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NEW HORIZONS IN ADULT EDUCATION
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EDITOR'S PREFACE

Distance education has been used to add options for learners of all ages for many years, persons who because of circumstances or choice participate in some form of a distance learning program. However, with the dramatic increase in distance education programs, especially those using a range of technologies, new questions and issues have arisen for adult educators to consider. The two articles in this issue address some of these concerns and questions.

Women in Distance Education: Overcoming Barriers to Learning by W. Dean Care and Sonia A. Udod provides a very good review of relevant research regarding women and distance learning. From their framework in nursing education, they discuss a range of concepts based on the experiences of women in various distance education programs and extend these ideas for consideration by all adult and higher educators. Useful curricular, structural, and teaching strategies for overcoming the learning barriers that women have found in distance education are described.

Internet Courses, Mature Learners: Two Undervalued Market Segments by Elizabeth Towell and Lynn Neeley raises a number of questions regarding web instruction and adult learners, as it is currently being delivered. The authors challenge adult and higher educators to consider some ideas based on experiences from a business perspective related to innovation and “disruptive technologies.” They provide some thoughtful suggestions that may offer a unique perspective for the development and delivery of distance education programs. Adult and higher educators are encouraged to use a different paradigm to consider the needs and particular aspects of different online “markets” for distance learning offerings.

Readers are invited to make these articles “interactive” by responding on AEDNET and sharing their comments. (Directions to guide this discussion are given in this issue on page 20). Readers also are encouraged to submit an article for consideration by the editorial board of New Horizons on a related topic or other topic relevant to adult education philosophy, research, and practice. (See Call for Manuscripts on page 20 for details.)

NEW HORIZONS IN ADULT EDUCATION
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WOMEN IN DISTANCE EDUCATION: OVERCOMING BARRIERS TO LEARNING

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Paper presented at the Technology/Pedagogy/Politics: Critical Visions of New Technologies in Education Conference, Mount Royal College, Calgary, Alberta, Canada, May, 1999

Introduction

A radical shift is occurring in higher education. Never in the history of colleges and universities have we seen such a profound and rapid escalation in the use of advanced technology for teaching purposes. Innovations like web-based instruction and two-way video conferencing have had a profound impact upon teaching practices, student accessibility, academic policies, and, most importantly, the context in which learning is taking place. On-line courses, for example, have revolutionized how students work, think, and access information. In short, advanced technologies are changing the face of teaching and learning. Nowhere is this being felt more than in programs designed for distance delivery.

Those of us who teach or hold administrative positions in female-dominated professions like nursing are concerned about this rapid paradigm shift. Even though 20-25% of undergraduate nursing students are now men, 94% of registered nurses in Canada are women. This is significant as the main pressure to improve access to baccalaureate nursing education is coming from the registered nurse (RN) cohort. Nurses are feeling pressured to pursue advanced study at the university level. Without a bachelor's degree, their career mobility and job options are severely jeopardized. Distance delivery is seen by these nurses as one way to provide this access. Compounding this situation is the fact that the average age of RNs in Manitoba (and across most of Canada) is 46 years. Most have not been exposed to instruction using advanced technology.

Another important factor facing nurse educators and other adult and higher educators programs is the general lack of attention to the needs of women distance learners. North American society has operated under a patriarchal ideology that devalues traits forming the essence of women and therefore the nursing profession (Krieger, 1991). How we can overcome or deal with this situation is the subject of this paper.

This paper will address the literature related to women as learners, gender issues in the use of teaching technologies, women's experiences as distance learners, and barriers to learning. Finally, strategies to overcome these barriers will be described.

Literature Review

Women As Learners

Like society in general, higher education has been structured and has operated under male dominance and control (Chapman, 1995, p.210). This male-dominated paradigm “ultimately reduces student potential for empowerment and self-direction” (May, 1993, p.45). However, this is slowly changing as more women begin to assume top leadership positions in colleges and universities.

Recently, more attention has been directed to women’s ways of knowing and preferred ways of learning. It is acknowledged by educators and feminists alike that institutes of higher learning must find new and better ways to serve the educational interests and needs of women learners (May, 1994). This is significant, as nursing recently moved to four-year baccalaureate education. This discipline is now being exposed to the dominant patriarchal model of these institutions. In order to be recognized as credible in this academic environment, nursing, by-and-large, has embraced these patriarchal practices. The problem is that “education is not just about cognitive processes - it is about feelings, empowerment, and experiences that create meaning. These aspects of education are generally neglected in the patriarchal model”(Chapman, 1995, p. 210).

In relation to the way women learn, women have a “primary concern with interpersonal relationships, which serve as a key source of their self-identity and personal development” (Hayes & Smith, 1994, p.212). Women are characterized as more able to learn from one another, or in a collaborative mode, than alone or in a competitive mode. In contrast, men are assumed to place more value on autonomy and individual achievement as their source of identity and growth, and thus are more likely to succeed in competitive or autonomous learning situations”(p.212).

Feminist educators view collaboration as a fundamental principle and as an important teaching strategy. It is believed that collaborative learning practices promote contact, dialogue, and interaction. In a feminist context, collaborative learning involves sharing power, responsibility and experience, and a valuing of active participation and egalitarian principles (Schniedewind, 1987; Shrewsbury, 1987).

Gender And Technology

We need to also consider gender issues when planning the use of technology in learning situations. Feminist concerns about distance education began to surface in the 1980s. It was suggested that egalitarian approaches were needed as well as “the reality that many female students, including those who are employed, have primary or sole responsibility as parents, a factor which has an enormous effect on study patterns” (Faith, 1988, p.76). One of the biggest barriers to effective distance education for women is that courses are often designed without due consideration of women’s needs, interests, or learning styles (Pym, 1992, p.387).

Recently, researchers have shown evidence of a technological-gender gap with high school students:

1. Boys and girls tend to rate computers as more masculine than feminine.
2. Female students are not receiving as much computer experience as male students.
3. Higher percentage of boys than girls from K - 12 use home computers (PCs).
4. Males are more likely to have taken programming courses; while female students were more likely to have had introductory or word processing courses.
5. Compared to male college students, female students tend to perceive themselves as less equipped to deal with computer technology (Canada & Brusca, 1991).

On a more positive note, some researchers believe that computer-mediated instruction encourages equal participation of students by reducing the influence of dominant individuals (males). As well, “status differences are reduced when there are no social identifiers like race, gender, age, career prestige, or nonverbal behaviours that signal rank” (Canada & Brusca, 1991, p.19).

Bryson and de Castell (1995) have described four discourses concerning gender and technology. One of these, the constructivist discourse, “stresses the incompatibility between women’s ways of knowing and typical practices of technology” (p.266). “Women’s ‘ways’ tend to suggest that women, by nature or socialization, have preferences for cooperative, caring, connected approaches to learning and working “ (p.266). Furthermore, science and technology can devalue human existence in the pursuit of economic advance and tend to neglect such “traditional” women’s occupations as social work and nursing. This constructivist approach, suggests women should learn separately from men due to differences in learning styles.

In relation to learning through technology, Johnson and Johnson (1985) categorized student-to-student interactions into three patterns: cooperation, competition, and individual work. “In cooperative work, each student takes an interest in the learning of the others as they work toward a mutual goal. In competition, each student tries to do better than the other students. In individual work, the student works to complete a goal without attending to the efforts of others” (Rysavy & Sales, 1991, p.70).

It has been found that cooperative learning in computer-based instruction (CBI) has produced positive outcomes:

1. Students work faster and are better able to apply factual information.
2. Students tend to use each other as resources and to motivate each other.
3. Students tend to learn from each other and imitate each others’ behaviors.
4. Students are also more altruistic towards teammates (Cosden & English, 1987; Johnson & Johnson, 1985).

Finally, it is believed that “female learners have specific personal histories and expectations that are shaped, to varying degrees, by their experiences as girls and women in a society characterized by male power and privilege” (Burge & Lenskyj, 1990, p.24). As a result, many educators, feminists in particular, warn against high-technology-driven decisions that do not place the learner’s needs first.

Women As Distance Learners

There has been little attention directed towards gender issues in distance education (Faith, 1988). It is important to examine the female gender as it relates to women as distance learners. A number of investigations have examined women's experiences with distance education.

May's study (1993) of female students looked at taking a women's studies course by home study or teleconference at Athabasca University in 1991. A feminist theory was used as a framework that included the principles of accessibility, collaboration, feminist processes, and personal empowerment. The results indicate that female students have minimum contact with other students and tutors, and that involvement of family and friends were limited. Some of the students believed solitary study is not detrimental to the learning process and others endorsed it, believing that dialogue can help them understand course material. Further, "group interaction was considered an impediment to the extent that it was thought to be superfluous, to slow down the individual study progress, and to inhibit personal expression"(May, 1993, p.42). The results of this qualitative research revealed the following:

1. Women felt studying and family responsibilities often resulted in "double duty", thus making distance education convenient and flexible. These women believe, as do many distance educators, that distance decreases barriers related to time, distance, and social factors.
2. These women believed that delivery modes are not amenable to being modified and resigned themselves to solitary study. This finding contradicts the literature that states distance technology provides flexibility in distance learning.

Another investigation took place in 1998 in the Faculty of Nursing at The University of Manitoba. Nineteen students, all of whom were women, completed evaluations of two on-line courses they had taken as part of their master's program. All were first-time students in a computer-mediated course (CMC). The main advantage cited by these students was the flexibility that on-line courses offer. Students shared these thoughts about their experience: "CMC provided flexibility and the opportunity to participate while working and juggling home responsibilities"; "the course design fit my busy lifestyle"; and, "(I) could enjoy the course in the comfort of my own home". Many students shared their concerns about the on-line technology being a barrier to successful learning. One student said: "I became very frustrated because I didn't know how to fix the problem".

The majority of students enjoyed having the opportunity to reflect on their thoughts prior to responding on-line. They wanted more on-line discussions. Many felt alone in "cyber space" and wanted more sharing of ideas. Most missed the interaction that occurs in a classroom setting and especially the lack of a relationship with an instructor. Many had difficulty with not seeing facial expressions or hearing the tone of voice of the professor or fellow students. Even with these shortcomings, students were generally very positive about this learning experience.

Several studies reveal the presence of significant barriers to learning for women in distance education. Acker and Oatley (1993) suggest that teachers' attitudes and practices contribute to gender inequity. They found evidence "that teachers' ideologies set limits on what changes teachers will likely accept"(p.261). As a result, teachers attitudes can get in the way of a successful program design and implementation.

A study by Ross and colleagues (1995), suggest that CMC does not promote equity of access, as much as replace existing inequities with another, such as student variations in computer literacy. This is significant for nursing faculty, considering, as previously mentioned, the average age of registered nurses in Manitoba is 46 years. The majority of these learners did not have the benefit of computer training in high school or in their nursing programs. However, the technical barriers registered nurses face are not uncommon to college students. These concerns are supported by the findings in the study by Ross et al.(1995) :

1. "About 20% of the students reported having no difficulty in connecting to the university computer. The remaining 80% did"(p.21).
2. "Only a quarter of the students reported no difficulties in using conferencing software. For most of the remaining students the problems were serious and persistent"(p.22).
3. "We can hypothesize that students encountering technical difficulties will participate less, have less influence on their peers, and may feel rushed in their communications"(p.30).

If we believe women learn differently from men, then there are implications for offering nursing education and other programs by distance. Traditionally, higher education has been slow to adapt to pedagogical changes. According to Fullan and Stiegelbauer (1991), "accomplishing change requires alterations in materials, teaching approaches and beliefs"(p.37). The environment has often facilitated or even impeded how educators have come to develop teaching and learning strategies. Developing effective strategies to overcome barriers to learning often requires a shift in our core values and beliefs about teaching. May (1994) recommends a feminist approach to curriculum design that may provide us with such a shift in our thinking. There are many arguments for a feminist science that would be communal and non-hierarchical in nature. An approach incorporating the teaching tools of the feminist process would include the following: (a) valuing the community in which all members have equal participation and are respected, (b) cooperation, (c) democratic decision-making and shared leadership, (d) the sharing of personal experiences and enhancing sensitivity to others feelings, and (e) the use of personal reflection. Strategies for overcoming these learning barriers can be divided into 3 main areas: curricular strategies, structural strategies, and teaching strategies.

Curricular Strategies

1. **Feminist Framework**: The feminist framework values the learner as being a possessor of knowledge and nurture. Feminists believe that "perceiving the whole leads to a fuller and richer understanding of what we know, and how we come to know it" (Chinn,1989, p.11). This feminist approach acknowledges and incorporates the

- personal experience of the student, which is in direct contrast to the male focus on objectivity.
2. Communication Technologies: Course software and program design features should enhance cooperative and collaborative learning, democratic processes and shared leadership. The use of a variety of communication technologies (such as CD-ROM, chat groups, and email), are more likely to capture the learning styles of a diverse student population, as well as meeting the need for interpersonal relationships and community. Learning activities must be structured in a way that students can contribute to each other's learning. And at the same time be concerned for the performance of all group members.

Structural Strategies

1. Formal Computer Training: As female students gain computer skills, the technology - gender gap that currently exists between men and women will begin to narrow. Computer training and ongoing technical support should be part of a program of study. Without technical assistance the demands of the technology supercede the importance of the content.
2. Community of Learners: We also recommend giving some thought to developing a "community of learners" in cyberspace that would parallel the "community" that exists in the traditional classroom setting. This community of learners can be achieved by such approaches as the instructor contacting the student by telephone to personalize the professor-student relationship.

Teaching Strategies

1. Collaborative Approaches: Keeping in mind that interaction is an essential part of women's learning (Coulter,1989) an initial approach would be to encourage student interaction through collaborative group projects and information exchange. Rysavy and Sales (1991) believe learning activities must be structured in a way to ensure students work together and contribute to each other's learning. Examples of this approach include joint student essays and presentations; research projects instead of exams; small group work where 5-6 on-line students would be assigned to instructor-mediated chat discussions. These groups create opportunities for networking and group problem solving. This hopefully would create a non-threatening environment where students feel comfortable disclosing and discussing their thoughts. Experiential learning in the form of journaling allows the student to integrate content by reflecting upon personal experience. Students can become self-directed learners as a result of having a better understanding of what they have come to know through personal reflection.
2. Empowerment: Empowerment is a key aspect of feminist education. Students can be empowered by participating in the selection of course topics, assignments, and evaluation methods for meeting course objectives. One could also conclude that as educators if we empower the learner, or in our case, empower the nurse, he/she learns how to empower patients in attaining and maintaining health.

3. Network of Educators. A final consideration could be developing a network of educators interested in the teaching/learning styles of women in distance education. This would provide an opportunity for educators to share successful teaching methodologies and strategies that would not be useful to repeat in future on-line distance courses.

While these strategies can be helpful in dealing with the many challenges facing women pursuing distance education, a number of questions remain unanswered and require further investigation:

1. How much social interaction is required in computer-based instruction to maximize student learning?
2. Might comprehensive computer-based instruction help eliminate the inequities in gender achievements?
3. If we use a feminist framework for the discipline of nursing, do we exclude or bias the needs of the male student?
4. Should male educators in nursing study feminism in order to understand the teaching/learning needs of the primarily female student population?
5. Finally, are we in danger of creating an elite system of distance education with the introduction of advanced technology?

In conclusion, this paper has offered some thoughts and insights into overcoming barriers to learning for women in distance education. A feminist framework offers a learner-centered approach in attempting to serve the needs and learning styles of the female distance learner. Since interaction is an essential part of women's learning, a feminist framework offers a collaborative and connected approach to learning in a socially supportive environment.

Nursing and a feminist framework parallel one another. Both address the issue of knowledge and nurturing; both lead to a fuller and richer understanding of the individual, and both value cooperative environments. Feminist strategies embody the principles of caring and nurturing found in the nursing profession. The challenge we face as educators is how we can effectively combine feminist pedagogy and advanced technology. Our future achievements in the distance education arena will be measured by how successful we are in meeting this challenge.

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**INTERNET COURSES, MATURE LEARNERS:
TWO UNDERVALUED MARKET SEGMENTS**

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**This paper was presented at the Americas Conference on Information Systems,
August 13-15, 1999, in Milwaukee, WI**

ABSTRACT

Use of the World Wide Web (WWW) for instruction has grown dramatically in the last two years. Almost every major university in the US has some distance education offering. Increasing competition and shrinking resources within public institutions have accelerated the growth of this technological innovation. Recent press on the subject suggests, however, that “education at a distance” is meeting tremendous resistance in some corners.

Introduction

While academia grapples with delivery mechanisms for the product that they market, the market itself is changing. There seems to be an equally dramatic change occurring in the demographics of the learner population. Adults returning to education settings represent a rapidly growing educational market segment (see Figure 1). Almost half of all postsecondary students are now working adults over 24 years of age (Stamps, 1998; Wolcott, 1997). Universities and their faculties have given this historically small segment little commitment in the past. For the most part, they continue to do little to accommodate the problems of a maturing post-secondary student population: managers with difficult travel schedules, disabled adults with physical challenges, parents with child care responsibilities, and adult children who have elder care demands.

Distance education can be compared to other innovations that have disrupted established organizations. Problems experienced by other organizations facing rapidly changing technologies and markets bear striking similarities to the problems faced by universities in dealing with Web-based instruction and the changing demographics in the student population. Solutions likewise can be found by looking at the history of various disruptive innovations and the strategies common to the survivors.

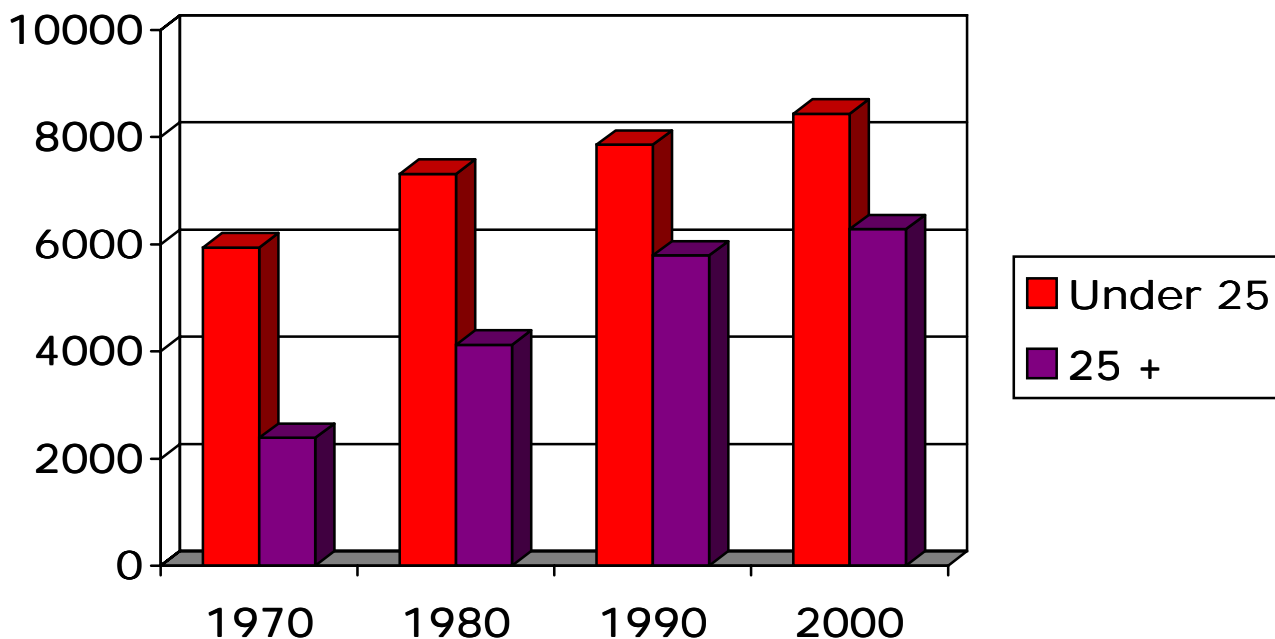


FIGURE 1 Higher Education Enrollment in Thousands
(US Department of Education, National Center for Educational Statistics, 1998)

In this paper, we portray distance education delivered via the WWW as a disruptive innovation and the mature learner as a disruptive consumer that can be combined into successful avenues for academic institutions. A framework provided by Clayton Christensen (1997), based on the “innovators’ dilemma” in several commercial organizations, provides a viewpoint for the authors’ analysis. He proposes four recognizable environmental conditions for “disruptive technologies” that can be seen to apply to the advent of online education:

1. The potential market size and financial return for the disruptive technology is not known.
2. Small niche markets are not expected to solve the problems of large institutions who face increasing competition and shrinking resources.
3. The customers of and investors in the institutions will dictate the eventual use of the resources.
4. Over time, the basis for customer choice will evolve to changing preferences in terms of functionality, reliability, convenience, and price.

The Innovator’s Dilemma

Like most institutions, universities serve a market and like to keep track of their market performance. While sometimes resisting the use of the term “customer,” educators are in the business of providing a product and they strive to be better than their competitors at supplying that product. Likewise, in most institutions, at some point, a new approach is introduced to providing a product. If the institution is a bookseller, the

new approach may be the introduction of Web-based shopping. The response of the bookseller may be that this is not the business that they are in. Use of the Web is gimmicky and lies at the bottom of the market in terms of quality and margins. If the institution is a large state-funded university, the new approach may be Web-based teaching. The university decision-makers may also respond that this is not the business that they are in: “Education belongs in the classroom.”

Clayton Christensen (1997) provides several examples of institutions facing such new approaches and technologies. One powerful example involves the story of steel minimills. Minimills produce cost-competitive molten steel from scrap steel. They are called minimills because the scale necessary to process scrap steel is significantly less than what is needed for an integrated mill to produce molten steel from iron ore. The first products produced in minimills in the 1960’s were of marginal quality. The only market for the minimill producers was for steel reinforcing bars (“rebars”), which was at the bottom of the market in terms of quality, cost, and margins. The big steel makers were not interested in the rebar market because, not only were the margins low, the price-driven customers were the least loyal. Time-tested managerial practices suggested continued aggressive investment in the premium end of the market, paying close attention to the mainstream customers.

Minimills, however, had much different cost structures than the integrated mills (Christensen, 1997). They had less equipment and therefore less depreciation expense. The minimills could usually sell all of their rebar simply by making a few phone calls so marketing costs were minimal. Finally, they had no research and development costs. Over a thirty year period, they were able to improve the quality of their steel and infiltrate markets other than rebar. The minimill market share increased from essentially zero in 1965 to 40% in 1995 and probably accounts for half of all steel production by 2000. Not one of the world’s integrated steel companies has built a mill employing minimill technology, still certain that this is not the business that they are in.

The difficulty, of course, is how to improve the performance of established products and still recognize important disruptive technologies and markets. Disruptive technologies often result in worse product performance, at least in the near term. There are many examples of industries facing disruptive technologies like the integrated steel mills. The personal computer disrupted the larger computer manufacturers; transistors disrupted in the vacuum tube market, HMO’s disrupted conventional health insurers, small off-road motorcycles disrupted the powerful over-the-road cycle manufacturers; and discount retailing disrupted the department stores.

Why do leading organizations frequently stumble when confronting disruptive technologies? Christensen (1997) develops three themes:

1. Over time, development strategies generally have a “northeastern pull.”
2. Most large organizations do not want to look downward at small, emerging markets.
3. To address disruptive innovation, a different value network must be developed that changes strategies and cost structures.

Over time, development strategies generally have a “northeastern pull.”

Resource allocation processes direct resources towards new product proposals that promise higher margins or larger markets (Christensen, 1997). Organizations tend to ignore technologies that do not improve what is perceived as the most important attributes of product performance in light of customers’ needs. Products’ attributes and the customers’ needs, however, are derived from a frame of reference involving past choices. Established organizations have a practiced capability of giving customers more and better versions of the same thing.

Most large organizations do not want to look downward at small, emerging markets.

While most organizations seem to be very good at delivering more and better versions of the same thing, they seem to have a great deal of trouble with downward vision and mobility (Christensen, 1997). It becomes increasingly difficult for larger, established organizations to enter small, radically different markets even if they are destined to become larger in the future. This is not just a matter of bureaucracy or complacency. Companies build capabilities in their products based on historical choices about which problems should be solved and which should be avoided.

To address disruptive innovation, a different value network must be developed that changes strategies and cost structures.

Christensen (1997) defines a value network as “ - the context in which a firm identifies and responds to customers’ needs, solves problems, procures input, reacts to competitors, and strives for profit” (p. 32). Many disruptive technologies are championed by new firms because of the inability of established organizations to change strategies and cost structures, not technologies.

There is much evidence that even the universities that are embracing online instruction are having trouble changing strategies and cost structures. Research suggests that models of instruction appropriate for the Web are sorely lacking. Universities and faculties are attempting to shoe old models for instruction onto the Web with suboptimal results (Duchastel, 1996-1997). Wolcott (1997) warns that the culture of faculty rewards has not changed to accommodate faculty work in distance education.

What History Teaches Us

Will the classic university survive? Will the learners of tomorrow make different choices in terms of functionality, reliability, convenience, and price? Will half the educational market be lost to entrant cyberschools that better accommodate the new learner types and the necessary strategies for successful Web-based instruction? History teaches us that some established organizations are able to accommodate both sustaining technologies and disruptive technologies. By looking at those organizations that are successful, Christensen (1997) points the way for academic institutions that want to explore distance education, but are struggling with developing the necessary strategies

and cost structures. Success-driven institutions can draw from his study involving hundreds of organizations facing disruptive technologies. His work provides four suggestions:

1. Develop and deliver distance education through projects where learners need it most.
2. Place these projects in organizational subunits that are small enough to get excited about small opportunities and small wins.
3. Plan to fail early and inexpensively searching for the proper market.
4. Value the attributes of the disruptive product rather than looking for a breakthrough that will enable the disruptive product to compete in mainstream markets.

Develop and deliver distance education through projects where learners need it most.

By the year 2001, more than 15 million adults are expected to be in the market for higher education. These students will also fill a wide range of other roles: employees, spouses, parents, citizens, community and church leaders, and adult care providers (Neeley, Niemi, and Ehrhard, 1998). Their needs will define a very different educational market than has been seen in the past, namely that of the 18 to 22 year old, who has parent-financing, and lives in a dorm on campus.

Many researchers suggest that finding the right match between students and programs will be the basis for viability of US institutions in the future (Lucas, 1998; Mowen and Parks, 1997). Most distance education course currently offered, are online counterparts to traditional for-credit offerings. The new market will include demand for many additional offerings such as continuing education courses, refresher and retooling courses, and professional certification programs. Schools should search out distance education niches for the mature learner in which they can grow and survive.

Place these projects in organizational subunits that are small enough to get excited about small opportunities and small wins.

Not only do schools need to find the right courses to offer, they need to empower the right people to select the appropriate technologies and create the right organizational structure to deliver the courses. The impetus for change must come from a group that is small and focused enough to short-circuit the debates over the value of the disruptive technology in light of the value of competencies previously cultivated.

The climate among faculty at large with regard to distance education is skeptical at best. Web-based courses do not seem to address the needs of the current customers, they promise the university little in terms of profit, and do not seem to enhance the career opportunities for talented academicians. The environment in which online instruction is executed should be controlled to the extent that everyone involved views success as crucial to their future and the future of the organization.

Plan to fail early and inexpensively searching for the proper market.

Failure, in the economic sense, is inevitable when looking for initial applications for disruptive technologies. Measurement of success must be very different than success with a sustaining technology. We have a reasonably good idea of what we are looking for as outcomes in the traditional classroom setting. We are able to plan offerings, enrollments, and revenues.

Less is known about what an online market needs or how large the market will be. Early offerings may not be economical. Early adopters will fail to predict precisely how the new technology will be used and the size of the market. Success should be measured in terms of the new knowledge gained about new customers and applications.

Value the attributes of the disruptive product rather than looking for a breakthrough that will enable the disruptive product to compete in mainstream markets.

The Web presents novel avenues to facilitate learning including opportunities to build collaborative learning teams and to encourage global communities (Duchastel, 1996-1997). Online instruction can provide “any where, any time education” for mature learners. It should not be seen to compete in the current market for professor-centered university instruction. Subunits, that are commissioned to define projects for the new technology, should value the attributes unique to the Web rather than focusing on the capabilities that are missing.

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