What is Distance Learning?

Summary

This self tutorial provides an overview of distance learning for adult basic educators. It is organized in seven modules —

- Introduction to Distance Learning
- The History of Distance Learning
- California Considerations (with particular interest to California adult schools)
- Distance Learning Design
- Planning and Administration
- Distance Learning Evaluation
- Distance Learning Online

The tutorial draws much of its information from the California adult basic education distance learning experience since 1995. While the statewide experience has its limitations, it is the largest state program by far, serving over 50,000 documented students in 2003 – 2004. California also has access to distance learning learner and provider data from a standardized statewide set of data for English as a second language (ESL), adult basic education, and GED / adult secondary education students. It enables researchers and policy makers to examine the effectiveness and equity of the state supported distance learning intervention.

Distance Learning Defined

The California Distance Learning Project (CDLP) defines distance learning as follows. "Distance Learning (DL) is an instructional delivery system that connects learners with educational resources. DL provides educational access to learners not enrolled in educational institutions and can augment the learning opportunities of current students. The implementation of DL is a process that uses available resources and will evolve to incorporate emerging technologies."

Several key features define distance learning. The importance of the teacher — learner communications cannot be overstated.

- the separation of teacher and learner during at least a majority of each instructional process
- separation of teacher and learner in space and/or time
- the use of educational media to unite teacher and learner and carry course content
- the provision of two-way communication between teacher, tutor, or educational agency and learner, and
- control of the learning pace by the student rather than the distance instructor.

These definitions apply equally to high tech and low tech approaches to distance learning. The multiple distance learning definitions and other terminology is addressed in the tutorial.

Distance Learning Effectiveness

California research shows that the adult schools' Innovation Programs meet the three crucial benefit–cost criteria necessary to be accepted by adult education providers and the California Department of Education. These programs are effective, efficient, and equitable. The annual research can be found on the same menu as this document. The title of the document is "California Research on Distance Learning."

In California, adult schools are reimbursed for student participation based on seat time or average daily attendance (a.d.a.). In the distance learning programs the equivalent hours per unit of instruction or
module for a comparable classroom course are determined. In order to gain credit and a.d.a. the distance learning student must complete a unit of instruction and then pass a comprehension test or exercise before the a.d.a. is claimed, and the student advances to the next assignment. This outcomes based model rewards student performance, not the amount of time a student spends in a seat.

**Types of Distance Learning**

There are two distance education delivery system categories - synchronous and asynchronous. Synchronous instruction requires the simultaneous participation of all students and instructors. The advantage of synchronous instruction is that interaction is done in "real time" and has an immediacy. Examples include interactive telecourses, teleconferencing and Web conferencing, and Internet chats.

Asynchronous instruction does not require the simultaneous participation of all students and instructors. Students do not need to be gathered together in the same location at the same time. Rather, students may choose their own instructional time frame and interact with the learning materials and instructor according to their schedules. Asynchronous instruction is more flexible than synchronous instruction, but experience shows that time limits are necessary to maintain focus and participation. The self-paced format accommodates multiple learning levels and schedules. Examples of asynchronous delivery include e-mail, listservs, audiocassette courses, videotaped courses, correspondence courses, and WWW-based courses.

The following figure summarizes the most popular California distance learning approaches approved for 2005 - 2006. Video checkout is by far the most popular. Text materials, workbooks, and study packets are used alone and with other instructional media.

![Graph showing the most popular California distance learning approaches approved for 2005 - 2006. Video checkout is by far the most popular. Text materials, workbooks, and study packets are used alone and with other instructional media.](image)

**From Low Tech to the Internet**

The next hurdle for adult basic education distance learning will be to transition from a low tech video based instructional system to the interactive Internet. In our judgment the interactivity, depth and breadth of the instructional content, and the student – teacher communications provide a richer learning experience than the more passive video and print materials experience that is the current norm. This is precluded by several significant challenges, and the absence of current research supporting the viability of the Internet’s effectiveness with adult basic education learners.
The availability of course length ESL video based instructional materials spurred the initial growth of adult basic distance learning in California. It is impractical to expect a profession of mostly part time teachers to be able to develop their own course length learning content. The California Distance Learning Project staff expects that the growing availability of online course length materials will likewise stimulate the transition to the Internet. One example of the popularity of an online course curriculum is English for All (EFA). This high beginning ESL Web site had over 213,700 visitors in 2005, of whom 65,319 were unique and 19,528 were persons visiting more than once.

Adult basic education classroom instructors are likely to increase their use of the Internet to supplement instruction. The cornucopia of online materials makes this easy to do. However, growing the availability of the Internet centered course length curricula for adult basic learners that include learning management systems (LMS) and communications tools will require commercial, state, university, and non–profit resources. Unfortunately, this is not a profitable development niche, and the development will require underwriting and public support. It will slowly emerge over the next 10 years.

The Tutorial

This online document presents an overview of distance learning as it applies to adult basic education. It is designed for administrators, teachers, and resource persons seeking general or specific information on the history, state of the art, and practical resources. The California Distance Learning Project (CDLP) welcomes your comments and suggestions. Please send them to Marian Thacher.

Introduction to Distance Learning

Distance learning traditionally has provided access to instructional programs for students who are separated by time and/or physical location from an instructor. Distance learning has been thought of as prepackaged text, audio, and/or video courses taken by an isolated learner with limited interaction with an instructor or other students. This perspective is changing. Today information technologies and the Internet can allow rich interactive distance learning experiences that may surpass the interactivity of a traditional classroom.

Distance learning can be provided in several contexts including stand alone distance learning, blended learning where the student participates in a regular class and distance learning class concurrently, and hybrid learning where distance learning supplements classroom instruction.

Definitions

Learning is defined as "the act, process, or experience of gaining knowledge or skill." Learning is the preferred term rather than education that is generally defined as the knowledge or skill obtained or developed by the learning process. However educators often use the terms interchangeably.

Distance learning is conventionally defined as... "any educational or learning process or system in which the teacher and instructor are separated geographically or in time from his or her students; or in which students are separated from other students or educational resources. Contemporary distance learning is effected through the implementation of computer and electronics technology to connect teacher and student in either real or delayed time or on an as-needed basis. Content delivery may be achieved through a variety of technologies, including satellites, computers, cable television, interactive video, electronic transmissions via telephone lines, and others. Distance learning does not preclude traditional learning processes; frequently it is used in conjunction with in-person classroom or professional training procedures and practices. It is also called distributed learning."
The California Distance Learning Project (CDLP) uses the following definition:

"Distance Learning (DL) is an instructional delivery system that connects learners with educational resources. DL provides educational access to learners not enrolled in educational institutions and can augment the learning opportunities of current students. The implementation of DL is a process that uses available resources and will evolve to incorporate emerging technologies."

This definition was developed in 1997 by a workgroup of adult educators.

**Defining Elements**

Several key features define distance learning. The importance of the teacher — learner communications cannot be overstated.

- The separation of teacher and learner during at least a majority of each instructional process
- Separation of teacher and learner in space and/or time.
- The use of educational media to unite teacher and learner and carry course content.
- The provision of two-way communication between teacher, tutor, or educational agency and learner, and
- Control of the learning pace by the student rather than the distance instructor.

These definitions apply equally to high tech and low tech approaches to distance learning. Having the appropriate, enthusiastic, and qualified staff is a make or break requirement.

**Two Types of Distance Learning**

There are two distance education delivery system categories — synchronous and asynchronous. Synchronous instruction requires the simultaneous participation of all students and instructors. The advantage of synchronous instruction is that interaction is done in "real time" and has an immediacy. Examples include interactive telecourses, teleconferencing and Web conferencing, and Internet chats.

Asynchronous instruction does not require the simultaneous participation of all students and instructors. Students do not need to be gathered together in the same location at the same time. Rather, students may choose their own instructional time frame and interact with the learning materials and instructor according to their schedules. Asynchronous instruction is more flexible than synchronous instruction but experience shows that time limits are necessary to main focus and participation. The self-paced format accommodates multiple learning levels and schedules. Examples of asynchronous delivery include e-mail, listservs, audiocassette courses, videotaped courses, correspondence courses, and WWW-based courses.

The advantages of asynchronous delivery include student choice of location and time, and interaction opportunities among the students as well as the instructor. One disadvantage is that self paced instruction places a substantial burden on the student to maintain interest, focus, and pace. This motivation can be difficult to sustain.

Three elements are of paramount importance to any successful distance education program:

- instructional design
- technology
- support

Support is often undervalued in design and implementation. Technology implementation studies show that teacher preparation and ongoing support are undervalued.
Why Distance Learning?

Distance education increases access to learning opportunities. Well organized distance learning accommodates multiple learning styles. Distance learning serves learners who are not likely to attend traditional classroom instruction (effectiveness). In some cases it can serve as many or more learners per dollar spent (efficiency). California research continues to show that it can attract and serve lower level learners (equity).

Adult life for many is complex and demanding. Many adults are unable to or unwilling to attend traditional adult education schools and classrooms for many reasons including:

- having work and family obligations that make attending a regular class time difficult, learning more effectively from video, audio, and Web–based media when moving at their own pace.
- experiencing the dearth of public transportation systems in many parts of the state, needing more practice of skills to achieve mastery.
- living in locations without convenient access to traditional classes, and/or
- lacking the full confidence to participate in a large classroom setting in front of other students.

People who can't attend traditional classes because of these realities need alternatives. These adults are prime targets for distance learning. They are motivated to continue their education, but limited by circumstances as to how they participate in adult basic education. Flexible learning approaches that are not classroom centered appeal to these potential learners.

Questions are raised whether lower literacy learners benefit from the rich opportunities emerging with distributed Internet instruction? This is the well known digital divide. While the Internet broadband access is available in schools, libraries, and community centers, it still may not be available in some homes. The CDLP encourages adult education programs that are considering including Internet delivered instruction to survey its learners about their home access to computers and the Internet.

In the past most adult learners had videotape players (VCRs) or access to them. This is why video delivered instruction has been so popular in California. Now the same popularity and increased instructional functionality is being provided via digital video disks (DVDs). One challenge for adult educators is to transition to interactive Internet based instruction that offers a much richer palate of learning materials, communications, and testing possibilities.

Distance Learning: Basic Assumptions

The following set of common assumptions was developed for the California Distance Learning Project by a 21 person resource team. It was developed to help guide collective thinking and discussions about distance learning policies and priorities.

- Anytime, any place, any pace instruction is one goal for California adult education.
- Faced with an increasingly competitive global market, California, a state of immigrants, will look to adult education to play a key role in developing and maintaining a world class workforce.
- The potential demand for adult basic education services in California far outstrips the supply. New methods must be found to effectively and efficiently reach out and serve more adult learners.
- Distance learning provides access for learners not presently served in traditional settings and enhances learning opportunities for those not being served in traditional programs.
• Distance learning should be used as a strategic tool to support individual institutional missions. However, there are institutional structures and cultures that do not foster an environment where distance learning can be easily utilized.
• Distance learning offers unique opportunities for adult schools to provide access to persons not otherwise served; and thus has the potential to continue to expand adult education in new ways.
• Distance learning often requires resource sharing and collaboration among providers. It can be enhanced by many kinds of partnerships.
• Distance learning, incorporating emerging information technologies, provides both an opportunity and a challenge to adult schools in expanding their missions and services.
• Distance learning is most effective when staff, along with learners, acquire new knowledge and skills. Thus, on-going staff development must be an essential part of the distance learning development process.

Core Values

These principles assume that the practice of distance learning contributes to the larger social mission of education and training in a democratic society. With that in mind, the principles reflect the following tenets and values:

• Learning is a lifelong process, important to successful participation in the social, cultural, civic, and economic life of a democratic society.
• Lifelong learning involves the development of a range of learning skills and behaviors that should be explicit outcomes of learning activities.
• The diversity of learners, learning needs, learning contexts, and modes of learning must be recognized if the learning activities are to achieve their goals.
• All members of society have the right to access learning opportunities that provide the means for effective participation in society.
• Participation in a learning society involves both rights and responsibilities for learners, providers, and those charged with the oversight of learning.
• Because learning is social and sensitive to context, learning experiences should support interaction and the development of learning communities, whether social, public, or professional.
• The development of a learning society may require significant changes in the roles, responsibilities, and activities of provider organizations and personnel as well as of the learners themselves.

[Quoted from the American Council on Education’s "Guiding Principles for Distance Learning in a Learning Society"]

Terminology

There are several useful glossaries to find commonly used distance learning terms. They can be found at the Distance Learning Clearinghouse. E-learning terminology can be found at ASTD’s e-learning.

Types of Distance Learning

Distance learning is a modality - a broad, mixed category of methods to deliver learning. The types can be organized along several descriptive dimensions. Low tech to high tech is useful in the adult basic education field. Remember, however, that these individual types can be mixed into hybrid forms. The following table outlines the most popular types of distance learning by their characteristics and notable features.
<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristic</th>
<th>Notable Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiotape</td>
<td>Audio learning tool, very mobile and inexpensive when combined with print materials.</td>
<td>Useful in language learning and practice as well as literature. Linear format.</td>
</tr>
<tr>
<td>Videotape in VHS and DVD formats</td>
<td>Visual and audio tool; the checkout approach with print materials is very popular in California.</td>
<td>Multi-sensory tool with linear delivery format.</td>
</tr>
<tr>
<td>Laptop computer checkout</td>
<td>Versatile approach to providing a wide range of learning activities from skill and drill to simulations.</td>
<td>Hardware is expensive and being replaced by less expensive Internet delivery.</td>
</tr>
<tr>
<td>Mobile van / lab</td>
<td>Resources taken to the learners, useful for work site learning and reaching parents at elementary schools. Van learning.</td>
<td>Historically useful way to distribute videos, audiotapes, DVDs, and other learning tools, but it can be expensive to operate. It is less and less popular as distributed learning increases.</td>
</tr>
<tr>
<td>Radio course</td>
<td>Low cost way to reach ESL learners. Ideally it should be used by more learning providers.</td>
<td>The radio course must include ways for learners to interact with the instructor. Phone call in during or after air time could be integrated into the programming.</td>
</tr>
<tr>
<td>Telecourse</td>
<td>Delivery over television, usually a cable public access channel or school owned channel.</td>
<td>The telecourse must include ways for learners to interact with the instructor. Phone call in is popular. Print materials accompany on-air instruction.</td>
</tr>
<tr>
<td>Videoconference - Two way interactive video</td>
<td>Electronic communications among people at separate locations. Can be audio, audio graphic, video or computer based.</td>
<td>Often uses proprietary software and consequently expensive. Internet models and broadband communications are making it more affordable and accessible.</td>
</tr>
<tr>
<td>Email</td>
<td>Asynchronous text files and attachments.</td>
<td>Good tool to stimulate learning, writing, and communications skills.</td>
</tr>
<tr>
<td>Internet</td>
<td>Instructionally delivery over the Internet, either learning modules or entire courses.</td>
<td>Instructional learning systems permit teachers to create, manage, communicate with, and test students online. The interactivity and ability to hyperlink to worldwide learning resources are extremely attractive. Improved broadband communications are enabling the effective use of video and synchronous communications. Chat and asynchronous communications facilitate links between the teacher and learner and among the learners.</td>
</tr>
</tbody>
</table>
The medium for instructional delivery usually defines the type. It is generally assumed that print materials can and should be integrated with the other media.

**History of Distance Learning**

Distance education traces its origins to mid-19th century Europe and the United States. The pioneers of distance education used the best technology of their day, the postal system, to open educational opportunities to people who wanted to learn but were not able to attend conventional schools. People who most benefited from such correspondence education included those with physical disabilities, women who were not allowed to enroll in educational institutions open only to men, people who had jobs during normal school hours, and those who lived in remote regions where schools did not exist.

An Englishman, Isaac Pitman, is credited as an early pioneer. He began teaching shorthand by correspondence in Bath, England in 1840. Students were instructed to copy short passages of the Bible and return them for grading via the new penny post system.

American university level distance education began in 1874 at Illinois Wesleyan University where bachelor and graduate degrees could be obtained in absentia. The Chautauqua movement in about 1882 gave the popular push to correspondence education.

The teaching of academic and vocational courses by correspondence became quite popular by 1900 and problems of quality and ethical practice came with the popularity. The National Home Study Council (NHSC) was formed in 1926 in part to address these issues. Accreditation of college and university distance programs fell to the National University Extension Association in 1915.

The invention of educational radio in the 1920s and the advent of television in the 1940s created important new forms of communication for use in distance education. Educators used these new technologies to broadcast educational programs to millions of learners, thus extending learning opportunities beyond the walls of conventional teaching institutions.

The development of reliable long-distance telephone systems in the early 1900s also increased the capacity of distance educators to reach new student populations. But telephone systems never played a prominent role in education until the introduction of new teleconferencing technologies in the 1980s and 1990s. Teleconferencing systems made it possible for teachers to talk with, hear, and see their students in real time - that is, with no delays in the transmissions - even if they were located across the country or around the world.

Distance education increasingly uses combinations of different communications technologies to enhance the abilities of teachers and students to communicate with each other. With the spread of computer-network communications in the 1980s and 1990s, large numbers of people gained access to computers linked to telephone lines, allowing teachers and students to communicate in conferences via computers.

Distance education also makes use of computer conferencing on the World Wide Web, where teachers and students present text, pictures, audio, and video. File sharing and communications tools like email, chats and and audio and video conferencing are integral to the Internet model.

Business and university level learners have used a conferencing method known as one-way video/two-way audio where television pictures that are transmitted to particular sites, where people can reply to the broadcasters with a telephone call-in system. Television pictures can also be transmitted in two directions simultaneously through telephone lines, so that teachers and students in one place can see and hear teachers and students in other places. This video-conferencing technology increasingly uses the Internet and Internet2.
Programs in the United States

In the United States, institutions of higher education, business, and the military use distance education for education and training. Millions of students have enrolled in television courses produced by colleges and universities around the country. Private businesses, including multinational corporations, have operated satellite television networks to deliver vocational training to employees throughout the world. The United States Army offers a wide range of online education programs to its military personnel. See for example the Army Training Requirements and Resources System and eArmyU.

Distance education offered through colleges and universities in the United States provides instruction in a wide range of academic and vocational subjects. The National University Telecommunications Network, (NUTN) based in Old Dominion University, Colorado, offers distance learning and teleconferencing resources for over 50 institutions of higher learning. Over time the technology has moved from satellite and telecourses to the Internet.

University Courses Online

A growing number of institutions offer complete college degree programs via the Internet. California's Virtual University lists a wide range of community college, college, and university courses offered online. The Western Governor's Association sponsors the Western Governor's University (WGU). It offers online college degrees and courses from multiple universities.

The innovative Open University, started in 1971 in Britain and has been copied around the world. The British Open University offers a master’s degree in the field of distance education to anyone in the world who can access the Internet.

Listings of virtual universities and much more information can be found on the American Distance Education Consortium (ADEC) and the Distance Education Clearinghouse Web sites. Others can be found using routine Internet search methods.

The Virtual School

Several states have introduced virtual high schools and virtual schools. A 1991 WestEd study defines the virtual school as "an educational organization that offers K-12 courses through Internet or Web-based methods." The statewide Florida Virtual School probably is the most notable because of its breadth and depth. The Massachusetts nonprofit VHS Inc. creates collaborative partnerships with schools. Other virtual schools are locally based or created via charter schools. The University of California Santa Cruz's University of California College Prep online (UCCP) began as an online program to provide advanced placement courses to small and middle size high schools. It has expanded to include core academic courses.

The California Adult Basic Education Experience

California provides adult education and literacy services through a multi-provider system. The bulk of the state and federal resources go to the K-12 adult schools. Community colleges offer basic education services through their noncredit programs on some 9 campuses. Library literacy programs and community based advocacy organizations also offer very important literacy, basic education and ESL services, though in limited numbers.

There has been little motivation for the literacy and community based organization programs to experiment with distance learning. The federal English language/civics (EL/Civics) grant programs initiated in 2001 included a distance learning emphasis though there was little provider interest.
The California Adult Schools

California’s efforts to provide adult basic distance learning services are recent. Adult schools can offer distance learning through two funding mechanisms - apportionment and fee based. Currently there are two apportionment delivery options - independent study and Innovation Programs.

High school subjects can be offered through "independent study" programs. Adult learners enter into agreements with adult schools to carry on independent learning in an approved adult high school subject. The learner and instructor meet periodically to review assignments, progress and concerns. The modality in which the independent learning occurs does not matter and distance learning is a very appropriate tool. However, distance learning course materials are presently limited, and most independent study occurs in learning centers or on a materials checkout basis.

In 1993 legislation was passed permitting adult schools to use up to 5% of their block entitlement for innovative programs, all of which have been distance learning in nature. Innovation Programs programs can be offered in the authorized areas of instruction including English as a second language (ESL), adult basic education, GED preparation, parent education and short term career education training.

The Innovation Program application and provider information can be found at the Adult Education Office’s Innovation Program site. A more detailed discussion follows in the California considerations module.

Role of the Instructor

All California adult education apportionment programs administered by adult schools must have an instructor assigned to manage the instruction. This function cannot be delegated to second parties. Instructional strategies that include distance learning must clearly define how the learner and instructor interact and communicate. Approaches that optimize the communications are important.

Substantial anecdotal information in California supports the perspective that the distance learning intervention creates a unique and beneficial one–to–one relationship between teacher and student that is not as common in a traditional teacher–directed classroom. Distance learning teachers report that a more direct and immediate connection is formed between teacher and student through regular meetings to review progress.

Instructional Design

The delivered instruction must fit into the approved curriculum outline that the adult school uses. The 2005 – 2006 media distribution favored video based learning. Normally work books or study packets accompany the video, broadcast, and audio based courses.
Reimbursement

California reimburses adult schools for student participation based on "seat time." Records are kept of attendance and the schools reimbursed. The Innovation Programs base their reimbursements on learning outcomes. When a unit of instruction is completed, and the learner passes a unit quiz; then reimbursement is claimed. The value of a unit of instruction is based on the hours associated with a similar unit of classroom instruction.

Impact

Distance learning in adult basic education is still in its infancy. However, in fiscal years 2004 - 2005 over $23 million was budgeted for innovative and distance learning through some 81 California adult schools. In the 2003 - 2004 slightly more than 50,000 unduplicated learners were served. The graphic shows the growth in the adult school distance learning.
Effectiveness

Annual reviews of the Innovation Programs' statewide standardized program, student, and testing data continue to show the utility of distance learning. When comparing classroom data with the Innovation Programs, it is clear that the distance learning programs are particularly successful in providing English as a second language (ESL) learning opportunities. Local research data on student persistence and retention support these findings.

The Innovation Programs meet the three crucial benefit–cost criteria necessary to be accepted by adult education providers and the California Department of Education. These programs are effective, efficient, and equitable. The annual research can be found on the same menu as this document. The title of the document is “California Research on Distance Learning.”

Next Steps

There will be a slow increase of Internet centered instruction as teachers become more comfortable with the curricula and management systems and as more course length curricula become available.

California Considerations

Distance Learning Legislation

In 1993 the California legislature passed EC 52522 permitting the Superintendent of Public Instruction to approve adult school plans to spend up to 5% of their block entitlement on innovation and alternative instructional delivery. This authorization and the subsequent initiative are commonly known as the Innovation or 5% Program.

Education Code 52522 NEEDS OF ADULTS

(a) The Superintendent of Public Instruction may approve school district plans for adult education innovation and alternative instructional delivery. School districts making an application under this section shall demonstrate how the needs of adults will be addressed by programs, including, but not limited to:
- Work site adult basic education skills instruction.
- Distance learning using video and other communication technologies.
- Home-based and community-based independent study approaches using instructional technologies.
- Tests of alternative reimbursement approaches other than average daily attendance to determine whether they are reasonable and feasible, to the extent that there is no decrease in the number of learners served nor an increase in cost to the state.

(b) School district approved to implement demonstration programs under this section may expend up to 5 percent of their adult block entitlement for implementation of approved programs.

Any adult school wishing to request authorization for the innovative programming submits an annual application to the California Dept. of Education. The online application is available on the California Department of Education’s Adult Education Office’s Innovation Program Web page. Authorized programs are required to submit an annual final report outlining program design, learners served, and accomplishments. These requirements may change. Click on "See participating adult schools" for examples of applications and reports.

In practice the distance learning approach is the primary use. Other program options so far have proven unfeasible (work site skills instruction and alternative reimbursement) or are really distance learning in concept (home-based and community based study).

**Role of the Instructor**

All California adult education apportionment programs administered by adult schools must have an instructor assigned to manage the instruction. This function cannot be delegated to second parties. Instructional strategies that include distance learning must clearly define how the learner and instructor will interact and communicate. Approaches that optimize the communications are important.

**Current Uses**

The Innovation Program began in earnest in 1995. Almost all the innovative programs have fallen under the California Distance Learning Project’s definition of distance learning. This means that several key requirements must be met. They are:

- the separation of teacher and learner in space and/or time during at least a majority of each instructional process
- the provision of two-way communication between teacher, tutor, or educational agency and learner
- the use of educational media to unite teacher and learner and carry course content, and
- the volitional control of learning by student rather than distance instructor

The importance of the two-way communication cannot be overstated.

Approximately 50,000 unduplicated adult learners were enrolled in 2003 - 2004. In late 2005, 89 adult schools applied to operate Innovation Programs for the current fiscal year.
There are two approaches to distance learning in California - the hybrid or supplemental approach and the pure distance learning approach. The supplemental model has the learner enrolled in both classroom and distance learning classes, allowing him or her to extend learning opportunities. The pure distance learner cannot or will not attend classroom instruction and is served solely by remote learning.

**Media Used in Distance Learning**

The following figure summarizes the most popular adult school Innovation Program approaches approved for 2004 - 2005. Video / DVD checkout is by far the most popular. Text materials, workbooks, and study packets are used alone and with other instructional media.
The video and audio media normally are provided on a checkout basis with packets of printed materials and work assignments included. They constitute over 3/4ths of the recent and current innovative approaches. The checkout model is easy to manage unless large numbers of learners are involved. Recent additions to the video choices make this an appealing approach for learners who cannot regularly attend classroom centered learning.

The current use of the Internet as the primary instructional medium is limited. However, it will increase in its use as the low cost course-length curricula are available. The Internet as an interactive instructional delivery and communications system may redefine some aspects of distance learning. Internet based instruction is often described as "distributed learning" since the actual learning content may reside on multiple computers.

**Accountability**

Historically the approved Innovation Programs have been required to submit an annual application to be authorized and a self-evaluation report to summarize outcomes. The reporting requirements have been simple and easy to follow. One result was that the data and information were idiosyncratic to the reporting adult education program. In the spring of 2000 the California Dept. of Education appointed an ad hoc work group to review the need for more standardized reporting. In May 2000 administrators from the approved Innovation Programs suggested elements to be combined in a uniform reporting system. In 2001 the model was simplified further by the CDE. In the summer of 2002 an interactive online application was initiated.

The annual Innovation Program interactive application form is available on the Internet, and standardizes the accountability (demographic and program data) reporting based on the Tracking of Programs and Students (TOPSpro) Entry and Update records. (all adult schools are required to utilize these data elements as part of their apportionment related reporting.) Other information elements are descriptive and numeric in nature and will be idiosyncratic to the particular Innovation Program. The annual report form is available interactively on the Internet.

The California Distance Learning Project produced an annual statewide summary report summarizing the TOPSpro and CASAS pre - post test data for the Innovation Programs. The reports can be found on the same menu as this document. The title of the document is "California Research on Distance Learning."

*Data on Program Participation*

The distribution of unduplicated learners by area of instruction are shown for program years 2005 - 2006. ESL instruction has predominated since the Innovation Programs began in 1995. This is based on TOPSpro data.
**Constraints**

Three primary constraints face California adult schools wishing to provide distance learning as a delivery option. The independent study programs suffer from inadequate course materials. Many adult schools offering Innovation Programs have reached their cap and would like legislative permission to serve more learners. The smaller programs cannot generate enough instruction via the Innovation Program option to make it attractive.

**California Trends**

There seem to be two trends occurring at the same time. The video checkout low tech approach is increasing in popularity. It is easy to integrate into a program’s instructional strategies. The number of quality video products aimed at the adult basic learner is increasing.

At the same time Internet based instruction aimed at the adult basic learner is beginning to emerge. Preparing instructors to work with these online courses is a weak point as is the absence of online course length curricula.

**Delivery Models**

**Video Checkout**

The video checkout model is by far California’s most popular distance learning approach. Typically, the adult learner will register at a school site and select distance learning as the instructional delivery method. Sometimes the learner learns about the distance learning option in a class or when reviewing class schedules and concluding that there are conflicts. Likewise, some students, especially ESL learners, enroll in both classes and distance learning to speed the learning process.

The learner, following assessment, assignment and orientation, is given a packet including an instructional video and work sheets. When the learner has completed
the worksheets, he or she meets with the teacher or instructional aide to review progress and receive the next assignment. The nature of the work sheets and assignments vary by program, but often include work sheets and supplemental materials.

Some instructional video series are linear, requiring the learner to start with the first video and progress to the end. Other video series are organized into episodes that form the series, or they have a progression regarding the theme but not the instruction, which permits a more random assignment of the videos.

The face to face intervention occurs when the video is dropped off. Since the learning is quite self directed, some learners will require substantial support while others will require little support. Portfolios are often developed for each learner to document progress and special activities.

Managing a video checkout program requires a sufficient supply of videos and print materials, scheduled times to meet with learners, and procedures to monitor individual progress. Hacienda La Puente, Alhambra Adult School, and Los Angeles Unified School District were the early adaptors of the video checkout system.

Telecourses

Traditional telecourses with the talking head and no interaction between the instructor and learner do not fit the CDLP distance learning definition. The interactivity is essential for learning theory, practical and legal reasons. However, it is difficult when television is the primary means of communication.

The California model is referred to as a "wrap around." It originated at the San Juan Unified Adult School through a local cable consortium. In California a few adult schools offer telecourses for their learners. In addition to the enrolled learners, there is an undefined informal learning audience of people who watch telecourses but are not enrolled.

What's a "wrap-around"?

In television news, a "wrap-around" is the term used to describe what is done to enhance with a pre-produced story. During a live broadcast, the anchor will set up the story for the viewers, for example a dangerous fire in a downtown warehouse. The scene will switch to a tape of the fire story produced in the field by the reporter; complete with crashing walls, daring rescues and roaring flames. After the taped fire footage including an interview with the fire chief is shown, the reporter will re-appear live on the scene. The anchor and the reporter may discuss the fire, commiserate about the victims and offer safety tips to the viewers.

In distance education, a "wrap-around" is the term used to describe what is done with a pre-produced educational video. During a live telecast, the teacher will set up the story for the students, for example a workplace situation where a new employee, with limited English proficiency, is learning how to operate the copy machine. The scene will switch to a tape of the workplace; complete with skilled actors playing the roles of new and experienced workers, a real office with real office equipment and ESL level-appropriate dialogue written by experts in the field of ESL education. After the video is over, the teacher will re-appear live and discuss the lessons learned in the video. At-home students will be encouraged to call-in live to discuss the video, practice speaking English and ask questions.

Both examples have many elements in common:

- Live teacher/anchor at the studio.
- Set up of the video before it is shown.
- Pre-produced video that is high quality, perhaps dramatic, colorful and full of production details that can't be easily done in the confines of a studio.
- After the video is shown the teacher/anchor returns live to discuss what the student/viewer has just seen.
• The reporter or call-in student has a common point of reference to discuss with the teacher/anchor because they have both seen the same video.
• The dialogue about the video is a two-way conversation between people at different locations. They speak at a distance.
• The live teacher/anchor adds additional material to enhance the story.
• The teacher/anchor isn't just a "talking head" in the studio describing the situation. The student/viewer sees the fire, sees the workplace; hears the reporter interview the chief, hears the experienced worker explain how to run the machine; learns about fire safety, learns about workplace safety.
• And in the case of distance education the student is invited to participate with the teacher during class, by calling the live cablecast.

Utilizing the "wrap-around" format in distance education is a low cost option that offers the high professional quality of pre-produced educational videos with the familiar comfort of a live local instructor. To be successful at reaching adult students and keeping them engaged, distance educators must adapt the techniques of teaching to include those of television that have proved to be successful. While teachers are able to base their lessons on materials that have been professionally produced, they still maintain control over the presentation and interpretation of the lessons shown. The live element of the class allows the students to participate and thus feel connected to the teacher.

The "wrap-around" concept offers the best of live and pre-produced classes on television. After all, who wants to just hear about an exciting event like a fire, when you may see it happening and talk about it live on television from the safety of your own living room?

Internet Delivery

There is a separate unit on Internet delivery. In all likelihood eLearning will be commonly used over the next five years because of the interactivity, richness, and flexibility of the instructional materials.

Multi-media Resources

Curricula and learning materials have been constructed using video and print, CD-ROM and/or the Internet. This permits adult education organizations to adopt some or all the media into their curricula as circumstances permit. The products include the "English for All" high beginning ESL video, print, CD-ROM, and Internet course materials. Check out English for All. The very popular California Distance Learning Project's online TV news stories, redesigned for adult basic education learners, are also available, but are no longer being updated. Click on any of the 11 home page icons for a wide variety of learning modules, exercises, and tests. Interactive ABE learning materials are available online at TV 411. Information on these products and course authoring tools can be found at Cyberstep.

The California Distance Learning Project

The California Distance Learning Project (CDLP) goal is to help expand learner access to adult basic education services in California. This goal has four major tasks:

• Build and Promote a Distance Learning Knowledge Base
• Provide Technical Assistance in Implementing Distance Learning
• Test New Instructional Delivery Methods / Materials
• Help Create a Statewide Distance Learning Infrastructure
• Explore the CDLP Web site. Also explore the Outreach and Technical Assistance Network (OTAN) Web site, especially the subcategory "Sites to Use With Students" in the Teaching Tools & References > By Program area. It is the largest and best repository of information and communications on adult basic education in the United States.

Both of these projects, supported by the California Department of Education, help incorporate instructional technology into adult basic education.
Next Steps

Ideally most adult basic education curricula should be delivered in multiple media, allowing the learner to take advantage of the variable times, media, and learning style options. Over the next five years the increased integration of Web based learning with traditional learning will occur. Beginning ESL distance learning course length materials are scheduled to be available online in 2007. This was not considered possible ten years ago. Demand for this kind of material through on-line access continues to grow in California. The skill and drill activities associated with language acquisition can be provided using the visual and aural features of the Internet along with the interactivity of item testing and feedback.

The distance learning will remain as an alternative to and supplement for traditional classroom instruction, not a replacement.

Distance Learning Design

This section is a wide ranging discussion on designing a distance learning program. The level of detail goes from elementary to quite detailed.

Distance learning (DL) assumes that the learner is capable of self-direction, and the teacher is more facilitative than directive. While it is consistent with the precepts of andragogy and adult learning theory and practice, distance learning requires administrators and instructors to rethink instructional strategies and modalities, develop mechanisms to determine when and how to use DL and which learners can best benefit from it. A screening procedure to determine learning level, and a guided opportunity to experience the educational medium will help filter out learners who are not likely to function well in a self directed learning environment.

Distance learning usually comes in one or two forms — (1) distance learning only instruction where the learner operates independently for much of the instructional process; and (2) hybrid situations where classroom instruction is supplemented by distance learning. Both models have their advantages and disadvantages. Much of our discussion applies to both models, but focuses more on the distance learning only approach.

Elements in Distance Learning Design

Distance learning, like any learning intervention, is made up of a series of components or elements. It should be described in its entirety, since it may operate somewhat separately from traditional instruction. These are some of the components to be addressed in designing a distance learning program.

- Identify the targeted learner.
- Establish the program goals and objectives.
- Define the outreach and recruitment strategies.
- Determine the intake, testing and enrollment procedures. This should include screening for self directedness.
- Provide learner orientation and assignment
- Define instructor selection, orientation, training, and support.
- Identify the instruction strategies and materials. They should fit your course outlines.
- Develop structured and ad hoc learner support activities.
- Pilot test the materials and modify as required.
- Determine the learner data collection requirements including learning gains and learning achievements and affective measures of motivation and self esteem.
- Define the program data collection requirements.
- Design a self correcting program evaluation system. Include systematic learner and instructor feedback in the system.
- Implement and modify the distance learning program as experience indicates.
- Report findings and conclusions to key stakeholders.
It is not unusual for an adult education program to initially experiment with distance learning, using a small, low tech intervention. The CDLP staff encourages this approach and recommend using the video checkout model as the intervention.

**The Constructivist Approach**

A learning model becoming accepted for distance learning is based on the constructivist theory that views learning as socially constructed and situated in a specific context — the learner constructs meaning for him or herself. The model is based on the presumption that learning occurs in collaboration with others and in the social world of the learners. The design challenge becomes one of creating learning modules and curricula that require the learner to mediate and construct meaning with the help of others. More emphasis is placed on facilitating the learning and learning experience and less on the content. The communications and interactive aspects of learning take on greater importance.

In our judgment this approach has particular utility with higher level English as a second language (ESL) and adult basic education instruction (ABE) design and less for GED preparation. For more information go to [constructivism](#).

**Ties to Your Technology Infrastructure**

Initially distance learning design may or may not be tied to creating the organization's technology infrastructure. However, over time the ability to provide learning alternatives to adults outside the traditional classroom requires evaluating technological alternatives.

The technology utilization literature identifies two viewpoints on how to build a organization's technological infrastructure. Usually it's believed that a organization with fewer rules, greater independence, and feeling of self security makes innovation and creativity more likely. This view implies that technological innovation is a series of discrete technical decisions that will occur based on informal relations in the organization. This view holds that one cannot systematically plan technological changes.

However, given the cost and implications for poor technology planning decisions, it is important that technological changes should take place through more formally planned strategies and plans, i.e. innovation. Successful innovation of a technology strategy depends on the infrastructure and culture of the organization. New products or initiatives usually are dependent on knowledge being brought in from outside by the infrastructure. Therefore, the administrator's strategic challenges are to determine:

- the context for the technology planning (CDLP staff prefer a learner centered perspective)
- how technologies are chosen, and
- how to gain information from similar organizations that test and implement new technologies.

In practice most adult basic education innovation trails far behind in adapting new technologies and instructional strategies that include learning technologies. CDLP staff encourages adult education programs to develop learner centered technology plans that help identify opportunities and problems, resources, and priorities. The model is presented in the Planning and Administration module.
Learning Technology Standards

Standards are important to the development of new processes and technologies. They insure interoperability and design conformance. Three organizations are the focal point for learning technology standards:

- the Institute of Electrical and Electronics Engineers Inc. (IEEE)
- the International Organization of Standardization (ISO), and
- the International Electrotechnical Commission (IEC)

The IEEE hyperlink provides information on the Learning Technology Standards Committee working groups.

In addition the IMS Global Learning Consortium Inc. (IMS) was formed to provide standards for learning technology and especially content metadata and has moved into other areas such as content packaging. Much of the current work surrounds creating reusable learning content or objects. The World Wide Web Consortium (W3C) also provides leadership in extending the Internet.

The Open Knowledge Initiative (OKI) is a software-development project of several colleges and universities to develop software that will help professors build Web pages for their courses and manage administrative functions like grading and testing. In the process, they are developing a set of technical standards, known as application programming interfaces, or API's, which are rules for how the software will operate. One goal of the initiative is to build free course-management software.

Supporting Innovation

In order to maintain the innovation process, the adult education provider should communicate regularly with other organizations involved in similar activities. Fostering this network development process has been central to California's development strategy. This is referred to as fostering and supporting distance learning "pioneers."

The infrastructure of innovation and invention is based on two things:

- the network of relationships, and
- the dominant design and process

Links between adult education providers, outside innovators, and content development groups will insure a long term process. Some technology changes are not discovered in the networks but in an ad hoc environment. Openness to these possibilities is important. Keep in mind that even though the adult basic education sector is well developed, it does not imply a well developed technological infrastructure.

Strategic Implications for a Distance Learning Infrastructure

The adult education provider should have two main concerns:

- to get connected to the communications infrastructure
- to keep the infrastructure developing to insure progress

Technological strategy is also political, especially in the early stages of development when one has to choose a way to proceed. If one participates in this political process, the chance of benefiting will increase. It is essential that administrators know where technology is situated in the general strategy (i.e. the big picture).

General Guidelines
One distance learning goal is to have course curricula offered in multiple formats — teacher led, CD-ROM and DVD, video, and Internet. These choices when blended appropriately can effectively serve the learning styles and life circumstances of most potential learners.

The right technology used appropriately can greatly enhance the learning experience. But instructional technology used in the wrong way can result in a waste of time and money. The key to choosing the right technology to support learning is to match the technology to the learner and the learning context - both in terms of learners' skills and abilities and well their access to the technology.

Accessibility is a critical concern. The best designed Web site with the latest multimedia technologies is of no use to someone who does not have access to the Internet, does not have the required plug-ins, or does not know how to download them.

Learning materials and systems cannot be separated from the courses and venues in which they will be used. Consequently, the materials development process, whenever possible, should be integrated into the instructional planning process. This requires materials designers to engage in an overall curriculum planning process to help ensure focus and product compatibility.

Instructional design practice is organized from a set of objectives or learning outcomes. From these outcomes come the curriculum, strategies and skills, and comprehension expectations. The contexts vary widely based on the subject matter.

**Course Definition**

A course is a collection of closely related instructional components that have structure and sequence aimed at assisting learners to develop specific knowledge and skills. A course of study is designed for the characteristics of a specific learner group to meet their specific needs and interests. A program of study may consist of multiple courses.

For our purposes, a course may be of any duration and it need not have sub-units, however they are likely. It could be a semester-long citizenship course, a vocational training program, a pre-employment job preparation course, an online self-directed certification course, or a self-paced CD-ROM or videotape series. In most cases, media will support a course that is mediated by an instructor.

**Unit Definition**

All but the shortest courses consist of series of logical units of information. Like chapters in a book, these units include related materials that in sum make up the course. Units design may be in a sequential order or stand alone, not requiring any specific order. A course could mix units that are sequential and non-sequential.

Units are typically comprised of multiple lessons, which are where instructional materials are presented. In the case of a stand-alone video series, the course may be comprised of multiple videotapes (units) that have several different lessons on each tape.

**Lesson Definition**

A lesson is a discreet instructional session that includes a limited number of learning tasks designed to meet the needs of students based on the course content. Lessons are developed to cover a logical segment of learning tasks. Instructional materials are used at the lesson level.

**Technology Adoption**

During periods of rapid social and technological evolution, change and disruptive technologies are experienced and utilized by different people and organizations at different times. Unfortunately, in the CDLP experience, adult basic educators are late in perceiving, understanding, and adopting new
instructional technologies. Consequently, adult basic education providers should conservatively develop our tools and techniques.

The accepted model for stages of technology adoption is a *bell curve* with the stages of the technology adoption life cycle described from left to right as:

| Early Market | Main Street | End of Life |

Innovators and Early Adopters fall within the Early Market group. Early Majority and Late Majority users are in the Main Street users group while the Laggards fall within the End of Life grouping. The tools and resources available to support distance learning design are determined, in part, based on where the delivery technology is in the technology life cycle. Usually in will be in the "main street" or "end of life" stage for adult basic education.

The implications for adult education are that proven, widely accepted technologies are generally used, but their usefulness may be limited by emerging, more powerful technologies.

**Supporting Lifelong Learning**

Implicit in all product development is the goal of supporting knowledge integration and lifelong learning. This also entails developing students' skills at autonomous learning since students need to continue to integrate and reflect on their understanding subsequent to their science instruction to become lifelong learners. Thus, both curriculum and assessment activities need to encourage students to reflect on their own learning. If ideas are viewed as right or wrong, students may lack the motivation to reflect and solely seek to learn what is right. Instruction and assessment that support students' reflective processes and their understanding of their own alternative views can contribute to lifelong learning.

**Targeted Learners**

At the start of this section it is noted that the ideal distance learner is expected to be more self directed than the average adult basic learner. However, many practitioners have told us that, while they agree with this perspective, their target learners are those who cannot otherwise access learning. Within that group, some find out that the absence of structure is not useful for them. Still it is important to try to screen out learners who would not be comfortable is a self directed learning environment. This is done during the enrollment and orientation process.

**Build or Buy?**

Distance learning materials can be developed from scratch, purchased, or adopted. Regardless of the approach, the resulting product should be based on firm design and learning principles.
In most cases adult educators will utilize existing materials (video tapes, online resources) and add activities and communications tasks that "wrap around" the central products. This is done to enhance the product, adopt it to meet established standards or frameworks, or adopt it to the learners who will be using them.

**Creating Distance Learning Materials**

**Learning Principles**

A 1999 research document entitled *Materials Development Framework For Courses Targeting Low Literacy and Limited-English Speaking Adults* sets the basis for our design strategies. The full version can be found at [www.cyberstep.org](http://www.cyberstep.org).

The adult learning principles identified are:

1. Adult learners are goal driven.
2. Language and literacy are social processes that involve interaction with others.
3. Language and literacy development require risk taking.
4. Language and literacy develop when the target language is slightly above the current level of proficiency of the user.
5. Language and literacy development require focus, engagement and practice.
6. Language and literacy are multi-dimensional and require different kinds of interactions with different kinds of genres.
7. Language and literacy develop through interactions with tasks that require cognitive involvement.
8. Language and literacy develop more deeply if skills are connected to an overall topic or theme.

These principles should be kept in mind in all design work.

Likewise the state of Massachusetts System for Adult Basic Education Support (SABES) has developed an evolving set of resources to help address its state standards. These resources have broad application in any state.

**Learning Outcomes and Materials Development Objectives**

Learner outcomes specify student behaviors desired at a particular developmental point. These outcomes provide the basis for creating worthwhile learning experiences, for setting appropriate expectations, and for assessing the extent of learning attained.

**Distance Learning Materials Should:**

<table>
<thead>
<tr>
<th><strong>1. Successfully engage adults functioning at low literacy and limited English levels in improving their literacy and language skills and capabilities.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Are the materials appropriate?</td>
</tr>
<tr>
<td>Are the materials considered worthwhile?</td>
</tr>
<tr>
<td>1.1 Do the materials match up with learners' goals?</td>
</tr>
<tr>
<td>1.2 Which features are most successful in engaging these learners?</td>
</tr>
</tbody>
</table>
1.3 How do learners, instructors, and other facilitators respond to the materials components?
1.4 How are learners and facilitators using the materials?
1.5 How are the materials related to other materials and integrated into instructional strategies?

2. Function effectively making use of multi-media features to foster learning.
2.1 How easy to use are the materials?
2.2 Do learners take advantage of what specific technologies offer?
2.3 Which pathways and resources do learners make the most use of?
2.4 What pathways and resources might be missing?
2.5 What is an effective time commitment to expect from users?
2.6 What are the hardware, software, and cognitive problems that learners experience that inhibit use?
2.7 What supports do learners use and need to use these materials effectively?

3. Have a significant, positive impact on learners’ performance
3.1 Do the materials do what they claim?
3.2 Do materials teach language and literacy, and if so which dimensions are addressed?
3.3 What product focuses are most meaningful for learners and learning facilitators?
3.4 In which skills development areas do learners achieve most through these materials?

4. Be useful and effective for learners and learning facilitators in different learning contexts
4.1 What preparation is needed for instructors and facilitators to work productively with the materials?
4.2 What preparation or support is needed by learners with different learning profiles?
4.3 What problems do teachers/facilitators experience in working with learners on these materials?
4.4 How do instructors use the materials to work with students?

5. Suggest a materials development framework beyond the current work?
5.1 What are steps in product testing that will provide short and longer term utility?
5.2 How can we document learning achievement?
5.3 What technology features are important for short, medium, and longer term acceptability?
<table>
<thead>
<tr>
<th>Product Phase</th>
<th>Focus of Input</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept</td>
<td>Why is the product needed? What will it help learners do? How does the project fit into existing products? What are projected learning outcomes?</td>
<td>Funders, Peers</td>
</tr>
<tr>
<td>Proof of concept (i.e. rapid prototype demonstration)</td>
<td>Is the approach sound, can the product be implemented, What are product standards/ what would successful implementation look like, Who would best benefit from the product?</td>
<td>Funders, Peers, Product, Media and Subject Matter Specialists, Instructors, Learners</td>
</tr>
<tr>
<td>Initial development phase complete (alpha test)</td>
<td>Does it implement the key design standards? Are the product standards sufficient to accomplish project goals, Does the product function as intended, Is the learners' response to the product as intended? Who functions best with the product, what can be strengthened about it? What sort of outcomes might be achieved with it? What sort of support is necessary to use it and sustain outcomes?</td>
<td>Product, media and subject matter specialists, instructors, learners, program administrators, resource professionals</td>
</tr>
<tr>
<td>Pre-release (beta test)</td>
<td>What outcomes are achieved with it? What are use characteristics and problems? What sort of support is necessary for use? What bugs need to be fixed in the product?</td>
<td>Instructors, Learners, program administrators, resource professionals</td>
</tr>
<tr>
<td>On-going, for use at times strategic for product enhancement and versioning</td>
<td>How are users needs changing? What sorts of augmentation are necessary to the product to increase relevance and enhance or sustain learning? What sorts of augmentation are necessary to enhance power of instructor facilitation with the product? What bugs need to be fixed.</td>
<td>Instructors, learners, resource professionals</td>
</tr>
</tbody>
</table>

Key to a successful, cost-effective strategy is creating a specific plan for each product which takes into account the development phase, the specific feedback issues under consideration, and how best to provide cost-efficient data.

**Involving Users in Materials Development**

Involving potential users, especially learners, in multi-media product development is extremely important. The context for this involvement usually is formative research. Formative research is different from some other kinds of research (e.g. summative or descriptive research) in that it solicits feedback for the purpose of making necessary changes based on that input. Formative research designs vary depending on the themes being explored, specific questions being asked, subject, available time, and types of respondents. Whatever the specific anchoring questions, however, successful formative research requires:

- strategic involvement of key stakeholders in providing feedback
- involvement of representative product users and stakeholders
- cost-effective research methods which yield the data necessary for decision making
• rich, systematic and timely data on strategically significant questions, and
• a strategy for applying the results of the research to guide and enhance product design

Note the last bullet in particular. Formative research assumes that the product being evaluated can be changed and improved. Its aim is make the product(s) as useful and productive as possible. Therefore the research plans can, do, and should change. If thorough product testing is desired for certification, documentation, product improvement, or versioning, a systematic research plan is necessary in order to keep the research cost-effective.

Strategic Stakeholder Involvement

There are multiple points to involve users in product development. The following list identifies stages at which stakeholder involvement is very useful. They are:

• product concept
• the proof of concept (i.e. rapid prototype demonstration)
• initial development phase (alpha test)
• pre-release (beta test)
• on-going feedback (delta test)

Stakeholders can include experts in the field, instructors, learners, resource teachers, teacher trainers, administrators, paraprofessionals, and learners' family members and networks. Not all these stakeholders can be involved equally in each stage of product development. Make your choices according to the desired outcomes.

Cost Effective Research Strategies

Each stage of product development poses different formative research questions and therefore call for distinct methods which involve different subsets of stakeholders. The range of data collection strategies used in formative research include:

• paper/desk review of the product or product potential
• surveys of potential users attitudes and product orientations, with background and experience
• interviews or one-on-one meetings
• group interviews or focus groups
• user observations employing 'thinking-out-loud' learner interaction strategies
• data on learners' use of resources captured directly by the technology application
• product integrated feedback forms or mechanisms

Among these methods the focus group techniques tend to elicit more information than others. Focus groups use oppositional interview strategies (asking members of the group to formulate pro and con responses that address each others' concerns), user observations employing 'thinking-out-loud' learner interaction strategies (asking learners why they are doing something a certain way and what a specific behavior means to them), and product-integrated feedback forms used in situations where observers query learners about their performance and that performance also is captured by the application.

Strategies differ according to which respondent sub-group they are best suited to, the kinds of data they are best designed to provide, the extent to which they can provide information about both how the product works and why, and which product development phase they are most suited to. This is described below.

At the product concept stage, it's useful to have experts on subject matter, learning process, technology, and the learners themselves review the concept to avoid spending money and time if the original assumptions are not viable. Multi-media products inevitably are built on a central metaphor or navigation strategy which underlies developers' learning environment. It is crucial to test this concept
early on. This is a paper/desk review from a small group of product subject matter experts and key stakeholders.

The proof of concept stage is quick test of the development strategy, for one lesson of one product. It's useful for testing product assumptions and structure, navigational tools, central images and treatment, and user reactions to the concept in general. It is not good for testing product effectiveness, since it's not a full implementation. Feedback on the concept and proof of concept is best from individual, key stakeholders, in an informal environment. Interviews or one-on-one meetings, and individual observations of use, are usually appropriate for this purpose, with a small number of targeted users and stakeholders.

The alpha test is the point at which the product is ready for full use in its proper environment (i.e. as audio/video, on the Web, at home, in classrooms). At this point that systematic feedback from learners and teachers/facilitators is essential. The evaluation focus is generally on overall appeal of content, clarity of instructions, ease of use and navigation, needed support, and how users interact with the product. Results are used to enhance product usability, acceptability, effectiveness, and impact on the field. The alpha test results builds the foundation for the pre-release version of the product—the beta test. Data collection strategies here include focus groups, data capture techniques incorporated into the technology itself, and a combination of interview with observational performance analysis. This utilizes a larger and more representative group of users for analysis than the proof of concept.

The beta test is a pre-release version, where the concept and strategies in use are set, and (hopefully) only bugs are being worked out. It focuses as much on the instructor and facilitator, as the learner, to be sure the issues in roll-out are addressed successfully. Data collection strategies here are generally surveys, interviews or focus groups, and product-integrated feedback forms. Data collection integrated into the product, with the user's consent, is also a possibility. Respondents here include the range of users (ideally a 10% sample of site(s) is used) and potential users.

Delta tests examine the importance of change in the product. While the alpha and beta tests are the traditional stages of product development, development does not stop with release of the product. If it does, the product soon becomes outmoded, and some of the investment is lost, as new designers re-invent the wheel. It's crucial to have learners and instructors continue to question and document the utility of the product as input to new or continuing developers. Capacity for passive collection and processing of ongoing feedback from learners and other stakeholders is therefore crucial. This essentially is the delta test-ongoing product implementation during which users indicate, through a variety of mechanisms, the importance of change in particular features (content, resources or functionality) or the value that would be added to the product by development of new features.

Rich, Systematic and Timely Data on Strategically Significant Questions

Formative evaluation often is interactive. This is an important strength and helps make the research cost-effective. The evaluation activities should be integrated with the results from one set of data collection activities influencing other phases. The specific questions asked by a specific developer about his or her products at any phase will vary depending on the goals and objectives of the product itself, the audience for which it is targeted, what has been tested previously and the findings related to this product, and the work on similar products or issues on which the evaluation is building. This does not mean that formative evaluation can be ad hoc. To the contrary, in order to be successful any formative evaluation is consciously planned and structured to provide cost-effective systematic information about:

- Product use - How the product is actually used
- Product function - How the product works in the contexts it is used
- Product content and learner outcomes-How use affects learners' skills development
- Product support - What support is necessary to use materials appropriately in different contexts
- Product concept - What findings from the above imply for future related products
Specifically, formative evaluation is concerned about how learners and other users needs are taken into account in product concept, navigation, look and feel, accessibility of instructional approach, product content and incorporated exercises/activities.

Any research plan has to specify the key research questions related to product development priorities, the data required to answer the questions, who should provide the information, how the information should be collected, how the data collected will be used to answer the questions, and both the sufficiency of the anticipated information for answering the question and strategy for making use of the information collected.

Whatever the specific questions, a good research design is concerned with whether the information is collected in such a way that:

- the respondent group is composed of the people best equipped to give information on the issue,
- the range of potential users provide the needed input on the range of issues identified,
- the information can be provided most readily and ethically,
- the data are objective and rich enough to answer the questions posed, and
- data analysis strategies are clear and can produce results in a timely fashion.

As a result of involving a representative group of users in addressing the research questions, formative evaluations should provide the data necessary to significantly, reliably and validly inform product development decisions, the understanding of the factors which affect materials functioning and success, the marketing the product to potential users, and decisions about future or further materials development.

Learners - Who should be represented and what does representative mean?

Potential learners can be diverse in many characteristics that profoundly affect learning objectives and abilities. The high stakes issue is how to identify the factors that affect differential success with the product so that the fewest number of respondents can provide the most useful information. The main strategy recommended for optimizing cost-effectiveness will be based on matrix-sampling techniques, utilizing techniques from television and radio marketing-audience segmentation.

The audience segment concept profiles learners in terms of factors that affect their experience of the product. These profiles (or series of factors) are termed 'target audience or user segments', and are subgroups of learners whose characteristics, background, experiences, and priority pressing concerns lead them to interact with instruction and instructional materials differently.

Another way of describing user segments, then, is as frameworks built from learner characteristics that have been identified by developers and evaluators to affect their interaction with the materials. These characteristics vary in terms of those which are more noticeable (and therefore more easily screened-i.e. determined directly from interaction with the learner or based on the learner's own knowledge) and those that are less noticeable (or less easily screened). Some learner characteristics, for example, may not come into play in other instructional settings, or the learner or instructor may not be systematically conscious that the characteristic exists. Keyboarding skills is an example of such a characteristic. A key feature of the audience segmentation strategy is to identify all the important characteristics and sample on the characteristics that are the most easily determined.

Conclusion

Product quality and effectiveness hinge on serving targeted stakeholders, especially the prospective learners appropriately. Formative evaluation is the method to involve them in the product development and testing. This aspect of product development should not be overlooked or given lip service attention.
Copyright and Fair Use

With the advent of the Internet and the digital age, teachers and administrators are forced to reexamine how copyright protections apply in a time where creative works are widely available in cyberspace and the technology to access such material improves nearly daily. Copyright applies only to creative works, meaning books, plays, movies, music — in short, any work where someone had to exercise their powers of creativity and imagination. The courts generally will extend copyright protections to any work where even a slender element of creativity was involved.

U.S. copyright law defines the extent to which such works are the exclusive domain of the creator and whomever the creator shares the ownership with, for instance, a publisher. Copyright law says that the creators of certain literary and artistic works have the right to ensure that unauthorized people do not use their work for unauthorized purposes. The creators hold the copyright. They can give up their exclusive right to publishers or other authorized entities for a limited time or permanently.

Intellectual property law evolves in response to technological change. Copyright law, in particular, responds to technological challenges for authors and copyright owners, from the printing press to digital audio recorders, and everything in between - photocopiers, radio, television, videocassette recorders, cable television and satellites. The use of computer technology - such as digitization - and communications technology - such as fiber optic cable - has had an enormous impact on the creation, reproduction and dissemination of copyrighted works.

Legislation and court rulings have held that people have a significant right to make use of exceptions within the copyright law to avoid lawsuits. Copyright law is a federal law, and so the law does not vary from state to state (although the interpretation of the law may be different in different courts.

Electronic instructional materials (clip art, video, audio, software, or graphics) should be examined carefully for copyright considerations. This applies to materials purchased for use and locally developed materials. Likewise, the copyright implications for use of printed material that draws from other written work should be carefully considered. Copyright owners have the full right to use their materials exclusively, subject to written agreements. In preparing instructional materials for electronic or distance learning use:

- Be aware of licensing arrangements when using secondary multimedia materials - materials taken from a second source like clip art or sound files.
- Be certain that model releases are obtained for any video or photos you take.
- Take precaution with text and supplemental materials.
- Obtain written permission to adapt the material, if text books or other source material is used.

Maintain a file with the releases, license arrangements, and copyright documentation. Likewise be certain to copyright any original intellectual property and courseware produced by your organization. Establish policies about the derivative use of the components. Place a copyright notice and symbol by the name of the copyright holder or the name of your work, state the year of the copyright, and include the phrase "All Rights Reserved."

Register the work with the U.S. Copyright Office. To register a work, send the following three elements in the same envelope or package to the Register of Copyrights, Copyright Office, Library of Congress, Washington, D.C. 20559:

- A properly completed application form
- A non refundable filing fee for each application
- A non-returnable deposit of the work being registered. The deposit requirements vary in particular situations

This information changes and should be double checked. Likewise, pending federal telecommunications legislation will impact federal copyright law, especially regarding electronic media.
Copyrights

Copyright considerations require careful thought in the design and development of instructional materials. It is easy to add clip art, articles, diagrams, video clips, and photos in multi-media, videotaped, and on-line learning materials without considering the copyright implications. Purchasing a copyrighted product does not allow ownership of the material. For example when a videotape is purchased, it is still owned by the original creator. Widely distributed materials can face substantial scrutiny and potential litigation.

Copyright is a shorthand term describing a set of enforceable rights to prevent unauthorized persons from making a copy of a "work" for a period of time. The person entitled to exercise these rights may choose not to do so and donate the work to the public domain, thereby allowing all comers to freely copy. If a work is not donated to the public domain, during the period in which copyright is enforceable there are a number of circumstances in which persons may freely copy the work, the copyright notwithstanding.

The "fair use" privilege defines a set of circumstances in which copies may be freely made, as does the First Amendment. After a time, copyright expires and a work enters the public domain. Given the limited nature of the grant of rights that define copyright, is the classification of copyright as intellectual property simply a rhetorical exercise to assist publishers in their efforts to strengthen their monopoly rights?

The courts have derived three basic requirements for copyright protection originality, creativity and fixation.

The requirements of originality and creativity are derived from the statutory qualification that copyright protection extends only to "original works of authorship." To be original, a work merely must be one of independent creation - i.e., not copied from another. There is no requirement that the work be novel (as in patent law), unique or ingenious. While there must also be a modicum of creativity in the work, the level of creativity required is exceedingly low; "even a slight amount will suffice."

The final requirement for copyright protection is fixation in a tangible medium of expression. Protection attaches automatically to an eligible work of authorship the moment the work is sufficiently fixed. Congress provided considerable room for technological advances in the area of fixation by noting that the medium may be "now known or later developed."

Works Not Protected

Certain works of authorship are expressly excluded from protection under the Copyright Act, regardless of their originality, creativity and fixation. Copyright protection, for example, does not extend to any "idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied" in such work. Thus, although a magazine article on how to tune a car engine is protected by copyright, that protection extends only to the expression of the ideas, facts and procedures in the article, not the ideas, facts and procedures themselves, no matter how creative or original they may be. Anyone may "use" the ideas, facts and procedures in the article to tune an engine - or to write another article on the same subject. What may not be taken is the expression used by the original author to describe or explain those ideas, facts and procedures.

Copyright protection is not extended under the Copyright Act to works of the U.S. Government. A work of the U.S. Government may, therefore, be reproduced and distributed.

Term of Protection

Generally, a copyrighted work is protected for the length of the authors life plus another 50 years. In the case of joint works, copyright protection is granted for the length of the life of the last surviving joint
author plus another 50 years. Works made for hire, as well as anonymous and pseudonymous works, are protected for a term of either 75 years from the year of first publication or 100 years from the year of creation, whichever is shorter. When the term of protection for a copyrighted work expires, the work is said to "fall into the public domain."

Exclusive Rights

The Copyright Act grants to the copyright owner of a work a bundle of exclusive rights:

- to reproduce the copyrighted work in copies or phonograph records
- to prepare derivative works based upon the copyrighted work
- to distribute copies or phonograph records of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending
- in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; and
- in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly

These rights, in most instances, have been well elaborated by Congress and the courts. For the most part, the provisions of the current copyright law can serve the needs of creators, owners, distributors and users of copyrighted works in the national information infrastructure environment.

Limitations of the Exclusive Rights

The exclusive rights of copyright owners are not without exception. The Copyright Act specifies certain violations of a copyright owner's exclusive rights that the copyright owner cannot prevent.

Fair Use

The most significant and, perhaps, murky of the limitations on a copyright owner's exclusive rights is the doctrine of fair use.

Fair use is an affirmative defense to any action for copyright infringement. It is potentially available with respect to all unauthorized uses of works in all media. If it is proven, then the use may continue without any obligation on the user's part to seek the permission of the copyright owner, pay royalties, or the like. The doctrine of fair use is rooted in some 200 years of judicial decisions and is, in general, most likely to be found when a user incorporates some of a pre-existing work into a new work of authorship. It is thus widely accepted, for example, that quotation from a book or play by a reviewer, or the capturing of copyrighted music in a television news broadcast is fair use. As one moves away from such favored uses into the area of uses that are - for practical purposes - competitive with the copyright owners exploitation of the work, the ease of analysis shrinks (as the number of litigated cases grows).

Before examining the doctrine developed by the courts, it is useful to examine the statutory language concerning fair use. Section 107 of the Copyright Act provides:

Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phono records or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use, the factors to be considered shall include:

- the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes
- the nature of the copyrighted work
The amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
the effect of the use upon the potential market for or value of the copyrighted work.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

If your multimedia work serves traditional "fair use" purposes - criticism, comment, news reporting, teaching, scholarship, and research - the teacher has a better chance of falling within the bounds of fair use than if the work is sold to the public for entertainment purposes and for commercial gain.

Online Resources

Library of Congress provides good information on copyright forms and up to date information on copyright law.

The Electronic Frontier Foundation (EFF) intellectual property Web page

Standards and Frameworks

Learning materials and systems cannot be separated from the courses and venues in which they will be used. Consequently, this discussion includes the materials development process into the instructional planning process. Although all materials to be developed are not designed for specific courses, materials designers are asked to engage in an overall curriculum planning process to help ensure focus and product compatibility. By following the preceding guidelines, it is more likely that the products will fit within a wide variety of learning frameworks.

Integration with Other Standards Frameworks

Several different adult basic education taxonomic frameworks provide useful guidance for describing the knowledge, skills and strategies to be acquired. These include those developed by CASAS, SCANS, EFF, and others, including state standards for basic education and English as a Second Language. No single framework covers all of the needs and skill sets of adult learners. However, most frameworks address similar dimensions of language, literacy, and learning. In our scheme, knowledge, skills and strategies are bundled into the following clusters:

1. Spoken and Written Information
2. Interpersonal Communication
3. Self-Expression and Reflection
4. How English Works
5. Team Work and Collaboration
6. Problem Solving and Decision Making
7. Accessing Resources and Navigating Systems
8. Numeracy
9. Dispositions
10. Technology

While there is significant overlap among existing frameworks, they nevertheless represent differing conceptions of language, literacy and learning.

Equipped for the Future focuses on what learners need to know and be able to do in their roles as family members, workers, and community members.

CASAS outlines basic competencies related to life skills areas such as communication, consumer economics, community resources, health, employment, government and law, computation, learning how to learn and independent living skills.
SCANS focuses many of its competencies on areas related to problem solving and decision-making, including the management of resources, information handling, interpersonal communication and technology. But SCANS also mentions basic skills, related to reading, writing and math, and includes thinking skills and personal qualities.

Concentration on Learner Strategies

A design framework is recommended that focuses on the learner strategies needed to (1) attain the skills outlined in the other frameworks, (2) negotiate the challenges of daily life, and (3) enjoy language, literacy and learning to the fullest. Teachers working within existing frameworks and course outlines should be able to use newly created multimedia materials to create courses, materials, and tasks that fit into their scheme.

There is no one right way to design or define a course. For more information on adult education standards and frameworks go to Cyberstep for a detailed discussion of creating adult learning materials within existing or emerging frameworks. You will find documents at the bottom of the home page.

Instructional Design References

A very good reference is The Encyclopedia of Educational Technology edited by Bob Hoffman, San Diego State University.

The University of Michigan Institute for Social Research's Project IDEAL is a consortium of states working to develop effective distance education programs for adult learners.

Persons deeply interested in instructional design trends and thinking can access Learning Technology, an IEEE publication.

Distance Learning Planning and Administration

This section applies to most adult basic education programs and specific application for California adult educators, especially adult schools. It discusses the design, administration and assessment of distance learning.

Planning

Your adult education program should have a technology plan in place. It provides the guidelines to set priorities. California has developed a good model and an eight step process to create a technology plan.
The CDLP recommends that adult education programs routinely survey their learners regarding their access to and interest in computers and the Internet. Determining learner access to video tape and DVD players should be documented. This information will help plan your intervention strategy.

Including distance learning in your instructional strategies assumes there is a need. A learner centered needs assessment addressing the demand for distance learning, identifying potential learners, their learning styles, and delivery system alternatives should be the starting point. The goal is to define the most effective and cost effective methods to serve the targeted learner within your technical capabilities.

An overall distance learning goal is to serve learners who cannot or will not attend traditional classroom courses. Motivation to participate (readiness to learn) has been used as a surrogate for self directedness. However, screening should occur to try to determine whether the prospective learner can work comfortably in a self directed environment. This is easier said than done, given the lack of predictive tools. However, it is important that instructors or facilitators involve learners in diagnosing their own learning needs and identifying their learning objectives at enrollment.

Stephen Brookfield’s work in self directed learning, critical reflection, and experiential learning sets the conceptual framework for defining the context for independent learning. [See for example Stephen D. Brookfield, Developing Critical Thinkers, Jossey-Bass, San Francisco, 1987.] He notes that self-directed learning requires that adults take control of their learning, setting their own learning goals, and determining which learning methods to use. The cross-cultural dimension must be taken into account in promoting self directedness as should the adult’s previous experiences. Critical reflection incorporates learning where adults can reflect on their self-images and change their self-concepts. Challenging previously held beliefs, values, and behaviors are important to this reflection.

It is important that the distance learning provider provide concise statements of expected learning outcomes. These outcomes should guide the instructional strategies, technology, and intervention methods. Building a method to utilize assessment and feedback to learners and instructors should be a part of the design.

The California Distance Learning Project recommends that adult education programs initially experiment with a small video checkout program to see whether distance learning is a useful intervention. This test
can be designed as a hybrid program with an existing classroom based course. A small group of students can be enrolled in the video checkout to extend and speed their learning activities. The adult education administrator then can determine the utility of expanding the distance learning program, based on more concrete experience and information.

Using the video checkout test permits the coordinator to have face to face contact with learners when they check in videos and have their work reviewed. This experience will lead to making subtle adjustments in the program design and developing a better feel for learning requirements in a distance learning context.

Distance learning utilizing instructional technologies should be incorporated into the overall technology planning. Special attention to staff development and support is important.

**Administering Distance Learning**

A distance learning program normally has an assigned coordinator. The coordinator's responsibilities include:

1. Needs assessment and learner identification
2. Program approval
3. Marketing and promotion
4. Outreach and recruitment
5. Coordination with classroom programs
6. Assessment and enrollment
7. Testing and progress monitoring
8. Learning materials inventory
9. Instructor supervision
10. Managing and using student and program information
11. Program evaluation and improvement

The areas where programs appear to have their most difficulty are assessing the learner's ability to learn in a self directed context and providing individualized assistance. Screening and counseling should occur during the distance learning enrollment process.

Providing individualized assistance will vary dramatically according to the type of distance learning intervention. Instructor - learner contact is necessary. How and how often it is provided varies. If regular face to face contact is impractical, telephone contact or written contact should be used and documented. Email and chat activities are important in Internet provided instruction.

**Record Keeping**

California adult schools are required to maintain Tracking of Programs and Students (TOPSpro) data on all enrolled learners. Learners enrolled only in distance learning can be identified by checking the distance learning box on the Special Programs section of the TOPSpro Entry Record. This provides demographic and programmatic information on each learner.

Additional learner progress information normally is maintained in an individual portfolio or file. The content is based on the type of distance learning program. This information is invaluable in working with the individual learner and monitoring her or his progress.

**Determining ADA**

California adult school non-traditional learning is subject to the seat time accounting practices (average daily attendance). In making an annual Innovation Program application, the adult school describes how instruction is cross referenced with ADA. Several models have
been developed and followed by many adult schools including one from the Los Angeles Unified School District. Other examples are available from the individual Innovation Program applications. They are online at the California Adult Education Online Application and Reporting site. Click on "See other participating Adult Schools" and pick a program.

**Accountability**

Accountability has two elements in this discussion —

- collecting demographic and program participation data on the learner, and
- collecting standardized pre and post test data on the learner

Accountability with California adult school distance learning programs is based on the use of TOPSpro to maintain common data on learners and programs. Pre and post testing using the appropriate CASAS reading and listening tests for ESL, ABE, and GED/adult secondary education learners are required when federal funds are being used. Other criterion referenced assessment instruments should be used as appropriate for the authorized program area of instruction.

Collecting progress testing information on each distance learning enrollee presents special problems, especially when the learner is enrolled in a telecourse. At the least a valid random sample of learners would be used to limit the data collection burden.

This standardized data collection is relatively new, and many local programs do not use the data effectively to examine their program performance and make useful adjustments. In the future it is likely that more standardized learning outcomes or performance based information will be required. It is prudent to become comfortable with using these readily available data in making reports to one's various local stakeholders like the instructional staff, adult education principal or administrator, and the district superintendent.

Other more idiosyncratic tools like authentic assessment, portfolios, and records of learner progress should supplement the required data collection. Asynchronous learning is self paced and individualized. It is important to maintain a good record of learner activities and progress that goes beyond the standardized record keeping and testing. Experience shows that teachers collect more detailed information on distance learner's progress than the classroom learners. These teachers often have closer, more regular, and more personal student contact.

**Monitoring and Evaluation**

Monitoring and evaluation apply equally to the distance learning program and to the individual participant. Emphasizing the learner's self evaluation and reflection should be integral to progress monitoring activities. Outcome and achievement measures that reflect curriculum mastery cannot be overlooked in spite of our emphasis on standardized testing.

**Portfolio Content**

Experience has shown that distance learning programs often have more evaluation of learner progress than do the classroom programs. The following are suggestions for portfolio content. They were developed by the Hacienda La Puente distance learning program.

- **ID number** on registration database
- **Progress Log** to record student profile, attendance, lessons & goal achievement
- **Registration copy**
- **CASAS pre/post test results**
- **Work Samples** from first 9 hours of instruction to document entry level
- **Anecdotes** written by students with examples value-added goal achievement
- **Copies** of important correspondence between staff and students
• Certificates of Achievement for excellent attendance or program completion (To be given to students at next meeting with staff member)
• Surveys to document other student gains not covered by CASAS (To be given to students at next meeting with staff member)
• Homework — Corrected writing samples ready to be returned - All other work corrected with immediate student feedback at weekly tutoring appointments
• For Telecourses — Additional work samples to document progress and copies of all returned-by-mail tests

Because many educators and policy makers are still skeptical about distance learning, there should be a strong emphasis on documenting mastery as well as user satisfaction on learning services received.

Independent Study

In California independent study refers to a program that permits students to take high school subjects through individualized learning. The model calls for the student and teacher to create a quasi informal contract where both parties agree to certain outcomes and activities. Regular meetings to review progress and assignments are central to the agreement.

Independent study is very similar to distance learning but for the most part has not relied on instructional media to deliver the instruction. Adult secondary education can be delivered via distance learning. It is not subject to the Innovation Program limitations. However, the normal procedures and documentation that apply to the independent study programs apply equally to the distance learning Innovation Programs.

Conceptually, the model of a good independent study program is an equally good model for distance learning. It should not be trivialized by minimizing the role of the instructor.

• An individual agreement defines the roles and responsibilities of the learner and the instructor
• Regular communications between the learner and instructor are defined, and procedures to review progress are defined
• Learner progress is documented using standardized and alternative assessment tools
• Other expectations for each party are articulated

The curriculum design must be based on the approved course outline.

Design Issues

Design issues change over time and vary according to the person's involvement in distance learning.

• How do you screen for learner interest in distance learning?
• Does your technology plan include orienting and training teachers in using distance learning resources?
• What procedures do you use to assign learners to distance learning and at what levels?
• How can you screen for self directedness?
• How can pre and post testing best be integrated into your distance learning?
• How do you start a process to acquaint teachers with online instruction?
• How can you use TOPSpro data in continuous program improvement?

Conclusion

Evaluation is undervalued and underutilized in adult education. Outcomes based learning will drive adult education in the future...yet most programs cannot effectively document program and learner outcomes and strengths. The expansion of distance learning as an accepted modality will be tied to our ability to
document outcomes and, when necessary, compare them with classroom centered learning. Be sure to review the section on evaluating distance learning.

**Evaluating Distance Learning**

Generally, evaluation is used to determine the degree to which program objectives are met through the procedures used by the program. The evaluation determines whether or not the outcomes or results predicted by the program occurred and if their occurrence was due to the project.

Unfortunately program evaluation is often viewed as an isolated activity that administratively functions apart and separate from the actual project or program. It should be part of the overall administrative process with the purpose of *answering pragmatic questions of decision makers who want to know whether to continue a program, extend it to other sites, or to modify it.* If the program is found to be only partly effective in achieving its goals, the evaluation research is expected to identify the aspects that have been unsuccessful and recommend the kinds of changes that are needed.

It is essential that evaluation and feedback be part of all distance learning programs. In most instances the evaluation will include learner and program performance information. The learner performance will be based on standardized and curriculum mastery measures.

Many adult education programs are remiss in utilizing even informal program evaluation techniques to monitor and modify their programs. While most administrators intuitively know how their programs are working, they lack the systematic data to verify their instincts.

This section is quite detailed and may provide more detail on evaluation than is generally needed. The annual Innovation Program reports cited in the next section provide a good model of how to use data in describing and defining overall program performance and outcomes.

**How Effective Is Distance Learning?**

The [Distance Education Clearinghouse](https://www.educationclearrhouse.org/) provides a listing of distance learning evaluation studies and topics. Possibly the best known effort is the work of Thomas L. Russell, who has examined research studies going back to 1928. This research shows that there is "no significant difference" between distance and classroom instruction.

Descriptive statewide California data on ESL, ABE, and adult secondary education / GED learners participating in adult school distance learning programs are quite positive. These annual reviews are reported and posted on the OTAN Web site under Research & Reference > Libraries > Online Documents> Distance Education. While the pre-post testing data are not representative, they show that the Innovation Programs for the most part perform better than historical norms. The [2003 – 2005 report](https://www.educationclearrhouse.org/) concludes that "...When comparing classroom data with the Innovation Programs, it is clear that the distance learning programs are particularly successful in providing ESL learning opportunities. Local research data on student persistence and retention support these findings.

The Innovation Programs meet the three crucial benefit–cost criteria necessary to be accepted by adult education providers and the California Department of Education. These programs are effective, efficient, and equitable. This is the fifth year that these summary conclusions have been supported. They indicate the continued success of the Innovation Program initiative."

The data used in the reports provide a general guide for describing program participation and outcomes.

**Evaluation Stages**

Evaluations are conducted in two stages:
**Formative** the formative evaluation is conducted during the project implementation. The purpose is to determine the level and efficiency of the project activities and to identify problems that need correction. The formative evaluation informs the project administrators of successes and problems in the project to date so that corrections can be made. It contributes to the improvement of the project. Methods include data collection, documentation, site visits, interviews, focus groups, program viewing, student and teacher observation, as well as other methods that may be developed based upon the project.

**Summative** the summative evaluation is performed at the end of the project and refers to the impact of the project on students, staff, or elements of the program addressed in the project’s objectives. The purpose is to assess the overall success and impact of the project, measuring learner achievement, and how well the project objectives were met. Summative approaches are concerned primarily with measuring a project’s predicted outcomes in an effort to determine whether or not the program or project intervention produced an independent effect or impact on the predicted outcomes. The evaluation report guides project decisions at the end of the project to modify, expand, replicate, or discontinue the program, as well as to inform others who may conduct similar programs.

Summative evaluation most commonly uses quantitative product, or outcome indicators, and data sources, such as performance, knowledge assessment instruments, portfolio assessment, or structured interviews.

Formative and summative evaluations are not considered separately. The formative evaluation contributes to and forms the summative evaluation. There are basically two ways to conduct summative evaluations; criterion-based studies and comparison studies.

The criterion-based evaluation design determines how well the project met the predicted objectives. The objectives specified in the project proposal are used as the standard to determine effectiveness. Usually, this would be the performance of the participants which indicates impact (improved test scores, ability to demonstrate a new skill, etc.). The conditions of performance and the level of proficiency are also noted and measured. Now you can develop instruments that will measure performance against the standard, or criterion, established from the project's goals and objectives.

Comparison studies determine if one program is more effective than another. One could compare a regular program with a pilot program to contrast the outcomes of the regular program with the pilot (experimental) program. If the experimental program produces the desired effect, this design will show that the project rather than another variable produced the outcome. Comparison, or norm groups, are students who are matched to the target group (by random selection or on some predetermined list of attributes and characteristics), and are pre-tested on the same measures, but are excluded, from the intervention activities.

Comparison groups that have been matched are called control groups because theoretically they control for other variables that might account for differences in performance between the groups. Evaluations using comparison groups are usually considered more valuable in determining whether or not the project would be successful for adoption or adaptation by others.

A time-sample design would provide for continuous and periodic collection of student work over time. Analysis of performance on this work looks for trends or patterns of students change that could be inferred to result from the project intervention.

**Authentic or Alternative Assessment:** One trend in education is to use assessment procedures that do not rely on standardized tests. The advantage is that alternative assessment can provide a more authentic description of the area being measured. These tend to be more "qualitative" and include "portfolio assessment" or the collection of work samples that can be analyzed against a set of predetermined criteria. Educational technology projects provide an opportunity to develop and use alternative assessment techniques.
The evaluation design that will usually provide the most information is the pre-post comparison group design. The post-test only design does not control for preexisting conditions, or variations, in performance or knowledge. The control group design produces credible results that in the past have convinced skeptics of the worth of many programs. Unfortunately, the use of control groups is often impossible for technology based projects.

Qualitative approaches exist that may work which do not require control groups. Two of these models include the following:

Most projects use the criterion-based design for groups or individuals, or the pre-post test design. This design lacks the control that separates extraneous variables making it difficult to attribute the desired or predicted outcome to the intervention. However, the criterion-based design does make it possible to assess the degree to which the predicted outcomes were attained. In a pre-post test design, the test norms, in effect, become the criterion. This design is much more useful if there is some external standard available (such as national or state norm scores) to be used as the standard for comparison.

Summative evaluations tend to use quantitative measures such as standardized or criterion-referenced tests. Qualitative techniques can be used as well, such as portfolio assessment.

The strengths of quantitative and experimental designs are that:

- When appropriate, this model minimizes evaluator bias by defining data collection and analysis procedures simply and concretely; and
- procedures lend themselves well to replication and cross-comparison with other program locations.

Weaknesses of quantitative and experimental designs are that:

- It is easy to get misled in data analysis and falsely assume that the program is causing the outcomes, when in fact, those outcomes are really being caused by unidentified intervening factors and that the results can be generalized to a population when in fact the students studied, surveyed, or tested do not represent a random sample of that populations; and
- the evaluation design is so structured and rigid that valuable, but unanticipated outcomes may be missed because those outcomes have not been expressed as variables.

**Qualitative Measures**

Comparison/control group designs are used to determine the specific effects of the intervention outcomes. These approaches are limited in terms of the breadth information they provide, and they are difficult to implement outside the laboratory environment. Even though experimental design and control groups traditionally have been advocated in evaluation studies, qualitative methods have been given increasing attention in recent years. Qualitative designs seek to describe and explain the program within the larger context of the educational setting.

Rather than entering the study with a pre-specified classification system for measuring program outcomes, the evaluator tries to understand the program and its outcomes from a more qualitative or participant perspective. The emphasis is on detailed description and in-depth understanding as it emerges from direct contact and experience with the program and its participants. Using more ethnographic methods of gathering data, qualitative techniques rely on observations, interviews, case studies, and other means of fieldwork.

There are a number of reasons to use qualitative design:
1. The program emphasizes individual outcomes.
2. There is an interest in the dynamics of program processes and program implementation.
3. Program staff wants detailed descriptive information to assist in program improvement.
4. Unobtrusive observation is needed.
5. Unanticipated outcomes or unexpected side effects are a concern.
6. There is a need to add depth, detail and meaning to empirical findings.

The greatest possible dangers to qualitative evaluation are an inexperienced evaluator and the loss of objectivity. If an evaluator is a participant in the project, or has a stake in its outcomes, there is a threat to objective observation. This can be offset by using a recognized expert in the subject, who is also independent of the project's success or failure, perform the evaluation.

**Strengths of Qualitative Measures**

1. These models and their variations employ the quality of divergent responses to performance assessment of higher order and critical thinking skills.
2. By being relatively untied to pre-established objectives, criteria, and outcomes measures, these methods lend themselves well to the detection and interpretation of anticipated factors and results that may shed new light on program strengths and weaknesses.
3. Provide good documentation on lessons learned for others to use who are contemplating developing or installing similar programs.

**Weaknesses of Qualitative Measures**

1. Results are not easily compared or aggregated with other studies.
2. There is no standard means to control for evaluator bias or lack of suitability for the evaluation task.
3. Replicating the evaluation at other sites is highly problematic, given the reliance on evaluator subjectivity at the expense of standard fixed evaluation criteria.
4. Lack of systematic random sampling and statistically analyzable data makes generalization difficult.
5. Validity is greatly dependent on evaluator expertise and independence.
6. Measuring quality can be labor intensive and therefore expensive.

For the purposes of evaluating educational technology projects, combination of both approaches is desirable.

**Summary**

Evaluation is the act of making judgments about a program’s worth. Evaluation is different from research although both may use the same methods. Learning outcomes and learner progress are very important to all useful evaluation strategies.

Research design isolates the variables being studied. This is best accomplished in a laboratory where the researcher can exercise control over the conditions of the experiment.

In conducting field research, the control of possible confounding variables occurs by establishing identical conditions between two groups, and then randomly assigning students to participate in either the experimental group or the control group. The only difference in the group’s experience is the educational technology application being studied. Extraordinary efforts are made to prevent any other differences from occurring that might contaminate the results. The measurements of the variables being studied are precise and specific. Mathematical procedures are applied to test the results statistically to determine if the differences noted between the two groups could have occurred by chance alone. The process is designed to enable the researchers to accept or reject their hypothesis concerning the effects of educational technology on the learning outcomes.
The certainty of the relationship between the cause and effect of results is usually expressed as a percentage of probability. This is often described as the significance level. For example, "The results were determined to be significant at the .05 level." This means the likelihood that the differences between the two groups occurred by chance alone is only five percent.

Evaluation, on the other hand, is very practical. Its purpose is to help people make decisions about a distance learning intervention. These decisions may involve whether to continue or end the program, change it to improve its application or whether to expand the technology to other classrooms or other disciplines. The use of the evaluation results are not theoretical, they are practical and specific to a particular program.

Because of this, the evaluation approach is much different from research. While research tries to reduce the number of variables being studied, evaluation examines as many factors as possible. The idea is to describe as much as possible all the things that could have affected the program.

Many people have the mistaken impression that all evaluation is done after a project is completed. Actually, formative evaluation will improve a project during development and implementation phases. Formative evaluation provides feedback during the program development and implementation. The progress the learner is making can be monitored to see what works and what doesn't, allowing the administrators to fine-tune the project with midcourse corrections. Formative evaluation involves data collection, analysis and documentation from initiation of a project to its completion.

Summative evaluation determines the overall effectiveness of a project. The data from the formative evaluation is helpful in analyzing the final results and making recommendations. The evaluation approach must be designed to fit the technology project.

The literature clearly suggests that distance education is in an expansion phase with new institutions joining the ranks of those who are currently offering telecourses and other distance learning programs through a variety of media. The role of the Internet and world wide Web and hybrid models being used in the California Innovation Programs are not yet covered substantively in the research literature. However, statewide descriptive data are positive.

**Outcome Measurement**

The term "performance measurement" refers to the regular, ongoing, measurement and reporting on important performance aspects of programs. The primary focus is to track the outcomes (or results) of programs. For example, feedback on problems found during a formative evaluation could lead to program efficiencies by learning from the experiences that others had early in a project. It can also identify success stories worthy of local or national coverage.

The outcome information derived from a performance measurement process has several more specific uses including the following:

1. To help identify where problems exist and where action is needed to improve program outcomes.
2. To help focus programs on the mission of achieving results.
3. To help motivate employees to continually seek to improve services to their customers.
4. To assist in budget development and justification.
5. To help track whether actions taken in the past have led to improved outcomes.
6. To better communicate with elected officials and the public.

**Limitations of Outcome Measurement Information**

The major limitations of outcome measurements are the following:
1. Outcome data obtained will usually not tell the impact of the program on the measured outcomes. Data on outcomes do not tell why the results are as they are. Usually other factors outside the control of the program (and probably the organization as a whole) contribute to the results. This particularly applies to indicators that attempt to measure desired end outcomes. This means that worse-than-expected, or better-than-expected performance should not be the occasion for automatic blame-setting or, alternatively, praising the program. Additional examination is needed to access causes for shortfalls, or better than expected outcomes.

2. Managers of publicly-supported programs need to know whether they are winning or losing. The score does not indicate why the score is as it is, but provides vital information for program decision making. Projects should provide explanatory information about unexpected or unusual outcomes, along with outcome data.

3. The state-of-the-art of outcome measurement is limited. Perfect measurement and complete coverage of all relevant program outcomes should not be expected. The objective of practical outcome measurement is to provide the information on program quality and outcomes, not perfect information.

4. Outcome measurement requires time and effort to develop the process, to collect the information each year, to tabulate and analyze it, and to report it. The key question is whether over the long haul the information will provide the necessary information.

To determine the extent to which the program itself has affected the outcomes, sometimes called program "impact," more in-depth analysis is needed. Ad hoc, special program evaluations can be undertaken to estimate program impacts and help determine why programs fall short of, or exceed, performance expectations. Formal program evaluations are done infrequently on most programs, especially small programs, and, thus, do not provide the regular feedback on program progress needed to help managers manage.

As outcome measurement data becomes available, the information should be highly useful to those undergoing program evaluation studies. Regularly collected outcome data should also help the Department and its program offices determine their future evaluation needs, i.e., identifying areas that the outcome measurement data indicate need attention.

Categories of Outcome Information

It is useful to distinguish between various categories of outcome information. Outcome indicators can usually be classified as one of the following:

**Inputs.** These indicate the amount of resources, such as the as the amount of funds and number of employees involved in a particular distance learning program.

**Outputs.** These indicate the products and services produced by a program. Outputs are important for measuring internal work performance, but do not indicate the extent to which progress has occurred toward achieving a program’s purpose. For example, an output indicator might be “the number of math instructional modules produced.” Outputs will generally measure the activities of the program and individual projects, rather than the activities of students or teachers who participate.

**Outcomes.** These provide information on events, occurrences, or conditions that indicate progress toward achievement of the mission and objectives of the program. It is usually useful to distinguish between intermediate outcomes and end outcomes.

**Intermediate Outcomes** are outcomes that are expected to lead to the ends desired, but are not themselves "ends." Intermediate outcomes generally indicate the extent of progress toward an ultimate, end result (such as higher student achievement). The distinction between outputs and intermediate outputs is not always clear. For example, the indicator, "Number of courses by type, provided to participants by educational institutions." can be classified as an intermediate outcome because it measures to what extent schools are actually participating in the program, rather than measuring, more passively the availability of the course.
**End Outcomes** are the desired results of a program. For example, a key end outcome "the percentage of students whose test scores improved significantly in courses in which distance learning technologies had been introduced and were a significant part of the instruction."

People will likely disagree in some cases as to whether an indicator is an end or intermediate outcome. Context is important, and since program missions may change over time, the classification of particular indicators may also change. When in doubt, it is often helpful to refer back to the mission /objective statement to make such determinations.

**Outcome Indicators**

A standard set of outcome indicators for distance learning programs includes:

1. the overall project mission statement;
2. the general objectives that relate to the mission;
3. more specific, but still general, outcomes sought that relate to each objective;
4. the specific performance indicator (s) for which data need to be collected to track progress on the indicator; and
5. the likely data source(s) of each indicator.

**Data Sources and Recommended Data Collection Procedures**

The outcome indicators that are finally selected must face the test feasibility and practicality. That is, the distance learning project should be able to obtain reasonably accurate data on each indicator, in a reasonably timely manner, and for an affordable cost in staff time and dollars. This section addresses the following data collection procedures suggested for each outcome indicator.

It is important to determine who will be responsible for the collection of which items of information. In addition, it must be clear to where and by whom they will be processed.

This discussion focuses only on collecting data on outcomes. Program impacts that indicate the extent to which the project/program affected the observed outcomes are not discussed. All outcome indicators are affected by outside factors - factors not fully controllable by the program or its individual projects. For obtaining information on project and program impacts, in-depth ad hoc evaluations are needed. To undertake such in-depth evaluations effectively, comparison groups will usually be needed.

**A Distance Learning Program Evaluation Model**

A simple distance learning program self evaluation contains these features. It assumes that the target audience is the program administrator, superintendent, board, and state agency.

- Purpose -- the program goal and specific objectives
- Target -- description of the targeted user
- Intervention -- a description of the distance learning intervention(s) and activities to support the intervention(s)
- Participants -- descriptive statistics on the learners -- see the TOPSpro summary data used for the California report (Innovation Program Reports)
- What did participants learn -- curricula content and learning gain data drawn from standardized testing. CASAS is used in California to measure reading and listening skills gains.
- How did participants apply their learning -- learning mastery data drawn from authentic or alternative assessments
- Participant satisfaction -- learner evaluations and comments on the intervention
- Staff self evaluation -- instructor evaluations and comments on the intervention
• Summary and Recommendations -- an examination of the intervention's strengths, weaknesses, learner participation and outcomes, and meeting the distance learning objectives

When possible, a third party evaluator should design and conduct the program evaluation. Emphasizing the practical aspects is important, especially when incorporating user evaluation comments and making program recommendations.

**Adult Basic Instruction Delivered Through the Internet**

**Features of Internet Delivered Instruction**

Distance learning takes place when a teacher and the students are separated by physical distance, and media and/or technology (i.e., voice, video, data, and/or print) are used to bridge the instructional gap. Online education refers to any form of learning/teaching that takes place via a computer network. Physically, the computer network could be a local area network (LAN), an intranet within a particular organization, a wide area network (WAN), or it could be the global Internet and World Wide Web. Whatever the connection, the teacher and students share a common link through communication lines. This is often referred to as eLearning.

eLearning has two adult basic education audiences – professional development and anytime student instruction. The professional development provides tutoring and continuing education services to the adult education field. Online learning should increase substantially over the next few years for "just in time" types of information related to grants and new initiatives and on-going professional development. ABE, ESL, GED, high school subjects and career education modules and courses are being delivered over the Internet. The course length instructional resources are slowly becoming available. However, few California organizations and staff have initiated online learning.

The most common function used in online education is electronic mail (email) that allows students and teachers to send messages and file attachments to each other. In addition, Web conferencing capabilities let participants conduct multi-person discussions either in real-time (often called "chats") or on a delayed basis (asynchronous). There are also groupware" programs designed to facilitate the work of groups. This technology may be used to communicate, cooperate, coordinate, solve problems, compete, or negotiate. Online education also involves access to databases in the form of text files or multimedia Web pages, as well as the exchange of information (e.g., assignments, course materials) via file transfers.

eLearning is richest when students enroll in a course at about the same time. This managed enrollment enables the teacher to use the associated communications tools to permit student to student communication as well as two way teacher – student communications.

**Delivery Models of Internet Instruction**

The key to effective distance education is focusing on the needs of the learners, the requirements of the instructional content, and the constraints faced by the teacher, before selecting a delivery system. Typically, this systematic approach will result in a mix of media, each serving a specific purpose. For example:

• A strong print component can provide much of the basic instructional content in the form of a course text, as well as assigned readings, the syllabus, and day-to-day schedule.
• Interactive audio or video conferencing can provide real time face-to-face (or voice-to-voice) interaction. This is also an excellent and cost-effective way to incorporate guest
speakers and content experts. The real time delivery also can be saved and streamed on demand for the asynchronous learner.

- Web conferencing, chat, and email can be used to send messages, assignment feedback, and other targeted communication to one or more class members. It can also be used to increase interaction among students.
- Pre–recorded video tapes can be used to present class lectures and visually oriented content.
- Simulations and interactive group learning games will be added to the mix as bandwidth increases.

Using a student centered approach, the educator's task is to carefully select among the technological options. The goal is to build a mix of instructional media, meeting the needs of the learner in a manner that is instructionally effective and economically prudent.

**Pros and Cons of Internet Instruction**

Learning and teaching online is much different than a traditional classroom experience even when used as part of a conventional class. Since most communication takes place via written messages (or files), writing skill and the ability to put thoughts into words are paramount. People who have poor writing skills may be at a disadvantage in an online environment. On the other hand, having to write everything gives people a chance to think about their responses, especially in an asynchronous setting, where the student does not need to respond immediately. One benefit of any class involving Internet instruction is plenty of practice writing, often resulting in improved communication skills. For many learners, this outcome is just as important as the subject matter being learned.

Asynchronous Internet instruction also changes the social dynamics of education — putting everyone (students and teachers) on equal footing. Under usual circumstances, everyone can post messages, so each online participant has the same opportunity to contribute ideas or comments. Consider the situation of the WWW; a Web page or site created by a high school student has exactly the same accessibility as one created by a college professor. Similarly, anyone on the Internet can send a message to anyone else, regardless of who they are.

An important implication of this change in the status quo is that the teacher does not automatically command a presence in an online environment. There is no counterpart to standing at the front of the classroom pontificating to a captured audience until the bell rings. In online education, the instructor must adopt a role as facilitator or moderator — someone who encourages participation and keeps discussions focused on certain topics. As it turns out this is a much more difficult task than conventional classroom teaching which basically involves presentation of material.

There is another interesting aspect of the egalitarian nature of Internet instruction. It minimizes discrimination and prejudice that arises naturally in face–to–face settings. Unless someone deliberately reveals it, the viewer has no idea about the age, gender, ethnic background, physical characteristics or disabilities of participants in an online class. The discussions and comments that ensue in an online class are about as free of socio–cultural bias as possible. Of course, if people post photos or video clips of themselves, this bias–free element is diminished, but actual interaction is still relatively unencumbered. As desktop videoconferencing becomes more common many of the current characteristics of online interaction will change since this adds the "face–to–face" element back into the equation.

Finally, it is important to note that people react differently to Internet instruction — and participate differently — based upon their personalities and interests. Some people feel quite comfortable joining in and initiating email discussions, whereas others prefer to just read everyone else's messages, but not participate actively themselves. Teachers and students in online classes need to be tolerant of different levels and styles of participation.

**Misconceptions of eLearning**

People who have little or no experience with online learning or teaching may harbor some misconceptions which are quickly cleared up after actual participation in online classes. The most
A common misconception is that online classes will be fairly sterile and impersonal. But once a person starts to interact with other group members, they quickly discover that an online learning environment can be very rich and very personal. Participants often establish online friendships which outlast the particular class. Furthermore, people typically find that they are drawn into the subject matter of the class much more deeply than in a traditional course because of the discussions they get involved in.

A second misconception is that online education is only for people with a lot of experience with computers. It is true that the user should have some minimal computer skills to participate in Internet instruction, but it is not necessary to know very much about computers. On the other hand, the learner needs convenient access to a properly equipped computer system and broadband Internet access in order to participate regularly in an online class.

Another common misconception is that online classes will be easy — easier than conventional classes. But almost all participants report that they find online classes much more work — and much more rewarding — than traditional courses they have taken. Again, this has to do with the amount of thought about the subject matter that results from online discussions. Such classes also require the self-discipline to do the preparation required for online participation and activities — homework is homework, whether online or offline.

Finally, it should be mentioned that almost any form of assessment or evaluation is possible with online classes. Teachers can do traditional quizzes or tests with multiple choice questions or problems to be solved if desired; they can even be done with time limits. However, it seems that assignments and projects that involve critical thinking, creativity, problem-solving and group discussion/interaction are more appropriate for online education. Portfolio methods that involve journals or work samples are also ideal for Internet instruction especially when the Web is used since they can include multimedia components.

The question of cheating always comes up with any form of online education since online activity is normally done in an unsupervised setting. To the extent that assessment involves assignments or projects unique to a given individual (or done in a team or group context), this is not likely to be a problem. Tests can also be made unique for each person — or they can be conducted in a supervised (proctored) environment (like a library or learning center) if really necessary. Basically, if people are going to cheat, they will find a way, online or not.

Assessing group performance in an online setting is a little more difficult than evaluating individual efforts — particularly when people do team projects with a single outcome representing the collective work of the group. Note that this is just as true in traditional classroom settings. However, it is possible to have the contribution of each team member identified and perhaps background work shown in Appendices or attached files or Web page links.

**Course Development and Communications Tools**

There are multiple technologies available for use in distance education. Most often they are used in combination with each other. There may be one or more primary delivery methods, supplemented by one or more additional technologies. For example, the primary delivery mode may be audio, with print- and computer-based support materials.

The increasing number of online options and features can make it difficult for instructors and course designers to determine which functions should be used for what aspects of a course. For example, what is the best use of synchronous (real-time chats or teleconferences) versus asynchronous conferencing (forums, listservs) for a given class?

When is an audio/video link needed, or a slide-sharing/whiteboard feature? Because there are so many programs available now for Internet instruction; it is difficult to evaluate them and decide which ones to use. Using the content developed, decide on an appropriate method to get the message across. Consider how the audience learns. Some examples include small and large group instruction, self-study, discussion, forums, seminars, problem solving, demonstration, tours, or a combination of any of these
methods. Although many of these methods may seem traditional, these techniques can be used in new ways. For example: a video tour of a facility, an online discussion group, or local site discussion groups.

An important step is to select the delivery or access method. Selecting the primary delivery method must be done while keeping in mind the stated objectives and the instructional method selected. A benefit of this process is the opportunity to make decisions about delivery. For some groups, a distance delivery may be inappropriate. If dissemination of information is the primary goal, a news release or media campaign may do the best job.

Points to consider when determining the technology to use are:

- If a technology is selected as a primary delivery method, first be sure that learners have ready access to the technology.
- Carefully consider why it was chosen. For example, if there is a need to show a concept, a form of video or still pictures may be appropriate.
- Consider how the technology fits the way the audience prefers to get information. If the audience prefers self-instruction, a computer-based tutorial with supporting materials may be most appropriate.
- Often, other technologies may be used to support the primary delivery method. For example, an instructional packet with audiotapes and printed materials may supplement a satellite broadcast.
- Review the content in light of the planned delivery medium. Can the audience achieve the objectives using this technology? Are some of the examples and key messages inappropriate with this technology?
- Decide the level of interaction expected in this project. You may choose an electronic discussion group for large groups who can’t get together at one time; an audio conference for small groups who prefer real-time interaction.

At the same time many adult basic education teachers are part time and do not have the luxury of sorting through a wide set of choices. They are likely to use delivery tools and instructional content that have been tested by early adopters.

**Tools for the Educator**

**Learning Management Systems**

Most online programs use learning management systems (LMS) or course management systems (CMS) that incorporate course management, content, hyperlinks, email and chat communications, and grading systems. A learning management system (LMS) is a software application or Web-based technology used to plan, implement, and assess a specific learning process. Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. A learning management system may also provide students with the ability to use interactive features such as threaded discussions, personal home pages, video conferencing, and discussion forums.

Key to these development efforts is the creation of international standards for eLearning. The Advanced Distance Learning group, sponsored by the United States Department of Defense, has created a set of specifications called the [Shareable Content Object Reference Model](https://www.adlnet.gov/) (SCORM) to encourage the standardization of learning management systems.

[Blackboard](https://www.blackboard.com/) is the leading LMS commercial vendor. Recently open source LMS have become widely available, making the management of online courses more affordable to the technology savvy. See [Moodle](https://moodle.org/), [Sakai](https://sakai.org/) and [Nicenet](https://nicenet.org/) for examples. Also the [MIT OpenCourseWare initiative](https://ocw.mit.edu/) provides open source course management tools.
Designing Online Courses

Instructional design is addressed in a separate unit. There are several good resources to assist in course design. They include a University of Pittsburgh compendium of resources Instructional Design for Online Learning and Florida’s Gulf Coast University's Principles of Online Design. The success in most online learning is based in large part on the quality of the communications between the teacher and learner (one to one) and the learners (one to many and many to many).

The changes in the classroom social dynamic brought about by online education can be quite profound. Online classes emphasize social interaction among the participants and reduce the authoritarian role of the teacher or subject matter expert. Learners will need to get used to working in online teams/groups. Teachers must get used to fulfilling the role of facilitator/moderator in which they have to cultivate both personal and group participation. And assessment techniques need to move away from standardized testing only to include projects, assignments, and case studies.

As eLearning continues to evolve, some of the current topics and questions in the field are:

- Supportive infrastructure – How can educators create an environment for distance learners that provide the support that they require to succeed?
- Quality teacher development/support – Teaching at a distance is different from traditional teaching. How can faculty be best prepared? Likewise online learning is different from other distance learning. What is the best way to broaden instructional capacities?
- Student development – Students need new and different skills to succeed in distance education.
- Textbooks – Print resources have always been a fixture in distance education, but how can they be improved and targeted for the learner?
- Education through multiple options – How can a blend of technologies and programs best benefit student centered learning strategies?
- Competitive education market – Because of the proliferation of telecommunications and Web-based programs, distance education is available from a variety of providers that can create competition in a field formerly defined by geographic regions. This poses policy and instructional delivery challenges.
- Learning objects – What are the best ways to create and share reusable learning modules? Will they substantially impact how eLearning is designed and delivered?
- Curriculum-driven technology decisions – The focus is shifting away from available technology and towards content as the linchpin for distance education delivery mechanism decisions.
- Focus on faculty, staff and learner development – There is a growing recognition that distance education programs must prepare everyone involved in the learning enterprise for maximum efficacy.
- How will more robust Internet access stimulate and change eLearning? Internet 2 or UCAID (University Corporation for Advanced Internet Development) is a non-profit consortium which develops and deploys advanced network applications and technologies, mostly for high-speed data transfer. One initiative – The National Internet2 K-20 Initiative brings together Internet2 member institutions and innovators from primary and secondary schools, colleges and universities, libraries, and museums to extend new technologies, applications, source, and content to all educational sectors, as quickly and connectedly as possible.
- A new term – mobile learning or mLearning – has appeared that applies to learning on cell phone, personal digital assistants (PDAs), and other handheld computing devices. Internet software can readily translate content to these portable devices. Will mLearning have a role in distance learning in the near future?
- Web logs or blogs are quite popular. A weblog is a newsletter or personal journal that is frequently updated and intended for general public consumption. Blog writers can be influential as a new form of personal journalism. Their impacts have not been seen in adult basic education or adult basic distance and distributed learning.
• Really Simple Syndication (RSS) is an Internet format designed for sharing headlines and other Web content. This evolving tool and RSS readers can read and update the changing information. It is popular with commercial blogs. "The technology of RSS allows Internet users to subscribe to Web sites that have provided RSS feeds; these are typically sites that change or add content regularly. To use this technology, site owners create or obtain specialized software (such as a content management system) which, in the machine-readable XML format, presents new articles in a list, giving a line or two of each article and a link to the full article or post. Unlike subscriptions to many printed newspapers and magazines, most RSS subscriptions are free." (From Wikipedia, the free encyclopedia)

Everyone who experiences online education realizes that this is the beginning of a new paradigm for learning and teaching. It is a disruptive technology.