A MODEL OF LEARNER-CENTERED APPROACH
AND
BEST PRACTICES IN DISTANCE EDUCATION

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ABSTRACT

The paper examines critical issues in web-based distance education including the changing role of faculty and students, instructional design for quality education, outcomes assessment, and administrative support. The premise of the paper is that educational excellence in online instruction requires institutional commitment to a learner-centered approach rather than a teacher-centered approach of education. Recommendations are made for quality measures and faculty development in adapting to methods of online teaching that facilitate a learner-centered education.

INTRODUCTION

Since the World Wide Web was developed ten years ago, many educational institutions have rushed to connect to the Internet. According to (Blackboard, 1999), nearly 50 per cent of higher educational institutions currently engage in some type of online learning Not since the invention of the printing press has an invention generated so much potential to dramatically change how people communicate and interact with one another.

Indeed many believe that the Internet and the technology that supports it may well constitute the third modern revolution in higher education (Draves 2002, Stukel 1997). Digital media and Internet communication transformed teaching and learning practices (Denning 1996). According to Celente (1997), the revolution of interactive, online learning is as profound and far reaching as the shifts of the Industrial age and the Information age. Not only it affects where we learn, it also influences how we learn and what we learn.

Colleges and universities are finding themselves under increasing pressure to change the practices of teaching. There are three major forces in the process of achieving a learner-centered approach in distance education: (1) application of new technology, such as computers, videos, telecasts via satellite, and the Internet; (2) demands of a knowledge-based society in which organized learning must become a lifelong process for knowledge workers; and (3) new theory about how human beings learn (Drucker, 1996). Technology brings alternative ways to organizing and conveying information. It challenges our definition of knowledge and how knowledge can be delivered.

The paradigm of predominantly linear process of learning is shifting. Changes in technologies also set new trends in lifelong learning and differing learning styles. Students of today and tomorrow are mostly doers, not listeners. Many students today do not want to be entertained in a class, rather they want to learn in their own environment (Jonas and Johnson, 1996). The

challenge for higher education is to create dynamic learning communities that are learner-centered rather than teaching-centered.

PARADIGMS OF TEACHING AND LEARNING

Higher education has been transforming itself from the Industrial age to the Information age. Dolence and Norris (1995) report that the traditional classroom, seat time-based education, has been changed to a "network learning" environment where knowledge navigation, distance-free learning, fusion of learning and work, and achievement-based outcomes are some of the key elements of an education in the Information age (Table 1).

Table 1 Higher Education: A Vision for Learning in the 21st Century	
Industrial Age	Information Age
Classrooms, libraries, and laboratories	Network
Teaching	Learning
Seat time-based education	Achievement-based learning
Information acquisition	Knowledge navigation
Distance education	Distance-free learning
Continuing education	Perpetual learning
Time out for learning	Fusion of learning and work
Separation of learners and learning systems	Fusion of learning systems
Dolence, M. G. and Norris, D. M. (1995). Transforming Higher Education: A Vision for Learning in the 21st Century. Ann Arbor, MI: Society for College and University Planning	

Johnson et al. (1991) summarizes the differences between the old and new paradigm (Table 2). A comparison of the old and new paradigms of teaching indicates that the shift occurs at multiple levels by altering the concepts of knowledge, students, faculty purpose, relationships, teaching, and assumption about who can teach and how teaching can be effective. In the old paradigm, knowledge has been transferred from faculty to students.

The new paradigm of teaching requires educators to consider new meanings and methods of learning and teaching models that are suitable for a society of the Information age. In the new paradigm, knowledge is constructed jointly by students and faculty. Rather than being passive vessels to be filled by faculty knowledge, students in the new paradigm become active constructors and discoverers of knowledge. The purpose of the faculty in the new paradigm is to develop student competencies. Relationship building among students and faculty is a key component in fostering cooperative learning and teamwork in the Information age.

Table 2
Comparison of Old and New Paradigms of Teaching

	Old Paradigm	New Paradigm
Knowledge	Transferred from Faculty to Students	Jointly constructed by Students and Faculty
Students	Passive vessel to be filled by Faculty knowledge	Active constructor, discoverer, transformer of own knowledge
Faculty Purpose	Classify and sort Students	Develop Students' competencies and talents
Relationships	Impersonal relationships among Students and between Faculty and Students	Personal transaction among students and between faculty and students
Context	Competitive and individualistic	Cooperative learning in classroom and cooperative teams among faculty
Assumption	Any expert can teach	Teaching is complex and requires considerable training

Johnson, D.W., Johnson, R. T. and Smith K.A. (1991). Active Learning: Cooperation in the College Classroom. Edina, MN: Interaction Book Company

The integration of technology in the instructional programs has become an important part of today's teaching and learning environments. According to the 1998 National Survey of the Information Technology in Higher Education, one-third of all classes surveyed were using the Internet and one-fourth used the World Wide Web for class resources and materials. In addition, 45 per cent of undergraduate students and 52 per cent of faculty indicated that they have used the Internet at least once a day. Green (1998) notes that a major challenge of institutional information technology is finding ways to help faculty integrate Internet-based technologies into instruction and provide them with adequate support.

DISTANCE EDUCATION

By definition, distance education uses technology-based delivery systems that create virtual classrooms through electronic communication, remote access, and virtual faculty-student relationships (Draves 2002). Differences in instructional methods of online and traditional teaching include differences in inputs and outputs, as well as separation in time between communications. As teachers and students depend on asynchronous communication, e-mail exchanges, or synchronous communication, online chat room discussions; the borderless networks of cyberspace create learning communities that can exist anywhere and anytime.

The advancement of technology in education has altered faculty and student roles. Technology allows educators to create learning environments that are flexible, dynamic, and capable of responding to a wide variety of individual needs and learning styles through the use of advanced media techniques. Researchers found that adding technology to instruction generally strengthens

faculty interactions with students, particularly with those who are hesitant to participate in traditional classroom discussions (Partee 1996, Owen 1993).

Since online and Web technologies can be used to foster various types of interaction, some researchers believe that these methods support the development of constructivist learning. According to Honebein (1996), constructivist learning incorporates pedagogical goals in the knowledge construction process by providing appreciation for multiple perspectives, encouraging self awareness, situating the learning in relevant contexts, encouraging ownership in the learning process, embedding learning in social experience, and encouraging multiple models of representation.

Senge (1994) describes systems thinking as the "fifth discipline" necessary to understand the dynamic nature of today's organizations. He argues that systems problems in organizations require systemic solutions. Therefore, educators have to recognize that learning is not a linear process but a circular one of constant questioning, assessment, and redesign. The ability to see interrelationships and processes is crucial in systems thinking.

Draves (2002) believe that cognitive learning can be done better on the Internet than in the traditional classroom because a learner can learn during her or his peak learning time, learning can take place at the learner's speed and place, the learner can focus on specific content areas, self-testing can be done daily, and interaction with the professor and classmates can be as frequent as desired by the learner.

Some of the challenges of distance education relate to finding ways to incorporate integrative experiences for students to think constructively and systematically. In addition, while utilizing the advancement of technology in delivering instruction, higher educational institutions must assist faculty in learning how to adopt new methods of teaching that incorporate a learner-centered approach in distance education.

OBJECTIVE OF THE PAPER

The objective of the paper is (1) to discuss the use of technology for delivering educational excellence in online learning and (2) suggest a model for best practices in web-based distance education. The paper is organized in the following subsections: (1) instructional design and delivery, (2) assessment and feedback, (3) role of faculty, (4) faculty development, and (5) students and motivation. The paper concludes with suggestions for benchmarks for best practices to assure achieving success and quality in distance education.

1. **Instructional Design and Delivery**

With educators designing and customizing Web learning environments, it is necessary to determine if these environments are meeting the needs of learners. Mechanisms must be incorporated to evaluate the medium, content, format, design, and structure of instruction so that timely intervention can occur if a problem is identified. Angelo et al. (1993) indicate that user feedback is one way of examining in meeting learning outcomes.

Online instruction takes place in a virtual classroom, on a password-protected web site, where the instructor posts the course content and discusses or dialogues online with students, and measures learning performance. Although online learning is still new and there has not been a common practice developed yet, nevertheless, all online classrooms have three common elements: (1) content, (2) interaction, and (3) assessment.

For content, most education websites provide basic course information such as syllabus, schedule, announcements, reading lists, synchronous or asynchronous communication, online testing, discussion groups, chat room conferences, streaming audio and video clips, slides and possible animation. It is important to outline course goals and objectives, topics or modules, schedule of activities, pre-assessment quiz, rules and guidelines for participating in the course, as well as expectations, procedures, and ethics of online communication.

Boettcher and Conrad (1999) recommend activities that build a learning community in cyberspace. These may include welcoming message from the instructor; student introductions; posting of rules of conduct in online discussion chats; interactive activities such as online projects, assignments, self-assessment tools, tests, quizzes; collaborative activities such as small group discussions; and cooperative activities such as role plays and team projects.

In terms of interaction, researchers note that interaction is the key in online learning. According to Collison (2000), an online learning community exists only if its members are active. As a facilitator, the instructor must draw all participants in and guide and focus the class discussion along constructive paths to learning. Good manners and acceptable behavior in Internet communication is called netiquette. Draves (2002) lists common guidelines for proper online communication such as do not get emotional, avoid self-centered comments, disagree politely, use positive language, avoid negativity, take time to write grammatically correctly, show respect to classmates and the instructor.

2. **Assessment and Feedback**

To conduct assessment in online education, many believe that student learning is a fair and objective way to assess the effectiveness of online teaching. Evidence of what students learn is important for instructional and course improvement. Student evaluations may be used for instructional improvement. The use of online methods of evaluation to assess teaching effectiveness can be applied in conjunction with the traditional methods of evaluation. The primary objective of assessment should be to learn about student attitudes and practices of online learning (Zapalska et al. 2003).

Assessment in online education should include learning outcomes by using credible and valid measurements. One way of collecting assessment and feedback data is by using Web-based forms. Similar to paper forms, web-based forms have designated field in which the user enters information that is sent back to the course instructor via the Web. In most cases, students fill out the feedback form and press a "Submit" button that automatically forwards student-entered data to faculty as an e-mail message.

Faculty can design and customize questions based on course content and outcomes to be measured. If the design does not go through reliability and validity statistical analysis, it is considered informal assessment. This form may consist of instructions to the student and questions that are indicators of assessing learning outcomes, instructional strategy, and open-ended student comments. By having a feedback loop to evaluate instructional effectiveness in online teaching, higher educational institutions can assure that the practices used achieve the desired outcomes in student learning and behavior.

3. **Role of Faculty**

Since much of the success in online education rests on encouraging an active role of the learners, the responsibility of the faculty shifts from a knowledge provider to more of a facilitator and guide for the students to self-discovery by encouraging application of the concepts learned. The traditional teacher-directed instruction, often called didactic teaching, is replaced by new strategies that are more learner-centered and technological.

Table 3 summarizes the differences between teacher-directed and learner-centered, technological instructional strategies.

Table 3
Teacher-Directed and Learner Centered Instructional Strategies

Teacher Directed	Learner Centered	Technological
Didactic teaching	Student exploration	Online instruction
Short blocks of instruction	Extended blocks of multi-disciplinary instruction	Online application
Passive or one-way modes	Active and interactive modes	Web-based learning
Individual effort	Collaborative/Cooperative	Individual/Collaborative/Cooperative
Teacher as knowledge provider	Teacher as facilitator/guide	Teacher and online resources as facilitator/guide
Ability groups	Heterogeneous groups	Heterogeneous groups
Knowledge/Skill Assessment	Knowledge/Skill and Cognitive Performance Assessment	Knowledge/ Skill and Cognitive Performance Interactive Assessment

According to Table 3, the learner-centered instruction considers students as active, collaborative contributors and the role of the teacher is more of a facilitator rather than a knowledge provider. Knowledge/skill and cognitive performance needs to be augmented by interactive online assessment techniques.

Another difference in the role of faculty is the shift from the person-to-person (P2P) communication to different types of communication with the students. Patel (2002) found that although the face-to-face (F2F) teaching efforts in online settings were almost none (except for

the rare occasion of helping the student on the phone), the online instruction required much effort in areas of communicating via e-mail, interacting with the proctor, updating and administering the Web site, grading student assignments, and preparing exams.

At the same time, the online setting provides flexibility and convenience not provided by traditional classroom courses. Inputs in online education can take various forms including written information posted on a server as lecture notes, web pages, video images, audio segments, or dialogues with other students and the professor through discussion rooms. Similarly, outputs of learning can be diverse including individual papers, assignments, projects, journals, homework problems, portfolios, article reviews, reflective written assignments, and presentations.

4. **Faculty Development**

While the integration of Internet-based technologies in the curriculum may indeed introduce new and highly effective teaching paradigms, high-quality teaching is not always assured. According to Bennett (2001), administrative decisions made without due consideration of pedagogy or with policies or technology that hampers quality, may cause much wasted time, money and effort of both faculty and students. Another factor contributing to the slow rate of technology adoption is a lack of institutional support given to those faculty wanting to use instructional technologies. Until faculty are comfortable using and accessing information with technological literacy, there will be no significant change in instructional practices in the classroom.

Institutional support for faculty development is necessary to achieve excellence in online education. At the present, many institutions provide technical support and software training for faculty. However, faculty development needs to include training faculty in how to effectively use technology in distance learning environments. Faculty development must include teaching faculty about learning theories and how to recognize learning styles of individual students in order to maximize learning experiences in the virtual classroom. This type of training is considered essential in assisting faculty making the transition from conducting a teacher-centered classroom to a learner-centered one.

The paradigm shift from "teaching" to "learning," is considered necessary for the effective use of technology in online education. Table 4 presents a model of higher-level cognitive mastery. Whereas the lower-level mastery includes knowledge and comprehension, in the higher-level mastery, students apply the concepts learned by using material in new and concrete situations. Faculty development, therefore, should focus on assisting faculty to structure web-based instruction to include analysis, synthesis and evaluation of the concepts covered in the class. To achieve a high-level mastery, the web-based instruction needs to include analysis, application, and integrative projects that demonstrate student learning and achievement of the desired competencies.

Table 4

Model of Higher Level Cognitive Mastery	

Lower Level Mastery

Knowledge: Remember previously learned material

Comprehension: Grasp the meaning of the material.
                            Learning outcomes include interpretation of material

 Higher Level Mastery   Students Apply Concepts Learned

Application: Use material in new, concrete situations

Analysis: Break down material into its components to understand its
                       organizational structure. Mastery requires understanding both
                       content and structure

Synthesis: Put parts together to form a new whole. Mastery involves the
                        production of written and oral reports by the student

Evaluation: Ability to judge the value of the material for a given purpose by
                         using definite criteria

Furthermore, educators in web-based distance education are encouraged to search for technology-assisted solutions that are interactive and evoke student motivation. Saloman (1993) and Schrage (1990) note that compared to didactic instructional environments, interactive and cooperative learning communities provide a richer environment in which students and faculty can share ideas and engage in learning.

Several studies found a strong relationship between the level of satisfaction among faculty and the institutional incentives provided for online teaching (Saloman, 1993 and Schrage, 1990). Consequently, institutions seeking to raise the level of satisfaction among faculty integrating technology into instruction should consider offering faculty incentives such as release time and/or additional compensation. These incentives may further encourage faculty to consider utilizing online technologies in instruction.

5. **Students and Motivation**

The demographics of students in higher education have been changing to include more "older" and "working adults." They are the new students, the majority of whom attend college part-time or in the evening, are employed full-time or commute to campus. These students bring expertise of their own into the classroom. Many of them want to react and interact with the teacher and their peers. They understand that the business world will change; and therefore, what they need

to learn are fundamental principles and how to access information from any location at any time. Adult students seek an environment where they can make contribution.

The other group of students consists of the 18 year olds who are competent in technology, are used to living on the Internet and are comfortable with learning by self-discovery. Young people are not afraid of technology rather they embrace it. Their concept of technology is that it is good and necessary for advancement. These young people learn mostly by the "discovery method" which is different from the traditional method of learning. The "discovery method" is more immediate, more task- or outcome-driven, seeks relevance, and involves trial and experimentation.

Other differences in the learning styles of today's students include more visual and auditory learning, more interconnectedness, collaboration, peer-to-peer (P2P) file sharing, learner-to-learner (L2L) activities when learners learn from each other (Draves 2002).

Online learning is different from traditional learning. It is self-initiated, therefore, it requires more active participation by the student than in the traditional classroom environment. Learning online is more result-oriented rather than attendance or activity-oriented. Furthermore, learning online requires self-discipline whereas traditional classroom instruction is mostly guided by external discipline.

Although young people are familiar with technology, online students might feel a variety of emotions while they try to study and understand the material in the virtual classroom and their own environment. Some of these feeling might be loneliness, confusion, distracted, unsatisfied, or out of sorts. One way to handle these emotions is being able to interconnect to classmates and the instructor. This is when faculty can assist by clearing up confusion, encouraging, guiding understanding, building confidence, setting rules and expectations, and challenging students to think critically and analytically.

Furthermore, integrity in online education requires clear guidelines for handling student dishonesty. Institutions can use different methods of assuring student identity in examinations and project/assignment completion. Tests can be given online with limited time period, protected by passwords. Exams can be proctored at a center location or using certified proctors at the students' site. In addition, special software can be used to identify plagiarism or cheating. One suggestions for faculty is to set clear guidelines for acceptable and unacceptable behavior in order to minimize the possibility of student dishonesty.

Distance educators need to pay close attention to feedback from students. Students are probably the best source of clues to enhancing online instruction. Faculty can analyze the students behavior in online settings: look at when they log on, how often they log on, what pages they view most often, the nature of their comments, participation rates in online activities, discussion forums and online chat rooms. Student evaluation of the course is another important feedback which can be either submitted online or with a mail-in survey form. Quality in online education can be assured only by constant evaluation of feedback measures that are valid, credible, and are analyzed constructively aiming to improve the online learning environment.

MODEL OF BEST PRACTICES

The opportunity for the growth of web-based distance education is virtually limitless. Internet-based education transcends typical time and space barriers, giving students the ability to access learning opportunities day and night from every corner of the globe. Coursework can now provide material in highly interactive audio, video, and textual formats at a pace set by the student.

These attributes are exciting, but drastically different from the traditional classroom-based education. How can a teaching and learning process that deviates from what has been practiced for hundreds of years maintain quality? Who will be the innovators to present the material to students in new and engaging ways? How will quality be maintained in online education? What measures will be used to assure quality?

Based on a study of six U.S. institutions actively engaged in web-based distance education, the Institute for Higher Education Policy recently published seven benchmarks to guide online institutional practices:

1. **Institutional Support.** Institutions need to have a documented technology plan and operations to ensure both quality standards and the integrity and validity of information. The technology delivery system has to be reliable and there has to be a centralized system that provides support for building and maintaining the infrastructure of online education.

2. **Course Development.** Instructional guidelines should be used as minimum standards for course development, design, and delivery, while learning outcome should determine the technology being used to deliver course content. Instructional materials must be reviewed periodically to ensure they meet program standards. Courses need to be designed to require students to engage themselves in analysis, synthesis, and evaluation.

3. **Teaching/Learning.** Student interaction with faculty and other students is essential and must be facilitated through a variety of ways. Feedback to student assignments and questions must be constructive and provided in a timely manner.

4. **Course Structure.** Before starting an online program, students have to be advised about (1) the program to determine if they possess the self-motivation and commitment to learn at a distance and (2) if they have access to the minimal technology required by the course design. Students need to be provided with supplemental course information that outlines course objectives, concepts, ideas, and learning outcomes. Students have to have access to sufficient library resources that may include "virtual library."

5. **Student Support.** Students need to be provided with hands-on training and information to aid them in securing material through electronic forms. Students should have access to technical assistance and student service personnel. Students also should receive accurate information about programs requirements, books, supplies, tuition, fees, and proctoring requirements.

6. **Faculty Support.** Faculty members need to be assisted in the transition from classroom teaching to online instruction. Faculty development should include training and assistance in online course development, written resources, peer mentoring, and technical support.

7. **Evaluation and Assessment.** Data on enrollment, costs, and successful innovative uses of technology need to be used to evaluate program effectiveness. Intended learning outcomes must be reviewed regularly to ensure clarity, utility, and appropriateness. The teaching/learning process needs to be assessed through several methods by applying specific standards.

CONCLUSION

The integration of technology in the instructional programs has become an important part of today's teaching and learning environments. The advancement of technology in education has altered faculty and student roles. Technology allows educators to create learning environments that are flexible, dynamic, and capable of responding to a wide variety of individual needs and learning styles through the use of advanced media techniques.

Distance education uses technology-based delivery systems that create virtual classrooms through electronic communication, remote access, and virtual faculty-student relationships. Differences in instructional methods of online and traditional teaching include differences in inputs and outputs, as well as separation in time between communications.

There is a new paradigm of teaching that requires educators to consider new meanings and methods of learning and teaching models that are suitable for a society of the Information age. The advancement of technology in education has altered faculty and student roles. Technology allows educators to create learning environments that are flexible and capable of responding to a wide variety of individual needs and learning styles.

A large segment of today's students are "older" or "working adults." These students often bring expertise of their own into the classroom, many of them want to react and interact with the teacher and their peers. Online and web technologies can be used to foster various types of interaction and these methods may support the development of constructivist learning.

The Model of Best Practices in web-based distance education incorporates seven benchmarks recommended by the Institute for Higher Education Policy (2002). Institutions are advised to apply these benchmarks if they wish to achieve quality in online education. A review of the benchmarks indicates that a critical component of assuring best practices in distance education centers on institutional commitment that seems to be the glue to ultimately assure and maintain the needed support for faculty, students, infrastructure, and standards of quality in the design and delivery of technology based distance education.

Future research can apply the model to examine its effectiveness. It is recommended that studies be conducted on the individual elements of the model and its dynamics as it suggests a comprehensive roadmap for developing institutional support, course development, teaching/learning, course structure, student and faculty support, and evaluation and assessment criteria in online education.

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