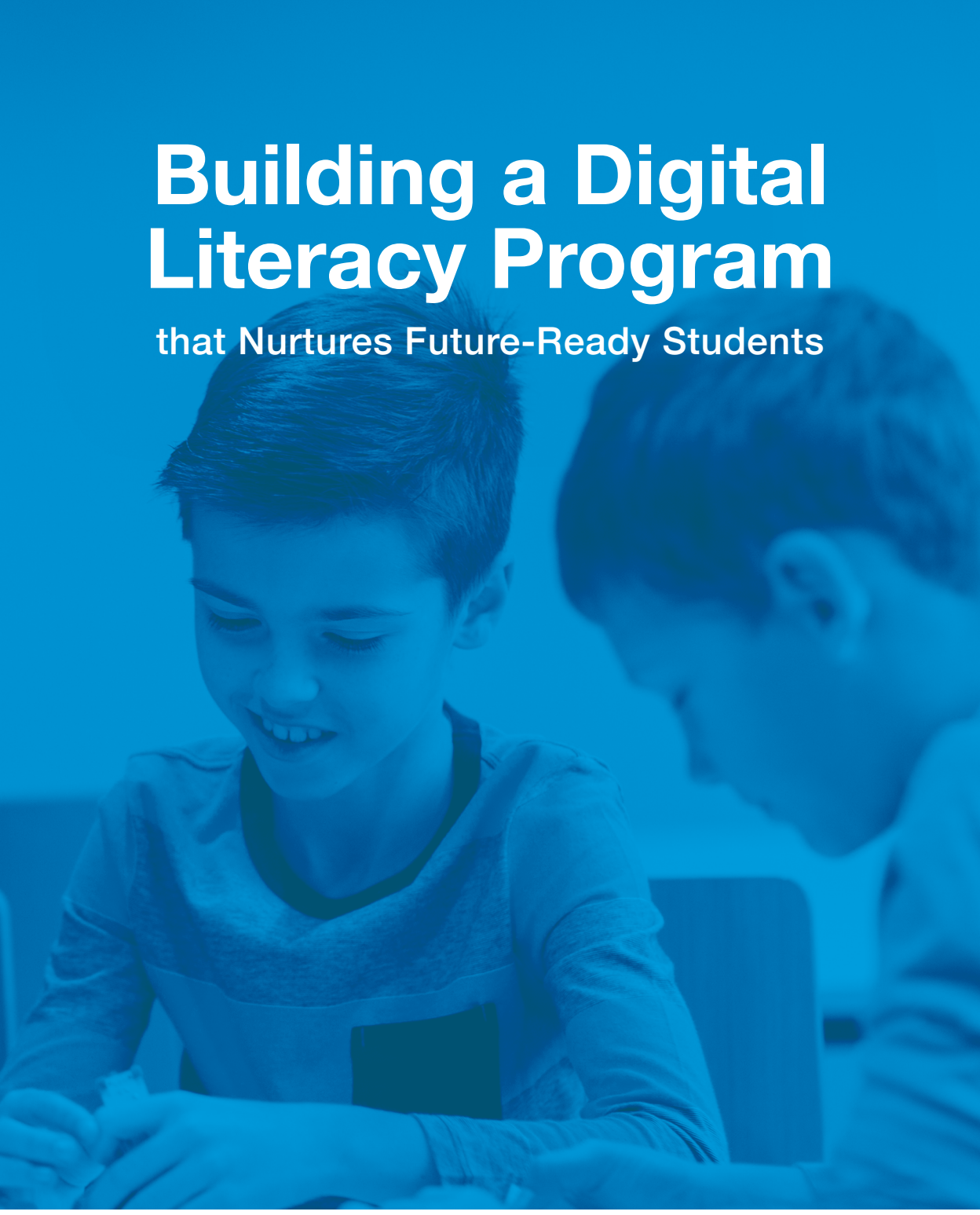
Building a Digital Literacy Program

that Nurtures Future-Ready Students



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CONTENTS

Digital literacy amplifies technology to transform the ways in which students learn, work, and socialize. By cultivating higher-order digital skills, students change the way they think about technology, which positions them for success in high school, college, and career. Indeed, digital literacy defines future-ready students, so it's no surprise that more and more schools and districts are instituting digital literacy programs.

Sounds great! How do I get started?

Well, it's complicated….

As any busy educator knows, developing and implementing successful programs can be a timely endeavor involving false starts and pivots.

We can't offer a perfect template for building a successful digital literacy program, mostly because there is no one-size-fits-all approach. In its place though, we have developed this quick-start guide that offers a sound process that we have refined through years of working with districts and schools embarking on this quest.

The process spans four phases:

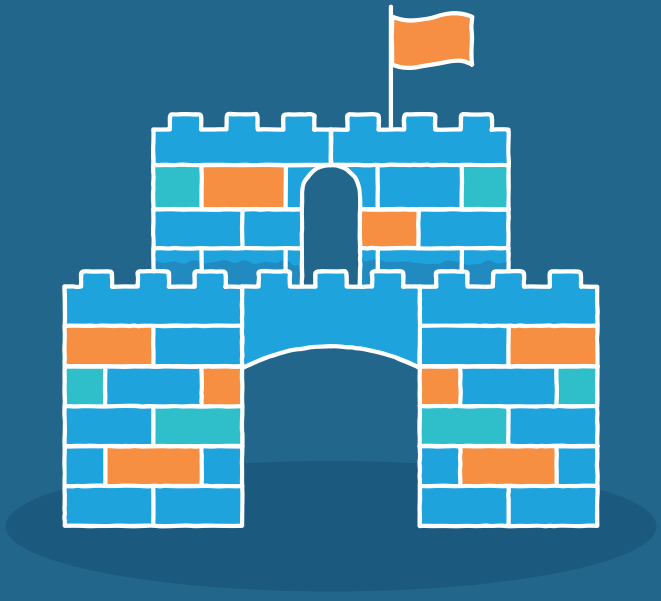
1. Articulate the program's vision.
2. Build an implementation model.
3. Scope a framework for alignment.
4. Engage teachers throughout the program launch and beyond.

Ultimately, this intends to cultivate a digital literacy program that is both inclusive and aligned. Inclusive refers to purposeful planning that originates from a consistent and specific vision that resolves to reach all students. By aligned, we are referring to vertical and horizontal planning that ensures learning begins with foundational digital skills that compound, grow, and connect as skills develop.

The result of this effort is an equitable and effective digital literacy program, *so let's get started.*

Chapter 1

Start with a Vision



There are several pragmatic reasons for having a digital literacy program. At a most basic level, these reasons often include aligning to standards; improving student performance on online assessments; and meeting requirements of various other initiatives.

Standards: Standards include ISTE, CSTA, and Core standards, all of which necessitate that students acquire digital skills to meet the prescribed benchmarks. These frameworks will be discussed more in a following section.

Online Assessments: By online assessments, we are referring to high-stakes exams administered on computers. Without being familiar with certain digital skills prior, results show that students are more likely to perform lower than counterparts who received adequate instruction.

Initiatives: Finally, initiatives like STEM, E-Rate compliance, and computer science also necessitate digital literacy instruction to develop students' digital skills.

These reasons are great starting points for developing a holistic vision for a digital literacy program. Standards are created to equip students high-level learning experiences. Assessment measure the efficacy of whether students acquire the skills they need. Initiatives intend to deepen student learning. Together, these constitute something much bigger:

Readiness.

LEGO and the Building Blocks for Change

In a Ted Talk, organizational change expert, Jim Hemerling, emphasizes the necessity of having a vision and inspiring stakeholders through a common purpose.

Jim's Ted Talk: 5 Ways to Lead in an Era of Constant Change

To illustrate, he shares an anecdote about The LEGO Group, which has undergone a multitude of programs to expand globally and create new products. According to Hemerling, what has made these successful is the common vision shared among employees: to "inspire and develop the builders of tomorrow."

Hemerling goes on to say:

"Expanding globally? It's not about increasing sales, but about giving millions of additional children access to LEGO building bricks. Investment and innovation? It's not about developing new products but about enabling more children to experience the joy of learning through play. Not surprisingly, that deep sense of purpose tends to be highly motivating to LEGO's people."

The lesson? Having a vision and purpose for a program unites stakeholders and encourages them to take ownership of their roles, to embrace the process, and to be a part of the solution. In a school setting, Hemerling likens this to standardized testing:

"This kind of approach is like the way some [teachers] approach preparing for standardized tests. In order to get test scores to go up, teachers will end up teaching to the test. Now, that approach can work; test results often do go up. But it fails the fundamental goal of education: to prepare students to succeed over the long term."

Jim Hemerling

Digital Literacy's Vision? Pursuing Future-Ready Students

So, returning to the topic at hand, when implementing a digital literacy program, it is vital that schools and districts articulate the 'why' behind the program and the common outcome all stakeholders will be pursuing. Digital literacy must be about enabling students to succeed over the long-term in an increasingly connected and digital world, cementing student readiness for the future.

We like to think of readiness as holistically spanning career readiness, academic readiness, and personal readiness. All of these futures will require foundational skills allowing students to continuously grow and adapt in the face of technology advances. But future readiness isn't just about knowing how to navigate computer interfaces, though important; it is instead helping students to leverage technology as a positive force in their lives.

What do we know about career, academic, and personal readiness?

Career Readiness: Jobs of the future require digital skills that are both the functional use of technology and the foundational skills that enable people to grow alongside and lead digital innovation. The most sought-after skills across job listings are technology-oriented, and these listings significantly outpace qualified applicant pools. Moreover, if we seek to prepare students for their future careers, technology education is an undeniable part of this.

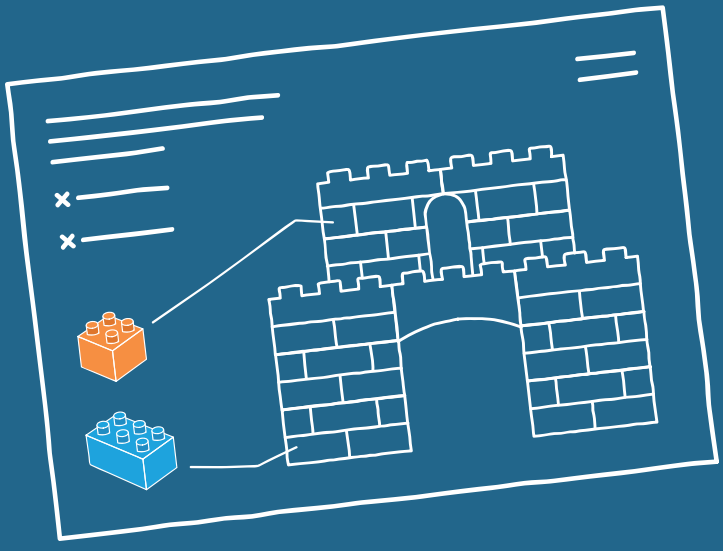
Academic Readiness: At every school level, digital skills are critical to enabling student learning. The value placed on these is also growing as states adopt technology and computer science standards, computer-based standardized tests, and incorporate technology into core accountability areas. Technology literacy is a gateway to student learning in the 21st century. Without it, the possibilities that digital tools bring to today's schools will not be fully realized.

Personal Readiness: This idea of social, savvy, and safe digital citizens is what embodies personal readiness. With the ubiquity of technology in our lives, students need to be able to be thoughtful users. Having the information and digital skills that empower students to productively, happily, and securely use digital tools is a critical step toward preparing students for their future.

Digital literacy indeed reflects the larger vision of education: future readiness that is comprehensive and purposeful. School and district leaders can use this common sense of purpose to rally the support of stakeholders and build a digital literacy program that equips students with elemental digital skills. Having an articulated vision unifies the process.

Chapter 2

Design the Implementation Model



Though broad, digital literacy does not require an entirely new class or take the place of other programs.

Instead, digital literacy fits well into the existing class structure at any school. So, what implementation model can we use for a digital literacy program?

Model Digital literacy in the Library

Libraries present the unique opportunity to experience the enmeshment of traditional and digital media, which helps students know how to skillfully navigate a holistic research process. As libraries evolve to include maker spaces, students use technology to be creators and problem-solvers in hands-on and collaborative ways. The benefits? Students have the opportunity to learn from experienced technology teachers, who can complement core instruction with technology practice, and all students have access to technology in labs when a 1:1 initiative is not in place.

Refocus Lab Time with Digital Literacy

Computer labs are great for hands-on learning and independent practice to help students explore technology and begin to address vital computer science skills. Like the library, computer labs offer the opportunity to learn from experienced technology and media teachers and ensure all students have access to technology when a 1:1 initiative isn't in place.

Enhance Core Classes with Digital Literacy

Integrating digital literacy into core instruction is an excellent approach for contextualizing technology and ensuring it is foundational to student learning. By including technology in this setting, students encounter diverse learning experiences that help to optimize their learning process. In fact, a CompTIA study found that nine in ten students believe regular technology use in the classroom will be integral to their future employment.

Practice Digital Literacy Through Hands-On Projects in STEM

STEM and STEAM programs offer students the opportunity to engage with technology in a hands-on fashion and in innovative ways that encourage students to be creators and inventors. Students have access to cutting edge tech like 3D printers, virtual reality, and game design. And again, students are learning from experienced technology teachers and have access to technology when working. These programs push the bounds of student imagination and encourage them to consider careers in technology.

While all these approaches serve a digital literacy program, there are cons to solely implementing within one setting. For example, computer and library media classes are usually intermittent; and, in some cases, computer science classes may be an elective. STEM and STEAM are often specific to only one building within a district. And in core classes, digital skills can be overshadowed by other content areas that teachers are prioritizing.

In all of these cases, a divided implementation model fails to ensure the digital literacy program is inclusive and well-aligned.

How to Best Implement Digital Literacy?

All of the Above.

The most effective implementation model is one that makes digital literacy accessible to all students and allows for consistent and purposeful practice. By integrating digital literacy throughout student learning, it spans the whole of the student experience:

- Deepen the complexity of skills in computer labs
- Reimagine how technology supports learning in the library
- Develop digital skills alongside core content knowledge in classrooms.
- Innovate with technology in STEM

But digital literacy doesn't stop here. Digital skills are easily developed in STEM and STEAM programs. Some teachers are even finding opportunities to bring technology to physical education, counseling programs, and art classes.

Designing a digital literacy program's implementation model should be an opportunity to reflect on the diverse ways that students can develop critical digital skills through engaging, hands-on, and constructive instructional methods. This sort of comprehensive implementation upholds the program's vision.

Chapter 3

Develop Alignment

To build a digital literacy program that is both equitable and effective, it is imperative that we develop a comprehensive scope and sequence. By delineating skills – and their progressive complexity – across different subject areas and grade levels, we define what students will learn in specific classes and what they will need to be able to know and do as they progress from one grade level to another.

This process ensures learning begins with foundational digital skills that compound, grow, and connect as students' skills develop.

It's Raining Standards

There are a multitude of standards that target digital skills, including Common Core, ISTE, and CSTA.

Common Core: Common Core Standards – and its state-specific variants – are grade and subject area standards covering ELA, math, and literacy for history, social studies, science, and other technical subjects.

ISTE Standards

ISTE: The ISTE Standards for Students provide the framework for developing higher-order digital skills. They are broad digital skills applied throughout the course of student learning.

CSTA

CSTA: The CSTA Computer Science Standards focus on computer science and related digital skills that are integral for career readiness in the 21st century.

Beyond these, there are other standards for content areas like social studies and science as well as library standards and STEM-centric frameworks to guide planning. By examining and curating standards, educators can better tailor the digital literacy program to fit the implementation model. After identifying the relevant sets of standards, alignment can be further delineated.

Mapping Vertical Alignment

In the same way that a novice pianist cannot play Mozart in a recital, students cannot use technology if they do not have the requisite skills to do so. A student will not be able to use a spreadsheet to analyze and interpret data and predict trends if they don't know how to enter data, work the formulas and functions, and create trend charts.

In sum, instruction must be vertically aligned to reflect when skills will be introduced and how they will expand and develop so that students are prepared to meet expectations in relevant grade levels.

When working through vertical alignment, the various sets of standards complement each other. For example, core standards help define the grade levels and subjects in which ISTE standards may be addressed.

EXAMPLE

Common Core Meets ISTE: In the following core standard for third grade, students must be able to: *Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.*

To reach this skill, students require media literacy and visual mapping skills, as well as more fundamental skills like typing and word processing, to manage their curated information.

To support students in doing so, this standard under ISTE's 'Knowledge Constructor' would also apply: *Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.*

Then, jumping ahead to sixth grade, the same core standard expands to: *Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.*

As this skill is developed, so is the 'Knowledge Constructor' with students now addressing this standard: *Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data or other resources.*

By understanding how digital skills grow vertically, the sequence becomes more clear. This sequencing can then be further constructed with horizontal planning.

Mapping Horizontal Alignment

Horizontal alignment addresses how the skills will be addressed in different content areas. When building horizontal alignment for a digital literacy program, schools and districts can assign skills and competencies based on subject area standards.

English Language Arts: According to the Common Core, seventh grade ELA students need to hone their word processing skills to be able to: *Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.*

Mathematics: In the National Council of Teachers of Mathematics (NCTM) standards, middle school math students must be knowledgeable of how to use spreadsheets to be able to: *Select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatterplots.*

Science: Then, the Next Generation Science Standards (NGSS) states that middle school students in Engineering Design must also develop computational thinking skills to be able to: *Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.*

Social Studies: Further, in the College, Career, and Civic Life (C3) standards, middle school students in Social Studies will also need media literacy and digital citizenship skills to be able to: *Evaluate the credibility of a source by determining its relevance and intended use.*

By using these examples, an initial start to a horizontal alignment might include:

- **ELA:** Constructing researched writing with word processing tools
- **Math:** Visualizing data with spreadsheets
- **Science:** Using algorithmic design (computational thinking) to develop solutions
- **Social Studies:** Scrutinizing digital content with media literacy (digital citizenship)

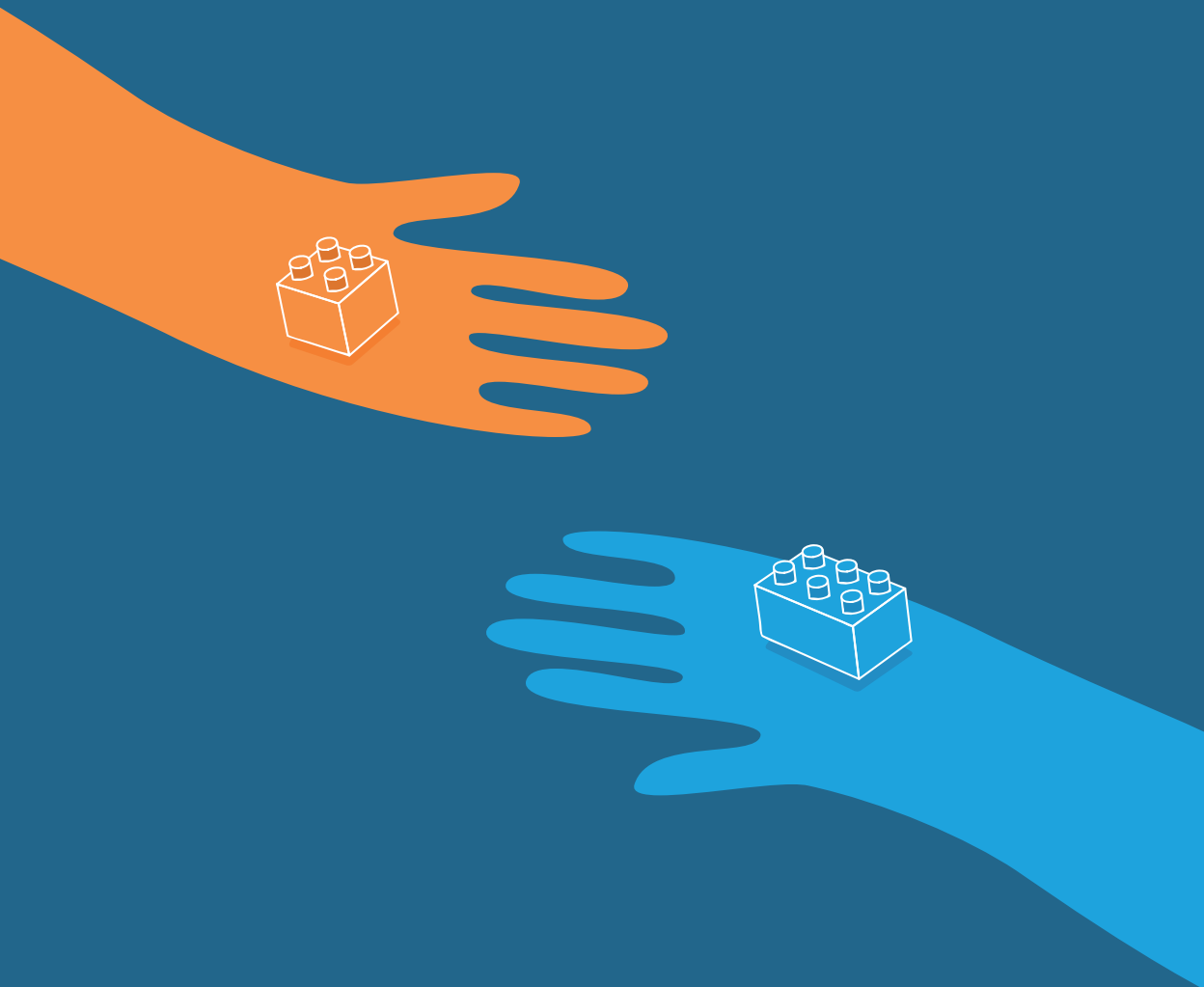
Beyond assigning focus by core subjects, digital literacy can also be incorporated elsewhere in curriculum. For example, computational thinking in a science class would benefit from coding lessons, which are easily integrated into computer labs. Digital citizenship under social studies also begets media literacy and research skills, which are readily targeted in a library setting. With this, the scope and sequence planning can be adapted to include:

- **Computer and Computer Science Classes:** Deepening understanding of algorithms with computational thinking
- **Library and Media Classes:** Discussing online researching responsibilities for digital citizenship

By delineating where and how skills will be taught, we optimize the implementation model and sow the program's vision. Alignment builds a more cohesive program, making disparate standards not so disparate and digital literacy not 'just another program' but an essential element to the entire learning process because, at its core, this program aims to transform the way students learn by empowering them with digital skills needed for future success.

Chapter 4

Empower Teachers to Teach Digital Literacy



Ultimately, empowered teachers empower learners. The success of any program, including a digital literacy program, rides on the ability of teachers to implement it in their classrooms, which means that teachers must be well-supported in order to achieve the program's vision.

An inclusive and aligned digital literacy program is only possible through the diligent work of teachers. So, how do school and district leaders ensure that there can be an effective digital literacy program?

What the Reports Are Saying

A study by PwC found that nearly two-thirds of technology use in the classroom is passive (watching videos and reading websites) with less than a third of technology use being active (producing videos, coding, and analyzing data).

Another report affirmed that, when using technology in the classroom, teachers are likely "digitizing traditional learning instead of enhancing it." The survey's respondents revealed that digital learning occurred through the following formats:

90%
use PDFs and Word documents

70%
use online videos

42%
use online games

Similarly, an AdvancEd study that performed classroom observations determined that only:

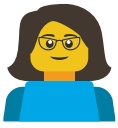
47% **of classrooms showed evidence of using technology to gather or evaluate information for learning.**

35% **of classrooms used technology to communicate or work collaboratively.**

37% **showed used technology to problem solve, research, or create projects and original works.**

Finally, in her thesis, Dr. Delnaz Hosseini assessed the barriers to digital literacy instruction in K-2 classrooms. She explains:

"Overall, results indicate that students are provided with opportunities to develop basic computer literacy skills…but they seldom engage in activities that promote the development of information literacy skills…which focus on the students' ability to gather, analyze, and effectively apply information acquired through digital sources."



Dr. Delnaz Hosseini

From the Teacher's Perspective

These results, though, shouldn't come as a surprise. In the same study by PwC, only 10 percent of teachers surveyed feel confident teaching higher-order digital skills. And eSchool News found that 78 percent of teachers feel underprepared to integrate technology into their teaching.

What does this indicate? Teachers do not yet feel comfortable teaching digital skills, which is reflected in the passive use of technology in the classroom. This is likely because teachers lack the training and instructional resources to do so.

Barriers to Tech: In Dr. Hosseini's research, teachers were asked to identify the most significant barriers to teaching digital skills. Unsurprisingly, lack of time, which includes competing priorities for limited classroom time and planning time to devote to technology lessons, was a resounding response.

Teachers also expressed student-related barriers like self-management skills, reading and writing abilities, age, and student-to-teacher ratio. These hindered the ability for students to meaningfully engage in digital literacy instruction and activities.

Supports for Tech: Aside from barriers to digital literacy instruction, teachers also cited enhancements, which included knowledge sharing about technology standards, demo lesson observations, district tech coaches, onsite tech monitors, and access to technology.

Interestingly, teachers expressed they were more knowledgeable about 21st century skills and digital literacy and less about adopted technology standards. This indicates that teachers understand the value of teaching higher-order digital skills but need the resources to address them in ways that align with grade-level expectations.

Teachers also ranked confidence to design technology lessons highly on the list of enhancements. Confidence really gets to the core of what teachers need to incorporate digital literacy in their classrooms. Tech monitors, tech coaches, and lesson observations help reinforce effective technology integration, allowing teachers to enhance their practice and grow through feedback. And knowledge of technology standards gives teachers the confidence to meaningfully address digital literacy within curriculum.

Similarly, participants in PwC's study rank their biggest needs for improved technology instruction:

79%
want more professional development

81%
want more funds to attend professional development

81%
want more 'release time' to attend professional development

81%
want more resources and other course materials

So, teachers need professional development, professional development, professional development, and resources.

Reimagine Technology Integration in the Classroom

If we return to the earlier listed barriers, a lot of these dissipate with training, support, and resources. With classroom-ready resources and an understanding of how to integrate technology into core curriculum, time problems are significantly reduced. Appropriate grade-level materials that are developed to maximize learning allow for a seamless integration of digital literacy. And ongoing support empowers teachers to grow as technology does, to also become *creators, innovators, and global learners, too.*

Digital literacy is not just another program in a long list of them; it is the program. At its core, this program aims to transform the ways students learn by empowering them with digital skills to succeed in their future. Teachers are the key realizing this vision.

School and district leaders must unite teachers around the common purpose for digital literacy by providing teachers with the necessary resources to deliver aligned instruction and adopt new ways of teaching digital skills in the classroom. By bolstering the implementation with professional development and on-going support, schools and districts will see the fruits of their labor with authentic learning experiences that nurture future-ready students.