

Careers in K-12 Design and Instructional Technology

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As we continue to see increased student access to educational technologies and devices in K-12 school settings, we also see expectations that educational technology should be used more frequently as a tool to enhance teaching and learning (ISTE, 2018; EDUCAUSE, 2022). Getting and succeeding at a job in K-12 settings requires individuals to have experience with contemporary technologies, a desire to maintain their technology skills through continuous professional development, and a willingness to become leaders in the integration of educational technologies to improve both teaching and learning.

Individuals may hold jobs in primary/secondary education that include being teachers, instructional designers, school-based technology facilitators, and school or district-based technology leaders. These individuals may hold expertise in teaching, instructional design (e.g., learner assessment, media use, instructional strategies), distance learning, digital technologies, and leadership in K-12 settings. Recent trends in instructional design and technology require individuals to also have some understanding of the following: flexible or personalized learning, active or experiential learning pedagogies, bichronous (online/in-person) instruction (Martin et al., 2020), flipped classrooms, virtual learning, cognitive tutors, maker spaces, computational thinking, and mobile technologies. Teachers have an interest in these technologies, but often need support to effectively integrate them into their classroom (Polly et al., 2023).

In this chapter, we will explore how to get and succeed at a job in K-12 settings. We will discuss the skills, knowledge, and roles of school personnel related to the field of educational/instructional technology; suggestions for professional development; and finding support within a professional community of support. In discussing these careers, we will present ideas related to the K-12 system for primary/secondary education in the United States, specifically the skills, knowledge and preparation for these careers.

Roles in K-12 Settings

In today's school districts and schools, technology and instructional design skills are required of individuals with various roles. Some of these roles are very specialized and narrowly focused on technology-specific instructional design responsibilities, while others are more general with technology and instructional design being one of many aspects of their job.

Classroom Teacher

As a classroom teacher in a K-12 setting, most states in the United States require you to obtain a teaching license from an accredited teacher education program. While some states require you to obtain a teaching license prior to becoming a full-time teacher, recent shortages in applicants for teaching positions have led many states to create pathways for individuals to begin working as a full-time teacher while they are simultaneously earning their teaching license.

Teachers draw from instructional design and technology skills on a daily basis. Teachers, in many cases, are given a set of content standards that describe concepts that they must teach. In some settings, teachers are also given curricula or resources to use or modify. In other contexts, teachers are expected to examine their content standards, design learning

experiences, and then implement them with their students. Teachers in K-12 classroom settings have varied levels of support and different resources depending on their school or school district.

In terms of technology-specific responsibilities, many teachers in K-12 settings now have access to iPads, Chromebooks, or other Internet-connected devices. Some districts have also purchased specific personalized programs (e.g., ALEKS, iREADY, Dreambox) and require students to spend a specific amount of time with each program, each week. In other contexts, teachers have more autonomy to use devices, Internet-based programs, and other software. The International Society for Technology in Education published their most recent Standards for Students in 2018 (ISTE, 2018; <https://www.iste.org/standards/iste-standards-for-students>). These standards call for K-12 students to actively use technology in ways such as exploring and investigating concepts, creating artifacts that represent their learning, and developing information literacy skills. In these instances where teachers have access to technology and autonomy, they must leverage skills and knowledge related to instructional design to create effective experiences for their students.

Building-Level Technology Specialist/Facilitator

Building-level technology specialists work in schools to provide technological support to school personnel. Most of these jobs involve basic hardware, software, and connectivity support; this requires individuals to have the knowledge and skills to troubleshoot technology-based problems while being the first line of support. In some states and school districts, these jobs may also involve teaching students concepts ranging from how to use specific tools to media use, digital safety, and technological literacy.

Often, in elementary schools (typically Grades K–5), students typically spend 45–50 minutes every five or six days in a computer lab for dedicated technology time. In these cases, the building-level technology specialist serves as the technology teacher, working with students on technology-rich projects or other technology-based activities. In middle and secondary schools (typically Grades 6–12), the building-level technology specialist/facilitator helps classroom teachers by providing consultation about using various technologies to support teaching and learning. In all of these cases, opportunities for these building-level technology experts to work with teachers on the design of technology-rich instructional activities varies greatly; in some cases, these individuals are only expected to be well-versed in specific technologies. In other cases, they are expected to be experts in technology, instructional practices, and curriculum.

In the United States, individuals who work in this role typically hold, or are in the process of earning, their state's technology specialist endorsement. Earning this endorsement typically includes completing courses offered through a graduate certificate or by a Master's degree program. Some of these programs also require the successful completion of an internship in a school setting. Since these requirements differ in various states—in some cases, districts—those interested in this role should make inquiries about specific requirements for this role. Some districts offer part-time assignments that combine the role of technology facilitators and teachers.

Media Specialist

The contemporary media specialist (also known as the library media specialist) typically has a Master's degree either in the field of educational/instructional technology or in a post-baccalaureate program that emphasizes in technology integration, multimedia development, or school media. Some states require a special license or certificate for these positions and some allow a bachelor's degree with other specific coursework. Media specialists generally must document prior experience as a teacher or other educational professional in K-12 education. Since media specialists serve the entire school community, they must have good oral and written communication skills and should be able to form effective interpersonal relationships with students, staff, and parents.

Media specialists must have basic librarianship skills such as the ability to select and provide access to a wide variety of materials that meet the needs of various learning situations. They also must be able to successfully interact with both teachers and students to support teaching and learning related to literacy and the use of technology. The most common requirement is the knowledge and ability to both work with technology and assist with classroom technology integration. The Media specialist does not typically serve to fix or trouble-shoot a school's technology; however, smaller

or more rural schools may expect these services. In this era of mobile devices, media specialists may be called upon to develop policy statements regarding the use of:

- access to mobile devices,
- student computer use,
- digital privacy,
- internet safety,
- student or faculty access to and use of copyrighted materials,
- and/or other topics related to technology in schools.

Media specialists are usually hired on a faculty contract that includes tenure and some additional days of responsibility at the start and end of the school year. Success as a media specialist requires frequent professional updates related to emerging technologies and their potential for supporting or extending instruction. One such area that has grown significantly in the last decade is blended learning. As the flipped classroom model has become more popular, the expansion of student access to classroom materials and the teacher through a combination of online, face-to-face, and/or synchronous computer-mediated technology has proliferated. The media specialist may be the bridge to these innovative instructional environments for faculty and parents. Many states have a state-level professional organization where media specialists collaborate on a regular basis.

Learn More About Blended Learning Practices

To learn more about blended learning practices, read Graham et al.'s (2022) book titled [K-12 Blended Teaching: A Guide to Practice Within the Disciplines](#).

District-Level Technology Leader

Almost all districts now have at least one person who works as a leader in administrative technology. These leaders often possess expertise in technology integration and teaching and learning. Their graduate school coursework typically includes concepts in both of those areas. Often these graduate programs include individuals working in K-12 schools as well as individuals who are studying how to be technological leaders in business and industry as well. In their jobs, these district-level technology leaders carry responsibility for the development, implementation, and evaluation of district-level and sometimes school-level technology plans ([example](#)). These administrators are also responsible for managing budgets, purchases (e.g., comparing products, contractual agreements, user plans), installments, warranties, service and/or upgrade agreements, insurance coverage, and safety for all technology in the district. They may play a major role in the development of district-level policies related to technology and, at a minimum, have the administrative responsibility to monitor the fair and legal implementation of all such policies. They have supervisory responsibility that varies but often includes district “technicians”: personnel who fulfill technology maintenance and installation roles not related to students or faculty. District technology leaders usually interact closely with the local school board, superintendent, other academic administrators (including principals), and sometimes the media specialists.

District technology leaders are typically hired on through “at will” administrative contracts that are year-round and may stipulate a timeline for review and renewal. They are often members of the Council of Chief State School Officers (CCSSO) (see <http://ccsso.org/>). The CCSSO offers regular workshops and professional development opportunities related to contemporary and emerging technology use and integration issues. These individuals have typically served as a school-based technology specialist before taking on this larger role.

State Technology Leader

State technology leaders are typically entrenched in the communities of both K-12 education and educational policy. Like district-level technology leaders, these individuals have to manage and work with budgets and contracts. They are also required to help to make sense of federal or state policies related to technology access or technology tools that influence the work of school districts and personnel in K-12 settings.

In many cases, these state technology leaders work closely with other state leaders from divisions within state departments of education. These divisions include curriculum and instruction, assessment and accountability, school performance, accreditation, and so forth. In the past decade, one of the larger issues has been the increase in administering high-stakes state assessments via the internet on laptops and desktops. In many cases, state assessment and accountability leaders must work with state departments of education to make these decisions and set policy and implementation guidelines. State technology leaders must also advise and consult with state department of education personnel and other state leaders to ensure that adequate connectivity and infrastructure are in place for high-stakes assessments to be administered online.

State technology leaders also have potential to influence and drive policy and initiatives that influence the entire state. For example, many states who have endorsed and implemented initiatives to turn classrooms into 1-to-1 technology-rich environments do so only through funding and political support driven by the state department of education and other state technology leaders. Another example is the growing demand for blended classroom options in K-12 settings which also relies on extensive Internet access, strong infrastructure, and student access to computer-based technologies outside the classroom. Most state technology leaders have served as district technology leaders prior to taking on this expanded role. They often rely on sharing ideas about new opportunities or state-wide initiatives with their colleagues in surrounding states.

Instructional or Curriculum Designer

As more companies develop technology-based programs and other educational materials for K-12 schools, there are job opportunities for individuals to serve as instructional designers to help design and develop these resources. Instructional designers are sometimes referred to as curriculum developers. These individuals typically have two distinct types of backgrounds. Some individuals enter this role from an instructional design background where they have taken graduate courses or have earned a graduate degree in instructional design. Other individuals come to this role with teaching experience and either a graduate degree in curriculum and instruction or in a specific content area (e.g., literacy education, mathematics education, etc.).

In this role, instructional or curriculum designers design or create the learning experiences that will be included in the programs and resources. Based on individuals' background knowledge, they serve as the designer or the subject matter expert (SME) to work on the development of resources. Instructional designers who do not have the background to serve as the SME typically plan instruction, develop technology-rich activities, and consult with the SME about iterations of the product. Individuals with the background to serve as the SME typically ensure that the content in the educational resource is effectively included.

In recent years, there has been an interest for curriculum and instructional designers to create products and resources that can be used in online contexts. These include technology-based educational programs and curricula that teachers can use in online settings with K-12 learners. As interest continues to grow in K-12 online learning as well as the use of the technology-based programs and products in K-12 schools, these roles will continue to be more prevalent.

Professional Learning Facilitator

Professional Learning (also known as professional development) facilitators and consultants support the integration of technology in K-12 settings by working directly with teachers, school-based technology specialists, media specialists, and district technology leaders (Avci et al, 2020). Professional development facilitators either work in this role full-time or serve primarily in another role while facilitating professional development as an additional or secondary

responsibility. These individuals are well-versed in working with district and state leaders to identify teachers' needs and design and implement learning experiences to support teachers' use of educational/instructional technologies.

Individuals in this role are usually members and state affiliates of the International Society for Technology in Education (ISTE). In some cases, these individuals are also members of Learning Forward (formerly known as the National Staff Development Council) which focuses on issues related to teacher professional development. For those interested in this work, a good starting point is to facilitate sessions at district, state, and national educational technology conferences. This initial work will give you experience in planning a short professional learning experience for teachers and allow you to work with teachers in a lower-risk environment. Partnering with other professional development facilitators may also provide opportunities to experience development and delivery of professional development workshops that extend or enhance introductory professional development activities.

Developing Your Professional Learning Network (PLN)

For those seeking jobs in K-12 settings, it is essential to establish ways to continue your learning through a professional learning network (PLN). The development of your PLN is recommended for a few reasons:

1. A well-rounded PLN should include teachers, educational technology leaders, and educational technology organizations. This increases the likelihood that you will stay abreast of technologies and innovations that are being used in K-12 classrooms.
2. Educational bloggers typically share links to recent blog posts through social media platforms such as Twitter or Facebook. It is more efficient to access longer blog posts through social media posts—that are curated to match your interests—than it is to subscribe to and/or read several blogs weekly.
3. Twitter chats continue to be a popular way of networking with individuals who work in K-12 contexts. These occur when an individual or organization hosts a Twitter chat by posting a series of questions to which others respond, creating an asynchronous, open conversation. Twitter chats are a great way to learn a lot of information about a topic, exchange a lot of ideas in a short period of time, and expand your PLN by engaging with others.
4. Networking leads to professional relationships. By being active and participating (reading, posting, and responding to others) through social media, you are forming a professional network that leads to professional relationships with others who share your interests and offer a variety of experiences and support.

As you think about your social media presence and the development of your PLN, we would be remiss not to mention the need to be cognizant of what you post on social media and how others may interpret posts on your accounts that are not related to education. One thing to consider is to keep a social media account for professional use, and a separate one for personal use. If you end up using the same social media accounts for both your professional and personal lives, please remember to be responsible about what you post and attentive of the photos that you are tagged in or associated with. Many employers, especially in K-12 settings, are very sensitive to the social media presence of potential employees. Also, remember that in this era of "Googling" everything, your current or future employer, the parents of your students, and/or your students may choose to "Google" you and find all your social media activity. Remember that this is your professional reputation you must protect!

Success in K-12 Contexts

Regardless of the position(s) you are seeking in K-12 settings, there are a few recommended dispositions that will likely contribute to your success. We detail these below.

Collaborative

K-12 settings are collaborative environments that require all school personnel to work together with the common goal of supporting student learning. As an educational technologist in K-12 settings (regardless of your specific role), your

path is likely to intersect with administrators; teachers; building-level instructional leaders; as well as district and state leaders who focus on administration, curriculum, and testing/accountability.

Typically, your work with people such as these will be to problem solve, troubleshoot, and plan technology-related efforts to support teaching and learning. Since these different roles represent different interests, with each requiring a unique niche of expertise related to K-12 settings, successful K-12 educational technologists must be adept at listening to and working with people from different professional and cultural backgrounds. Knowing as much as possible about the roles, responsibilities, and backgrounds of the individuals you interact with will increase the likelihood that your interactions will be positive and beneficial.

Flexible

The world of educational/instructional technology is ever changing as new tools are developed and new devices are proliferating. K-12 settings may change rapidly too, as initiatives from district and state boards of education, and superintendents serve as a catalyst for new projects. As individuals in these leadership positions change, it is important to maintain a flexible perspective while coping with these changes. Continually ask, “How can I positively contribute to these new efforts?”

The ability to be flexible is also important when working in school settings with administrators and classroom teachers. Research indicates that technology is likely to be used by teachers who feel supported to use technology and who have access to onsite help in their school building (Glazer et al., 2009). Since school-based technology leaders work closely with classroom teachers, you should be ready to roll with the punches and be flexible if teachers modify planned technology-related lessons and projects. Often, as an educational technology leader in a K-12 setting, your job is to provide consultation and brainstorm ideas for teachers and other school personnel to help them make decisions that they feel are most likely to help students succeed.

Learner-Centered

In technology leadership roles, your learners include educators you are working with as well as K-12 students. Being learner-centered means prioritizing the needs of educators and K-12 students that you interact with. This information could be determined by looking at data about K-12 students' learning, surveys of educators and educational leaders about their interests and perceived needs related to technology integration. Additionally, being learner-centered includes designing professional learning opportunities and providing resources based on learners' needs. Additionally, technology leaders may also collaborate with administrators and curriculum leaders to develop technology-rich experiences to support the learning of these concepts.

For district and state educational technology leaders learner-centered work may include multiple responsibilities. This may include analyzing the needs of districts and schools in terms of technology access, technology professional development or interests, and working on developing and refining initiatives to help meet those needs. Without a doubt, learner-centered work is not the historically common mass production of one-size-fits-all professional learning, new projects, or the purchase of new technological tools. Further, learner-centered work is also not a one-time experience that can be implemented without follow-up and support. Research shows benefits of professional learning that is ongoing, comprehensive, and embedded in the daily work of teachers (Lawless & Pellegrino, 2007; Polly & Orrill, 2012).

Committed to Learning

As stated earlier, educational technology work in K-12 settings requires keeping up with changing infrastructure, technologies, audience demands/needs, and approaches to teaching and learning in classrooms. To be successful in K-12 settings, being a lifelong learner who seeks out new information is essential. Most school districts and state departments of education mandate professional learning experiences for all employees. These may include attending workshops, courses, and conferences. Such opportunities to stay on the cutting edge of K-12 technology use are invaluable, and you should definitely take advantage of them.

Summary

The potential for educational/instructional technologies to support, enhance, and extend effective teaching and improved student learning is documented in research and literature over many decades, but there continue to be examples of the misuse of technology in our schools. The need for all instructional personnel to understand and implement basic instructional design skills with technologies cannot be over-emphasized. The proliferation of blended learning options in K-12 is a global phenomenon. You may find the chapter by Persichitte, Young, and Dousay (2016) useful. In it, the authors distinguish blended from online learning settings; discuss different types of learner assessments; and describe contemporary trends, challenges, and recommendations for the effective assessment of learning in blended and online courses. The content targets teachers, instructional designers, administrators, and program managers of K-12 blended and online learning settings. Suggestions for using web-based communication tools for feedback and assessment are included, and the authors conclude with a discussion regarding implementation and assessment in these learning environments that deserve additional attention and consideration.

The jobs we have described in this chapter provide a great opportunity for professionals like you to influence the improvement of technology integration in K-12 settings and learner outcomes. You can become a “dynamic digital scaffold” —that is, “a model for blended learning that leverages technology and online programs to help teachers improve instruction at scale by personalizing the students’ learning experiences” (Willcox et al., 2016). As this type of scaffolding, you will not be replaceable by technology as you will provide “unique contributions . . . to education through [your] perception, judgment, creativity, expertise, situational awareness, and personality” (p. 39).

Examples of such personalized learning are being documented in technologically-rich, face-to-face classrooms and in emerging K-12 virtual learning classrooms. So, this comment from the National Education Policy Center (NEPC) press release for *Virtual Schools Expand Despite Poor Performance, Lack of Research Support, and Inadequate Policies* reminds us of the system-wide nature of the work of educational technology professionals in K-12 settings: “An analysis of state policies suggests that policymakers continue to struggle to reconcile traditional funding structures, governance and accountability systems, instructional quality, and staffing demands with the unique organizational models and instructional methods associated with virtual schooling” (Molnar, 2017).

Final Advice

We close this chapter with a few suggestions for you as you consider your career options related to educational technology in K-12 systems today. Skills and knowledge related to technology integration and instructional design can be the “edge” that gives you the advantage in a K-12 search for any of the positions described in this chapter.

- Take advantage of as many opportunities as possible to expand your professional and personal uses of technology.
- Take care of your social media presence in all situations and in all media.
- Take active steps to develop your PLN and nurture its growth as your career progresses.
- Anticipate that, in the future, you will be expected to use technologies to connect and communicate with parents, learners, and others in ways you never anticipated.
- Consider career options that allow you to blend your instructional expertise with your interest and experience with technology.
 - For those with an instructional design background, what knowledge and skills would help you leverage technology more effectively?
 - For those with a technology background, what instructional skills and knowledge would help you impact teaching and learning more effectively?

Organizations to Consider for Additional Learning & Support

Edutopia: <https://www.edutopia.org/>

Gates Foundation: <https://www.gatesfoundation.org/>

International Society for Technology in Education: <http://www.iste.org>

Learning Forward: <https://learningforward.org/>

Lumen Learning: <https://www.lumenlearning.com/>

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