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This chapter explores the tremendous growth in the use of the Internet to deliver distance education at community colleges. The author examines various definitions of online education, including the types of courses, programs, and degrees available and the types of community colleges that offer greater amounts of online programming. Considerations for the future growth of online education are provided.

Online Education in Community Colleges

Brent Cejda

In the past decade, distance education has become synonymous with the Internet. Kinley (2001) noted that "today's distance education focus has dramatically shifted toward network-based technologies (in general) and Internet-based delivery (more specifically)" (p. 7). With a reputation for adaptability, community colleges would seem likely to lead the way in online education. Data from the National Center for Education Statistics (NCES) support this assumption. In the 2006–2007 academic year, 96 percent of public community colleges offered at least once course online, compared to 86 percent of public four-year institutions (Parsad and Lewis, 2008). Allen and Seaman (2008) stress, however, that the impact of online education is much greater at community colleges, as 37 percent of the total student population attends a community college, over 50 percent of all online enrollments are at two-year institutions.

The Emergence of Online Education at Community Colleges

The dominance of Internet delivery among distance education technologies used by public community colleges is displayed in Table 1.1. What is not shown in the table is the shift to the Internet as the predominant method to deliver instruction. In 2000–2001, 60 percent of public community colleges reported using two-way audiovisual technology for distance delivery, and 57 percent reported using one-way prerecorded video (Waits and Lewis, 2003). These data support Allen and Seaman's (2007) finding: community colleges that offered courses over the Internet in 2000 have dramatically

Table 1.1.   Distance Education Technologies Used at Community Colleges

Primary Technology for Instructional Delivery	Percentage Using
Asynchronous Internet	93
Two-way audiovisual	30
Synchronous Internet	28
One-way prerecorded video	21
Correspondence with technology	11
One-way audio	10
Correspondence only	9
One-way video/two-way audio	8
Other technologies	4

Source: U.S. Department of Education (2007).

increased the number of online offerings and dramatically decreased the number of offerings using other technologies.

Recognizing the need to gather information concerning the use of Internet delivery in higher education, the Sloan Consortium began an annual survey of online education in 2003 (Allen and Seaman, 2003). The consortium reports do not present longitudinal data on the same specific factors, but the fifth survey provided a summary of online growth at community colleges over the previous years. Allen and Seaman (2007) found that institutions classified by the Carnegie Foundation as Associate's Colleges experienced the greatest increases in online enrollments, from slightly more than 800,000 students in fall 2002 to slightly more than 1.9 million students in fall 2006. In fact, more students were enrolled in online courses at community colleges in fall 2006 than in all other types of institutions combined.

The Instructional Technology Council (ITC), an affiliate council of the American Association of Community Colleges (AACC), initiated an annual survey of distance education in 2005 (Lokken, 2009). ITC administered the survey to its members the first year and then revised the instrument and distributed the survey to its membership and AACC members in subsequent years. Responding institutions reported growth in online enrollments of 15 percent from fall 2004 to fall 2005, 18 percent from fall 2005 to fall 2006, and 11 percent from fall 2006 to fall 2007 (Instructional Technology Council, 2006; Lokken, 2009; Lokken and Womer, 2007). Because the increase in online enrollments is substantially greater than the overall enrollment growth, Lokken (2009) contends that online programs have "become THE primary source for enrollment growth" in community colleges (p. 9).

Defining *Online*

Examining the literature regarding online education is difficult because of the lack of a universal definition. The 2008 Higher Education Opportunity

**Table 1.2.   Definition Used to Designate a Course as
Online at Community Colleges**

Minimum Percentage of Online Instruction Used to Designate Course as Online	Percentage
100 percent	63
80 to 99 percent	12
50 to 79 percent	11
25 to 49 percent	5
Other criterion used to designate online	5
No standard criterion used to designate online	4

Source: U.S. Department of Education (2007).

Act includes the Internet as one of the technologies used in the definition of *distance education* but does not provide any definition of exactly what constitutes a course delivered over the Internet. The Sloan Consortium classifies an online course as one with 80 percent or more of its content delivered online and, typically, having no face-to-face meetings (Allen and Seaman, 2003), and it has used that description in each of its annual surveys.

Table 1.2 presents data, gathered by the U.S. Department of Education's National Center for Educational Statistics, indicating the wide variance in the percentage of online instruction used to designate a course as online. As shown in the table, 25 percent of public community colleges do not use the 80 percent criterion established in the Sloan typology, which may lead to discrepancies in reporting about online classes.

There are also discrepancies in determining exactly what constitutes an online program. The ITC definition of an online program is one where "at least 70 percent of coursework needed to complete the degree is available online" (Lokken and Womer, 2007, p. 5). When the 70 percent threshold is used, 74 percent of the institutions responding to the most recent survey indicate that they offer at least one online degree (Lokken, 2009). A previous Sloan survey found that in fall 2005, 31.2 percent of associate institutions offered programs that were totally available online (Allen and Seaman, 2006).

Part of the difficulty in determining what constitutes an online course or a complete online program or degree lies in the fact that many community colleges involved in distance education are not alone in their effort. Participation in a distance education consortium is reported by 83 percent of public two-year institutions (Waits and Lewis, 2003). Most community colleges participated in a state (87 percent) or system or district (49 percent) consortium. Less common are regional (9 percent), national (6 percent), and international (2 percent) consortia. The following two examples illustrate some of the dilemmas posed in reporting online courses and programs.

WashingtonOnline (WAOL), a program under the management of the Washington State Board of Technical and Community Colleges, was created to provide students the opportunity to complete an online associate of arts degree. Broughton (2009) described three types of online courses that the program tracks:

1. Shared courses that are system owned were developed using resources from thirty-three technical and community colleges. Any of these institutions can offer a system-owned shared course. In addition, there are times when students from multiple institutions enroll in one offering (combining fewer numbers of students from the respective institutions to enable a sufficient enrollment for a course to make).
2. Shared courses that are college owned were developed using resources of one technical or community college. Students from other institutions are allowed to enroll in the course through WAOL.
3. Private courses are offered only by the respective technical or community college, and only students from that institution are allowed to enroll in the course.

One of the more recent reports (Washington State Board, 2004) identifies 3,411 shared courses that were system owned, 569 courses that were college owned, and 2,141 private courses. Twenty-eight institutions reported offering a shared course that was system owned. If all of these institutions offered the same course (for example, college algebra), is it best described as twenty-eight courses or twenty-eight sections of the one course? If students from multiple institutions are in the same course, enrolled through WAOL, does each institution indicate that it offered the class? These questions are not meant as criticism of the program or the reporting procedures of WAOL. Rather, the example is used to illustrate the difficulty of identifying and reporting courses, sections of courses, and designation of the offering institution.

A study of distance education in rural community colleges (Cejda, 2007) illustrates the difficulty in identifying an online program or degree. None of the 114 responding institutions indicated that they provided a degree program that could be completed totally online. When online offerings available through formal consortia or transfer agreements are added, however, 51 percent of the responding institutions indicated that at least one degree could be completed entirely online. And if all forms of distance technologies were included, slightly more than four-fifths (81 percent) of the institutions indicated that students could complete a degree. This example illustrates that the responding institutions perceived that a fully online degree option meant their own institution offered all of the courses in that format. Other institutions may perceive that any online course from any institution would fit either the ITC or Sloan definition of an online degree. Moreover, there appears to be a need to define a blended or hybrid online degree that com-

bines a designated percentage of online courses and a designated percentage of courses delivered using other distance technologies.

Online Offerings

Community colleges offer a wide breadth of courses and programs (academic transfer, vocational, English as a Second Language, developmental, credit, and noncredit, for example) and a variety of credentials and degrees (certificates, associate of arts, associate of science, associate of applied science, and associate of general studies, and, more recently, bachelor of art and bachelor of science). In addition, the Carnegie Foundation now classifies community colleges by geographical location (rural, suburban, urban) and enrollment (small, medium, large). This section focuses on the literature that addresses differences in online offerings by course or program area or differences among community colleges with respect to geographical location or size.

The most recent ITC survey (Lokken, 2009) found that 64 percent of the responding institutions offered noncredit online courses. This is a 3 percent decline from the previous year, and the economic downturn is cited as a possible reason. A comprehensive literature review did not reveal any additional sources that provided data concerning noncredit online offerings. Moreover, the literature review did not identify any sources focused on online English as a Second Language or developmental education programs.

Johnson and others (2004) examined distance offerings in career and technical education (CTE) using a random sample of 512 member institutions of the AACC. The authors did not provide a specific definition of CTE, explaining that the term includes both credit and noncredit offerings and ranges from a single course providing specific skill training to certificates and associate of applied science degrees. Information was gathered using AACC categories of urban, suburban or large town, and rural, but no definition of these categories is provided in the article. Responses were received from 270 institutions (53 percent). Within the responding institutions, 76.3 percent offered CTE courses using distance technologies in 2000–2001. In terms of online CTE credit offerings, the percentages for rural community colleges percentages are slightly lower (71.9 percent) than for urban (74.3 percent) and suburban (78.7 percent) community colleges. Rural community colleges, however, offered a slightly higher percentage (48.4 percent) of online noncredit CTE courses than did their urban counterparts (43.7 percent) and almost the same percentage as suburban (50 percent) institutions.

Cejda (2007) collected data on the online academic transfer and vocational offerings of rural community colleges in nine states: Arkansas, Arizona, Colorado, Louisiana, New Mexico, Oklahoma, Texas, Utah, and Wyoming. From the population of 202 public two-year institutions in these

**Table 1.3.   Percentage of Associate Degrees Offered
Through Online Programs**

Degree	2008	2007	2006
Associate of arts	76	45	48
Associate of science	40	28	37
Associate of applied science	43	25	32
Associate of general studies	10	6	7

Note: Online degrees are defined as "at least 70 percent of coursework needed to complete the degree is available online."
Sources: Instructional Technology Council (2006, 2007, 2009).

states, 114 usable returns were received, a 56 percent return rate. Using the scheme developed by Katsinas (2003), 73 (64 percent) of the usable returns were from institutions classified as rural and 69 (95 percent) used the Internet to deliver courses. Respondents indicated that their institutions offered more online academic transfer courses in comparison to vocational courses. Slightly more than the majority (51 percent) of rural community colleges in these states indicated that at least one academic transfer degree could be completed totally online using consortia and transfer agreements. Only two institutions (3 percent) indicated that a vocational degree could be earned completely through online instruction. The format of the survey did not gather information on whether certificate or other preassociate degree credentials in vocational areas could be completed through online courses.

Table 1.3 presents information from the ITC surveys regarding the types of associate degrees offered through online programs. Results from the most recent survey (Lokken, 2009) reveal a 10 percent increase in the number of institutions that offer an online degree, from 64 percent in 2007 to 74 percent in 2008. The review of literature did not identify any information on the number of community colleges that offer multiple types of online degrees.

As a means of examining online offerings by disciplinary areas, the Sloan survey identified eight subject areas in which the greatest number of degrees had been awarded (Allen and Seaman, 2008): business; liberal arts and sciences, general studies, and humanities; health professions and related sciences; education; computer and information sciences; social sciences and history; psychology; and engineering. Institutions were then asked to indicate if they had fully online programs in these disciplinary areas, and an "online penetration" rate was calculated, using "the ratio of the number of institutions offering a fully online program in that discipline to those offering that program using any delivery mechanism" (p. 13). In comparison to doctoral/research, master's, baccalaureate, and specialized institutions, associate institutions have a higher penetration rate in five of

the eight disciplines: psychology; social sciences and history; computer and information sciences; liberal arts and sciences, general studies, and humanities; and business.

Data from the U.S. Department of Education (Parsad and Lewis, 2008) indicate a relationship between institutional size and the number of online offerings. Less than half (46 percent) of the institutions with an enrollment of three thousand or fewer students reported offering online courses, compared to 95 percent of the institutions with an enrollment of ten thousand or more students. Reports from the Sloan Consortium (Allen and Seaman, 2006, 2008) point to a strong relationship between institutional enrollment and the extent of online offerings. Institutions with larger enrollments were among the first to begin online offerings and are more like to offer a fully online degree. Although both of these sources have two- and four-year institutions in their analysis, the data also point to the question of whether a relationship exists between the size of a community college and its participation in a consortium.

With the shift of distance technology to online delivery, a disparity of Internet use by geographical region became a concern. Sink and Jackson (2000) were among the first to identify a digital divide between urban and rural community colleges. This divide existed in the institutional infrastructure and, in part, explains why some rural community colleges developed online offerings later than those in suburban or urban settings. Katsinas and Moeck (2002), however, argued that technological advancements leading to high-speed or broadband connections in the home were actually widening the digital divide. A recent report (Horrigan, 2008) indicates that home broadband connection in rural America increased by 23 percent from 2007 to 2008. But even with this gain, broadband connection in rural homes lags 19 percent behind that of urban homes and 22 percent behind that of suburban homes. The review of the literature did not identify any studies that addressed the implications of limited broadband access in rural locations on participation in online education programs.

The Future of Online Programs

Allen and Seaman (2008) point out that the vast majority of growth in online enrollments came first through the number of institutions that added online offerings and then through the expansion of existing programs. As a result, institutions that have not yet ventured into online education are those that have the smallest enrollments. How much more enrollment growth can be expected in online programs? Can enrollment numbers be maintained?

Gallagher (2002) points out that community colleges have made significant efforts to provide academic support for students, so they are more likely to have the capacity to provide this support using distance technologies. But community colleges may not have as great a capacity for providing

professional development for faculty or student services through distance technologies. A comprehensive evaluation of the capacity of the institution in regard to the platform used to deliver instruction, student and faculty support, technology infrastructure, and program administration must be undertaken, and the necessary steps to provide capacity in these areas must be developed for additional growth to occur and to sustain existing programming.

Capacity is not a term specifically used, but the concept appears frequently in the literature concerning online education. Having an adequate support staff to provide training and technical assistance, providing adequate student services for distance education students, and operating and equipment budgets have been ranked as the top three concerns of program administrators at community colleges (Lokken, 2009). Providing training and technical assistance also appears to be a key component in gaining faculty acceptance of online education (O'Quinn and Corry, 2002; Roberson and Klotz, 2002). Having faculty capacity to meet the demand for online courses and programs appears to be a growing concern. In both the 2007 and 2008 ITC surveys, 69 percent of the respondents indicated that their community college was not meeting the student demand for online offerings (Lokken, 2009).

The faculty members who teach online courses in part drive the concern of faculty capacity. Institutions responding to the ITC survey indicate that 67 percent of online courses are taught by full-time faculty (Lokken and Womer, 2007). This finding is consistent with the Sloan survey, where slightly more than two-thirds (68 percent) of associate-classified institutions report that their online classes are taught primarily by full-time faculty members (Allen and Seaman, 2005). If online courses are predominantly taught by full-time faculty and community colleges continue to rely heavily on adjuncts, the continued growth of online enrollments is questionable. Lokken (2009) found workload issues to be the greatest challenge about working with faculty that online administrators reported.

The vast majority of community colleges have successfully implemented online offerings, and many have experienced substantial enrollment growth through online programs. Lokken (2009) describes the typical online program as "under-staffed, working in cramped conditions, with an inadequate budget" (p. 9). With community colleges in most states experiencing funding concerns, the primary suggestions for practitioners are to adopt the following definitions and reporting standards:

- The Sloan Consortium standard of an online course consisting of 80 percent or greater of the content delivered online and having no face-to-face meetings
- The ITC standard of an online program providing a minimum of 70 percent of the course work needed to complete the degree available online

- Classification of courses, degrees and enrollment as institutional (offered by and available only to students at a particular institution), consortium based (offered through a formal partnership or agreement), or visiting (enrollment allowed to a guest or visiting student).

Establishing consensus about definitions regarding online courses, online degrees, and developing common reporting standards of enrollment is necessary to sustain current programming and justify funding to implement additional offerings.

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