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The SAGE Encyclopedia of Online Education

Distance Education

Distance education (DE), also known as distance learning, has gone through a multitude of iterations, and theorists disagree on its defining features. The most cited and generally most agreed-on definition of the term *distance education* comes from Desmond Keegan, and it is not reliant on mode of delivery. It contains six defining elements: (1) separation of the teacher and learner, (2) organization and support services from an educational institution, (3) the use of technical media to provide educational content, (4) the provision of two-way communication so students can benefit from and optimally initiate dialogue, (5) the potential for student-to-student interaction, and (6) the "industrialization" of education, which provides economies of scale. Elements 5 and 6 are concerned with interactivity.

Some early DE theorists defined DE in relation to the principal technological delivery of the time. In D. R. Garrison's model, the first generation of DE technology was the *correspondence generation* where education was obtained by exchanging materials via post. This was followed by a second generation called the *telecommunication generation*, which was defined by telephone, teleconferencing, and videoconferencing capabilities (e.g., Interactive Instructional Television). The third generation of DE is the *computer generation* that introduced interactive technologies such as audio, video, discussion boards, and Web conferencing tools.

However, some theorists disagree with this labeling of DE generations and some, such as James Taylor, insist that the second generation is actually the *multimedia generation*. Although most acknowledge that multimedia technologies such as radio, film, and television have enriched DE course content, some such as Garrison argue that multimedia technologies are not considered a technology transformative to DE because they are not inherently interactive, though paired with communication technologies they can be. Taylor also adds a fourth generation, which he calls the *flexible learning generation*, characterized by computer-mediated communication and Internet accessible courses, and a fifth generation, which he calls *intelligent flexible learning*, which includes online interactive multimedia and Internet-based access to resources. In Taylor's model, Generations 3, 4, and 5 represent moves away from directed and noninteractive courses to those characterized by a high degree of learner control and two-way communication, as well as group orientation and greater flexibility in learning. Given these discrepancies, perhaps the defining characteristic of DE courses today is interactivity and not delivery mode.

Most contemporary DE courses employ *computer generation* technologies, although not always exclusively. Taylor's fifth-generation technologies are now being utilized in many DE courses. Some of these technologies are even built into learning management systems (LMS) and include Web 2.0 technologies such as blogs, wikis, social networking sites, video sharing, simulations, mashup tools, and apps.

History of Distance Education

DE arose from divergent needs. In vast countries where population centers and major cities were far flung and much of the population lived in isolated pockets, DE allowed access to higher education and to primary and secondary schooling. Students in remote areas could obtain an education without leaving home and also maintain families and jobs as DE was more flexible due to asynchronous "class time" where students could complete their coursework on their own schedule. Australia has a long tradition in DE, as is evident from the fact that the University of Queensland established a Department of Correspondence Studies in 1911. Australia, Canada, and New Zealand were all early pioneers in DE and continue to be the world leaders in providing DE and promoting new DE theories and pedagogy.

In Europe, DE was born out of the reality that universities had become, as Barbara Watkins called them, "bastions of the privileged." The university extension movement aimed to offer teachers and workingmen access to intellectual life. DE has been available in Europe since the late 19th century as correspondence study and university extension programs. The terms *correspondence study* and *university extension* were often used interchangeably well into the 20th century because extension credit was offered through correspondence study, direct classroom instruction, or both (Watkins, 1991).

Recognizing that this is an artificial construct, this entry refers to a program as *correspondence study* if the course of study allowed students to receive instructional materials and assignments via postal mail and complete and return materials to their instructors for grading and to earn credit. In the United States, correspondence study courses were usually vocational in nature, but in some other countries, such as Australia, Canada, and New Zealand, correspondence courses were a way to allow rural students to attend primary and secondary school and to train teachers. *University extension* refers to programs affiliated with a university that provided local in-person lectures and instruction away from a university campus.

The earliest documented correspondence course was in Berlin, Germany, in 1851 and was a course offered by a school formed to teach language courses. In the 19th century, Great Britain started the university extension movement that was largely a response to failure by the British government to provide state-supported education. In the United States, precursors to the American university extension experience can be seen in the *lyceum movement* started by Josiah Holbrook of Connecticut in 1826, which brought in educators and entertainers for the benefit of local audiences. As early as 1883, there was a Correspondence University headquartered at Cornell University, although it never really gained popularity. The *chautauqua*, which did become wildly popular in the late 19th and early 20th centuries, was a program where speakers, teachers, musicians, entertainers, preachers, and artists offered lectures on various topics in a vacation-like setting. Participants could earn certificates if they finished the 4-year reading program.

The first correspondence courses in the United States affiliated with a major university were offered by Illinois Wesleyan University, which in 1877 began offering an ambitious correspondence program that allowed students to earn bachelor's, master's, and doctoral degrees. The program was fairly popular, but by 1906, it was terminated due to academic quality and integrity concerns. Many programs followed at other universities, especially in the Midwest region of the United States, with the University of Wisconsin becoming the nation's leader in extension and correspondence study.

By 1915, a professional organization called the National University Extension Association was created to train program administrators, set guidelines, and serve as a forum for discussion. In the 1930s, the extension units began providing instruction via radio, which was an exceptionally popular technology of that era. Programs for instructional radio took off, possibly because the economic conditions of the Great Depression meant that many high school graduates could not afford to attend university in residence, and also because some of these programs were funded by federal monies through the Works Progress Administration and the Civilian Conservation Corps. By 1940, the fad of instructional radio had passed, though correspondence programs garnered fresh enthusiasm as programs were established for providing high school educations for military members via the U.S. Armed Forces Institute. U.S. Armed Forces Institute was the largest adult education program in the world in the

1950s. Wartime programs also offered technical and mechanical training opportunities.

In the later part of the 20th century, interest waned in correspondence courses and they were joined by other modes of delivering DE such as interactive instructional television or distributed/satellite campuses. The distributed campuses model was often included as a DE delivery method, although strictly speaking, it does not conform to the definition of DE commonly adhered to, as learners and instructors are not separated. Often, however, instructors would travel to these campuses only for class, and institutional support and services were at a remove from students. Both interactive instructional television and distributed campuses are still the method of delivery for courses today in some cases, but increasingly DE classes are taught asynchronously and online.

Asynchronous distance learning is when the student and teacher do not meet in one time and place, but rather the teacher provides instructional content, critique, grading, and interaction via discussion boards or e-mail, online, and often in an LMS. Some asynchronous courses are self-paced, while others conform to a traditional semester or quarter and have submission deadlines for tests, homework assignments, and papers.

DE approaches to teaching are increasingly changing how face-to-face courses are taught. There is less reliance on traditional lecture models of teaching and more experimentation with delivery approaches such as blended learning.

Hybrid or *blended learning* (BL) is currently one of the foremost trends in higher education. The term started showing up in the literature around the year 2000. Its definition is evolving, but generally, blended learning is seen as including the following elements: (a) combining online and face-to-face instruction, (b) blending of instructional modalities (delivery method), and (c) blending of instructional methods. The most commonly agreed-on definition of BL emphasizes that which is singular to BL—it must include both online and face-to-face instruction with no more than 50% of instruction occurring online. This distinguishes BL from DE or face-to-face instruction, which may also utilize different methods for content delivery and more than one pedagogical approach.

In research literature during the 2010s, a more refined definition of BL is known as the 50/50 rule. It is defined as instructional conditions in which at least 50% of total course time is face-to-face, and students working online outside the classroom spend the remaining time, up to the additional 50%, online. However, in many of the cases studied in the literature, BL produces an unequal blend with as little as 25% online work and 75% face-to-face work, which can make comparing BL difficult across courses.

Recent research has found that BL appears to be more effective than face-to-face instruction in terms of student achievement outcomes such as test scores and grades. That said, the type of computer-assisted support utilized does make a difference in outcomes. Specifically, Eugene Borokhovski and colleagues found that "students in both collaborative interactive learning and teacher-directed expository instructional conditions significantly outperformed those engaged in active self-study" (Borokhovski, Bernard, Tamim, & Schmid, 2015, p. 1765). With regard to online communication with the instructor and among the students, a meta-analysis by Borokhovski and colleagues found that asynchronous communication was more effective than a combination of asynchronous and synchronous communication. DE has enjoyed tremendous growth and has become a revenue generator for many universities. According to the U.S. Department of Education, during the fall 2012 semester, about 4.6 million undergraduate students participated in DE in the United States, with 2 million students

(11% of all undergraduate students) exclusively taking DE courses. Of the 2 million undergraduates who only took DE courses, 1.1 million students (6% of all undergraduate students) were enrolled in programs located in the same state in which they resided. Where DE courses were once populated with students from remote areas who had few, if any, other educational opportunities, now students who take DE courses do so for convenience and, as statistics show, can be relatively close to traditional campuses (or even living on college campuses) and still choose to take courses online.

Quality and Distance Education

As early as 1955, there were efforts to establish accreditation processes for DE programs and institutions with the establishment of the Distance Education and Training Council (DETC) (which in 2015 became the Distance Education Accrediting Commission, or DEAC), which promoted itself as the only accrediting association devoted entirely to institutions offering DE. However, despite being recognized by the U.S. Department of Education in 1959, and in 2001 by the Council for Higher Education Accreditation (CHEA), as of 2014, the DETC was not able to assure students enrolled in DETC approved programs that credits from these courses would be accepted for transfer to conventional institutions. Thus, DETC accreditation has been viewed as having lower standards than the accrediting bodies of traditional institutions, even though the organization was recognized by CHEA, the umbrella organization for institution and programmatic accreditation. If an association is recognized by CHEA, it serves as a certification that the agency meets standards for academic quality, improvement, and accountability, thus recognition by CHEA should have lent credibility to DETC accreditation. However, as of 2014, the University of Phoenix, Cappella University, American Public University, and Western Governors University, which are among the largest for-profit online higher education institutions, were accredited by regional accreditors and not DETC.

In the United States, unlike other countries, regional accrediting associations are the most respected and are responsible for the accreditation of traditional mainstream colleges and universities, including those institutions' DE programs. The Middle States Commission on Higher Education covers Delaware, the District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, and the Virgin Islands. The New England Association of Schools and Colleges accredits institutions in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The Higher Learning Commission serves as accrediting body for Arizona, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, West Virginia, Wisconsin, and Wyoming, as well as federally authorized sovereign nations, like the Hopi and Navajo reservations. The Northwest Commission on Colleges and Universities provides accreditation to Alaska, Idaho, Montana, Nevada, Oregon, Utah, and Washington. The Southern Association of Colleges and Schools covers Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and Latin America. Finally, the Western Association of Schools and Colleges is split into two bodies: (1) the Accrediting Commission for Community and Junior Colleges, Western Association of Schools and Colleges that accredits associate degree-granting institutions, and (2) the WASC Senior College and University Commission, which provides accreditation for baccalaureate degree or higher institutions in California, Hawaii, the territories of Guam and American Samoa, the Commonwealth of the Northern Mariana Islands, the Republic of Palau, the Federated States of Micronesia, and the Republic of the Marshall Islands.

In addition to accreditation concerns, there has historically been debate as to whether students in DE courses learn as well as those taking equivalent face-to-face courses. Until

recently, meta-analyses show that the study of outcomes in DE courses was often compared with outcomes in traditional courses rather than comparisons being made among different DE methods. In 1999, Thomas Russell published a collection of 355 studies that found no significant difference in student outcomes between different modes of education delivery. Russell based his evidence on annotations from all the studies that could be located and compared them with the much smaller number of "significant difference studies" (studies that showed either positive or negative differences). He concluded that there is no compelling evidence that a delivery medium contributes anything to the outcomes of instruction and, by extension, that there is no advantage or disadvantage to technology-delivered DE.

There may have been some validity to this view as early online DE courses were inherently limited with regard to the ability to be interactive due to limitations in technology. However, Bernard and colleagues disagreed with Russell's methodology and conclusions, and in 2004, they published a meta-analysis of all studies comparing DE with face-to-face instruction from 1985 onward. This meta-analysis evaluated 157 studies that met strict inclusion criteria including provision of two-way media to facilitate dialogue and interaction between the students and the instructor and also interaction among students. The study found that *interactive DE courses*—that is, courses that provided two-way media to facilitate dialogue and interaction—had slightly better student achievement outcomes than did traditional face-to-face classes. No significant difference was found with regard to student attitude toward the course between DE and face-to-face courses. However, there was a slight disadvantage with regard to student retention rate (course completion) and a small negative correlation between DE courses and students' attitudes toward the subject matter.

Generally, research confirms that students are more apt to learn when they are able to have the three types of interaction deemed important in DE pedagogy: (1) *learners interacting with content*, (2) *learners interacting with their instructor*, and (3) *learners interacting with each other* (Moore, 1989, p. 1). A 2009 meta-analysis by Bernard and colleagues supported the importance of the three types of interactions, and use of the three interaction types is associated with increased achievement outcomes and implies that cognitive engagement is promoted by more interactivity.

Research now suggests that higher levels of student-to-student interaction (often now referred to as peer-to-peer learning) and student interaction with the instructional content (the curriculum) produce the best results. This contradicts traditional assumptions that privilege the interaction between the student and the instructor. This might be due to the kind of student–instructor interaction that is occurring. If instructors are relying on the lecture model of teaching, which employs passive rather than active teaching and learning approaches, then the interactivity level is low, and interactivity, more than any other variable, affects student outcomes.

Higher level interactivity has been found to be a defining characteristic of successful online learning, and it becomes increasingly possible as newer software and technologies, such as Web collaboration software, webcams, discussion boards, chat rooms, and multimedia, allow for improved interaction with the content, instructor, and other learners. However, these forms of interaction are interdependent; for example, learner-to-learner interaction can only happen if the instructor provides a mechanism for it such as requiring group work, offering a discussion board, encouraging peer-to-peer review of work, or facilitating discussion among students.

Careful planning is a key element of teaching a DE course, which is why faculty often report

that teaching DE courses actually demands more time than teaching traditional face-to-face courses. Having support from institutional instructional designers can be an asset as instructional designers are experts in the planning of courses to achieve learning outcomes. Using design approaches such as ADDIE, instructional designers help faculty design courses that can be analyzed, designed, developed, implemented, and evaluated.

Steven J. Bell and John D. Shank (2007) provide a useful definition of ADDIE:

- *Analysis:* the process of defining what is to be learned
- *Design:* the process of specifying how it is to be learned
- *Development:* the process of authoring and producing learning materials
- *Implementation:* the process of installing the instruction product in a real-world context
- *Evaluation:* the process of determining the impact of the instruction (p. 43)

Successful online learning also requires additional support from librarians. According to CHEA, the integration of library services into the online learning and teaching environment is a responsibility of an institution offering DE courses. Library support is an essential criterion that must be met to fulfill accreditation requirements for quality in DE programs. The Association of College and Research Libraries (ACRL) operates under the access entitlement principle, which states that

> every student, faculty member, administrator, staff member, or any other member of an institution of higher education, is entitled to the library services and resources of that institution, including direct communication with the appropriate library personnel, regardless of where enrolled or where located in affiliation with the institution. Academic libraries must, therefore, meet the information and research needs of all these constituents, wherever they may be. (ACRL, 2008)

ACRL first adopted standards for distance learning library services in 1963. The current standards specify that libraries serving DE users must

1. develop a written statement of immediate and long-range goals and objectives for distance learning library services that addresses defined needs and outlines the methods by which progress can be measured.
2. regularly survey distance learning library users to monitor and assess both the appropriateness of their use of services and resources and the degree to which needs are being met and skills acquired.
3. provide appropriate collections and services to the DE community including developing methods for delivering library materials and services to the community.
4. participate in the curriculum development process and in course planning for distance learning to ensure that appropriate library resources and services are available by working collaboratively with teaching faculty in distance-delivered programs to integrate information literacy into courses and programs.

Librarians have been involved in the support of DE courses at their respective institutions from the beginning, providing traditional library services such as Document Delivery, which allows DE students and faculty to borrow books and articles from the library collections and have them sent via post and, more recently, posted electronically. Most libraries also offer electronic reserves, which allow faculty teaching in DE courses to request a set of readings to be posted as electronic readings for an entire class to access. The library clears any copyright concerns, pays any copyright clearance fees, and posts the articles for class use.

In addition, providing access to materials is now achieved through the expansion of electronic resources in library collections. Through subscriptions to databases, libraries now provide more access than ever to books, journals, and primary documents in electronic form. So what was once only available in the library building is now accessible online for any member of the institution. This levels the playing field for DE students and faculty as well as benefits more traditional users by offering library content in easily searchable and accessible forms.

With the advent of e-mail, libraries began providing reference assistance to DE students in a more reliable and efficient way than was possible by telephone and mail service. More recently, reference services began to be provided via instant message, texting, or videoconferencing technologies such as Skype. Students, faculty, and staff may ask research questions using these online tools, and librarians help them in real time. The next step in this evolution that has come about in recent years is the *embedded librarian*, or a librarian who monitors library-designated discussion threads in an LMS and replies to student research and library services questions within the LMS environment. This can be a very effective method for providing support, but it can also be very staff- and time-intensive.

Information literacy (IL), defined as a set of skills needed to find, retrieve, analyze, and use information, remains an important goal of libraries in the college and university setting (ACRL Introduction). The ACRL IL standards establish the importance of critical thinking skills in the IL process. The ACRL IL standards are intentionally broad based so that differences in application of information-seeking skills can vary based on the discipline involved. The goal of IL is to develop students' skill at critically evaluating information and ensuring that they continue to use those skills throughout their lives (ACRL, 2000).

The ACRL standards state that the libraries serving DE courses must provide information literacy instruction programs to the distance learning community. The attainment of lifelong learning skills through information literacy instruction in academic libraries is a primary outcome of higher education and, as such, must be provided to all distance learning students. Some of the approaches this can take in a DE environment include group class instruction using videoconferencing tools, creation of interactive and self-guided tutorials, and online Web guides.

An online tutorial, also known as *computer-assisted instruction* (CAI) is defined by Alan B. Salisbury as ''a man–machine interaction in which the teaching function is accomplished by a computer system without intervention by a human instructor'' (Salisbury, 1971). Systematic reviews from 2006 to 2007 from the United States, Canada, and Australia find that in general CAI is as effective for teaching information literacy skills as it is for face-to-face instruction. The literature further suggests that as in DE courses overall, interactivity increases learning and suggests that interactive CAI that utilizes randomized and validated quiz questions to test learning will result in the best student outcomes.

Distance Education and Pedagogy

DE research now shows that a variety of delivery methods, including online learning, CAI, and blended learning, are effective methods for teaching students and result in outcomes similar or better than those resulting from face-to-face courses. Evolving pedagogical approaches such as inquiry-based learning and problem-based learning are taking root in DE courses and hold promise for becoming pedagogical models for teaching online.

Inquiry-based learning also known as the *community of inquiry model* (COI) is a question-

driven learning approach, which has the potential to promote students' active engagement in online learning. The COI model assumes that students can develop their critical thinking skills by engaging in inquiry-based learning. According to Garrison, COI is a model that consists of three elements essential to education—(1) cognitive presence, (2) social presence, and (3) teaching presence.

Cognitive Presence

It begins with a "triggering event," which is characterized by puzzlement, and leads to the exploration phase, which causes the student to look for and exchange information (often with other students). The integration phase comes when a student is able to connect ideas, and in the resolution phase, the student is able to apply new ideas.

Social Presence

It is defined as the ability of participants in the COI to project their personal characteristics into the community. Social presence also comes in stages, with the first stage being an emotional expression to new content or ideas. This stage is followed by a phase of open communication, where students are able to express themselves without risk, followed by group cohesion, where collaboration is encouraged.

Teaching Presence

It encompasses the design of the educational experience, which includes course content, design and development of learning activities and assessment, as well as course facilitation, which is often shared among the instructor and the students.

Teaching presence is intrinsically linked to the social and cognitive presence of a course. The teaching presence requires management from the instructor, whose role is to define the topics and initiate discussions that affect the social and cognitive presence. The cognitive presence is affected by the instructor building understanding by sharing personal meaning and by directing instruction through focusing discussions. However, students need the space and opportunity to self-regulate their facilitation without instructor interference as well.

As we have seen in much of the research, interaction among students is most important with regard to achieving student learning outcomes. Thushani Alwis Weerasinghe, Robert Ramberg, and Kamalanath Priyantha Hewagamage have found that self-regulation, defined as students facilitating their own discussions by asking clarifying questions or having discussions with their peers, results in students moving to the highest phases of the inquiry process. This implies that students engage in deep and meaningful learning when they participate in student-to-student interactions.

Garrison finds that

> the element in the Community of Inquiry model that is most basic to success in higher education is *cognitive presence* which is the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication. (Garrison, Anderson, & Archer, 1999, p. 89)

So interaction with the course content and communication with one another are drivers of learning in DE courses.

As more research reveals what works and what does not in DE, future trends will likely encompass more elements that privilege student interaction; such as peer-to-peer learning, social networking tools, inquiry-based learning, problem-based learning, and learning communities.

See alsoAsynchronous Online Learning; Content Delivery and Pedagogy in Online Education; Correspondence Courses; Lectures

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