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Marilyn Lockhart & Kirk Lacy


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perspective

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Introduction

Distance education has grown tremendously in higher education institutions in the USA and has become one of the most powerful forces influencing its direction (Connick 1997, Miller 1997, Gandolfo 1998). Correspondingly, the need for assessment has become strong in order for higher education administrators and faculty to show that they are delivering quality programmes and courses. From a global perspective, Salmi (2002) recommends that nations participate in international



networks to evaluate distance education programmes. However, Carnevale (2001a) cautions that educators are still 'in the process of proving that they can accurately assess anything' (p31), and that few institutions are evaluating distance delivery.

In March of 2001, representatives from the six regional accrediting bodies in the USA issued guidelines to help institutions in this country evaluate on-line education programmes (Carnevale 2001b). Unfortunately, the guidelines are a lengthy list of questions that administrators can ask about programmes, rather than a set of methods and tools that can be used to assess distance programmes and courses. As a result, legislators and policy makers in the USA are looking to colleges and universities to create practical assessment models and ways to evaluate programmes (Carnevale 2001b). In comparison to the UK's Quality Assurance Agency for Higher Education (QAA) guidelines (<http://www.qaa.ac.uk/public/dlg/contents.htm>), the USA guidelines have a greater focus on the institutional support and services needed by faculty in order to deliver and assess quality classes and programmes to students.

The purpose of this article is to introduce a comprehensive assessment model consisting of seven components and to present specific methods that administrators and faculty in any higher education institution can use to evaluate each component. The design of the model was based upon comments from participants at a national workshop conducted for the American Association of Higher Education and upon practices at the authors' two institutions with different delivery platforms. The model was refined after its initial presentation at the Association for the Study of Higher Education 2001 National Conference and it incorporates the components that contributors considered of primary importance. This model simplifies the accrediting agencies' work and differs from it in that faculty and administrators actually delivering distance education throughout the USA identified the components and related questions as being of primary significance. Contributors considered realistic personnel, funding,

Dr Lockhart is a Professor in the Adult and Higher Education Programme at Montana State University-Bozeman in the USA. Her teaching and research areas include distance and adult education. She holds an EdD in Higher Education from the University of Virginia, where she worked ten years as an administrator. Address for correspondence:



Dr Marilyn Lockhart,
Department of Adult and Higher Education, Reid Hall Room 213, Montana State University-Bozeman, Bozeman, MT 59717, USA. Tel: +1 406 991 6419; Fax: +1 406 994 3261; E-mail: lockhart@montana.edu

Mr Lacy is the On-line Education Programme Co-ordinator at Montana State University-Billings. He has completed all course requirements for an EdD in the Adult and Higher Education Programme at Montana State University-Bozeman, USA. Address for correspondence:



Mr Kirk Lacy, On-line Education Programme Co-ordinator, College of Professional Studies and Lifelong Learning, Montana State University-Billings, Billings, MT 59101, USA. Tel: +1 406 657 2294; E-mail: klacy@msubillings.edu

and time resources in their institutions when identifying areas of importance and corresponding questions. The questions asked by the model specifically target distance learning endeavours. Also in contrast to the accrediting agencies' work, this paper presents specific methods that have been used to answer the questions. Assessment methods presented are those used at the authors' institutions and described by the literature. In the context of this paper, faculty are defined as the academic members of the staff. Additionally, the terms 'assessment' and 'evaluation' are used interchangeably.

The article begins by introducing the model and then provides evaluation tools that can be used by administrators and faculty, regardless of delivery platform, to evaluate all facets of distance education. While these methods by no means answer all the questions posed in the model, they provide an initial approach to answering the question, 'How do we assess distance education in higher education?' Administrators and faculty at other higher education institutions may find these successful approaches beneficial when developing and expanding distance education assessment programmes and a valuable step in establishing a global collaboration of such efforts.

Background of institutions

Montana State University-Bozeman (MSU-Bozeman) and Montana State University-Billings (MSU-Billings) are two institutions in the USA that are part of a six-campus university system. The institutions have separate administrations, distance education programmes,

and delivery platforms. They serve a rural state with a population of 879,000 located across a geographic area of 147,000 square miles. MSU-Bozeman is a doctoral granting institution that serves 10,200 undergraduate and 1500 graduate students. MSU-Billings serves a total of 4000 students including 400 master's level graduate students. In comparison to the UK, MSU-Bozeman and MSU-Billings deliver distance education courses to students living primarily within the state.

Overview of the assessment model

The assessment model consists of seven components:

- institutional readiness/administration;
- faculty services;
- instructional design/course usability;
- student readiness;
- student services;
- learning outcomes;
- retention.

While comprehensive, the components overlap and are intertwined. The model is depicted in figure 1 and an overview is given below.

Institutional readiness/administration asks:

- Does the institution have a plan for distance education?

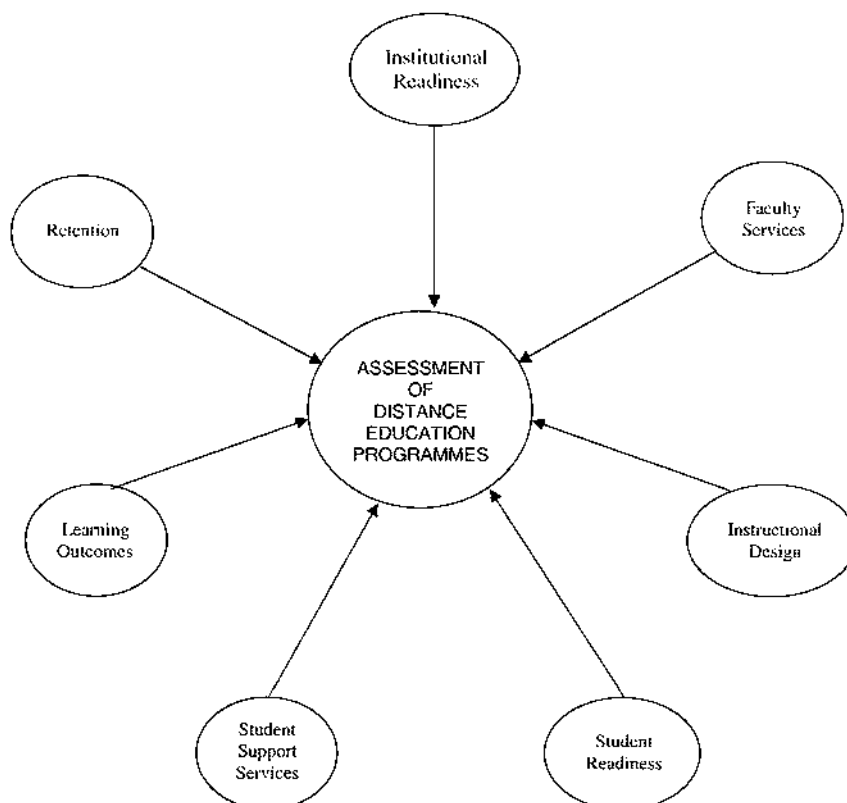


Figure 1. Distance education assessment model

- How does the institution plan and manage programmes and set priorities?
- Is distance education an institution-wide co-ordinated programme, or is it piecemeal, i.e. discipline by discipline or department by department?
- How do we assess the readiness of an institution to deliver distance education?
- What are the barriers/challenges to institutions delivering distance education?
- How can these barriers be addressed?
- How are programmes budgeted?

Services to faculty asks:

- What support services are provided to faculty?
- How effective is the institution in preparing our faculty pedagogically and technologically to teach on-line courses?
- How effective is the institution in supporting faculty during instruction?

Instructional design/course usability asks:

- How user-friendly is the technology to students, i.e. is the technology seamless?
- How do we determine this?

Initial assessment of student readiness asks:

- How do we assess student readiness before class begins?
- How do we prepare students to take distance classes?

Support services to students asks:

- What services, such as library, registration, and ongoing help is available to students?
- How effective are these services?
- Are there additional support needs?

Learning outcomes asks:

- What are the outcomes of distance classes?
- How do we measure outcomes?
- How do they compare with face-to-face outcomes?

Retention asks:

- What are the retention rates of on-line students?
- How do they compare to face-to-face delivery?
- Are enrolments in distance-delivered classes increasing? Decreasing?

Component one: institutional readiness

Institutional readiness/administration is a critical first step for administrators in assessing distance education

programmes. Ideally, colleges and universities should have a centralised plan for distance education at the institution. The plan should incorporate such issues as how to manage and budget programmes, set priorities, and address challenges/barriers. In reality, at many places, distance delivery has evolved more department by department, with central co-ordination and administration coming much later, if at all.

MSU-Bozeman provides an example of this latter approach, with many departments, such as nursing, offering distance classes for numerous years before a distance education co-ordinator position and committee were established.

In contrast, at MSU-Billings the distance education programme has always been co-ordinated centrally by the College of Professional Studies and Lifelong Learning (CPSLL). While courses and programmes have been and continue to be proposed by other colleges and departments throughout the campus community, the CPSLL has historically been responsible for co-ordinating and administering distance education.

In 1998, the institution began an initiative to expand interactive television distance delivery and the subsequent rapid growth of on-line courses led to the establishment of a specific office and full-time co-ordinator to manage the on-line initiative for the campus.

At MSU-Billings, institutional readiness is assessed with a comprehensive model that assesses the areas of student, faculty, curriculum, technology, administrative and public affairs. The system entails a comprehensive campus-wide effort to report on readiness and the progress of previous initiatives, identify current and prospective issues and opportunities for improvement, present recommendations, and confirm future plans or strategies.

Component two: services to faculty

Faculty must learn the skills to deliver their classes at a distance. While motivated faculty learn on their own at some institutions, colleges and universities must provide centralised training and support in order to achieve effective implementation of widespread distance programmes and classes.

Each semester, MSU-Billings provides faculty group training sessions that are facilitated by instructional design consultants from the software provider company. At MSU-Bozeman, in-house personnel conduct the workshops. On-campus instructional design specialists are available to faculty at both institutions for one-on-one consultations in software use for course development. On-line tutorials and resources on special topics or areas of concern/interest are available to faculty at both institutions via their on-line account or through web addresses.

MSU-Billings uses a 'Faculty Training and Support Needs Assessment Survey' to identify areas of highest priority for faculty training as well as unmet training and support needs. Results from the needs assessment are used by the MSU-Billings On-line Co-ordinator to plan upcoming faculty training workshops as well as to prepare one-on-one training consultations and on-line tutorials/resources for individual faculty.

Component three: instructional design/ technology

How technology is incorporated in a course is important. In order for classes to be effective, the technology must employ good teaching strategies and be relatively easy for students to use. Faculty can use Chickering and Gamson's *Seven Principles for Good Practices in Undergraduate Education* as a conceptual framework to assess the design of distance courses before the courses are delivered to students. Based on effective education as active, co-operative, and demanding, they state that good teaching practices encourage contacts between students and faculty, encourage co-operation among students, encourage active learning, give prompt feedback, emphasise time on task, communicate high expectations, and respect diverse talents and ways of learning (Chickering and Gamson 1991). Faculty at MSU-Bozeman who have used the seven principles to evaluate the design of their distance courses report that the framework was helpful. As a result of this work, a planning and assessment instrument has been developed that faculty can use for courses (Lockhart *et al.* 2000).

In addition to help in course development, MSU-Billings offers workshops on strategies for effective teaching and learning. These include:

- 'Creating Quality Interactive On-line Learning Environments'
- 'Managing Larger On-line Classes – Effective Course Management Strategies'
- 'Course Evaluations – Using Feedback from Students to Improve On-line Teaching and Learning'
- 'Theory and Practice – What Research and Experience Tells Us About Effective On-line Teaching and Learning'
- 'Tips, Tricks, and Lessons Learned – Perspectives of Experienced On-line Faculty'

Two surveys are conducted each semester at MSU-Billings to assess student success and satisfaction with course technology in addition to other components of this model. Both surveys ask questions related to the on-line interface/website/technologies that students must use to participate in the programme. The first survey is a 'Student Support Services Satisfaction Survey' and focuses on the student experience at the

start of each semester. The survey is administered on-line during the second or third week of the term and is automatically presented to each student when he or she logs in to his or her password-protected user account. Because the survey is administered on-line and is automatically presented to the student, the response rate tends to be higher than with traditional survey instruments, with a typical response rate of 75–85 per cent of the students responding each semester.

The second survey is the 'On-line Learning Satisfaction Survey', conducted at the end of each semester and focusing on the student's satisfaction. The survey includes an evaluation of the course technology in addition to the course instruction and content. Examples of technology-related questions are: 'I believe this class was appropriate for distance delivery' and 'Course material was presented as clearly in this on-line class as in on-site classes I have taken'.

The results of the surveys are compiled each semester and presented to faculty and key administrators. They use the results to make course and programme improvements. An annual compilation of these results is also prepared and disseminated to the president.

Component four: student readiness

Students have varying levels of readiness for learning at a distance, and some will find they need help in becoming adequately prepared. At MSU-Billings, students are able to assess their own readiness for technology delivered instruction through a website designated for 'New On-line Students'. The site provides a sample 'Demonstration Course', an 'Is On-line Learning Right for You?' self-administered quiz, and a 'Technical Requirements' link which provides the minimum hardware and software system requirements for taking a distance-delivered class. Included is a 'Browser Test' that evaluates the student's computer and informs him or her of any deficiencies. Links are provided to free software downloads on the Internet to bring the computer into compliance with software requirements.

The 'Student Support Services Satisfaction Survey' described in the previous section also is an institutional assessment of student readiness. The survey focuses on the student experience at the start of each semester and asks students how many on-line and face-to-face courses they have completed prior to the current semester, why they are registering for an on-line course, and issues/needs that they have encountered. This feedback has provided the programme with specific insight into the common motivations that students have for taking these courses as well as the issues, questions, concerns, problems, and challenges that may serve as obstacles for their success.

Component five: support services

Students who enrol in distance courses need additional support services to supplement the normal range of services provided to on-campus students. When students register for a course at MSU-Billings, they are given an orientation course to help learn how to use the various course tools, features, and functions in their on-line courses.

MSU-Billings provides students taking classes at a distance with access to numerous standard student support services, including advising, admissions, registration, financial aid, fee payment, bookstore use, career services, library services, and disability support services. In addition, resources such as a 24-hour, seven-day-a-week toll-free Helpdesk for technical support, and a central programme co-ordinator/liaison office are available for on-going assistance. The effectiveness of these services is assessed each semester through the 'On-line Student Support Services Satisfaction Survey' described earlier. Feedback from this survey is compiled each semester and is also compiled across semesters for longitudinal trend analysis.

The most recent annual review was used to demonstrate a 'trend analysis' of student feedback across several semesters and indicated an overall 97 per cent satisfaction rate for on-line student support services in general, with ratings of each individual student support service (e.g. admissions, registration, advising, financial aid, bookstore, etc.) achieving within a range of 90 to 98 per cent satisfaction ratings. In addition to indicating consistent, positive feedback across several semesters within different categories of student services, the open-ended feedback on the surveys also provides specific suggestions for improvement, which informs the review process at upper level administrative levels. In the past year, specific tangible changes in resources, products, processes, and services have been implemented towards improving or refining the student course registration, system, advising services, helpdesk support, book ordering process, student orientation, programme website, and other on-line learning resources as a direct result of the feedback from this survey.

Component six: outcomes

One of the primary questions concerning distance education is 'What are the outcomes of distance education?' In order to answer this question, we must know *how* to assess student outcomes. Assessment exams are used by some institutions in the USA including the University of Phoenix, Pennsylvania State University's World Campus, Thomas Edison State College in Trenton NJ, the State University of New York's Empire State College, and the University of Maryland University College (Carnevale 2001a). For example, at the University of Phoenix students are given a series of tests before and after a distance degree programme, enabling the university to measure how

much students learned. The University works closely with companies to determine the knowledge and skills that students need in order to be successful employees. Tests are then designed to evaluate constructs such as cognitive abilities and skills such as critical thinking and communication. The Western Governors' Association has created some of its own assessment examinations and bought others from organisations such as Educational Testing Service. Additionally, in order to evaluate student outcomes, it uses projects designed to simulate situations in jobs (Carnevale 2001a).

The 'On-line Learning Satisfaction Survey,' described earlier, that is completed by MSU-Billings students at the end of each semester, focuses on the students' satisfaction with the distance-delivered course and instruction. The survey asks students to rate the quality of interaction with other students and with the instructor, and to compare on-line learning with on-site classes through Likert scale questions such as 'I believe I learned as much in this on-line class as I would have in an on-site version' and 'I would take another on-line learning course'. An open-ended question asks students to describe their overall learning in the distance delivery course as compared to on-site courses they have taken. Also, students evaluate technologies through a series of Likert scale questions, such as 'To what degree were the technologies used for this class effective in enhancing your learning experience?'

Faculty at MSU-Bozeman have found the planning instrument described earlier to be a valuable assessment tool also. The instrument can be used by faculty and students to evaluate the effectiveness of using pedagogical methods that correspond to each of Chickering and Gamson's Seven Principles (1991) described earlier. It measures the faculty members' and their students' perceived frequency of methods and effectiveness of each method used. Using the instrument provides faculty members with specific feedback about each teaching method used in the class. Teaching pedagogies that promote interaction among students, such as study partners and discussion groups, and between faculty and students have been assessed by students as particularly effective.

Additionally, faculty have found student journals a beneficial tool in the formative and summative assessment of classes (Lockhart 2001). Using this approach, students respond to specific questions about perceptions of the distance education process, pedagogical methods used, and their own learning progress. By requiring students to complete three to four journals a semester, faculty can make improvements to courses during the semester.

Another approach to assessing teaching and learning for distance courses is the student focus group (Borland *et al.* 2000). At the end of a course, students meet as a group face-to-face with the instructor and provide feedback about the distance education process and perceived outcomes. The interaction provides additional

detailed and in-depth information. Students participating in these groups have stated generally that they appreciated the convenience of taking a distance course but have missed having the in-class discussions.

Finally, at MSU-Billings, the grade point average for each on-line course section is compared with the grade point averages of equivalent course sections offered on-campus during the same term. The results of these assessments indicate that there is no significant difference between learning outcomes in on-line courses compared with the outcomes of their corresponding on-site course sections.

Component seven: retention

The final component advises that administrators and faculty should track retention in order to assess distance delivery. In addition to student satisfaction rates, MSU-Billings gathers data on student enrolment and course completion rates. The student enrolment and course completion rates allow programme administrators to compare the number of students who enrol in courses with the number who successfully complete them. Enrolment figures are gathered on the first day of class, the fifteenth day of the semester, and the last day of the semester. The results of these assessments illustrate, on average, a 90–95 per cent on-line course completion rate, meaning that 90–95 per cent of students who begin their courses at the start of the term are still enrolled in those courses at the end of the semester.

At MSU-Billings, on-line students are not separated from on-site students in the campus database. Unfortunately, this makes assessment of long-term retention or persistence rates among on-line learners difficult. Other institutions may want to design a method of tracking distance students to assess their long-term retention.

Conclusion

The authors designed this model and the evaluation methods over a period of several years and with input from practitioners across the country. Not all the questions were asked or assessment tools used when their universities began offering classes initially via distance technology. As a result, some of the first approaches to distance delivery were unstructured, unco-ordinated, and unsupported. Administrators and faculty members were separated by large communication gaps. Some valuable components in institutions were lacking, especially in the area of faculty and student support services. Faculty found themselves isolated in their efforts, with minimal skills to design classes, and with limited resources to learn the skills. Students found their primary support from the individual faculty teaching these classes and from a technology 'help desk.' Few records were kept of student satisfaction, outcomes, or retention. The records that did exist resided in the hands of the individual faculty. By asking

the questions presented in this model, using the described assessment methods, and tracking results on an institutional level, the universities have moved forward in improving the quality of distance education classes and programmes.

The tools and methods that have evolved as a result of asking questions have produced valuable data, providing the direction for making improvements. Assessment methods that have proved to be especially valuable in this process have been surveys that ask about faculty training and support needs, student support services needs, and on-line learning results, as well as various student readiness tools and a distance education planning and assessment instrument. Examples of these are available by contacting the authors. Student journals and focus groups are pedagogical methods that faculty can use to assess student learning and satisfaction. Additional worthy data is found from tracking distance education student grades and retention rates.

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The primary lesson learned from our efforts is the benefit of gathering data early: ask faculty members about their needs; ask students about their needs, satisfaction, and learning outcomes. Data obtained should be shared on an institutional level to provide administrators with the information they need to make revisions to programmes and support services. Second, colleges and universities should provide faculty and students with the support that they request and need. Unsupported faculty and students are unproductive and unsuccessful. Adequate personnel and fiscal resources are necessary in order to provide support to faculty and to students. Incentives and rewards have proved useful in encouraging faculty to spend the long hours needed to design distance courses and assessment tools, such as the ones described in this article. These can come in the form of additional monies or in time-off from other responsibilities. For example, one of the authors' institutions recently awarded a paid 'professional development semester' to a faculty member in order for her to concentrate on developing a comprehensive distance master's degree programme. Additionally, faculty attendance at workshops and conferences can provide a time saving avenue for them to learn about methods that others have found valuable.

With the widespread increase of distance education, colleges and universities need comprehensive assessment

programmes. This model and its corresponding methods should be an advantageous first step in this endeavour. Individuals at other institutions may have additional methods to contribute and thereby expand upon this work. Collaboration among individuals at institutions can serve to maximise these efforts. The critical element is that institutions should plan, evaluate, and then revise programmes based upon assessment results to deliver *quality* programmes, rather than just being another institution to deliver classes at a distance.

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