



## Blended Learning Tool Kit



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UnidosUS, previously known as NCLR (National Council of La Raza), is the nation's largest Hispanic civil rights and advocacy organization. Through its unique combination of expert research, advocacy, programs, and an Affiliate Network of nearly 300 community-based organizations across the United States and Puerto Rico, UnidosUS simultaneously challenges the social, economic, and political barriers at the national and local levels. For almost 50 years, UnidosUS has united communities and different groups seeking common ground through collaboration, and that share a desire to make our country stronger. For more information on UnidosUS, visit [www.unidosus.org](http://www.unidosus.org) or follow us on Facebook and Twitter.

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# Blended Learning Tool Kit

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In 2014, the WFD team developed the UnidosUS Contextualized Bridge Program Tool Kit, which provided UnidosUS Affiliates with the materials and resources they need to develop and implement a bridge program curriculum that can be contextualized to different industry sectors [such as healthcare, manufacturing, customer service, or transportation, distribution and logistics (TDL)]. The tool kit is now widely used by Affiliates that provide bridge programs and GED programs to their constituents. This Blended Learning Tool Kit is a companion piece to the Bridge Tool Kit, and a response to Affiliates requesting additional information on digital literacy, technology integration in programs, and blended learning models in order to create programs that better prepare their constituents for the modern workforce.

Working Latinos remain behind the mainstream in education. Latinos are the largest racial or ethnic group in the workforce, but have the lowest educational levels. While 72% of Latinos in the workforce age 25 and older have at least a high school degree, 90% of Whites and Asians have this credential.<sup>1</sup> Yet, according to a survey conducted in 2016 by the Pew Research Center, an overwhelming majority of Latinos rank education as a top priority, but indicate that their need to support their families financially often poses a barrier to pursuing it.<sup>2</sup> Other barriers include limited English skills, a dislike of school, and a feeling that they do not need more education for the careers that they want.<sup>3</sup> These surveys underscore the pressing need for new models that help Hispanics further their education and build workforce skills.

Further, there is an urgent need to build digital competencies. With the ubiquitous spread of technology, and access to often free or inexpensive Internet service, Hispanics have

become just as connected as other Americans in owning smartphones, going online from a mobile device, and using social networking sites. The new digital divide is no longer focused on “access” to technology, rather it is focused on “use of technology and digital skills.”<sup>4</sup>

The “digital divide” among students and workers is most acute in their ability and comfort with using technology to navigate their environments, apply for and get jobs, further their education, advance in their careers, solve problems, and make decisions.<sup>5</sup> The disparity between students who use technology to create, design, build, explore, and collaborate, and those who simply use technology to consume media passively, generally correlates with income.<sup>6</sup> In fact, building digital literacy is now accepted as a component of basic literacy and as a workforce development activity, as demonstrated by the Workforce Innovation and Opportunity Act (WIOA) of 2014.\*

## Purpose of Tool Kit

This tool kit is designed to guide the organization through the process of identifying and defining the need for blended learning, gaining buy-in from instructors and staff, and preparing to integrate technology into programs. It can also help organizations take the first steps in developing, launching, and evaluating blended learning programs. The most successful blended learning courses are tailored and refined over a period of time to fit the specific learning needs, resources, and digital skills of instructors, students, and providers. No one size fits all.

The tool kit outlines:

- What blended learning is, its advantages and challenges
- Strategies for building blended learning programs
- Technology tools and resources for planning and delivery
- Examples of blended learning programs
- Checklists and planning tools to help frame coursework for bridge programs, achieve high-school equivalency (like GED, HiSET), and English as a second language (ESL)

The tool kit is for instructors, tutors, program coordinators, coaches, administrators, and service providers at all levels of experience using technology in instruction. It will help them move participants from where they are to the next level of digital integration and ultimately to a full blended learning program. The worksheets and checklists can be used to assess baseline conditions and abilities. The text focuses on essentials and basics. The references and resources sections cite resources with greater depth and detail and include blogs, websites, guidebooks, reports, research, tools, curricula, and professional development training. They can be accessed for information on particular topics and issues while reading the tool kit, or as needed in designing programs, and preparing lesson plans and professional development opportunities for instructors.

\* Technology is an accepted component of literacy as defined in the U.S. Workforce Innovation and Opportunity Act (WIOA) as students use technology in all types of jobs and as an integral part of their daily lives. U.S. Department of Education, “Integrating Technology in WIOA,” U.S. Department of Education, Office of Career, Technical, and Adult Education. Accessed April 2017. <https://www2.ed.gov/about/offices/list/ovae/pi/AdultEd/integrating-technology.pdf>.



# What Is Blended Learning?

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Blended learning is an educational approach that combines online digital content with traditional classroom activities. The term “blended learning” refers to the structure of a course and the approach to teaching and learning in which, generally 30% to 70% of the instruction is delivered online, with the remainder delivered in the classroom. Those courses with less (than 30%) online learning are classified as classroom instruction, and those with more (than 70%) are predominantly classified as distance learning.<sup>7</sup> Blended learning courses use distance learning in combination with classroom instruction to provide course content. Although the definition varies among experts,\* three key elements are at the core of the model:

- A blended learning program takes place both in a supervised physical location away from home, and online; and, there is a seamless connection between the online and classroom work. The online portion informs what happens in the classroom, and classroom activities build on, amplify, and apply what is learned online.
- Instructional activities are restructured from a traditional teaching model. Instructors are no longer at the center of direct content delivery. They provide the content framework, information resources, and one-on-one support, and they facilitate group-learning tasks and solve problems. Web platforms may be used to introduce content and offer lessons rather than the instructor doing so. Classroom time is dedicated to discussion, feedback, group projects, and individual assistance. Group assignments and classroom discussions foster peer learning and sharing. Instructors may increase communication with individual students who have specific questions and needs while others are working independently, and continue the communication with individual students online.
- Students have more control over the timing, pace, place, and path of their learning. There is increased student-to-student collaboration and sharing, and increased student and instructor communication. Students can learn and reflect at their own pace. Those who are having difficulty may take more time to review lessons and complete their assignments. Others who are learning at a faster pace may seek additional information on a topic and move ahead to the next lessons.

In online learning, students use a computer to read or view the curriculum or complete assignments. They may be at home, in a computer lab, in other external locations, or in the classroom. The online component may be offered synchronously (as the teacher is teaching) or asynchronously (accessed any time). Synchronous online learning components occur in real time, where students and teachers are interacting and accessing the online content at the same time.\*

\* These definitions are widely used. See more: David Rosen, Ed.D, and Carmine Stewart, Ph.D, Blended Learning for the Adult Education Classroom. Accessed May 2017. <http://app.essentialized.com/resources/blended-learning-teachers-guide-web.pdf>; Jeff Seaman, I. Elaine Allen, and Richard Garrett, Blending In: The Extent and Promise of Blended Education in the United States, the Sloan Consortium, 2007. Accessed May 2017. <https://www.onlinelearningsurvey.com/reports/blending-in.pdf>; “Blended Learning Definitions,” Christensen Institute. Accessed May 19, 2017. [www.christenseninstitute.org/blended-learning-definitions-and-models](http://www.christenseninstitute.org/blended-learning-definitions-and-models); and Clifford Maxwell, “What Blended Learning Is—And Isn’t,” Blended Learning Universe, 2016. Accessed May 2017. <http://www.blendedlearning.org/what-blended-learning-is-and-isnt>.

Usually, the online component in blended learning is asynchronous, that is, available both during and outside of the face-to-face class, whenever a student can make time to access it. Asynchronous online learning can be offered within a scheduled timeframe. For example, teachers can assign lessons, modules, or units of instruction for students to complete within one to three weeks. Since the lessons are accessible online, students can access them at their convenience or complete them on a set schedule.

Technology integration and blended learning both use technology as a tool for students to learn. But the concepts are different. Blended learning refers to the structure of programs that combine face-to-face and online learning. Integrated technology offers important and essential instructional tools. In blended learning courses, students use a variety of technology tools and access digitally sourced information that match the task. The technology is used as a way to supplement, reinforce, and enhance the depth and content of learning.<sup>8</sup>

## Why Blended Learning?

Blended learning models can meet the needs of constituents who require academic and employment skills training but are unable or reluctant to commit to attending an in-person class. These models are well suited to the needs and aspirations of participants enrolled in bridge, GED, and workforce training programs as they strengthen adult education programs and transform the learning process by using technology to enhance instruction, personalize the learning experience, and increase the convenience for participants while retaining the personal connections and dynamics of the classroom.

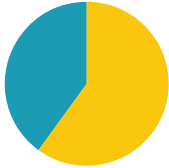
The powerful combination of online and classroom instruction is especially attractive to community-based organizations and their students for multiple reasons:

- The wide range of digital learning tools and content meet diverse learning needs, styles, and goals.
- The online portion of the class enables students with work and family responsibilities to fully participate at more convenient times and locations that fit their schedules, and lessens restrictions that can be caused by limited access to or the high cost of transportation.
- The provision of learning outside the classroom provides opportunities for community-based organizations to expand the use of limited space and equipment for additional classes.
- The contextualized development of digital competencies prepares students for employment and further education.
- The personal connections that are formed in the classroom build students' trust,

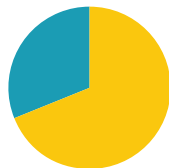
\* Detailed information and practical applications for use in designing a blended learning program can be found in *Blended Learning for the Adult Education Classroom*.

accountability, and motivation.

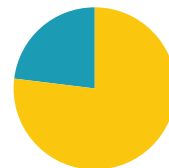
Wide variations in adult learning programs make statistical analysis of the outcomes and impact of blended learning difficult. However, data from the Texas Educating Adults Management System (TEAMS) shows that adults in blended learning (referred to in the report as “hybrid learning”) outperform both those in a traditional classroom as well as those who receive more than 50% of their contact hours at a distance. For example:



“In 2009–2010, 66% of hybrid learners completed at least one level, compared to 53% each for distance and traditional classroom learners.”



“In 2010–2011, 76% of hybrid learners had level completions, compared to 60% each for distance and traditional learners.”



“In 2011–2012, hybrid learners “still had the highest percentage of completion (73%), compared to 60% for traditional classroom learners and 66% for primarily online learners.”\*

Similarly, a California State University analysis of 2004–2005 federal data for adult learners shows that in Adult Basic Education and ESL courses, blended learning produces the highest rates of persistence, followed by those with mostly distance learning and purely traditional classroom courses.

\* Glenda Rose, “ELL Community of Practice” Blog, LINCS, December 2014. Accessed May 17, 2017. <https://community.LINCS.ed.gov/comment/9097#comment-9097>.





# Advantages and Challenges of Blended Learning

Blended learning models have several advantages over purely classroom instruction and purely distance learning. First, adult students often face barriers to attending and completing courses, due to unpredictable schedules, transportation challenges, childcare responsibilities, and the demands of work and home, which can be mitigated by having content and assignments available online. Second, many classes are comprised of students with a diverse range of basic skill levels, learning needs and styles, and goals. Blended learning programs lend themselves to solving these differences by providing students with the opportunity to learn at their own pace and according to their own schedules. Third, the culture, support, and interpersonal relationships built in the classroom are critical to student persistence and success, and blended learning programs capitalize on that during the classroom time. Fourth, they embed computer and digital competencies into the curricula or program. A summary of advantages of blended learning includes:

- Students can participate at times and in locations that are convenient for their schedules.
- The flexibility built into technology tools gives students more control over their pace of learning and the type of delivery that best suits their learning styles—e.g., audio, visual, or text—and the opportunity to pursue content that most interests them. Students can get as much practice as they need without holding others back or seek additional information without diverting focus.
- Technology can be leveraged to accommodate the needs of low-performing, at-risk students, and students with disabilities.

- The contextualization of building digital literacy and online learning skills helps prepare students for employment, further education, and meeting their personal goals.
- The extent and depth of student-to-student collaboration, student-instructor communication, and active learning can be increased.
- Immediate feedback enables students to see their progress, and frees instructors from correcting student work.

Instructors are finding that the innovative structure, pace, relationships, and vehicles of blended learning in adult education result in:\*

- Improved motivation, attitude, and interest in learning
- Improved persistence
- Improved academic performance
- Increased depth and breadth of content
- Improved higher order thinking and problem-solving
- Student preparation for the workforce

When considering a blended learning program, it is important to identify and understand all the challenges in building the course. These challenges may be viewed as part of a baseline to be considered in formulating a plan for acquiring technology, taking first steps in integrating it into lessons, and building a program. Organizations face a number of common challenges in developing and implementing blended learning programs. These include:

- There may not be enough computers or laptops to support the number of students enrolled. Students may have to share computers during class, and may not be able to use the computer before or after due to other scheduled classes.
- Instructor(s) may have limited experience using technology in instruction, lack confidence in their ability to learn, and are resistant to change.
- Technical support available onsite may be limited.
- Students may have limited experience and confidence in using technology in learning.
- Student access to technology outside the classroom is varied.
- Facilities and space may be inadequate.<sup>9</sup>

\* These observations are based on a combination of information resources and participant interviews that were conducted by UnidosUS staff and consultants with representatives from four providers of adult education and GED classes. Interviews were conducted from January to March 2017.

# Strategies for Building a Blended Learning Program

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Blended learning programs are generally developed and improved over time, often in phases. The starting point varies depending on experience in using technology in instruction, technology available to students in and outside of the classroom, resources, and the technology skills of instructors and students.

There are several steps to building a blended learning program that are detailed in this section:

1. Assess the Need and Opportunity for Blended Learning
  2. Plan the Program and Build Organizational Capacity
  3. Prepare the Instructional Environment
  4. Develop the Curricula
  5. Assess Program Success
-



# 1. Assess the Need and Opportunity for Blended Learning

The purpose of developing blended learning programs is to provide flexibility in learning, and to strengthen the quality of instruction and outcomes. An initial step is to conceptualize how blended learning and technology may be used to add value to content delivery, assignments, and course management. A critical assessment of the current curriculum and lessons will help pinpoint areas to start.

Assess:

- What works and does not work in the existing curriculum
- What engages students the most or least
- Which topics or lessons are particularly difficult
- Which problems in comprehension, motivation, and applications should be improved or solved
- Which learning objectives are not currently being achieved

Once there is agreement that blended learning might add value, the next step will be to assess the digital literacy of current instructors and students. This will help determine readiness for offering blended learning and the degree to which technology and digital tools may be used.

Complete an initial assessment of instructor digital literacy using a tool developed by a school district such as the Massachusetts Department of Education and The Arizona Department of Education, or a national organization such as Northstar Digital Literacy Project, or a simple poll created by a department.<sup>10</sup> The most useful assessment categories include:<sup>11</sup>

- Ability to apply technology including a basic understanding of how to use digital tools such as Microsoft Office, computer-assisted instructional software, Internet servers and browsers, and platforms for searching and communicating in order to conduct research, organize information, evaluate, and communicate
- Proficiency with devices such as PCs, tablets, and printers
- Ability to apply the concepts of ethical and legal issues of using information technology

The best tool available for this assessment is from the Northstar Digital Literacy Project, which defines basic skills needed to perform tasks on computers and online and offers online assessments of abilities.<sup>12</sup>



## LEVEL 4

### BLENDED LEARNING

Courses that combine online and classroom learning



## LEVEL 3

### USE TECHNOLOGY IN LESSONS

EX. Show a video in class or send make-up lessons electronically



## LEVEL 2

### DIGITAL LITERACY

Classes that provide structured computer skills.



## LEVEL 1

### TECHNOLOGY INFUSION

## BASELINE

Introduce students to computers and technology

Understanding the digital literacy of the organization's typical students is valuable in developing lessons and curricula. Instructors may determine this general literacy level by surveying students, discussing observations with other instructors, or holding focused conversations with students. Information needed includes:

- What portion of students has some experience in using technology, e.g., mobile phones, tablets, and computers?
- Will they have access to devices and the Internet outside of class? What devices will they have access to?
- Are they comfortable using technology, or is there a general reticence or to some extent fear?
- Generally, what is their level of experience in using technology in learning?
- Are students interested in building their digital skills?

The answers to these questions provide an indication of the extent that technology may be used, at least initially. **Figure 1** depicts a baseline and four levels of skill in using technology in learning, from initial awareness to the ability to deliver blended learning programs. The organizational experience and practices developed at each level provide a platform for moving to the next level. But, at the same time, an organization may meet needs for multiple levels at once. For example, an organization may use technology in services at Level One, such as helping a client access income supports, and at the same time offer a full blended learning course at Level Four in, say, GED instruction.

**Level One:** In progressing to Level One, organizations leverage their service delivery activities to create a learning experience. Students are guided in using computers to access services, such as healthcare, immigration services, housing, and public benefits counseling. They complete online applications, communicate online with intake specialists and counselors, and schedule appointments online. This provides real situations to use computers to achieve objectives (securing services), which in turn provides practical experience and reduces fears in using the computer.

**Level Two:** At Level Two, organizations introduce basic digital skills instruction, including how to operate a computer, open documents, and access the Internet. Digital literacy lessons may be contextualized with academic content, such as asking students to complete a vocabulary lesson using a mouse to match words and definitions or search the Internet for definitions of groups of words.

**Level Three:** At Level Three, instruction moves from building basic digital skills to integrating technology into lessons to enhance content and applications, supplementing content by providing videos for viewing outside the class, sending make-up lessons and assignments via email, and having students research topics online and discuss findings through social media.

**Level Four:** In Level Four, online learning and classroom instruction are combined, to transform the structure of the course into a blended learning course. Online and classroom learning are linked in ways that add value to learning.

Figure 1. Technology Levels

## 2. Plan the Program and Build Organizational Capacity

The process of building blended learning programs takes time and requires planning and professional development. After completing the initial assessments, organizations can support the development of blending learning courses by engaging in several planning steps. The sequence of steps, who is involved, and which ones to complete or skip will vary by organization.

### Plan for Technology

Prepare a sustainable plan for developing the organization's technological capacity, including investments in new technologies, upgrading existing technology, maintaining equipment, and having sufficient technical support. [Appendix B: Planning and Implementation Checklist](#) will help in planning, identifying priorities, and creating a framework for curriculum development.

Designate a coordinator or coach to spearhead the technology assessment and planning process, and identify a point person to assist individual staff in selecting and incorporating technologies into their lessons. These roles may or may not be managed by the same person. Organizations may choose to tap the skills of existing team members, or hire new staff to lead the process.

Use communication software to electronically share information, and to collaborate on curricula, lesson plans, challenges, and best practices. Slack or Google Docs are potential tools. Provide training on the system, and specially design activities to encourage use.

### Plan Curriculum and Lessons

Engage expert consultants to work with staff on specific projects, such as curriculum design, creating instructor videos, lesson planning, and use of new equipment. Also, provide individual time and resources for instructors to develop blended learning lessons that fit their classes and teaching styles, and to become comfortable with using technology in instruction. This may be accomplished by offering incentives or release time to the instructors.

### Secure Instructor Buy-In and Offer Professional Development

Involving instructors and staff in exploring course planning and development will ensure relevancy and build instructor buy-in. This may be accomplished by forming a task group. Convening regular meetings for updates, decision-making, problem-solving, and sharing experiences and best practices will also promote buy-in. Dedicating time during regular staff meetings eliminates the need to find another time that is convenient for individuals with varying schedules. Form workgroups to develop lessons, units, or course curricula. Outside experts may be contracted to support the efforts.

To promote professional development, share information about external capacity-building opportunities and communities of practice. Professional associations, education and training providers, membership organizations, and intermediaries organize workshops, conferences, seminars, and technical assistance opportunities in face-to-face settings,



online, or in combination. The resource section, [Professional Development for Blended Learning Providers](#), offers information about a number of possibilities.

Embed professional development into the job and make it available at the right time.\* Create professional development plans with goals and specific professional development activities such as workshops, peer learning, working with an expert, and online courses. Programs should support and develop instructors' skills, comfort, and confidence in their ability to use technology and become creative and collaborative problem-solvers. When several people in an organization are involved, the formation of a learning community to work on program design, test and share best practices, and to solve problems, can be extremely effective.

Provide resources and time for instructors to participate in professional development activities and apply lessons to their own program and courses. Participation in external activities, especially with colleagues, exposes instructors to new ideas and the contexts in which they are carried out, and helps make the case for introducing change. Participation in online courses and webinars can be a good alternative to external face-to-face training and meetings when there are budget limitations.†

### 3. Prepare the Instructional Environment

A blended learning environment is a bit different from a traditional classroom, but existing space can be adapted to suit the new needs of a blended learning program. The physical and spatial characteristics are consciously set up to provide opportunities for both individual learning and for collaborative, activity-based learning. The ideal classroom will have furniture that can be rearranged to foster both individual and group learning, depending on the day's lesson. This may include desks that can be reconfigured so that students can see a screen or gather in small groups to work on assignments, easy access to a printer, and headphones to allow students to practice pronunciation or concentrate on individual lessons when there are also group discussions taking place in the classroom.

The design of classrooms should enable three distinct learning environments: focused, collaborative, and hands-on. To do this:

- Design a flexible learning environment. Where possible use movable furniture, wall dividers, or even an adjoining space that can be reconfigured to allow students to work collaboratively, individually, or have a group discussion or mini-lesson with the instructor.
- Position the projector to ensure that it's visible to all students. Flexible seating arrangements should allow everyone to view presentations.
- Facilitate spontaneous collaboration by converting corners of the classroom into student working spaces with whiteboards or monitors and shared computers. Tables, filing cabinets, and bookcases can be positioned to create spaces for note taking, brainstorming, experimenting, and researching.

\* For detailed recommendations about professional development, see: Office of Educational Technology, *Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update*, U.S. Department of Education, January 2017. Accessed May 2017. <https://tech.ed.gov/files/2017/01/NETP17.pdf>

† For tips on building instructor skills and comfort using technology, and to access resources for building capacity, see: *Digital Literacy: A Guide for Adult Basic Education Programs*. Massachusetts Department of Elementary and Secondary Education. Accessed May 17, 2017. [www.doe.mass.edu/acls/frameworks/DigitalLiteracy.html?printscreen=yes&](http://www.doe.mass.edu/acls/frameworks/DigitalLiteracy.html?printscreen=yes&).



### EXAMPLE: USES OF EMAIL

Email is a primary communication tool in blended learning. Every student needs to use email and instructors need a format that allows individual and group, and often subgroup, messaging. Email can be used in:



**Notifications** or reminders to students, for example, when a homework assignment is due, or logistics for an event



**Questions** emailed to assess a recent learning, to be answered by email



**Homework** assignments, perhaps with links to web-based exercises or assessments



**Announcements**, with hyperlinks, of polls that students should respond to before the next class.

David Rosen and Carmine Stewart, PhD., Blended Learning for the Adult Education Classroom, page 55.

- Position computers, tablets, and other technology tools to allow students to work independently or in groups, and to accommodate collaboration and activity-based learning amongst students.
- Plan the environment to meet student needs and preferences, e.g., provide comfortable seating for students who need an alternative to typical classroom chairs and desks. This is particularly useful in courses that meet for several hours per day.
- Sketch the floor plan on paper or the computer to check whether it accommodates activities.<sup>13</sup>

In terms of technology, organizations may start with a basic set of hardware devices and related equipment that are essential for blended learning, like desktop computers, Internet access, software, and the ability to add and upgrade both devices and software over time. The organization may also consider having a small number of tablets or laptops that students can borrow.

A basic package of technology tools includes:

- Consistent and strong Internet connection
- Learning devices that all students may access in class, such as computers, tablets, or smart phones; sharing is possible
- At least some access to Wi-Fi-enabled devices outside of class. If students do not have access at home, partner with other organizations like libraries, schools, churches, or technology centers
- High-quality digital learning content and tools that can be used to design and deliver engaging and relevant learning experiences
- A projector or interactive board
- A printer
- Technical support; may be provided by the organization or an external service

It is also important to determine the nature of student access to technology outside the classroom. All students should have access to a Wi-Fi-equipped device to consult online course materials both during class and outside of the classroom. Although many students may not have access to computers with Internet connections outside the classroom, most now have smartphones and electronic tablets. It is important to pick software or applications that they can easily use on a variety of devices.

To more specifically evaluate the available and needed technology and facilities, consult David Rosen's Blended Learning Guidebook, which describes a range of possible scenarios for using different technologies and facilities, such as a web-accessible computer lab or a classroom that offers a mix of desktops, laptops, and tablets.<sup>14</sup>

## 4. Develop the Curricula

The three key elements of blended learning described earlier in this document—a seamless connection between classroom and online lessons, a restructuring of instructional activities, and student control of a portion of the timing and pace of learning—provide a framework for developing a curriculum and planning individual lessons.

When getting started in adapting an existing classroom curriculum to a blended learning model, and selecting the technology tools and software that will be integrated, the course designer(s) will need to consider the technology resources that will be used in instruction in the classroom or outside the classroom and the digital literacy of students.

Near universal access to mobile devices makes this technology an attractive tool for learning, information searches, and communication. When cell phones are used in learning situations, it becomes possible to capitalize on the skills acquired by individuals in their daily lives and enhance them in new ways. For example, the creation of a mobile portfolio can be directly related to the exploration of a career. But bridging the formal and the informal learning requires an intentional framework with clear directions and guidance to ensure a continuity of learning—and a relationship between the phone and the general lesson. **Figure 2** presents potential uses of devices in a blended learning context; sample lessons plans can be found at Teach Hub, in “Using Cell Phones as Learning Tools.”<sup>15</sup>

MOBILE USES	MOBILE LEARNING ACTIVITIES
Accessing web information and navigation	Information problem-solving with the context
Recording pictures and videos of friends and personal experiences	Creating a self-presentation or digital storytelling
Taking and sharing pictures of holidays, places, surroundings	Creating and sharing maps and geo-tagged contents (exploration and widening learning context)
Documenting learning or working experiences	Creating portfolios and multimedia resumes (awareness and empowerment)
Connecting with people (social networking)	Participating in mobile learning groups or communities (communication, applied learning, and engagement)
Arranging meetings, navigation, and micro coordination	Organizing learning activities
Vocabulary	Looking up word meanings and sending an email about the word or other assignment to an individual or group
Pronunciation	Providing online programs that allow students to listen to words and pronounce them

Figure 2. Mobile Learning Activities



It is important to remember that mobile devices by themselves are not substitutes for other hardware and software that are used to prepare written documents and reports. Students need access to technology that enables them to write, edit, cut, paste, insert photos and information from a range of documents, prepare PowerPoint and other types of presentations, use spreadsheets, and more.

Start the course with a student assessment of digital literacy. This may be the first course activity, or a prerequisite for starting the course. While the organization may have already completed a general assessment of typical student digital literacy, it is also important for the instructor to know the skill level of each of the students enrolled in the class. Northstar's Digital Literacy Assessment, referenced in "Assess the Need and Opportunity for Blended Learning," can also be used for student assessment. It provides basic digital literacy standards and assessments in ten areas: Basic Computer Use, Internet, Windows Operating System, Mac OS, Microsoft Word, Social Media, Microsoft Excel, Microsoft PowerPoint, and Information Literacy. Northstar also offers certificates and badges to individuals who demonstrate the standards on the assessment. Organizations and intermediaries may become sponsors to deliver the assessment to their students and access relevant data.<sup>16</sup>

In addition to basic digital literacy skills, students need to become comfortable with online learning. Instructors may introduce students to online learning using an Internet-accessible computer and projector, an electronic whiteboard in the classroom, or an Internet-accessible computer lab to show students:

- How to use a web browser
- How to log in to a site or system (especially remembering one's password)
- Parts of a learning system or lessons (assignments, real-time chatting with other students, answering online polls, completing assignments, and monitoring results)
- How to read text online
- How to watch instructional videos
- How digital badges demonstrate accomplishments
- Acceptable Use Policy and Netiquette<sup>17</sup>

Practice is essential. Students will need to practice what they learn inside and outside the classroom. Instructors have found that students who help each other increase their own skills as well.

### EXAMPLE: FINDING INFORMATION ONLINE

**ESL Lesson Goal:** Students are able to describe weather and access information on the Internet.

The instructor prepares by opening a web page for searching the weather throughout the world. After an introduction, the instructor asks students about their country of origin. She asks, “Does it rain a lot? Is it hot there?” As the new vocabulary is identified, she draws weather symbols used on the Internet on the board, with the corresponding words underneath, and reviews what is in the textbooks.

After students practice matching words and symbols, they divide into six groups. She does not have an interactive whiteboard, so she distributes a handout that shows a screenshot of the web page and asks students to circle the place on the web page where they would type in the city and country where they were born and write it in.

Before class, the instructor practiced the digital activity to identify possible problems and selects student leaders for the activity. As students form groups, she teaches the leaders to lead their teams, and not do the work for the group members. Students practice by taking turns looking up and recording the weather for his or her birthplace. The leader does not touch the keyboard to help other students, but may help with the mouse if students have trouble maneuvering it.

When developing lesson plans that integrate technology tools and software, determine the relative advantage of using technology over nontechnology resources or approaches. Consider whether technology:

- Adds an additional skill. For example, listening for English pronunciation, conceptual understanding of math for GED by using visuals, communication through images and text.
- Makes a task more engaging. For example, by providing access to information directly related to students’ lives, concerns, and dreams.
- Makes the task more accessible or challenging by providing differentiated instruction. For example, adaptive tutorial software.
- Provides a visual or more realistic imaging for students through use of YouTube videos or photos from Instagram, for example.
- Facilitates collaboration such as using Google Docs, email, and texting.
- Gives students a creative license that nontechnology resources cannot provide, through photographs, videos, songs, or excerpts from speeches, for example.

A practical approach is to start out by experimenting with one or two technology tools and gradually add more tools, applications, and content with experience and resources. It often helps to talk with instructors who are using blended learning with a similar student group, to ask a few students to try out tools and software, and to make a list of factors to evaluate use.<sup>18</sup> For each lesson that uses technology, it is important to provide clear instructions about using the technology, including a demonstration, and expectations about time spent, the specific nature of assignment, deadlines, and how to request assistance.

Consider integrating flipped lessons, which are a blended learning strategy that differs significantly from traditional approaches to teaching. Here, the presentation of new information and homework segments of a class are reversed. Students view lectures and learn new material outside of class. Face-to-face class time is dedicated to activities that are traditionally viewed as homework—practicing concepts learned, working on projects, and engaging students in discussion of

### EXAMPLE: FLIPPED LESSONS

Students watch five short lectures outside the classroom. Each lecture is followed by an online quiz that evaluates how much information students absorbed, and what concepts need focus during the in-person segment. Classrooms become interactive, collaborative spaces for students to practice what they learned at home. The classroom turns into a place where students bring questions about material they struggled with. Teachers and students use these struggles to spur discussions for further clarification, small group work, or individual coaching, etc. Flipped lessons should ensure that students have access to technology outside of the classroom in order to be accessible and effective.

content. Class activities vary according to the subject matter and the students' levels and experience. They may include math exercises, laboratory experiments, original document analysis, debate, presentations, current event discussions, peer reviewing, project-based learning, and skill development or concept practice.<sup>19</sup> These types of active learning allow for highly differentiated instruction to meet the needs of all students.

Ultimately, the structure, design, and lessons of effective blended learning courses should:

- Meet the diverse needs, learning styles, and goals of students.
- Provide opportunities for students to design and implement projects. For example, English language students may identify signs in their neighborhood that need translation, translate them, and prepare a report to send to community leaders.
- Synchronize online and face-to-face instruction. For example, select videos, software, and assignments for completion out of the class and itemize discussion, questions and answers, and projects in class that build on and apply the distance lessons.
- Provide flexible scheduling. Prepare schedules for distance assignments and devise ways to monitor completion, e.g., use a learning management system or provide a poll or questionnaire for students to complete and submit by specific dates.
- Provide students with authentic learning environments connected to real life situations, e.g., assigning students to formulate questions and interview workers in industries or occupations related to the course or students who are pursuing further education, look up recipes for their favorite meals and determine what would be needed for a group of 100 people, or report on the town, state, or province where relatives live.
- Enhance and expand instructor-learner communications, using frequent emails, texts, Slack, and in-person meetings.
- Provide individual and group learning with opportunities for interaction, feedback, and flexibility in scheduling.
- Have instructors who design engaging and relevant learning experiences, guide, facilitate, and motivate learners, and are co-learners along with students and peers.
- Engage students individually and in groups.

The POST Lesson Planning Framework, included in Appendix B, is used in LINCS professional development activities and is widely used to help develop lessons that align instructional strategies and technologies with student needs, goals, academic levels, digital capacity, and technology resources.<sup>20</sup>

## 5. Assess Program Success

Most funding requires performance reports at the end of programs to measure student progress and achievement such as attendance, completion of assignments, completion of the course, knowledge or skills acquisition, grade level gains, transition to further education and training, occupational certifications, and employment. Tracking this information over time will indicate the degree to which programs have a positive impact on student progress.

Formative assessments that are completed during the course provide quick, continual snapshots of student progress and pinpoint issues and problems over time. These assessments help identify student understanding, help instructors make informed adjustments to the practice, and help students track their own learning and progress as well as areas where they need assistance. Technology tools, particularly mobile devices that are embedded in learning, can provide unobtrusive measurements. Examples of technology-enhanced assessment tools include polling, or asking for reactions to reading materials or new computations. The Journal article, “Formative Assessment Is Foundational to Blended Learning,” provides additional examples of formative assessment tools.<sup>21</sup>

In addition to assessing individual student success, an organization should develop an evaluation plan to assess program success at least annually, but ideally quarterly, to ensure opportunities to make course corrections. Variables to consider include:

- Whether technology was used according to plan, and if not, what were the barriers
- Student completions and transitions to further education or employment
- Student achievement, including grade level gains
- Number of students served

Some organizations may also want to compare outcomes to those of previously offered nonblended learning courses.





## Blended Learning Program Examples

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The examples in this section demonstrate approaches to designing a blended learning structure and lessons in contextualized bridge programs in health science, transportation, distribution, and logistics (TDL), GED reading and math courses, and an ESL course. These will provide a springboard for conceptualizing the transformation of an existing course into a blended learning program.

## Health Science Bridge Program

<b>Audience</b>	Students pursuing a career in health care sector. Literacy Levels: 7–10
<b>Content Area</b>	Health/Science: Biological systems of the human body
<b>Skills</b>	<p>Students will work on the following skills:</p> <ul style="list-style-type: none"> <li>• Predict</li> <li>• Analyze text</li> <li>• Reconstruct knowledge</li> <li>• Collaborate</li> <li>• Problem Solve</li> <li>• Think Creatively</li> </ul>
<b>Context</b>	<p>Students pursuing a career in the health sector need a basic understanding of how the human body works. Teachers can give students a list of vetted resources or allow students to find their own resources to research a topic and present what they have learned to classmates. Videos are an effective learning tool, especially for abstract information because of the visual support they provide. They can be used as a supplement to text or as a stand-alone resource. YouTube and Khan Academy are two resources that allow teachers to create online classes and assign appropriate videos.</p>
<b>Lesson Objectives</b>	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Describe the functions of two major biological systems of the human body.</li> <li>• Identify three common ailments that may affect proper functioning of each system.</li> <li>• Create a graphic presentation that demonstrates how each of these systems interact and work together.</li> </ul>
<b>Blended Learning Structure</b>	<p><b>In class:</b> Activate students' prior knowledge. Before viewing the videos, students spend time in class preparing for the videos by brainstorming a list of what they already know about the subject and create a KWL chart (Know, Want to Know, Has Learned), a mind map, diagram, or list. Next, students predict what they might learn from the videos and write down some questions about what they want to learn.</p> <p><b>Outside of class, on their own time:</b> Students view the videos and write down answers to the questions they had prepared.</p> <p><b>Next class:</b> Students are grouped according to the body system they researched. They researched and combine their findings. Student pair-share: students are paired with a classmate who researched a different body system and describe what they learned.</p> <p><b>Outside of class:</b> The whole class is given online resources that further describe how different body systems rely on each other to keep the body functioning properly. In the next class, students once again share their findings and begin to prepare a presentation of what they have learned.</p>

<b>Technology</b>	<p>Preselected videos are assigned to students to learn about biological systems.</p> <p><b>Advanced Technology Feature</b> Teachers can annotate videos with questions and text that appear in the video to focus student attention on particular details.</p>
<b>Advantages of Technology Use</b>	<ul style="list-style-type: none"> <li>Teachers can flip instruction by assigning videos as homework and use class time for practicing and applying knowledge and skills learned outside of class. <b>Tech Tip:</b> Limit videos to no more than ten minutes.</li> <li>Videos give students another option for accessing and engaging in learning. For more information on Universal Design for Learning, visit <a href="http://www.udlcenter.org">http://www.udlcenter.org</a>.</li> <li>Lessons can be differentiated by assigning unique resources, topics, and research questions.</li> <li>Teachers can create classes on YouTube and Khan Academy to organize videos. By choosing the videos, teachers control the quality and content of resources. In addition, students will spend less time searching for an appropriate video and will spend more time on task. <b>Tech Tip:</b> There are several digital tools available to organize lesson materials including videos such as Learning Management sites (Schoology or Edmodo) or sites such as <a href="#">Blendspace</a>, <a href="#">Pinterest</a>, or <a href="#">Symbaloo</a>.</li> <li>Subject content can be divided among students to engage in productive conversation and synthesize what they learned as they become an expert in their assigned topic.</li> <li>Videos can be accessed with most smartphones. <b>Tech Tip:</b> Emerging technologies include virtual reality (VR) and augmented reality (AR). These are not only visual but can give the user the experience of being in a real-life environment. YouTube has many 3D and 360-degree videos. In addition, VR goggles can be fairly inexpensive, and students can download VR apps assigned by teachers.</li> </ul>
<b>Strategies for Differentiation</b>	<p><b>Ideas for making the lesson easier:</b></p> <ul style="list-style-type: none"> <li>Assign shorter videos</li> <li>Provide supplemental resources such as texts</li> <li>Annotate the videos</li> </ul> <p><b>Ideas for making the lesson harder:</b></p> <ul style="list-style-type: none"> <li>Assign additional topics to research, e.g., diagnostics for common ailments</li> <li>Increase the number of body systems to research</li> <li>Students can create a more elaborative project to demonstrate their understanding such as an infographic using a tool such as <a href="#">Piktochart</a></li> </ul>

## Transportation, Distribution, and Logistics Bridge Program

<b>Audience</b>	Students pursuing a career in Transportation, Distribution, Logistics sector. Literacy Levels: 8–10
<b>Content</b>	Reading and math: determine costs and benefits of moving goods
<b>Skills</b>	<p>Students will work on the following skills:</p> <ul style="list-style-type: none"> <li>• Evaluate web resources</li> <li>• Analyze data</li> <li>• Calculate weight, cost, time, and distance</li> <li>• Problem solve</li> <li>• Collaborate</li> </ul>
<b>Context</b>	Many professions in the transportation industry require workers to make decisions and solve problems concerning the most efficient methods to transport goods. For example, Transportation Managers, Cargo Handlers, and Freight Forwarders must decide on the mode of transportation, the route, the cost, and the time involved in shipping transactions. Calculate the best routes and vehicles for transporting goods (of a certain weight) from point A to point B looking at air, rail, and trucking.
<b>Objectives</b>	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Calculate weight of commercial goods</li> <li>• Calculate distance</li> <li>• Calculate estimated cost of transport</li> <li>• Determine most effective method of shipping goods</li> </ul>
<b>Blended Learning Structure</b>	<p><b>In class:</b> Students share the GPS systems they use, how often they use them, and for what purpose. Students are given a case scenario of a shipment that must be transported from point A to point B. For example, 500 boxes of apparel; each box weighs 45–50 pounds. Each student is assigned one mode of transportation to research, including the route, distance, and cost.</p> <p><b>Out of class:</b> Students use web resources such as <a href="http://worldfreightrates.com/freight">http://worldfreightrates.com/freight</a> to complete research on their assignment.</p> <p><b>In class:</b> Grouped by mode of transportation—e.g., freight or rail—students compare their findings. Each group appoints a representative to share their research with the class, and together, the class determines which mode of transportation is the most efficient for this scenario.</p>

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Technology	GPS geographical navigation application programs, such as Google Maps and Waze, and websites that calculate freight for various modes of transportation, such as <a href="http://worldfreightrates.com/freight">http://worldfreightrates.com/freight</a> .
Advantages of Technology Use	<ul style="list-style-type: none"><li>• GPS systems are easy to use, provide accurate information, and are available on Smartphones.</li><li>• Students will learn to carefully evaluate web resources to locate information that they need, such as government vs. commercial websites.</li><li>• Web resources simulate the software process that students in this industry are likely to encounter.</li></ul>
Strategies for Differentiation	<p>Ideas for making the lesson easier:</p> <ul style="list-style-type: none"><li>• For math activities, use smaller numbers that divide evenly.</li><li>• Limit the modes of transportation that students need to research to freight and rail.</li><li>• Allow students to practice using web resources in class.</li></ul> <p>Ideas for making the lesson harder:</p> <ul style="list-style-type: none"><li>• For math activities, use larger numbers and mixed numbers, e.g., 52.4 pounds.</li><li>• Give groups of students different case scenarios.</li></ul>

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## Example of ESL Program

Audience	ESL Levels: Beginning–Intermediate
Content	Employment
Skills	<p>Students will work on the following skills:</p> <ul style="list-style-type: none"> <li>• Collaborate</li> <li>• Infer</li> <li>• Predict</li> </ul>
Context	<p>In ESL classes, teachers strive to create lessons that strengthen student reading, writing, listening, and speaking skills. ESL textbooks often provide adequate vocabulary practice, but target listening skills to a lesser degree. Using a blended learning structure to build vocabulary and target listening skills changes the role of students from passive to active learners, and frees up class time for more peer-to-peer interaction.</p>
Objectives	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Create a class vocabulary of common occupations</li> <li>• Describe a dream job and explain their thinking</li> <li>• Listen for main ideas in video interviews</li> </ul>
Blended Learning Structure	<p><b>In class:</b> Teacher introduces topic, activates prior knowledge with mind map, image prompt, or other. Students are introduced to online resources and practice in navigating the websites.</p> <p><b>Tech Tip:</b> When using several different online resources in a lesson, organize them in one place such as a Learning Management System (Schoology or Edmodo) or a site such as <a href="#">Blendspace</a>, <a href="#">Pinterest</a>, or <a href="#">Symbaloo</a>. The URL for each resource can be embedded instead of giving students lists of web addresses.</p> <p><b>Outside of class:</b> Students first create a class dictionary of words related to employment and then add them to a shared Google Sheet in alphabetical order. Next, students listen to a five-minute video (with captions if needed) of people describing their dream job. The assignment is to listen for and list five jobs of people interviewed and three dream jobs they would like to do.</p> <p><b>Next class:</b> In small groups, students compare notes from the video about dream jobs. What are some of the jobs that people have? What are some of their own dream jobs? Why might they like those jobs?</p> <p>Next, students apply the vocabulary to their own lives. First, they look at the class dictionary of professions, then, in their groups, students talk about the jobs they have held in the past or have now. Students should also discuss their dream jobs and why they aspire to hold those roles. Is their dream job one listed on the Google Sheet, or one they saw on the video?</p>

Blended Learning Structure	<p><b>OPTIONAL IN-CLASS GAMIFICATION:</b></p> <p><b>For beginning levels:</b> Using <a href="http://www.esolhelp.com">www.esolhelp.com</a>, students divide into two groups and play a jeopardy game to review the vocabulary of job titles.</p> <p><b>For intermediate levels:</b> Teachers can gamify one of the activities from <a href="http://www.usalearns.org">www.usalearns.org</a> by projecting it and having students work in teams to answer the vocabulary matching or spelling activities.</p> <p><b>OUTSIDE OF CLASS:</b></p> <p><b>For beginning levels:</b> Students continue to work on listening comprehension and vocabulary with Real English video, "What's your job?" <a href="https://www.youtube.com/watch?v=VgRd7BnBnBA">https://www.youtube.com/watch?v=VgRd7BnBnBA</a></p> <p><b>For intermediate levels:</b> Students complete assigned lessons in <a href="http://www.usalearns.org">www.usalearns.org</a>, "Course 2: Workers and the Workplace."</p>
Technology	<ul style="list-style-type: none"> <li>• Online picture dictionary: <a href="http://www.esolhelp.com">www.esolhelp.com</a></li> <li>• Real English video: <a href="https://www.youtube.com/watch?v=wL3CFtW8WE0">https://www.youtube.com/watch?v=wL3CFtW8WE0</a></li> <li>• Drill and Practice software: <a href="http://www.usalearns.org">www.usalearns.org</a></li> <li>• Google Sheet: Created by teacher and shared with all students</li> </ul>
Advantages of Technology Use	<ul style="list-style-type: none"> <li>• Online learning with videos gives ESL learners more practice in listening comprehension, a skill which is often less targeted than other basic skills. Real English Videos provide guided listening tasks with authentic video interviews.</li> <li>• ESL learners benefit from viewing videos and other online resources as many times as they want to review vocabulary and strengthen their listening comprehension skills.</li> </ul> <p>Google sheets or Google docs allow students to draw on their own knowledge and learn from their peers through collaborative writing. Students will learn and remember new words that are useful to them rather than a list of words provided in a textbook. As students learn new words, they can add them to the dictionary in the same list or create a new sheet in the same workbook.</p> <ul style="list-style-type: none"> <li>• Websites such as <a href="http://www.esolhelp.com">www.esolhelp.com</a> and <a href="http://www.usalearns.org">www.usalearns.org</a> provide a visual image and matching text for easy identification of new words.</li> <li>• Class time is repurposed to engage students in group discussion and interaction.</li> </ul>
Strategies for Differentiation	<p><b>Making the lesson easier:</b></p> <ul style="list-style-type: none"> <li>• Begin with the video: "What's your job?" <a href="https://www.youtube.com/watch?v=VgRd7BnBnBA">https://www.youtube.com/watch?v=VgRd7BnBnBA</a></li> <li>• In class, brainstorm job titles using images to prepare students for video interviews.</li> <li>• Use short video segments and assign simple identification tasks, e.g., listen for the names of three jobs.</li> </ul> <p><b>Making the lesson harder:</b></p> <ul style="list-style-type: none"> <li>• Record your own videos using a smartphone or video recorder and save as Mp4. Students can listen to them outside of class.</li> <li>• Assign more complex listening tasks that ask students to infer information such as what are some of the advantages and disadvantages of being a nurse? What qualities does a person need to be a good nurse?</li> <li>• Ask students to go out in the community and interview someone about their job.</li> </ul>

## Example of GED Reading Program

Audience	Literacy levels: 6–10, Pre-GED, GED
Content Area	Reading, American History
Skills	<p>Students will work on the following skills:</p> <ul style="list-style-type: none"> <li>• Predict</li> <li>• Build vocabulary</li> <li>• Paraphrase</li> <li>• Summarize</li> <li>• Collaborate</li> <li>• Think creatively</li> <li>• Problem solve</li> </ul>
Context	In today's media-rich environment, teachers have the opportunity to offer students different ways to engage in reading and building vocabulary, fluency, word meaning, and comprehension skills. Online resources can be used in combination with printed materials or as the primary learning resource.
Objectives	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Summarize main ideas and supporting details</li> <li>• Reorganize information to form a comprehensive overview of American history</li> </ul>
Blended Learning Structure	<p><b>In class:</b> Students choose one historical event to research, e.g., Civil War, Revolutionary War, or World War I. Students brainstorm what they know about each of the events.</p> <p><b>Outside of class:</b> Students access one of the interactive sites and complete a <a href="#"><u>graphic organizer</u></a>.</p> <p><b>In class:</b> Students collaborate to create a timeline of American history (on poster board or chart paper posted around the classroom).</p>

Technology	<p>Interactive Education Sites</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• <a href="#">Interactive Education Sites</a></li> <li>• <a href="#">Citizenship Study Guide</a></li> </ul>
Advantages of Technology Use	<ul style="list-style-type: none"> <li>• Online texts can be narrated using the text-to-speech feature in Windows Ease of Access. Listening to text will build vocabulary and model pronunciation of unfamiliar words.</li> <li>• Interactive online sites give students an option on how they access information—visual or auditory—through text-to-speech tools.</li> <li>• Interactive games and quizzes give students instant feedback on what they have learned or need to review.</li> <li>• Interactive resources are rich in visual aids.</li> <li>• Multimedia is generally more engaging than printed text and offer multiple learning modalities.</li> </ul>
Strategies for Differentiation	<p><b>Make the lesson easier:</b></p> <ul style="list-style-type: none"> <li>• Group students to work on the same topic.</li> <li>• Ask students to look for specific information, e.g., dates, purpose, location of one major battle.</li> <li>• Assign specific web pages within a website.</li> <li>• Choose a graphic organizer at the level of the student.</li> </ul> <p><b>Make the lesson harder:</b></p> <ul style="list-style-type: none"> <li>• Ask students to discern fact from opinion in the online resources provided.</li> <li>• Divide students into opposing sides of an event to engage in a debate using research as the basis of their argument.</li> <li>• Give multiple resources for students to compare and contrast.</li> </ul>

## Example of GED Math Program

Audience	Literacy Levels: 8th–10th grade math students pursuing GED or equivalent credential
Content Area	Math: Operations with Fractions, Decimals, and Percentages
Skills	<p>Students will work on the following skills:</p> <ul style="list-style-type: none"> <li>• Conceptualize math problems</li> <li>• Problem solve using manipulatives</li> <li>• Share mathematical thinking and reasoning using visual aids</li> </ul>
Context	<p>When math teachers are asked what they spend the most time teaching, the answer is most often fractions, decimals, and percentages. When they are asked what they spend the most time re-teaching, the answer is again fractions, decimals, and percentages. Developing a conceptual understanding of operations with fractions will help students develop procedural fluency, which is choosing the most efficient strategy for solving math problems in real life and in a standardized testing environment.</p> <p>Note to teachers: Bar modeling, sometimes referred to as Singapore Math, is a visual and concrete method of exploring math concepts. Using “Thinking Blocks” in this example is one way for students to gain a deeper understanding of operations with fractions. Teachers should practice using bar modeling first before they introduce it to students. (Common Core Standards and College and Career Ready Standards place an emphasis on conceptual understanding. This example targets conceptual understanding of math.)</p>
Objectives	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Conceptualize operations with fractions</li> <li>• Use bar modeling to solve real life problems that involve finding the part, whole, or percentage</li> </ul>
Technology	Bar modeling using: <a href="http://www.mathplayground.com/tb_fractions/thinking_blocks_fractions.html">www.mathplayground.com/tb_fractions/thinking_blocks_fractions.html</a>
Advantages of Technology Use	<ul style="list-style-type: none"> <li>• Drill and practice software gives students more time on task outside of the classroom.</li> <li>• Bar modeling with “Thinking Blocks” allows students to think, reason, visualize, and use online manipulatives to gain a conceptual understanding of operations with fractions.</li> <li>• Students can monitor their progress, self-assess their understanding, and advance to another concept at their own pace.</li> <li>• Drill and practice tutorials are adaptive and provide problems with increased levels of difficulty.</li> </ul>



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**Strategies for  
Differentiation****Ideas for making the lesson easier:**

- Use common (benchmark) fractions such as  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$ .
- Provide extensive practice in class with concrete manipulatives with common fractions before moving on to less common fractions.
- Provide one-step problems to solve.
- Provide open-ended questions with more than one correct answer, allowing students to enter at their own math level.

**Ideas for making the lesson more difficult:**

- Include less common fractions such as thirds, fifths, and sixths.
  - Provide problems requiring more than one step to solve.
  - Provide open-ended questions with more than one correct answer.
  - Ask students to justify their reasoning.
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## Technology and Information Resources

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This section identifies a select and manageable number of free or low-cost resources suited to community-based organizations that are developing and strengthening blended learning programs. These resources offer a snapshot of the enormous number and variety of resources available for use in program development and delivery. The resources are continually changing and improving, but it is possible to keep up by consulting websites and sponsors that resonate with needs and goals, participating in learning communities, and talking with peers.

## Internet

**EveryoneOn:** This national nonprofit works to eliminate the digital divide by making high-speed, low-cost Internet service and computers, and free digital literacy courses accessible to all unconnected Americans. The program, sponsored by the U.S. Department of Education's Office of Career, Technical, and Adult Education, provides low-cost monthly Internet access (approximately \$10/month), and inexpensive desktop and laptop computers to Adult Basic Education students. Teachers can access an inexpensive router to provide broadband access in their classroom. [everyoneon.org/get-connected](http://everyoneon.org/get-connected)

**Lifeline:** Led by the Federal Communication Commission (FCC), this program makes communications services more affordable for low-income consumers. In 2016, the FCC approved rules for purchasing discounted broadband Internet connectivity from participating providers throughout the country. Eligible individuals and households include those in public housing or those who have one or more children in a federally supported school lunch program. In some states, community college students who receive Pell Grants are also eligible. Most major communications companies (AT&T, Comcast, Time Warner, Cox, etc.) offer the program for \$9.95 per month, and in some areas, offer deeper discounts and free hardware. [www.fcc.gov/general/lifeline-program-low-income-consumers](http://www.fcc.gov/general/lifeline-program-low-income-consumers)

## Hardware and Related Equipment

Hardware and related devices may be obtained from a variety of local organizations that refurbish previously used devices and from companies that donate new or used computers. It is also possible to negotiate with companies and stores to purchase lower cost devices such as Chromebooks or other inexpensive tablets.

**Reuse Network:** Reuse Network links organizations seeking to make their surplus furnishings and equipment available to those in need, rather than throw them away. [www.reusenetwork.org](http://www.reusenetwork.org) or [www.irnsurplus.com](http://www.irnsurplus.com).

## Digital Literacy Assessments and Instruction

To learn where an organization and its students stand, consult digital literacy assessments on the basic skills needed to perform tasks on computers and online and basic digital literacy standards in areas such as basic computer use, Internet, Windows Operating System, Mac Operating System, Microsoft Office Suite, social media, and Internet safety.

**Northstar:** This widely used assessment tool offers credentials or badges to individuals who meet the standards on the assessment. Organizations and intermediaries may become sponsors to deliver the assessment to their students and to access relevant data. The assessment modules are coordinated with the St. Paul Public Library's instructional materials to build the basic computer skills defined by the Northstar Digital Literacy Assessments.

[www.digitalliteracyassessment.org/standards\\_guides.sppl.org/northstar/northstar/basic\\_computer](http://www.digitalliteracyassessment.org/standards_guides.sppl.org/northstar/northstar/basic_computer)

**GCFLearnFree:** The Technology Basics Series provides text and video-based tutorials about computers and how they work, including operating the computer, using the web, navigating, staying safe online, and more. [www.gcflearnfree.org](http://www.gcflearnfree.org)

**Digital Learn:** Digital learn provides free, short, online courses about computer use, including topics such as: starting out, being safe online, job skills, and connecting with others. [digitallearn.org/learn](http://digitallearn.org/learn)

**Connect Chicago:** This platform provides computer basics and digital modules, links to Northstar, and links to a community of trainers, teachers, professionals, and corporate partners. <http://connectchicago.org>

## Learning Management Systems

Online learning management systems allow instructors to organize class resources and assignments, build quizzes, engage in class discussions, and monitor student work. Resources can include graphics, links to instructional videos, online assessments, and other tools.

**Google Products, G Suite for Education, Google Classroom:** The Google platform provides a range of education apps for training, teaching, learning tools and resources, guides, and professional development applications for nonprofit organizations at no charge; applications are required to access the service.  
[edu.google.com/products/productivity-tools](http://edu.google.com/products/productivity-tools)

**Schoology:** [app.schoology.com](http://app.schoology.com)

**Edmodo:** [www.educationalappstore.com/app/edmodo](http://www.educationalappstore.com/app/edmodo)

## Teacher-Made Websites

These platforms allow users to make their own websites for posting assignments and student e-portfolios, as well as providing multimedia tools and blogs.

**G Suite for Education:** [eduproducts.withgoogle.com/products/g-suite/g-suite-for-education](http://eduproducts.withgoogle.com/products/g-suite/g-suite-for-education)

**Weebly:** [education.weebly.com](http://education.weebly.com)

## Academic and Skill Building

Online programs with instruction, assessments, practice exercises, and progress reports in basic skills, career development, GED, and ESL.

**GCS Learnfree:** [www.gcflearnfree.org/careerplanningandsalary](http://www.gcflearnfree.org/careerplanningandsalary)

**Kahn Academy:** [www.khanacademy.org](http://www.khanacademy.org)

Plato Adult Education and GED Solutions: [www.eskilonlearning.ca/PDF/Ad%20Ed%20%20GED%20Prep.pdf](http://www.eskilonlearning.ca/PDF/Ad%20Ed%20%20GED%20Prep.pdf)

Upwardly Global: [www.upwardlyglobal.org](http://www.upwardlyglobal.org)

USA Learns: [www.usalearns.org](http://www.usalearns.org)

WIN Learning: [www.winlearning.com](http://www.winlearning.com)

## Formative Assessment Tools

Informal or formative assessment tools are used to gain feedback on what students are learning and where they may need further help. They also enable group communication and collaboration, group discussions, and assignments.

Socrative Learning Application: [www.socrative.com](http://www.socrative.com)

Polleverywhere: [www.polleverywhere.com](http://www.polleverywhere.com)

Letsrecap.com: Let's Recap is a video reflection tool. [letsrecap.com](http://letsrecap.com)

Kahoot It: A gaming assessment tool. [kahoot.it/#/](http://kahoot.it/#/)

## Professional Development for Blended Learning Providers

There are excellent online resources with a focus on blended learning and technology integration that provide information to help adult educators, instructors, administrators, and stakeholders learn about, understand, and practice the findings from research and practice. The platforms enable users to participate in learning communities in defined topic areas and to prepare lessons. The following list includes websites and guidebooks that are available online at no charge.

### Comprehensive Websites

Comprehensive websites post a wide variety of information resources, step-by-step guides, manuals, courses, and online communities of practice.

**The LINCS Community:** This virtual professional learning space offers free online courses for teachers and learning communities, and free resources for educators. LINCS has nearly 9,000 members from across the nation. Members in the learning communities create personal profiles and can join groups of interest to engage in moderated discussions about critical topics, share relevant resources, and coordinate special events such as guest discussions or expert-led webinars. [lincs.ed.gov/professional-development/pdc](http://lincs.ed.gov/professional-development/pdc)

**The EdTech Center at World Education:** Home to a collection of projects focused on digital literacy and use of technology in teaching including blended learning staff skills, program capacity, and state and national efforts. [edtech.worlded.org](http://edtech.worlded.org)

**IDEAL Consortium:** A project of the EdTech Center, this consortium of states works



together to develop effective programs and curricula for ESL, ABE, and ASE learners, and to offer workshops, technical assistance, and reports.

[http://ideal.worlded.org/publications\\_resources/resources.html](http://ideal.worlded.org/publications_resources/resources.html)

**Open Educational Resources:** This collection of open source teaching, learning, and research resources including full courses, lesson plans, course materials, modules, textbooks, streaming videos, tests, software, and other tools, materials, and techniques supports access to knowledge. <https://www.oercommons.org/curated-collections>

### Guidebooks, Research, and Videos

“Blended Learning: Making it Work in Your Classroom,”

[www.edutopia.org/practice/blended-learning-making-it-work-your-classroom](http://www.edutopia.org/practice/blended-learning-making-it-work-your-classroom)

“Blended Learning Models,”

[www.blendedlearning.org/models](http://www.blendedlearning.org/models)

Blended Learning with Catlin Tucker, “Episode 2 – Station Rotation,”

[www.blendedlearning.org/models](http://www.blendedlearning.org/models)

“Blended Learning Universe,”

[www.blendedlearning.org/resources](http://www.blendedlearning.org/resources)

David J. Rosen, Ed.D, and Carmine Stewart, Ph.D, Blended Learning for the Adult Education Classroom,

<http://app.essentialed.com/resources/blended-learning-teachers-guide-web.pdf>

IDEAL Distance Education and Blended Learning Handbook, Fifth Edition, August 2016. [http://ideal.worlded.org/pdf/IDEAL\\_Handbook.pdf](http://ideal.worlded.org/pdf/IDEAL_Handbook.pdf)

Integrating Digital Literacy into English Language Instruction, Companion Learning Resource, LINC's,

[https://lincs.ed.gov/publications/pdf/ELL\\_Digital\\_Literacy\\_508.pdf](https://lincs.ed.gov/publications/pdf/ELL_Digital_Literacy_508.pdf)

Jerome Johnston, Sheryl Hart, Destiny Long, Jennifer Vanek, New Models for Distance Classes in Adult Education, April 2015.

<http://ideal.worlded.org/pdf/Reports/NewModelsForAdultDistanceEd.pdf>

Jolly T. Holden, Ed.D, and Philip J.L. Westfall, Ph.D, An Instructional Media Selection Guide for Distance Learning, Implications for Blended Learning, Second Edition, 2010.

[www.usdla.org/wp-content/uploads/2015/05/AIMSGDL\\_2nd\\_Ed\\_styled\\_010311.pdf](http://www.usdla.org/wp-content/uploads/2015/05/AIMSGDL_2nd_Ed_styled_010311.pdf)

Learning for Life: The Opportunity for Technology to Transform Adult Education:

“Part 1: Interest in and Aptitude for Technology,” [http://tytonpartners.com/tyton-wp/wp-content/uploads/2015/03/Learning-for-Life\\_The-Oppty-for-Tech-to-Transform-Adult-Education\\_March-20151.pdf](http://tytonpartners.com/tyton-wp/wp-content/uploads/2015/03/Learning-for-Life_The-Oppty-for-Tech-to-Transform-Adult-Education_March-20151.pdf)

[http://tytonpartners.com/tyton-wp/wp-content/uploads/2015/03/Learning-for-Life\\_The-Oppty-for-Tech-to-Transform-Adult-Education\\_March-20151.pdf](http://tytonpartners.com/tyton-wp/wp-content/uploads/2015/03/Learning-for-Life_The-Oppty-for-Tech-to-Transform-Adult-Education_March-20151.pdf)

“Part 2: The Supplier Ecosystem,” [http://tytonpartners.com/tyton-wp/wp-content/uploads/2015/10/Learning-for-Life\\_Part-2\\_Supplier-Ecosystem.pdf](http://tytonpartners.com/tyton-wp/wp-content/uploads/2015/10/Learning-for-Life_Part-2_Supplier-Ecosystem.pdf)

“Tech Tips for Teachers,” <http://techtipsforteachers.weebly.com/lesson-index.html>

TV411 videos and web activities in reading, writing, vocabulary, math, science, and finance: <http://ltd.edc.org/resource-library/tv411-whats-cooking>

“What a ‘flipped’ classroom looks like,” [www.blendedlearning.org/models/#flip](http://www.blendedlearning.org/models/#flip)

# Appendix A:

## Planning and Implementation Checklist

There are a lot of moving parts in using technology for teaching and learning. To minimize unexpected challenges, you should systematically have a checklist in place to ensure you have planned for the essential conditions needed to implement a successful technology-infused lesson or unit. Here is a checklist of details to aid you in thinking and planning. As you go through the checklist, you can pull out the elements that apply to your lesson and note the action steps needed.

INFRASTRUCTURE AND SUPPORT	YES/NO	NEEDS	ACTION STEPS
Is there a shared vision for technology integration among:			
Staff			
Students			
Administrators			
Do you have access to the technology resources you need?			
Devices			
Internet connection with adequate broadband			
Electrical outlets			
Extension cords			
Devices			
Other:			
Are you and staff members skilled in using the same technology you will use in your lessons?			
Has the equipment, including website access and navigation on the devices that will be used, been tested? (Be careful of firewalls and downloads that may be needed to access video, sound, etc.)			
Have you made accommodations for learners who do not have access to computers and Internet outside of class?			
Is technical support sufficient?			
Do you have required policies for using technologies and the Internet?			

CURRICULUM PLANNING	YES/NO	NEEDS	ACTION STEPS
Does the blended learning plan align with curricula?			
Do lesson plans align with student goals and needs? (POST template is a helpful planning tool)			
Are learning objectives observable or measurable behaviors?			
Do lesson activities support learning objectives?			
What technology tools best support the learning objectives and match your students' skills?			
Does the use of technology add value to lessons or assignments?			
Are the appropriate assessments included?			
Is there a continuum of learning between and beyond class instruction and activities?			
Are there individual and group learning activities?			
Does the plan include post-program reflection and analysis?			

# Appendix B:

## The POST Action Plan Framework

The POST Action Plan Framework is widely used in course planning. The questions ensure that the components of the plan are integrated and mutually supportive, e.g., technology fits the capacity and resources of the students, and furthers the learning objectives. Answers to questions in each section can be drafted to determine gaps and then revised to incorporate details and to assure consistency.

### Part 1: Applying the POST Method

<b>PEOPLE</b> Who are my students and what are their learning goals?	
What are their existing technology skills, areas of challenge, and level of access to technology devices?	
<b>OBJECTIVES</b> What are the learning objectives for the unit/lesson?	
When possible, objectives should describe observable behavior. What will the learners be able to do at the end of the unit/lesson?	
<b>STRATEGY</b> Considering your students' goals, their existing technology skills, and areas of challenge, what strategies will you apply to achieve the learning objectives of the unit/lesson?	
<b>TECHNOLOGY</b> What technology tools best support your objectives and match your students' skills?	
What do you have the capacity to implement?	

## Part 2: Planning for Integrating Technology

### WHERE AM I NOW?

Consider the technology tools listed in the Technology section in Part 1 of the Technology Integration Action Plan. How comfortable are you with integrating these tools in the classroom?

### WHERE DO I WANT TO BE?

Choose a technology tool you would like to explore further in your professional development. Where do you want to be in your comfort level with using that tool in your classroom?

How do you plan on learning more about that tool and how to use the tool to improve instruction and deepen student learning?

### TIMELINE FOR PROFESSIONAL DEVELOPMENT

What are your milestones for learning about the technology tool and integrating the tool in the unit/lesson?

If your students are unfamiliar with the tool, what is your plan for teaching them about the tool?

### ASSESSMENT

How will you measure if the technology tool is improving instruction or deepening student learning?

## Part 3: Reflecting on Integrating Technology

### WHAT ARE THE RESULTS?

After teaching the unit/lesson, what results did you observe?

### WHAT WOULD YOU IMPROVE/CHANGE?

Are there any strategies or technology tools you would change for next time?



# Endnotes

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