifts in access and classroom integration. This growth, accelerated by the COVID-19 pandemic beginning in 2020, has compelled educators to reexamine teaching and learning in the 21st Century, including how students engage in digital spaces and gain skills to become digitally literate and successfully navigate their increasingly digital world. Digital citizenship, the concept of existing in digital spaces and using tools



responsibly, is also incredibly important when immersing students in technology throughout their education.

Evidence supporting digital literacy development and the importance of streamlined classroom integration of digital competencies continues to emerge through research exploring the role of technology in elementary school classrooms. Digital literacy standards, developed by the International Society for Technology Education (ISTE), also provide a roadmap and benchmarks for educators, offering a framework to align a standards-based approach for digital literacy across grades and content areas. These standards aim to harness technology to develop individuals who are "empowered learners, digital citizens, knowledge constructors, innovative designers, computational thinkers, creative communicators, and global collaborators" (ISTE, 2016). ISTE emphasizes the importance of embedding these standards into curriculum, not as a stand-alone supplement, in order to best support students' success as digitally literate students and citizens.

Research has expanded to support the integration of digital technologies in teachers' instruction with students as early as kindergarten (McKenna et al., 2013). As they advance through elementary school, students are expected to engage with technology in an increasingly complex way, and researchers stress the importance of weaving critical thinking skills and digital content into their core curriculum to best

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prepare their students for college and "to bridge the skills-content divide" (Silva, 2009, p. 630). It is not enough to teach digital literacy and competencies in a vacuum; they must be taught within the context of the core curriculum in order for students to gain the most from using digital learning tools.



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Why is Digital Literacy Important?

Today's children are immersed in technology in and out of school; their lives inseparable from digital texts and tools. Although this immersion suggests that students can easily navigate and understand how to use technology, children are not innately digital literate, and must be explicitly taught digital literacy skills (National Association for the Education of Young Children, 2012). When interwoven with core curriculum and presented in a way that is developmentally appropriate, these skills support student achievement in and out of school, and better prepare them to live in this digital world.

There are substantial advantages of incorporating digital technology devices and resources into children's early educational experiences. The American Academy of Pediatrics notes that young students whose classrooms utilize digital devices, tools, and resources demonstrate increased engagement, are introduced to new ideas and concepts, and have more opportunities to communicate and collaborate with others (2016).

Research has also shown that developmentally appropriate use of computers can enhance the learning experiences of young children (Judge et al., 2004), and integrating digital technologies into students' educational experiences at a young age has been proven to enhance students' cognitive processes in addition to improved motor skills (Haugland, 1999). Additionally, a study exploring the use of iPad apps by five-year-old students in New Zealand found a correlation between the design and content of the apps and the quality of the children's engagement and learning (Falloon, 2013).

While research shows that using technology in elementary school classrooms has many benefits, researchers also highlight the need for explicit instruction on topics such as the appropriate use of technology, decision-making when interacting with digital technology devices and online resources, as well as expectations about digital citizenship and responsible technology use (NAEYC, 2012). These topics, among others, are increasingly important as the number of digital tools increase as students



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move through grades. Digital citizenship is an especially important aspect of digital literacy that supports students in their use of technology both in school and out of it.

How Does PebbleGo Support Digital Literacy in the Elementary Classroom?

PebbleGo offers teachers a robust platform to engage young students in digital text and a variety of tools to support their digital literacy development. Developed specifically for early elementary school integration, PebbleGo integrates content-rich non-fiction designed specifically for students as young as kindergarten, and integrates a diverse range of media, including digital text, oral reading, video, timelines, among others. Through its simple, and easily navigable platform designed for elementary school students, PebbleGo asks students to derive meaning through multiple modalities and offers students the opportunity to use, interpret, and integrate their learning in their classroom lessons.

PebbleGo is a supplemental resource that integrates easily into all core curriculum approaches. Not only does it give students entry to a wide array of texts and topics, it also encourages students to explore and make meaningful decisions about their topic through an easy and intuitive platform that even the youngest students can independently navigate. As teachers begin to encourage research strategies, PebbleGo creates an insulated and safe space for exploration and decisionmaking. Students can explore and learn new information with ease, and teachers can also direct students to specific topics or articles to encourage young readers, or engage in whole-group reading opportunities. This platform offers students the chance to share what they learned in PebbleGo Create through digital posters, which also can be shared with teachers and classmates. The social learning that is built into PebbleGo Create highlights the student choice and voice in the research process, and fosters creativity in how students share what they learned while they read.

PebbleGo's vast library of facts and easily navigable articles break down large topics into learnable sections, and teachers can utilize graphic organizers and collaborative projects targeting a particular unit of topic from their core text. These



flexible options invite teachers to think creatively about how to integrate PebbleGo into their current curriculum, and also builds the depth of student knowledge and interest as they are introduced to different texts.

PebbleGo also fits well into project-based learning and makes this type of project accessible for very young students. As students learn to navigate and search within PebbleGo's suite of tools, they are equipped to actively practice literacy skills in a digital environment through evaluation, synthesis, and analysis in a single setting that is fun, exciting, and inviting. The embedded tools, including embedded MLA citations and games provides tools that enable students to learn digital literacy and foster digital citizenship in elementary school.

Strategies for Implementing PebbleGo in the Kindergarten-6th Grade Classroom.

Portfolio Creation

PebbleGo Create can be used to assemble portfolios that give students the chance to share their learning over time. As they use PebbleGo Create, teachers can gather student work in a portfolio to show their growth over time, and to highlight various types of assignments that ask students to engage with the text in a variety of different ways. Through a portfolio, students can self-assess their own growth, determine their strengths and interests, and can also understand their range of reading throughout the school year.

Reliable Sources

Teachers can use PebbleGo to illustrate the importance of credible sources, even for the youngest learner. Teachers can choose an article on PebbleGo and share the embedded MLA citation. The teacher can highlight the purpose of a citation and why it is important. Teachers can ask students to choose any article they wish, and after reading the article, have students find the citation on their own. Students can brainstorm why citations are important, including reasons such as giving credit to the author, understanding if a source is trustworthy or credible, and to help others find the source in the future. Teachers can also have students read the article and then try to create the citation and then check it with the listed citation on PebbleGo.



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"Continents Jigsaw"

Students can utilize PebbleGo to learn about the seven continents in the world and teach their classmates what they learned. Teachers can group students into 7 groups and assign each group with one continent to read about and complete a graphic organizer to highlight key information. Then, students can use PebbleGo Create to make a slide that shares the most

important information about their continent with words, images, and graphics. Students then display their slide to the class and explain what they learned, how they chose what to put on their poster, and how they worked as a team to create their visual. Teachers should emphasize teamwork and skills in assessing this project in addition to the final product.



Playing Games and Making Games

Teachers can give students time to play some of the games that are embedded in PebbleGo, and also ask students to create their own games to show what they learned. The games such as Zoom, Multi Match, and Check, give students a chance to put their knowledge to use as they are asked to group topics or people together, use context clues to determine what a picture is portraying from very close up, and to remember details about the articles they read. After they have had a chance to play some of the games, ask students to choose an article to read and then create their own game for their classmates to play. Students can rotate around to different peers to read their article and play the game they created, or the teacher can ask one or two students to share their game with the class. These can also be saved for future use, and as a reward for finishing work early. Teachers can have students create their games using a digital tool, such as PebbleGo Create, or using art materials in the classroom.

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