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Tweed W. Ross
Kansas State University

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TABLE OF CONTENTS
Theme Issue: Technology
Guest Editor: Tweed W. Ross

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Foreword

Information technology has presented the educational establishment with a number of perplexing problems. To date most problems have been related to ways of effectively using these new tools to improve instructional delivery. Without a doubt there is still much work to be done in planning for the effective integration of digital technologies in the classroom. Faculty need much skill training and conceptual work in how technology will be used. Yet, as with any innovation making substantial demands for change in the order of things, issues relating to doing the "right thing" versus doing "things right" have started to emerge. As information digital technologies have matured, gained acceptance, and become an integral part of our lives at least seven fields of inquiry have emerged. These form the basis of discussion for some of the questions of this issue of *Educational Considerations*. No one would be so presumptuous to assume that one short piece on each topic would be sufficient to provide a definitive answer to the perplexing questions presented by information technologies. The authors, who have so graciously agreed to write for this edition, have set out to establish a framework that allows others to contribute and eventually provide meaningful responses to these complex issues involved.

If it seems fair to define at least seven grand fields of discussion that address social and ethical implications of information technologies to education, they might be: access, credibility, speech, privacy, commercialism, intellectual property and crime. This issue of *Educational Considerations* begins a discussion on these broad issues and glimpses at the questions and their resolution for the exciting times ahead. No one article in this issue fits neatly into a single portion of this "grand scheme." They should not, as these general fields of inquiry overlap. However, it might make sense to view the general thrust of each article as though it did fit into one of these fields simply to situate them within the overall discussion. For that reason I have chosen to view the authors' contributions to this discussion based upon their expertise in their fields as if their articles were devoted exclusively to the topic even though they do not– indeed, cannot– do so.

- Access: Denise Dalamio: Promise or Peril? Electronic Technologies, Equity and Marginalized Students
- Commercialization: W. Franklin Spikes: Some Questions about Distance Learning and the Role of the University.
- Credibility: Gerald D. Bailey and David Pownell: Information Literacy and the Internet: Transforming the Practice of Teaching and Corresponding Ethical Consequences.
- Access: Ann Knackendoffel: Linking Collaborating Special Education Teachers.
- Intellectual Property: Linda Thurston: Collaboration and Conflict: Multi-Disciplinary Teams and Developing Multimedia for Pre-service and In-service Education
- Intellectual Property: Edward L. Meyen: Online Instruction as a Pedagogy: Implications for Higher Education Policy.
- Privacy: Tweed Ross: Privacy, Information Technology and the Educational Process.
- Credibility: Daniel Harden: The Great Stereopticon Revisited.

I wish to thank several people for their assistance in creating this issue of *Educational Considerations*. First, David Thompson, Chair, Educational Administration and Leadership, Kansas State University deserves the thanks of all for inviting us to participate in this project and his ongoing efforts to ensure this forum for educational discussion continues its illustrious agenda. Second, I wish to thank each of the authors for agreeing to contribute to this issue and opening for consideration these broad questions about the social and ethical implications of educational technology. As with any new innovation, attempting to predict and define future ethical and social implications is only done with considerable courage and trepidation. Our thanks must go out to these authors for embarking on such a perilous academic journey.

- Tweed W. Ross, Guest Editor
Assistant Professor of Foundations and Adult Education and
Director of Technology, College of Education, Kansas State University

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...Researchers... agree that having well-designed multi-media is critical for technology to have an impact on learning.

Collaboration and Conflict: Multi-Disciplinary Teams Developing Multimedia for Preservice and Inservice Education

Linda P. Thurston

Interactive multimedia is becoming a fixed feature in the delivery of instruction at all educational levels. The process of multimedia places the learning potential of technology in the hands of the learner and such features as screen design, interactivity, audio and video elements, and learner control and navigation are educationally effective (Stemler, 1997). The very nature of multimedia, according to Bagui (1998), allows the learner to view things from many different perspectives and thus develops a robust understanding of relationships among concepts. He cites effective aspects of multimedia that include flexibility, rich content, motivational effects, immediate feedback, and interactivity.

Multimedia is increasingly being used to prepare professionals at the preservice and inservice levels. Research reports and program descriptions demonstrate the use of interactive multimedia with engineering students (Suni and Ross, 1997), social work students (Seabury and Maple, 1993; Patterson and Yaffe (1994); Thurston, Vershelden, and Denning, 1996), special education preservice teachers (Fitzgerald and Semrau, 1998) and general education teachers (Campbell and Yong, 1996; Reilly, Hull, and Greenleaf, 1993; Read and Cafolla, 1999; Kenny, Covert, Schilz, Vignola, and Andrews, 1995), human service education (Falk, 1990), and nutrition students (Beerman, Brown, and Evans, 1998). Fletcher (1990) describes using multimedia for training in not-for-profit organizations, and others have described its use in staff development in the private sector.

Multimedia can be defined as the use of several media to present information. Examples of types of media are text, video, graphics, pictures, and audio. Thus defined, multimedia has been used in education for decades. Technological environments are hypermediated, that is, the media are presented in an electronic, nonlinear way that facilitates interaction between the learner and the material. Interactive multimedia usually involves a computer based learning environment which involves many types of media that are linked nonlinearly with text and which provide learner control of the presentation of material. Interactive multimedia usually includes activities in which the learner interacts with the computer to develop portfolios, answer questions, study case examples, and make decisions about the learning path.

Linda Thurston is a Professor of Special Education at Kansas State University.

Although the efficacy and advisability of using multimedia is not unanimously accepted, (e.g. see Owston, 1997; Beerman, Brown, and Evans, 1998; Pepi and Scheurman, 1996 for critical commentary on interactive multimedia in educational settings), there is ample evidence of the educational value of multimedia in preservice and inservice settings (Thurston and Cauble, in press; Bagui, 1998; Stemler, 1997). Time and resources are being spent to develop interactive multimedia for preparing professionals at preservice and inservice levels.

The Process of Developing Multimedia

Multimedia development involves the process of creating a software program or document containing media such as text, audio, video, animation, and graphics which are hyperlinked and presented in a non-linear and interactive mode for the purpose of exploring ideas. Mauldin (1996) compares multimedia development to sometimes being a rainforest (symbiotic and harmonious) and sometimes being a jungle (deep and dark with no easy way out). Strategies or procedures for developing multimedia for preservice and inservice education are not generally agreed upon. Liu, Jones, and Hemstreet (1998) reviewed the literature on instructional design and found no generally agreed upon procedures for multimedia development.

Mauldin (1996) delineates four steps in multimedia development: preparation (all technical aspects of development), instructional design, production, and evaluation. Yang, Moore, and Burton (1995) suggest three stages of development: analysis, development, and evaluation. Liu, Jones, and Hemstreet (1998) suggest these phases: funding, planning (content and budget), designing, producing, testing, and marketing. Thurston, et al. (1996) describe 12 steps used in developing Building Family Foundations and Liu et al. (1995) describe six phases of development.

Most researchers of the effects of multimedia do not describe the process by which their product to be tested is developed; and most developers do not describe the learning outcomes of their product. One exception to this generalization is Building Family Foundations, a multimedia project developed by an interdisciplinary team over the course of five years (Thurston, et al., 1996; Thurston and Cauble, in press; Cauble and Thurston, in press). This project was funded by a state department of human services and produced a series of 10 modules which used computer programs, video discs, and workbooks, to promote learning about child welfare issues in preservice and inservice social workers and educators.

The process of development for Building Family Foundations involved social work and special education professors, graphic artists, computer programmers, and instructional designers who had little or no experience with multimedia instructional design (Thurston, Vershelden, and Denning, 1996). The process was "sometimes a rainforest, sometimes a jungle", but the project directors agreed that it was mostly a jungle. Collaboration and conflict were seen in equal measure and the experiences from the project are the basis for the suggestions for multimedia development that make up this paper.

Collaboration as a Critical Development Component

Collaboration has been defined as "A style of direct interaction between at least two co-equal parties voluntarily engaged in shared decision-making as they work toward a common goal" (Friend and Cook, 1992). Dettmer, Thurston, and Dyck (1995) suggest communication, cooperation, and coordination as integral parts of collaboration and suggest that collaborators hold joint responsibility

for problem solving and program planning, implementation, and evaluation. Dettmer, Dyck, and Thurston (1999) suggest four key elements in collaboration: preparation, framework, evaluation, and role delineation. Collaboration may be defined as "an interactive process that enables people with diverse expertise to generate creative solutions to mutually defined problems" (Paolucci-Whitcomb, and Nevin (1986). In successful collaborative efforts, the outcome is enhanced, altered, and produces solutions that are different and better that the individual team members would produce independently. Although collaboration is assumed in the development of multimedia, the issue has not been addressed specifically in the literature. Publications on multimedia development rarely include the challenges of collaboration among members of the development team. When collaboration or cooperation is mentioned, the term usually concerns the outcomes expected from utilizing multimedia, such as teamwork skills of students and the use of cooperative groups (Ivers and Barron, 1998). Very few descriptions of the development process mention collaboration or conflict.

Thomas, Correa, and Morsink (1995) have identified several factors, parameters, or dimensions that are necessary for successful collaboration. These factors, suggested by a review of collaboration, total quality management, leadership, and teaming models, are listed in Table 1. Many of these were important issues to the development of Building Family Foundations and several are suggested as important issues by multimedia development research. For example, Liu et al. (1998) suggest that a "favorable working relationship" serve as the goal of the development team and that team discussion was an important part of the planning and designing phases of development in their six phase development sequence. Thurston, et al. (1996) suggest multimedia development teams consider and set aside time to develop a common language and to process issues that arise from differences in perspectives.

Table 1.
Some Dimensions of an Interactive Team

Some Dimensions of an Interactive Team
1. Clarity of purpose.
2. Complementary dissimilarity between the team members.
3. Overlapping self-interests.
4. Sufficient time to build bridges of communication and trust.
5. Clarification and coordination of roles and responsibilities within the partnership.
6. Shared ownership.
7. Emphasis on action rather than structure building.
8. Adequate resources.
9. An understanding of each institution's culture.
Adapted from Thomas, Correa, & Morsink (1995)

Multimedia development teams consist of professionals with a variety of backgrounds, disciplines, and skills. This diversity is an asset in developing quality programs, yet it also inherently leads to conflict and diversity can present barriers to collaborative efforts. Teams members in multimedia development include technical specialists such as programmers, media specialists such as instructional designers, and content specialists (subject matter experts or SME's). Teams may also include experts in educational curriculum development and evaluation, administrators or managers from funders or institutions that are the development site, and learners for which the resultant multimedia program is being designed.

Members of the Building Family Foundations (BFF) team included one education professor, two social work professors, several multimedia instructional designers, a programmer, a graphic artist, and professional support staff (Thurston, et al. 1996). The project managers were the professors who also served as SME's for the ten modules of Building Family Foundations. Team members were committed to the collaborative efforts necessary for the team to be productive and effective, however, the three project directors (the three professors) underestimated the time necessary to build and maintain a collaborative working environment. Specific issues included role definition, to meet or not to meet, dealing with deadlines, diversity of skills and perspectives, and multi-lingualism. Each of these five issues of collaboration (see Table 2) will be addressed. For each issue conflicts and problems from the development of Building Family Foundations will be described, and suggestions for managing potential problems and promoting collaboration will be discussed.

Table 2.
Five Factors of Multimedia Development Collaboration

Five Factors of Multimedia Development Collaboration
1. Role Definition
2. To Meet or Not To Meet
3. Dealing With Deadlines
4. Diversity of Skills and Perspectives
5. Multi-lingualism

Five Factors for Collaborative Multimedia Development Teams

1. Role Definition.

Roles for team members should be carefully defined, yet flexibility should be allowed. Each member of a multimedia development team comes to the group with her or his own field of expertise. However, because of the nature of interactive multimedia, team members' ideas about aspects of development other than their own must be taken into account. For example, a multimedia designer may have a theme with suggested colors, graphics, and text. But the SME may think the text does not describe the content with appropriate depth, the artist may disagree with the look of the screen, and the programmer may suggest that the way linking was designed would be confusing to the learner. And all these perspectives could be accurate. Therefore, care must be taken to emphasize the teaming nature of a role and to

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define professional roles within the team as overlapping in terms of input and decision-making.

In the development of BFF, developing the overlapping role perspective took important and valuable time away from the technical aspects of the development process and caused delays in the timetable for the entire project. Realizing this overlapping nature of roles would have helped the project directors provide better leadership for the project and would have produced less conflict as the team learned the value of this perspective of roles.

A crucial role in any team is the team leader. In the field of multimedia development, McDaniel and Liu (1996) suggest the project manager should keep the team on time and on budget, have the big picture of the project, keep people motivated, and facilitate communication. These are important goals within a team and for a development project, however the leadership role in BFF presented some problems for the project. There were three project directors and all were dedicated to the outcomes of the project and to the members of the team. Because all three directors had other responsibilities as faculty members, and because consensual management was the leadership style of the directors, management and leadership became a problem of role definition and clarification for the directors themselves and for the other members of the development team. It became very cumbersome to have all three directors make decisions cooperatively in terms of time to meet and have discussions. Getting three signatures on purchase orders and discussions about flexible hours for a designer tended to get the same attention as writing progress reports to funders and making decisions about thousands of dollars for equipment. In addition, staff would ask questions of whatever director they could locate, and miscommunication and confusion became problems for the staff as well as the project directors.

After more than a year of trying to lead-via-triumverate, the directors decided to split the responsiblilties and assign one director as the managing director. The managing director worked with the budget and day to day team issues while the other directors worked with the funding agency and wrote progress reports and took on more responsibilities as SME's. The directors met only periodically for major decisions and updates and were therefore allowed more time and energy to work on the development of the BFF modules. They learned that collaboration did not mean every team member should have a voice in every decision and that role partition and definition add rather than detracts from developing a collaborative working environment.

Flexibility and clarity of leadership or management roles is very important to the progress and process of multimedia development. Looking at management style and adapting it to the needs of the staff and the best interests of the final product reduces the potential for conflict and increases the cooperative environment that is essential for multimedia development.

2. To Meet or Not To Meet.

In their early efforts to produce a team that worked together and whose voices were equally heard, the project directors used frequent team meetings to enhance communication. McDaniel and Liu, (1996) suggests that all should engage in regular communication and practice good communication skills. Communication skills were less of an issue in the development of BFF than the question of meetings. Project managers tended to assume that team meetings would provide an opportunity for building collegiality, discussing issues, and solving problems. Project staff tended to see meetings as time taken away from programming, designing, or other specific independent tasks. After struggling with the different perspectives of meetings, staff meetings were kept to a minimum and social gatherings such as having lunch together or celebrating birthdays took the place of meetings for developing relationships and informal talking about common personal or professional issues.

Team relationships within the BFF project were developed on an informal basis and long-lasting professional relationships and friendships were built over the course of the project. Meetings were kept to a minimum and specific time limits and agendas were developed and followed. Sub-team meetings and collaborations developed naturally when there were fewer expectations for whole group gatherings, and whole group gatherings tended to be informal and have a social basis, with announcements and brief reports given as needed.

3. Dealing with Deadlines.

During the first year of the BFF development project, the team was three to six months behind schedule and after one and one half years of funding, only one of ten modules had been produced (out of ten over a five year period). As the team became increasingly behind, conflict arose about responsiblilties, performance, scheduling. In addition, other normal teaming issues became problems and the whole team was very stressed.

Dealing with unmet deadlines and the resulting stress and conflict was difficult because it felt like "the hurrieder we were, the behinder we we got". Meetings to deal with timelines were seen as wasting precious time and light-hearted attempts to reduce stress were sometimes met with displeasure.

Two resolutions occurred. One was purposeful and the other was not. First, after struggling to work harder and faster, it became evident that the original timelines were unrealistic, considering the nature of teaming and the nature of the work being done. The project directors, in consultation with the funding agency, developed more realistic timelines and thus stress was reduced and progress occurred rapidly. The second resolution came as a natural result of the team working together, learning each others' perspectives and jargon, becoming more interrelated colleagues rather than single entities who sought to do their work individually rather than as a part of the whole. This natural development of group trust, respect, and collaboration so enhanced the work of the team that nine modules were produced in the next three and a half years.

In dealing with deadlines, multimedia teams should consider the time necessary for the development of the team and for trust and collaboration to develop within the context of the work of the team. Deadlines should be reasonable and if timelines are unmet, flexibility in changing them will prevent stress and stress-related problems in teaming.

4. Diversity of Skills and Perspectives.

Although some interactive multimedia development is a one or two person endeavor, most teams include a variety of experts in content, programming, graphics, adult education, video and audio production, instructional design, and evaluation. Each of these experts comes from the culture of their profession and comes with the jargon, assumptions, and work mode of their training and experience. The BFF team was no exception and although in hindsight, it was unrealistic not to consider this diversity of skills and perspectives as a

barrier as well as a strength, the directors did not account for this diversity as a barrier.

Another problem faced during the development of BFF was the need for learning more about each others' fields. For example, because the project was competency based, nearly all staff members had to learn to write, evaluate, and base their work on specific behavioral instructional objectives. Much of the "culture of helping" of social workers is based on soft skills such as empathy, and defining the competencies in specific behaviors and developing instruction to assure the mastery of those behaviors was a new experience for some SME's and instructional designers. SME's who were also professors had a difficult time, initially, thinking about content in a non-linear manner. As the instructional designers tried to facilitate this process, slow progress was made.

Besides jargon and professional skill differences, there were some major differences in perspective which needed to be considered in collaborative efforts. For example, in the module about family diversity, a few team members had to learn the social work perspective of the definition of the family and respecting all family compositions. The module include a section about gay and lesbian families. One unexpected difference of perspective was that between the social work perspective and the educator perspective. Although a major part of education is "helping" and a major activity in social work is "educating", the professional "culture of helping" and "culture of educating" are two distinct and different perspectives. Once they realized this difference, the project directors worked to learn about each other's professional perspectives and the result was a seamless integration of education and social work perspectives. For example, the parent training module included both the behavioral and the ecological perspective and families and case studies in all modules included adults and children with disabilities.

5. Multi-lingualism.

In the earlier metaphor of the jungle and the rainforest, one could think about the team members as different animal species, trying to communicate in their native roars and chatterings. This was a mostly unexpected barrier and learning more about each others' language benefited the project outcomes. The most effective collaborative efforts occurred when team members became multi-lingual. The technical language of the programmers and the video production team members was expected, and the group soon learned to correctly name the video process as "taping" rather than "filming", as one example. The group learned to talk in terms of "disc space", "interactivity", "templates", "scripts", "linkages", and other technical jargon that effected the work of everyone on the team.

Speaking a common language included understanding more about each other's fields. Technical experts learned about the characteristics of the program users, and, for example, learned that showing a picture of a child who had been abused should be proceeded by a warning or a small icon that could be linked to a picture would be better for helping social workers learn to identify abuse than would be a full screen picture come upon unexpectedly.

As team members came to understand the benefits of multi-lingualism, it became a part of everyday operations. Definitions and phrases were shared, both seriously and jokingly. Each team member learned new jargon, new skills, and new perspectives which added to the quality of their work in the project and professionally when the project was over.

Suggestions and Conclusions

Colon and Pain (1996) suggest a multimedia development methodology which gives a central role to collaboration among researchers, teachers, and technological. This collaboration, they claim, supports a productive relationship between theory and practice. Because interactive multimedia is multidimensional, a collaborative team approach will connect the practical and the technical and increase the likelihood of the use and usefulness of multimedia program in preservice and inservice educational settings. The SME expertise in content and application of content, the user-centered methods of instructional designers, and the technical expertise of programmers and video producers are all vital components of interactive multimedia. Collaboration is the one feature of methodology they have in common, and it is a very salient feature. Each partner in the team has distinctive knowledge and skills and contributes significantly to the whole, yet without collaboration, the pieces would never fit into a coherent whole which promotes new learning for participants in preservice and inservice education. This "culture of collaboration" is an essential part of the environment, the interactions, and the expectations for a multimedia development team. Facilitating collaboration assures the growth of shared understanding,

Any kind of collaboration is a complex, dynamic human process and there is always the potential for conflict, domination by individuals and subgroups, and the disintegration of collective goals (Colon and Pain, 1996). However, this paper has presented five suggestions with examples, which could prompt and promote collaboration and reduce conflict in the developmental process. After lengthy interviews with multimedia developers in the private sector, Liu, et al. (1998) conclude that the "degree to which different roles collaborate has much to do with the success of the finished product" (p. 263).

Although researchers in the field of educational technology may not be able to definitively answer the question, "Does technology help us do a better job of educating our students?" (Pepi and Scheurman, 1996), they do agree that having well-designed multimedia is critical for technology to have an impact on learning. Well-designed multimedia means a team that is sensitive to the demands of multidisciplinary work. Team members must take time to understand each others' roles, language, perspective, and professional skills; and they must be willing to share their own language, skills, perspectives with their collaborators. Team members must be flexible in their roles and understand that roles must overlap for true collaboration to occur. And finally, team members must be willing to take time to work with issues that arise from differences and they must not underestimate the time needed to develop trust, communication, and collaboration. The result will be better products and better outcomes for learners in preservice and inservice educational settings.

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...Distance learning is seen and being sold as the new cash cow, the great profit center, and... the savior of today's and tomorrow's universities.

Some Questions About Distance Learning and the Role of the University

W. Franklin Spikes

One can easily argue that the world of higher education is a microcosm of today's larger society. While colleges and universities have traditionally been organized around what some suggest are the rather ethereal pursuits of learning, teaching, and research, today's campuses are increasing being challenged by the same intense, substantial and practical social issues that are present in the more broadly defined world that exists outside of their boundaries. Matters of social justice, gender equity, economic pressure, internationalization and rapid and continual technologically-driven change are among the many concerns that are now impacting the academic decision making process. Questions of how to best serve new learners, learners who are of increasingly pluralistic social and racial backgrounds, learners who more often than not are women or part-time students with full-time multiple social roles and responsibilities and who have increasingly sophisticated expectations of educational delivery systems, abound. Clearly, the conundrum of how to balance the role of the traditional university with the demands of an ever changing educational consumer cohort and marketplace continues to pose a fundamental challenge to campus leaders. For a large number of institutions, the broadly defined concept of distance learning has been seen as one way to address the needs and demands of these new learners in the years ahead. However, while the move toward increasingly mediated learning activities has become an ever more common practice today, many basic questions concerning the effectiveness and viability of such initiatives remain unanswered.

Is Profit Enough?

Traditionally, discussions of profitability of the higher education enterprise have been somewhat rare among college and university faculty members. Life in the non-profit world of higher education has allowed many to avoid having to examine profit and loss calculations, ignore return-on-investment and cost-benefit analyses and focus upon matters in which surplus revenue, making a profit, is of minimal concern. Generally, academic units are not viewed as auxiliary enterprises or profit centers, like the campus bookstore, the university food service, or increasingly, the licensing rights of university logos and apparel, in which the ultimate accountability measure is to make more money than is spent.

Rather, the most desirable annual end state of an academic budget has been to show neither a surplus nor a deficit. Continuing institutional support of key academic departments rarely relies upon achieving increasingly substantial revenue goals. Yet it is clear that this environment is changing and in many instances the medium that is being used to reach these new models of institutional profitability are distance learning-based programs aimed at the ever growing number of adult students in higher education today. Goldstein and Lozier (1998) have estimated that for-profit institutions of higher education are "now a $3.5 billion-a-year business and are growing at 10 percent a year" (p.51). In the current edition of *Peterson's Guide to Distance Learning Programs,* (1999) some 850 accredited colleges and universities in North America which offer distance learning programs are described. In a companion work, Phillips and Yager (1998) describe "190 professional and career credential programs" (p.7) that are offered on a distance learning basis. The Apollo Group, the corporate entity which operates the University of Phoenix, reported a profit of $21.4 million in 1996 on a net revenue of $214 million while enrolling 47,000 students. (Chronicle of Higher Education, 1997). Given these data, it is easy to understand why more traditional colleges and universities, motivated by the lure of substantial enrollment increases and profitability, are moving toward a distance-based delivery system. In a related commentary, Margolis (1997), has suggested that "Market capitalism, not the Internet, is the force behind developing the wired university. A college degree from an accredited program will suffice– the cheaper the better– as long as it increases a chance of a student's chance of securing a decent job to help pay back his or her loans. The "high tech" universities of the next century will be hailed as yet another triumph of the free market" (p.1).

Considering the basic nature and purpose of America's system of higher education, it is questionable whether the motive of enhancing institutional profitability is a sufficient rationale for entering the distance learning marketplace. If so, it would seem that our universities become no more or less than educational e-GM's (the General Motors new e-commerce initiative) (Gardner,1999) or Wal-Marts, which try to underprice our competitors with new and inexpensive lines of somewhat unrelated merchandise. Yet for many small and large colleges and universities alike, distance learning activities that are aimed at the increasing market of degree hungry adult students are being viewed as the means to save floundering academic programs, assure the continuance of continuing education units with marginal academic affiliations with the campus at large or generate additional revenue in lean economic times. For some, the argument is simply one of the marketplace driving the delivery mechanism... i.e. "All of our competitors have distance learning programs... we must get into the business or we will be losing large numbers of students and missing the opportunity to generate a substantial amount of new revenue". Clearly, the basic and somewhat fallacious assumption that action equals effectiveness and presence in the market place naturally yields increased student participation should clearly be more carefully examined before institutional budgets are forced to accommodate new, cost-intensive distance delivery systems with no known history of fiscal viability or academic success. Instead, maybe it is the advancement of knowledge and the provision of relevant learning experiences which improve practice in all sorts of societal venues that should be the basis upon which the decision to enter or not to enter the distance learning arena is made. We may well find that the for-profit business model now so commonly being applied to distance learning initiatives is one which, rather than improving access to meaningful learning opportunities, actually imposes accountability measures that are contextually inappropriate

Frank Spikes is a Professor and Director of the Doctoral Program in Adult and Continuing Education in the College of Education at Kansas State University.

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to the university campus and cause decisions to be made which are fundamentally antithetical to the core mission and values of the institution.

Is Distance Learning Effective?

Evaluating distance learning initiatives is an issue that receives at best only a modest amount of discussion in the literature or among campus faculty members and administrators. Advocates of distance learning are fond of saying that students in such programs tend to like them about as much as face to face instruction. Post-class reaction forms seem to show little difference in student ratings, leading to the conclusion that both mediums are at least equally enjoyable. Considering all that is known about the process of assessment and evaluation and the substantial number of distance learning programs that are now in place in this country, where are the data which actually show that students learn more, learn faster, retain more information, perform better on the job, or are more competent citizens, parents or employees as a result of distance learning coursework? I once advanced this argument to one of my graduate students whose response was exceedingly interesting. She was a clinically-based, senior level, health educator who had received a substantial amount of her professional preparation via distance education programs. Her advocacy of distance learning was clear and strong. Without a moment's hesitation she said, "Well we don't apply those type of evaluative measures to other types of educational programs... lecture led, small group instruction and the like. Why should we apply them to distance learning programs?"... the one bad practice gives worth to other bad practices argument. In some small way perhaps she had a point. Certainly, evaluation is a process that can always be improved. However, in the case of distance learning, as opposed to other forms of instruction, sponsoring organizations are currently investing millions of new dollars, building new campus infrastructures and making substantial ongoing annual investments in technology to support distance learning initiatives. Clearly a more rigorous approach to examining the success of the fundamental alteration of the ethos of higher education that is being posed by aggressive distance learning programs would seem to be merited. If the best we can say is that distance learning initiatives are equal in "enjoyability" to existing programming, where is the benefit to the organization and more particularly to the learners in engaging in such a new and expensive practice? Phillips and Yager (1998) in attempting to counter this argument, have pointed to the research of Russell who "reviewed 248 reports and studies on the effectiveness of distance learning" which concluded that there are "no significant differences in learning when traditional face-to-face methods are compared to distance delivery means (p.7)". Finding no significant difference does not seem to be the type of substantial evidence to which one would point in order to support expansion of distance learning initiatives. Rather, given these data, ultimately does not the question become why invest more resources to get at best the same results? Likewise, while some may argue that the overall objective may be to spend less to get the same results, there appears to be little evidence that distance learning initiatives reduce the cost of instruction, especially when the imbedded costs associated with implementing an institution-wide comprehensive approach to distance delivered coursework are considered.

Kirkpatrick (1998) has argued that evaluation is a multi-stage process that involves more than just eliciting immediate post-class reactions of students. He has suggested that issues of learning, behavior and results must be examined if we are to truly understand the effectiveness of educational initiatives. Given this model, the basic evaluative questions about distance learning concern knowing more than just whether or not students like the medium or that there are no significant differences present when comparisons to traditional instructional methods are made. Rather, it seems that knowing if learning occurs and if so, to what extent and degree it occurs as a result of distance learning programs in relationship to other educational interventions, would be important. It would seem equally important to have knowledge of whether the behaviors of learners change in a positive and useful way after participating in distance-delivered educational programs. Finally, and most significantly, it seems that being able to know that distance learning activities foster the occurrence of positive individual outcomes or organization results would be a key piece of information to have in determining how, and if, to proceed with any alternative distance-based delivery medium.

What About Faculty Development?

There is an old truism that faculty members often teach as they were taught. The models that are seen in the formative portions of a person's educational life and career are often those upon which future actions are based. To the extent that this is true, faculty members in institutions that are being driven to a high level of distance learning programming face a increasing challenging situation. Generally in such circumstances there are no personal models of professional practice, successful or otherwise, for faculty to draw upon when entering the world of distance learning. Conducting lecture led classroom instruction provides little if any preparation for faculty members to prepare a web-based course, develop a CD or translate traditionally delivered coursework to a real time televised medium. For many faculty members, teaching is at best a second order activity that occurs behind the initiation of an individual research agenda. In some ways these research-oriented faculty members are being doubly penalized when trying to deal with distance based models. Their experience is usually one in which their employment is based on subject matter expertise and research competence. They are rewarded for generating external support for their research initiatives and expanding their publication record. Consequently, they often have no professional preparation in even the basic art and science of teaching. Yet now, with the move by many colleges and universities to distance-based instruction, these very same very capable scholars and scientists are being required to become technology-based instructional design specialists and distance oriented teaching faculty members. The intellectual vacuousness of this practice is astounding. No one would ask an attorney, a physician, or an accountant to undertake such a fundamental transformation of his or her individual practice. Yet today, faculty members in many of the nation's 3300 colleges and universities are facing just such a dilemma. Perhaps the time has come to truly begin to institute meaningful and comprehensive faculty development programs that are designed to prepare college and university faculty members to enter the new world brought about by distance learning programming. It may also well be time to reconsider the nature of faculty workloads and compensation as related to the development and translation of traditional courses to mediated formats. Standards used by many training organizations suggest that there is a ratio of somewhere between 50-300 hours of development time to one hour of instructional delivery time. The

impact upon the responsibilities and activities of faculty members of such a development to delivery time equation is staggering even when examined just in the light of one traditional, 3 credit hour, 45 clock hour course. How often are such development initiatives a part of the calculation of routine faculty work loads? Likewise, how will the on-going time-intensive activities associated with the continuing support of such coursework be determined and factored into faculty workloads? How frequently are blocks of development time built into faculty job responsibilities and considered as part of advancement in rank, tenure and compensation decisions? Moreover, even if release time is awarded for development and support activities, how are issues of course coverage and student supervision going to be funded in the absence from the classroom of faculty members engaged in distance learning related development initiatives?

How Is Learner Access Assured?

Given the high profile of the internet, e-commerce and the ever more visible www.com environment of the late 1990's, one could easily assume that access to the world of electronic information and computers is universal. Unlike the case with television, in which some census data show that nearly 98 per cent of American households have one or more sets in the home, access to computers and the internet is relatively limited in the United States and almost unheard of in many nations around the world. In some countries, many people have never seen, much less even used, a telephone. T1 lines, web sites, and even e-mail are mysterious and unknown commodities to many adults. Sadly, the assumption that the ability to access electronically-based learning is a phenomena available to all is an erroneous, yet often made one. Clearly, this is simply not the case in both many portions of rural America and the nation's urban centers. Perhaps as the drive to more and more electronic learning accelerates, thought should be given to the notion as to whether these initiatives are truly beneficial to the advancement of society or instead are actually creating an ever widening gap between the "haves" and the "have nots". Historically, trend data have shown that the more education one has, the more he/she seeks to participate in ongoing learning initiatives... the educationally rich get richer syndrome. Conversely, and consistently, it seems that the educationally poor continue to get poorer. By some estimates illiteracy is at an all time high in the United States and the inability to read effects 7 out of 10 of the world's citizens. Rather than just continuing to invest in technology, hardware, software and fiber optics, our society would be better served in investing in "peopleware". It is easy to become enraptured by the lure of technology and the desire to have the capability to deliver products and services in a bigger, faster and more profitable manner. Unfortunately, it is equally easy to leave the less fortunate, the less well to do, the less educated behind in the drive for technological sophistication and advancement. Certainly in such a period of educational plenty as this nation is now experiencing, it is now time to reexamine the ethical dilemmas posed by driving learning opportunities toward an end that may well cause more people to be disenfranchised than are brought into the electrified learning society of the 21st century.

"The Future Isn't What It Used to Be."

In thinking about how institutions of higher education can best enter the new century and reshape our campuses in ways that can best serve learners of all types, one of my favorite sayings from Yogi Berra comes to mind. He once said, in commenting on changes and new directions in his life, "The future isn't what it used to be." In many ways the future of the distance learning enterprise on college and university is not what it used to be either. For many, distance learning was initially seen as being merely another educational tool to use in reaching time or place-bound students, no more, no less. Instruction was facilitated by distance-based technology. Like many other innovative educational strategies that have taken place over time such as evening colleges, correspondence study, off-campus programs and degree opportunities, distance learning was viewed as just another step in the evolution of the modern college campus. Unfortunately now, in many situations, distance learning is seen and being sold as being the new "cash cow", the great profit center, and on some campuses the savior, of today's and tomorrow's universities. Perhaps, rather than continuing to charge blindly into a Yogi-like unknown future, now is the appropriate time for college and university faculty members and administrators to jointly step back and re-examine and redefine the fundamental purposes of and rationale for entering the distance learning marketplace. Adoption of a more thoughtful approach to determining the place of distance-based learning in the university may well yield surprising and useful results. Conversely, to do less and leave the questions of the place of profitability, the effectiveness of the medium, the role of distance learning in faculty workload and developmental activities and the fundamental matter of access unanswered, will result in our campuses and more importantly our students being essentially ill served by the current, continuing, institutional headlong rush to engage in any form of distance learning-based initiatives.

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...Treating online instruction as a delivery system rather than a form of pedagogy can have a negative effect on its evolution as a quality form of instruction.

Online Instruction as a Pedagogy: Implications for Higher Education Faculty

Edward L. Meyen

Because online instruction incorporates instructional design and management, asynchronous learning, the process of communication, technology, and the opportunity for accountability in the teaching/learning process, it can be considered a form of pedagogy. For online instruction to evolve as a mature form of pedagogy as have other approaches to teaching requires a major investment in instructional design and content decisions. In addition, attention must be given to the roles of instructors and students in managing instruction, to resources, and to the uniqueness of the online teaching/learning process.

The practice of teaching online does not alter the fact that effective teachers must be experts in their content fields. Nor does it lessen the importance of understanding and applying the principles of sound teaching and learning. Teaching online does require, however, that faculty members develop additional teaching skills. Specifically, they need to adapt those teaching skills that have served them well in traditional forms of instruction to teaching online as well as acquire and/or perfect techniques that are effective in asynchronous teaching environments. Face-to-face interaction is replaced with other forms of communication that can be equally effective. For some instructors, communication via computer options is more effective for online instruction. Finally, instructors need to be more systematic in the design of the content they teach and in the structuring of learning experiences for their students. Examples of how online instruction operates into a form of pedagogy rather than a delivery system include the following:

Instructional Design

Before the instruction is made available to students, instructors must decide on the design features they need in order to deliver online instruction and then structure the content to precisely fit those features. In essence, instructional design and content expectations drive decisions related to technology. Traditional instruction also involves an investment in design, but in online instruction it is required. In this context, online instruction is unforgiving. Instructors must design what they teach or create conditions that will cause students to learn.

Instructional Management

In online instruction, student work and communications are transmitted electronically and instantly. These products of online instruction may take the form of responses to activities, exams, reports, or abstracts of articles and projects. Such a wide range of response options dictates the need for an instructional management system that is systematic and convenient, as both instructors and students must be able to easily access their work and feedback.

Edward Meyen is a Professor of Special Education at the University of Kansas.

Asynchronous Nature of Online Instruction

In face-to-face instruction the instructor responds in prearranged, real time to student questions and comments. In online instruction, on the other hand, both students and instructors interact via electronic communications at times that are most convenient to each. For students, asynchronous instruction provides flexibility in when and where they receive instruction. It also allows them more control of the quality of their work as they are able to keep refining their work until they are satisfied with their responses before submitting them. A similar situation exists for faculty, who also can manage where they teach and when conditions are right for them to teach.

The Process of Communication

In addition to the communication that naturally evolves during instruction, teaching online allows the instructor to design activities and assessments that require students to demonstrate their understanding of the subject matter. This creates opportunities for instructors to efficiently individualize their responses to students' work. For example, a student may be one of 30 in a class, but the dynamics of online instruction allows the student to view himself or herself and the instructor as the only people involved in the learning process. This personalization of teaching changes the student-faculty relationship dramatically and positively.

Technology Capabilities

The capabilities of technology go far beyond just providing an anytime-anywhere delivery system. For example, streaming technology allows instruction to integrate voice and video on demand. Features can be designed to allow students to manage instructional resources, to access sources on the World Wide Web (WWW), and to perform activities designed specifically for the instruction in which they are engaged. Furthermore, feedback can be immediate, allowing students to be reinforced or corrected for their performance and helping them to always know where they are in the sequence of assigned work. The challenge in using technology for instructional purposes lies in ensuring that decisions on which technology to use are driven by the demands of instruction, not the capabilities of technology. As the capabilities of technology are employed in online instruction, changes in teacher behavior will occur. Such changes will likely emerge in the environment of higher education, as will the teaching behaviors of individual faculty.

Accountability

The public nature of all content, technical features and communications between students and the instructor in online instruction creates an opportunity for a level of accountability that is not present in other forms of teaching. Thus, the quality of content, the instructional design, the effectiveness of the feedback and the timeliness of responses provided by the instructor are open to review if deemed necessary.

Personalization of Instruction

In addition to being responsive to the attributes of students as is the case in traditional instructional formats, online instruction also causes instructors to be responsive to the phenomenon of students behaving as if they were the only student enrolled in an online course. This

common student perception is the result of the personalization of online instruction. For online instructors to have to adapt their responses and allocate their time to the needs of individual students may be the most difficult challenge in viewing online instruction as a pedagogy.

The above are some of the elements that characterize online instruction as a pedagogy and differentiate it from being merely a delivery system. While these characteristics are made possible by technology, their collective impact is a form of pedagogy that is embedded in an electronic delivery system. The flexibility in time and place offered by online instruction means that it has the potential of being as integral to instruction on campus as to distance education. Ultimately, the pedagogy of online instruction may routinely become an integral element of most instruction at the postsecondary level.

Conflicting Views of a Delivery System

Given that few faculty have personal experience in developing or teaching online courses, it is understandable that faculty tend to view online instruction as a delivery system rather than a form of pedagogy. Policymakers have even less experience in this area. As a result, both groups tend to think of the technology that makes online instruction possible and the act of teaching online as being one and the same. That is, instead of thinking of technology as a consequence of instructional design decisions, they often view online instruction from the perspective of delivery and as a form of distance education much like correspondence study and interactive television courses. As a result, faculty and policymakers often redefine online instruction as distance education and generalize the negative views they may hold of distance education to online instruction. Or, they focus only on the technical features that allow instruction to be disseminated via the Internet.

The literature reinforces these notions because it often categorizes online instruction as another form of distance education. The confusion is further exacerbated by the fact that historically academic policies governing continuing education or distance education were typically developed administratively with nominal faculty involvement. This often occurred because many academicians have not been supportive of distance or continuing education.

For those reasons, most faculty are left without direct experience in online instruction to help them frame their personal understanding of it. This has often contributed to a lack of support for and even indifference to online instruction on many campuses. The challenge of achieving the potential for quality instruction that online instruction offers is to create conditions that will help faculty view online instruction as a form of pedagogy and to invest in improving their online teaching just as they have in their traditional teaching. Once this is accomplished, research and development focusing on instructional principles and strategies specific to online instruction will become a more legitimate and popular form of inquiry. And the teaching and learning process will be greatly improved and enhanced as a result.

The Context of the Online Instruction Movement and Its Status as a Pedagogy

The history of higher education may hold no parallel to the emergence of a new form of teaching prompted by technological changes. Changes in pedagogy have tended to be evolutionary; the seminar, didactic forms of instruction, mentoring, and internships have all emerged over time. Their evolution was natural, not caused by a specific event or a new capability. In other situations, new forms of instruction have evolved due to circumstance (e.g., the large lecture came about because of a need to meet efficiently instructional demands created by expanding enrollments).

Online instruction, on the other hand, has not resulted from research to create a new form of pedagogy or as a consequence of a natural evolution in teaching. Rather, it has been driven by the logic of applying advanced technologies to instruction. Much of the advocacy for online instruction comes from outside the higher education community; that is, from *consumers* of higher education and from industry. A large and growing population of learners view online instruction as access to higher education– many even prefer the pedagogy of online instruction. This situation makes change more difficult than if the online instruction movement had evolved from within the higher education community.

Because technology makes possible this new pedagogy, higher education is faced with having to build and refine a pedagogy without the benefit of an evolutionary process. In many ways, industry has more experience than higher education in this area since they were the first to experiment with advanced technologies for training purposes that in many cases are global in nature. Most colleges and universities, by contrast, have taken a cautious approach. They have often been reluctant to invest in developing the pedagogy of online instruction and have, at times, conveyed the impression that the value of online instruction is questionable. The faculty views online instruction as a way to reduce teaching positions. However, while many comprehensive universities have taken this conservative approach, other institutions have been less cautious. For example, for-profit institutions in the form of virtual universities using online instruction have emerged. In addition, community colleges have been responsive to the opportunities offered by online instruction, as have many regional universities that have strong commitments to outreach. Consortiums have been formed allowing large number of universities to have a presence in the online market. Industry has also entered the online instructional market.

The institutions slowest to use online instruction appear to be the comprehensive research universities. While some have joined consortia and others have developed online degrees, comparatively few have made a systematic investment in developing resources and policies to support online instruction. This reaction is ironic because their mission in graduate education has embraced the practicing professional who represents the very population that is proving to be most responsive to online instruction. This population values the flexibility offered by online instruction, finding it advantageous to their personal and professional life styles not to have to travel to campus on a prescribed schedule.

The context of the online instruction movement is further differentiated from the way other forms of pedagogy have emerged in higher education by the slowness with which faculty governance on many campuses has become involved in issues associated with online instruction. Normally faculty governance takes the lead in setting academic policies. In this case, they have often found themselves responding to proposed policies.

Implications for Higher Education in Building Online Instruction as a Pedagogy

For experience to maximally contribute to the evolution of online pedagogy, online teaching must be approached knowing that the

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pedagogy is in an evolutionary state. This calls for an inquiry approach to one's teaching in contrast to traditional forms of teaching where we draw upon what we know about methodology and routinely work to improve our teaching accordingly. There is no significant literature base to draw upon that is specific to teaching online. Instructors are creating as they adapt and develop instruction. Once online instruction has been developed and faculty are engaged in teaching, they have a product, which has become defined as a form of intellectual property. The implications (i.e., inquiry and intellectual property) will be discussed from the perspective of their relationship to pedagogy.

Inquiry

While there is a knowledge base on teaching adult learners, there is paucity of research pertaining to online instruction. As a result, higher education faculty are left to draw on their personal experience in teaching. They can draw from the literature on teaching generally, but must make inferences as to what works best in this new instructional environment. These knowledge bases in distance education and in the field of communications offer some direction too. Finally, what little literature has emerged from web-based instruction is new, not always research-based, and often published in forms that are typically not accessed by faculty in higher education. This complicates efforts to become informed about what is available and effective. It also adds to the challenge of instructors teaching online who want to add to the knowledge base and to share what they are learning. The positive side of the situation is that research in the area of online instruction is an open field filled with opportunities to create systematic research programs and to make a significant contribution. Like scientists who conduct research in the laboratory and teach about what they have learned in that environment, online instructors have an opportunity to make online instruction a teaching and research environment by fully integrating what they are learning into their teaching and at the same time adding to the knowledge base.

Once faculty begin to teach online, they often encounter the need for information that is often not available. Many such questions can be systematically studied either individually or in collaboration with colleagues who are also teaching online. The following are examples of research questions that have implications for developing the pedagogy of teaching online:

1. Can instructors influence student behaviors such as motivation, rate of completion, quality of work, and quality of student-generated communication through the language they use in their communications with students?
2. What is the relationship between time required of an instructor to respond to students' communications and the quality of students' work?
3. What are the features of online instruction that are most important to students and do these features vary depending on whether the student is completing the instruction off or on campus?
4. What are the evaluative perspectives of students after experiencing online instruction compared to traditional forms of instruction?
5. What do students who express high and low levels of satisfaction with online instruction miss most about face-to-face instruction and can these concerns be accommodated through the pedagogy of online instruction?
6. Are there particular features of online instruction that stimulate higher-order thinking skills or contribute more than other features to positive student outcomes?
7. What are the most effective strategies to use when engaging students in collaborative projects during online courses?
8. What student attributes distinguish between students who value online instruction and those who do not? Do student attitudes toward online instruction affect student performance?
9. What instructor attributes distinguish between instructors engaged in online instruction and those who are not or who prefer not to participate?
10. Is there a relationship between the number of work samples on which an instructor provides feedback to students and student performance and attitudes toward online instruction?
11. What principles of effective classroom teaching generalize to online instruction and what new principles emerge from online instruction?
12. How can communication features used among students, such as chats and threaded discussions, be made more instructional?
13. What are the implications of teaching online for setting academic policies and structuring faculty workload and the way faculty use their instructional time?
14. What is the impact of online instruction on the traditional relationship between instructor and student? Do students view the impact as positive or negative?
15. Are certain topics or content best learned through online instruction or face-to-face instruction or is the distinguishing factor primarily a matter of attitude toward one or the other forms of instruction?
16. What is the impact on learning when students are given more control over when and how they learn prescribed material?

Intellectual Property

The topic of intellectual property rights is a concern on most campuses today. This concern stems largely from the emergence of the digital age and how the digital environment has influenced what academics do. With posting of information on the WWW taking the form of publishing, faculty members teaching online are finding that much of what they do is defined as intellectual property. That is, whereas traditional forms of instruction have rarely taken the form of intellectual property, the situation has changed dramatically due to the use of the Internet and the WWW for instructional purposes.

Higher education governing boards and universities are revising their intellectual property policies as they strive to gain control of this new form of intellectual property. It should be kept in mind that neither the content nor the responsibilities of the professor have changed. What has changed is the form of the instruction as it is created for delivery via an electronic environment. The form has the attributes of a product with the potential of being marketed. By defining instruction as intellectual property, without either appropriate policies in place or experience to draw upon in their administration, faculty members find themselves in the position of having to be concerned about the consequences of what they teach relative to their future use of the instruction they have created. That is, while a professor can teach a course in a traditional lecture form and have full control over lectures, exams, assignments, activities, projects and experiments, when using these very same elements of the course in teaching online, he or she may find it necessary to negotiate rights regarding further use

of the course, content or course features. In some cases faculty need to be concerned about someone else being assigned to teach the course they have created for teaching online. These circumstances have serious implications for the evolution of online instruction as pedagogy as well as for the teaching role of faulty members.

The underlying rationale for defining online instruction as intellectual property and for institutions moving to exercise some form of ownership seems to be related to the investment made by the institution in resources for the technical development and delivery of online instruction. This is not unreasonable. However, it is the programming and the instructional design that is derived from this investment. The content and the learning experiences created to produce instructional outcomes remain integral to what a professor does when teaching in traditional modes. Owning the technical design of the online course is somewhat analogous to owning the laboratory, lecture hall, and/or classroom. Issues of ownership do not influence teaching within these environments. Instead, they are governed by academic ethics and sound teaching principles, as they should be.

The situation is exacerbated by the fact that the online teaching movement became viable before either faculty or institutions addressed the academic policy implications of online instruction. The result is a scramble to frame policies without the benefit of experience. This may have a serious consequence for faculty both in terms of the policies being created and their future role in developing academic policy.

Following are examples of questions that need to be addressed in the development of intellectual property policies.

1. If an instructor includes original work in an online lecture, who owns the intellectual property rights to the lecture?
2. If the instructional design of an online course is unique, does the person creating the design own the property rights to the design?
3. How do instructors protect lectures and other content they place online as part of their teaching responsibilities?
4. If instructors resign and move to another institution, can they take the online course with them?
5. Because the development of a course is much like writing a book, what are the implications for copyright?
6. If online instruction is owned by the institution, what are the implications for the instruction delivered through other modes?
7. If a staff member performs work for hire, does this concede all rights to the employer?
8. What happens when in the process of placing a course online a staff member creates a new technology solution?
9. Who owns the online responses of students to assigned activities?
10. Are students free to use information received in a lecture without attribution?
11. If a student creates a product as part of a class project, does he or she own the rights to the product?
12. Can an instructor make reference to a student's work during an online discussion without the student's permission?
13. How is the concept of work-for-hire applied to online instruction?
14. Can an institution assign an online course developed by one instructor to another person to teach?
15. How are policies on intellectual property best administered when online instruction is involved?
16. What conditions are necessary before an institution can claim ownership to intellectual property created by a faculty member?

Quality Control of Online Instruction

While there is widespread concern about the quality of instruction offered in higher education, particular attention is being paid to the quality of online instruction. Although this stems in part from its newness, many faculty find it difficult to view online instruction as being as effective as face-to-face instruction. This attitude tends to translate into calls for more careful scrutiny of online instruction than is typically applied to traditional instruction. One of the advantages of online instruction is that all elements of the content and the instructional process can be subjected to evaluation. For example, the content must be detailed in advance, all elements including exams, readings, content presentations, activities, and resources must be prepared in complete form. Even the responses of students and the feedback provided by the instructor can be reviewed if necessary. Additionally, archival data can be easily retrieved on the timeliness of instructors' responses to student work and the exchange of communications. Thus, the substance of the instruction and the discourse between the instructor and the student is available for evaluation if necessary. These features combine to establish the conditions necessary to make evaluation an artifact of online instruction. By comparison, these conditions are not as easily established, and in some cases not possible, in traditional forms of instruction.

Beyond the evaluation conditions that are unique to online instruction, the context of teaching online adds to the opportunities to influence the quality of online instruction. The teaching context differs from traditional forms of teaching due to the emphasis placed on instructional development and design. Teaching techniques are incorporated into the course design making development an integral part of the online teaching process. In some respects it can be argued that development is 75% of online teaching because structuring the content and integrating activities into the instruction occurs during development.

Online teaching requires the instructor to apply the full array of skills required to produce and deliver instruction. This is not to suggest that in traditional forms of instruction instructors are not concerned with the design and development of instruction in addition to the process of teaching, but the design and development demands of online instruction provide an additional dimension of quality. Unless an investment is made in design and development online instruction cannot be made operational.

Academic policies exist in most institutions to enhance quality and to ensure equity in the instructional conditions experienced by students. The asynchronous nature of online instruction makes it necessary to examine most academic policies as to their appropriateness for online instruction.

The following questions are illustrative of the issues that warrant attention in framing polices that enhance quality of online instruction:

1. Will separate standards for online instruction be established as criteria for approving online courses and/or degrees?
2. Because online instruction must be designed in extensive detail and can therefore be subjected to close evaluation, will the process for approving online courses and degrees be more intense than for traditional courses?

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3. If an institution requires that the teaching effectiveness of faculty be evaluated in traditional courses, will teachers of online instruction be subjected to the same evaluation?
4. Will the development and teaching demands of online instruction be factored into the determination of faculty teaching loads?
5. Will online degrees and/or courses be differentiated from traditional degrees and courses on transcripts and other official records?
6. How much flexibility does an instructor have in determining what constitutes the level of credit to be received for instruction provided online?
7. What restrictions, if any, will be placed on instructors using the Internet or WWW to access student performance?
8. Will arrangements be allowed or encouraged whereby individual faculty or teams of faculty members develop a course, which is subsequently taught by a graduate teaching assistant or someone other than the faculty developer(s).
9. What administrative strategy will be put in place to ensure that faculty understand the relative importance placed by the institution on the development and teaching of online instruction?
10. Will online courses be offered through academic departments or continuing education, and if the latter, will they be treated the same from the student perspective?

Summary

Treating online instruction as a delivery system rather than a form of pedagogy can have a negative effect on its evolution as a quality form of instruction. To reverse this tendency, instructors must approach their online teaching from the perspective of building the online pedagogy. This has implications for professors in areas such as inquiry, quality control of their online teaching and in the framing of policies governing intellectual property rights. Although the number of online courses and degrees is increasing, online instruction remains in its infancy as a form of pedagogy. It is reasonable to assume that in the future, as the development of online courses becomes more widespread, that it may become a form of scholarship much like the writing of textbooks. Publishers are beginning to publish teaching resources online. Virtual institutions are buying online courses. And faculty, functioning as entrepreneurs, are developing online courses. With the demand for traditional textbooks changing and online courses taking on the attributes of products, the conditions are ripe for a new form of instructional scholarship to emerge, which could have a positive influence on the pedagogy of online instruction.

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Linking Collaborating Special Education Teachers

Ann Knackendoffel

Few would disagree with the following statement: When students participate, they learn more. Yet, novice and experienced teachers alike can attest to many students being passive participants in their coursework. Students often arrive at class with the expectation that information will be imparted to them in as pleasant and painless manner as possible. Unfortunately, passive student behavior is not limited to only elementary or secondary classrooms. It is also seen in graduate-level teacher-education courses where the students occupying chairs seem to effortlessly slide from the active teacher mode into the passive student mode. Surprising? Not really when you consider that often these adult-students come to the university after putting in a full day of teaching and, in many cases, after driving a considerable distance before ever arriving for their classes on campus. Even students taking their course work in the summer face challenges such as intensive classes compacted into short time frames, often meeting several hours a day and involving literally hours of outside reading and projects daily. Thus, a dilemma many university educators face is how to get students actively involved in meaningful problem solving and student-directed class discussions? Ironically, if active student participation is achieved over the course of the semester, instructors are then dismayed when the dialogue is arbitrarily and abruptly cut off at semester's end just when meaningful discourse begins to emerge and blossom. Until recently, this situation has been accepted as simply a reality of a university calendar (Simpson, Whelan, and Zabel, 1993).

Years of teaching university courses confirms that adult students vary widely with regard to their level of in-class participation. In any given course, some students will be extremely verbal and contribute frequently to the discussion at hand, others will participate sparingly, and a few seldom utter a word the entire semester. These are learned realities based on years of traditional face-to-face teaching experience. In a graduate-level course on consulting skills for special educators, I have experienced each scenario many times over, and, until recently, had been unable to find a solution. To address the problem of getting students actively involved in class, I introduced an asynchronous technology-based component to my summer consulting class. In doing so, I also removed the barriers the university semester calendar placed on a traditional face-to-face taught course. This article describes the integration and application of technology into a traditionally taught face-to-face university course and the results from both a student and instructor perspective.

While preparing to teach a course entitled "The Consulting Process in Special Education," I learned of a technology-based application called Web Crossing™ <http://webcrossing.com/>. Web Crossing is a web-based discussion software which facilitates threaded discussions among specified on-line community members. For the purpose of this class, the asynchronous communication feature of Web Crossing was utilized. Asynchronous communication is two-way communication, one-way at a time. A historical example of this mode of communication would be the use of the U.S. mail and a more modern example would be electronic mail. The idea is basically that one person sends a message, and then after some period of time, the receiver of the message responds. The persons involved may or may not be on the system at the same time. Asynchronous communication thus removes many of the time constraints of face-to-face or real-time (i.e., synchronous) communication. Anyone can access the discussion via the Internet through the University's College of Education home page. No special software is needed by the participants other than Internet access. Discussions on Web Crossing are threaded.

This simply means a series of messages were posted as replies to each other. A single discussion topic may contain many threads covering different subjects. By reading each message in a thread, one after the other, it is possible to see how the discussion evolved. A new thread is started when a message is posted that is not a reply to an earlier message. The discussions generated for the consulting class were organized by topics and placed within folders by topics or small group discussion formats. Members of the group could post questions and get feedback from others in the class. Web Crossing allows dialogue beyond the student and teacher level and creates a learning community among the members of the class. This technology-based application has the potential to alleviate some of the problems inherent in teaching a process-type consulting class which meets several hours a day during a three-week summer schedule. Another technology-based application utilized in the class was a weekly on-line journal between the instructor and the individual students in the class. Students used the journal format to reflect on the course content from the week and it's applicability to their individual roles. The instructor responded personally to each post, often providing direction, lending support, and/or posing questions for further thought.

Rationale for Technology Usage

From an instructor's viewpoint, there were several areas of frustration inherent in a traditional face-to-face university course. The goal of exploring various technology-based applications was to address some of these concerns and thus, better meet the needs of adult-learners in my classes (Spooner, Spooner, Algozzine, and Jordan, 1998). An over-riding goal was to move away from the traditional classroom experience best characterized as a "sage on the stage" structure with its a one-way flow of information. The exchange of information possible with an on-line asynchronous learning network (ALN) had the potential to move toward a "guide on the side" model. Outlined below are a list of frustrations pertinent to my course which I wished to address through the integration of technology into the course.

Maintaining Student-to-Student Contact After Course Ends

One of the drawbacks of teaching a problems-based process class such as the consulting course during the summer is that in-class discussions regarding obstacles these teachers are likely to encounter during consultation efforts are often hypothetical rather than the actual problems these teachers face while working on the job. Since the teachers in the class do not function in their roles during the

Ann Knackendoffel is an Assistant Professor of Special Education at Kansas State University.

summer break, they are unable to study and contemplate the information learned in the course and immediately apply it to their collaborative efforts in their schools. Thus, historically, when these teachers returned to their jobs in the fall, and could benefit most from problem-solving ideas generated by members of the class, the network of support they developed with one another and had come to rely on during the three-week summer class no longer existed. During an intensive three-week class such as this involving communication and problem-solving process skills, students become very connected and begin developing strong collaborative relationships. Many members of the class either started new jobs in the fall after the class ended or they tended to be relatively new in their teaching/collaborating positions. Thus, these relatively new and inexperienced special educators could benefit from on-going coaching and mentoring as they navigated through relatively new and unchartered waters of collaboration for them personally.

Encouraging Active Participation in Class Discussions By All Students

Like all classes with adult learners, there existed a variety of personalities in the consulting class from the quiet, reserved students to the outgoing and verbal persons, and, of course, everything in between. As a result of these diverse personalities which comprised our group, participation in in-class discussions were mixed, with some members of the group contributing frequently and others volunteering very little. A variety of techniques were incorporated within the class to promote participation and discussion. For example, each class session began with students taking turns sharing something they learned from the reading which was personally meaningful and relevant to their teaching/consulting roles. Additionally, frequent use of small group discussions and activities were utilized throughout the course to promote active participation by all members of the class. Even with these strategies in place, the level of participation and contribution to these in-class discussions and activities varied greatly between participants.

Giving Students a More Active Role in Generating Discussion Topics

In most traditionally taught university courses, the professor determines the course content and poses the questions for class discussion. Studies have shown relatively little class time is typically devoted to questioning and this is complicated further by the percentage of low-level (i.e, cognitive memory type) questions versus higher-level (i.e., divergent and evaluative) questions incorporated into most lecture-type courses (Barnes, 1983). As Turoczy (1997) stresses, to engage higher-level thinking in adult learners, instructors must pose more questions that demand higher-order thought processes. Furthermore, for an effective questioning process to take place, ground rules that permit and motivate everyone to participate and ensure respect for varying ideas must be established. Research on adult learning preferences show adults have a desire and need to be self-directed in their learning. They also need a time perspective for learning that is oriented to the here and now, and a problem-centered focus on learning (Dettmer, Dyck, and Thurston, 1999; Tice, 1997). By incorporating an on-line discussion forum, students are encouraged to respond not only to questions posted by the instructor and other students, but also pose questions of their own to other members of the class. This format allows the course instructor to more easily move into the "guide on the side" role and encourage self-directed and problem-centered learning among adult students in the class (Sokol and Cranton, 1998).

Encouraging Meaningful Problem Solving on Actual Dilemmas Class Members Face in Their Current Consulting Roles

As part of the course, individual implementation strategies are discussed, and a personal "consulting blueprint" is developed by the teachers to guide their collaborative consulting efforts. While these proposed consulting plans are often good first steps, they generally fall short of full implementation. Teachers engaged in new collaborative efforts need continued guidance and a forum where they can problem solve on pressing issues as they arise. Further, many special education personnel function in isolation from other special educators and therefore, cannot easily take advantage of peer collaboration with regard to implementing the nuts and bolts of their consulting plans. By introducing web-based asynchronous discussion groups during the class, participants could continue their discussions long after the last formal class meeting and seek out guidance and support from their colleagues whose opinions and experiences they learned to value over the duration of the course.

Procedure

During the first class session, students were given a brief tutorial on how to register and access the class on-line discussion forum. If students had Internet access from their personal computers, they were given the option to access the discussion from their home computer or by using computers in various labs on the University campus equipped with Internet access. Eleven of the 14 students in the class had access to the Internet through personal computers at home or work.

Students were divided into four teams with three to four members in each group. Team membership was based on similar job roles (e.g., elementary vs. secondary, general educator vs. special educator, self-contained vs. inclusive setting, etc.) or areas of special education certification (i.e., LD, E/BD, MR, gifted). Digital photos of each group were taken on the first day of class and posted within each team folder to be viewed as part of the on-line discussion. The purpose of the teams and photos was to quickly increase familiarity within the groups during the early days of the course to facilitate comfort level within the discussions. Initially, the posted questions were instructor generated and related to a topic covered in the assigned reading or being discussed in class. Students were encouraged to read the posts daily and respond at least twice a week as part of their class participation component. Web Crossing allows each subscribed or registered member of the group to read all the posts/messages by other members of the class. While the class was divided into teams for purposes of organizing the discussions, all members of the class had access to each team folder and could read the posts of other teams, should they choose to do so. Students also could choose to post within their team folders or post questions to the class as a whole. Soon class members were responding to each other's posts and creating their own discussion threads thus eliminating the need for instructor-guided discussions.

Results

Across the three week period while the course was in session, a total of 133 posts were generated by the students resulting in a mean of 9.5 posts per student ranging from a low of 4 posts across the three

week period for one student to a high of 14 posts for another student. After the course ended, participation in the on-line discussion was tabulated. Results showed that all but two students posted regularly (i.e., without missing more than a day in between posts). One of these students was having technical difficulties connecting to the system from his home computer during the first two weeks of the class but did post regularly during the last week of class when his technical problems were solved. The posts were also evenly distributed across the three weeks with 47, 45, and 41 posts respectively across weeks one, two and three. Typically, students first responded to the instructor generated question and then, based on responses from their classmates, ventured off into various threaded discussions related to comments or topics introduced by other students in the class. Ten entirely new student-initiated discussions were generated across the three week time-span of the course.

The data were also analyzed based on the frequency of on-line posts to discussions versus in-class contributions to discussions. Basically this comparison pointed out any differences between in-class and on-line levels of participation among students. For the purpose of comparison, students were divided evenly into two groups with one group being labeled "frequent in-class responders" and the other half of the class categorized as being "low in-class responders." The "frequent in-class responders" generated a total of 51 on-line responses as compared to 82 on-line posts from the "low in-class responders."

For approximately half of the students, it was their first attempt at using the Internet for communication purposes and course participation. Consequently, many were understandably reluctant in the beginning and confided in me their fear with this component of the course. By the end of the three-week course, students reported via the class evaluation their involvement in the Web Crossing piece of the course was one of their favorite parts of the class. In fact, an added benefit which had not been anticipated at the onset, was that students who had little computer and Internet experience coming into the course felt more comfortable with using the computer as a communication tool and accessing the Internet for information. Using a likert-type scale with one being low and ten being high, teachers rated their comfort level using technology both before (M = 6.1) and after (M = 7.9) the three week course. Additionally, their comfort level with the Internet went from a mean of 7.0 to 8.4. Both outcomes are desirable competencies for special education personnel functioning in collaborative roles. Overall, students rated both their satisfaction with Web Crossing (M = 8.2) and the on-line journals (M = 8.6) as high. One student wrote this comment on her course evaluation regarding the technology component of the course. "I liked being able to share in such an open, reflective way and receive feedback. It sets me at ease knowing there is open communication that doesn't occur during pressed available class time but instead when time is available for me to reflect upon my thoughts."

Discussion and Lessons Learned

Regarding the four areas of frustration outlined at the beginning of this article, the technology-based applications generally had a positive impact and were able to assist in achieving the desired outcome in at least two of the four areas. Specifically, almost all members of the class participated regularly in the on-line class discussions therefore accomplishing the goal of encouraging all class members to participate in course-related discussions. The most interesting observation is that it appears students who posted most frequently on the on-line discussions were not necessarily the most active in-class discussion participants. In fact, the data showed some of the least vocal persons in class were the most active participants in the on-line discussions. Based on this limited study, preliminary results would indicate that asynchronous on-line discussions have the potential to engage those students who are the least likely participants in traditional class discussions. The on-line discussion forum gave "voices" to this otherwise silent half of the class. This finding, when joined with others' data regarding which students are most likely to succeed in Internet-based courses (Brown, 1998), adds one more piece to the puzzle regarding the potential of online applications in special education related coursework (Spooner, Spooner, Algozzine, and Jordan, 1998; Zorfass, Remz, and Ethier, 1998)

The data were also encouraging with regard to giving students a more active role in generating discussion topics. While the data showed students in the course generating ten new student-initiated discussions, that number does not accurately reflect the content of the other threaded discussions. At first glance, ten student-initiated discussions may seem a bit low, however, in analyzing discussion threads, many students initiated new topics for discussion within already existing global discussions such as "obstacles that hinder consultation and collaboration." While this particular thread was an instructor-initiated discussion, students quickly went off in many different directions as they responded to one another.

A related goal of this study was to encourage meaningful problem solving among actual dilemmas faced by these teachers in their consulting roles. This goal was partially realized in that clearly half or more of the posts were problem-solving in nature but most were dealing with problems individuals had experienced during the previous school year or related to anticipated obstacles for the upcoming school year. Therefore, to this end, problem solving did occur; however, it was not on-going during the actual occurrence of the problem.

Perhaps the goal which was most disappointing in its outcome was the goal related to class members staying connected once the course ended. In some respects, this was my central goal or most desired outcome from the use of technology-based applications in this course. After the course ended, students did not continue accessing the on-line discussions on their own. In reflection, I realize this is likely due to technical obstacles rather than a lack of desire to maintain contact with one another. The class was a relatively small group (i.e., 14 students). Therefore the expected activity level on the discussion forum after the course would be low. The way it was set up, students had to go to log onto the Internet site and check the various discussion folders for any new messages. This could be time-consuming and often resulted in wasted time since very few messages appeared after the last day of class. One can imagine that even the most persistent student checking the site and finding no new messages would likely come back less and less frequently and eventually stop checking for messages completely. Even as the instructor, I found in the first few days and weeks following the course, I would log-on to check for new messages, but after receiving no new messages time and time again, my visits to the discussion site became more and more infrequent. Recently, a feature has been added to the Web Crossing software which will allow for e-mail notification of any new messages posted to the discussion based on participant's subscription to a class listserv. In the future, I will have students

wishing to continue with the Web Crossing discussion, subscribe to the listserv before the last class meeting so it will be easier to communicate. Several students from the class have shared informally with me that they continue to keep in contact with one or two members of the class through e-mail. This was precipitated by the on-line communication first introduced to many of these students in the consulting class.

Initial efforts to incorporate an asynchronous discussion forum into a graduate level special education consulting course proved fruitful. I am encouraged by what I witnessed in terms of the overall enthusiasm for the medium and it's ability to engage even the most reluctant in-class participants. I was also impressed and inspired by the quality of the interactions and the reflective and thoughtful problem solving that occurred between participants. While I was unable to eliminate all my identified frustrations with traditional face-to-face instruction, I learned enough from this initial effort to try additional technology-based strategies in future courses. This experience has only whetted my appetite for taking the next step in incorporating more asynchronous learning opportunities into my courses. In the future, I plan to incorporate on-line group projects, case-study analysis and problem solving, and possibly solicit student generated test items for the final exam. I also now believe participants would appreciate and benefit from a monthly "check-in" from me as the moderator of the group once the course ends and interested students are subscribed to a listserv. Posing a question requesting an update on current success in implementing their consulting plan should spur discussion and problem solving among the group.

This positive experience has caused me to see the potential for Asynchronous Learning Networks (ALNs) in the same light as John Bourne (1997) who so adeptly described ALNs as providing the capability to learn anywhere and at any time. The acronym ALN might just as well be used to represent the term Anywhere/Anytime Learning Networks. Both interpretations reflect and emphasize that ALNs are different from traditional distance learning methods because the learner can be anywhere and learn at any time. With this idea, the potential application and utility in graduate teacher education courses is virtually endless.

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...The final judgment on the role of technology in modern society and the educational process is not yet in.

The Great Stereopticon Revisited

G. Daniel Harden

In 1948 Richard Weaver, a somewhat reclusive professor of literature at the University of Chicago, produced what came to be the widely acclaimed and quoted book, *Ideas Have Consequences*. The work received critical commentary at the time from both enthusiasts and detractors. Although much of the book relates to what Weaver sees as the general civilizational decline of the West since William of Occam introduced philosophical nominalism to the table in the Thirteenth Century, the most widely reprinted chapter deals with the affect that various forms of communication technology have on our perceptions of reality and of Truth.

In Weaver's Ideas, the University of Chicago scholar lists three types of modern media as constituting The Great Stereopticon: newspapers, movies, and radio. There are, claimed Weaver, certain innate and predictable perceptual tendencies associated with each of these venues, which affect the perceptions of the natural world and reality to those who partake of them on a regular basis and thereby subject themselves to their influences.

If his thesis is correct, it follows that those who control the Stereopticon have a powerful tool with which to manipulate popular culture and bring about specific social, political and even philosophical ends. Because these affects are only partially the result of a process of cognition and are at least equally dependent on extra rational reactions to the technology itself, the degree to which a person desires to submit himself and family to their effects takes on a pivotal importance.

In the 1950s the Canadian communications theorist Marshall McLuhan reflected on the same topic. Although McLuhan was often obscure and difficult to follow, his famous line about the "Medium is the Message" caught on with many who were trying to make some sense out of how communication was being effected by the new technologies. McLuhan made a basic dichotomy between hot and cool media.

> "Basically, a hot medium excludes and a cool medium includes; hot media are low in participation, or completion, by the audience and cool media are high in participation. A photograph, for example, is high definition or hot, whereas a cartoon is low definition or cool... the telephone, which gives the ear relatively little data is thus cool, as is speech...
> The... overwhelming majority of our technologies and entertainments since the introduction of print technology have been hot, fragmented and exclusive, but in the age of television we see a return to cool values and the inclusive in-depth involvement and participation they engender. TV is revolutionizing every political system in the Western world. For one thing, it's creating a totally new type of national leader, a man who is much more of a tribal chieftain than a politician. Castro is a good example of the new tribal chieftain who rules his country by a mass-participational TV dialog and feedback; he governs his country on camera, by giving the Cuban people the experience of being directly and intimately involved inthe process of collective decision making."

When reflecting on the affect that some current types of television programming has on young people, it is easy to connect McLuhan's analysis with current television fare. Virtually no one would credit MTV with influencing the cognitional direction of those who view it regularly. At the same time there is no question but that those who have prolonged exposure to that television channel, together with other reinforcing non-cognitive stimuli, have integrated and absorbed certain approaches to lifeand culture as a result of such exposure.

It should also be realized that to the extent that educational organizations, especially the public schools, integrate new communications technology into their instructional programs, the more powerful will be their influence relative to non-cognitive aspects of student perceptions and understandings. Weaver succinctly makes the point,

> "It is the function of this machine [The Great Stereopticon] to project selected pictures of life in the hope that what is seen will be imitated. All of us in the West who are within the long reach of technology are sitting in the audience. We are told the time to laugh and the time to cry, and signs are not wanting that the audience grows ever more responsive to its cues."

The issue with which parents and educators must now grapple is who is in control of The Stereopticon and what responses are going to be elicited. The laugh track only goes back to the 1940s, and was a first, and clumsy, effort at priming the extra rational pump so that predictable and desired responses would be forthcoming. With the current communications technology available to the teacher to create everything from attractive posters with supposedly appropriate messages, to the production of films presenting fictional historical dramas from politically correct perspectives, to the development of seductive alternative virtual realities, the school now has the power to influence and mold children and young people far more completely than it had but a few decades ago.

The seductive qualities associated with technology in its many forms pose new and alarming threats to the traditionally primary roles of the family and church relative to the transmission of culture. Through the replacement of traditional experience with ersatz virtual experience, the perceptive mechanism of an entire aspect of life has been forever altered. A few years ago acandidate for an educational technology position at my institution demonstrated a computer program that allowed the user to create a landscape, a castle, and full marching armies. You could view the interior the castle, buzz the entire area from the air, and see what was going on from almost any vantage point that you desired. It was amazing indeed. After the candidate finished his presentation, of which the demonstration of this software was only a part, I made my way to from of the room and quietly asked him whether, after having worked with this very impressive program, young people would ever again take great joy in the town parade or in an autumn walk through the wood lot and hear the crunch of drying

G. Daniel Harden is a Professor of Education at Washburn University, Topeka, Kansas.

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leaves under each footfall. He looked at me quizzically and without much thought dismissed that concern as being without much merit. He didn't get the job, but I am sure that he is teaching somewhere and very effectively proclaiming his message of the wonders of virtual reality.

Even more frightening perhaps is technology in the hands of those who use it to promote their politically correct social agenda. Peter Augustine Lawler observes in a recent article in The Intercollegiate Review, that many professors of a particularly "progressive" perspective know virtually no limit to their agenda. Is there any reason to believe that those who represent the same social and political agenda on the K-12 level would be any less zealous to achieve their ends?

> "The[y]... believe they can use almost any means necessary to create a classless society– one which does not recognize the distinctions between men and women and gay and straight, and which has no place for the soul or conscience or unapproved personal association at all... Religion, for example, must be judged not by its truth or its adequacy in addressing ineradicable and transpolitical human longings, but for its contribution to inculcating devotion to a rights-based understanding of justice. The family must be judged according to the same principal, and so according to its egalitarian socialization of children. The danger of a child being raised well by two heterosexual parents is believing that his or her form of family is better than others, and so the school must correct the historical and anthropological narrowness of that opinion." (Lawler, 1999)

Materials used in many schools no longer offer merely objective accounts of content but rather also emphasize a specific and authorized perspective of analysis. Students are regularly subjected to books which present only an approved view of the world, its history, and its cultures. There is a dominant orthodoxy which is given priority status in most schools and is now reinforced by the extra cognitive character of the employed technology. The following observation was made by Richard Weaver 50 years ago and could well be made of many teaching materials in common use today:

> "The newspaper is a man-made cosmos of the world of events around us at the time. For the average reader it is a construct with a set of significance which he no more thinks of examining than did his pious forebearer of the thirteenth century– whom he pities for sitting in medieval darkness– thing of questioning the cosmology. This modern man, too, lives under a dome, whose theoretical aspect has been made to harmonize with a materialistic conception of the world."

If, as a parent or as a member of a non-dominant cultural minority, the cultural icons and perspectives that you intend to transmit to your progeny differs root and branch from that of the prevailing paradigms, it is a more uneven battle than ever for the transmission of the particularity of your wee platoon, to use Edmund Burke's phrase. The wee platoons, those small subsidiary social units in society, the families, lodges, churches, councils, sports teams, political clubs, are under attack from those who control the technological levers of power that direct The Great Stereopticon.

Even Thomas Jefferson at 70 wrote his frequent correspondent, John Adams, "I have given up newspapers in exchange for Tacitus and Thucydides, for Newton and Euclid, and I find myself much the happier." Of course Jefferson was not saying that he had become disinterested in what was happening in Virginia during his final years. What he was saying was that the news of the passing moment had to be mellowed with something more reflective, more profound, than the favored fictions of the moment; that the popular newspapers had a certain sleazy quality about them that they could not shed. What conclusions can we today make about the 24-hour-per-day Stereopticon, the cable television with its nonstop buzz of cheap high-interest news, cheap high-interest sports, cheap high-interest history, and cheap high-interest religion? Is there not something innately inferior about the entertainment product produced by this sort of machine that consumes all events with an eye toward turning them into profit making spectaculars that will attract the lowest common denominator among its viewers and keep its attention indefinitely? Weaver's observation rings even more clearly today as we are bombarded by television stations without number. What is wrong with them has little to do with the specific episode or entertainment segment, but rather with entire process and product.

> "The thing that needs to be censored is not the length of the kisses but the egotistic, selfish, and self-flaunting here; not the relative proportion of undraped breast but the flippant vacuous-minded, and also egotistic heroine. Let us not worry about the jokes of dubious propriety; let us rather object to the whole story, with its complacent assertion of the virtues of materialist society... The entire globe is becoming imbued with the notion that there is something normative about the insane sort of life lived in New York and Hollywood– even after that life has been exaggerated to suit the morbid appetite of the thrill-seeker." (Weaver, 1948)

So, The Great Stereopticon and its new tentacles result in, at best, a dumbed down culture in which the majority of people are unable to reflectively consider any issue independently of what the popular columnist Robert Tyrell refers to as the kultursmog of the established and approved communications outlets, or at worse, a culture manipulated by these same forces for their own advantage.

The Technological Boomerang Effect

The writer is of two minds as to the effect of technology, and modernity itself. Weaver's is a reasonable explanation for the social and intellectual fragmentation that we have long associated with the modern condition. It has been a tool in the hands of the central planners and social engineers to break down the cultural particularities of those few remaining organic communities which play such a prominent role in Weaver's thinking. Technology, the human victory over time and space, as Neil Postman described it, was to have created the famed Global Village of Marshall McLuhan. And in some ways it has. But there have been other developments as well, some hopeful and others worrisome.

While technology, in school and out, tends to have the effect of standardization, it also can be an instrument in the hands of particularists. Everyone is aware of the global village metaphor that has been used in many cases to justify state intervention into what were earlier personal or family or community issues. Frequently it has been a justification for extending state authority. By pooling the data available in a number of data banks the state can come perilously close to establishing an informational panopticon, along almost

Benthamite lines. But for many who resist this expansion of political power and correctness, technology provides an alternative direction. The communication opportunity afforded by technology has opened more venues for unauthorized communities of like minded individuals. Small groups with particularist tendencies can now easily publish their own newsletters, magazines, and print journals with increased efficiency. With little more than a basic understanding of Adobe PageMaker and the shortest route to the local Kinko franchise, everyone with an idea has the opportunity to attempt the creation his own organic community and publicize his own Gnostic utopian vision. In two weeks the group has its own history, its unique perspective on reality, and its own tradition. What previously took generations to create can now, through the wonders of technology, be boiled down and prepared for general distribution in an amazingly short period of time.

And schools may be in the middle of this battle between the standardization desired by the politically correct social engineers with all of their acceptable and respectable assumptions, and those who resist the imposition of modernity's new social/political/religious template. The educational establishment is in high dudgeon over the growing home school phenomenon. New and ever more preposterous theories are being forwarded by the embattled public school establishment as to why parents are increasingly taking advantage of the home school option. One minute they will be largely religious kooks and gun stockpilers, and the next they will be left over hippies.

Because of the potentially creative use of technology these small organic communities may yet escape the endangered species list. Even the educational establishment cannot stifle unauthorized technological developments. One school district in Kansas has a virtual classroom that serves some of the instructional needs of home school students quite well. Students are enrolled in this school from all parts of the state. Although the state curriculum guidelines are followed, they are seen as guidelines rather than directives. The technology is now present for an untold number of groups to devise their own system of education, independent of space and largely independent of great corporate (or state) resources. Technology may be a revolutionary tool or it may be the salvation of the counterrevolution. It can cut both ways. Thus we see the government periodically floating ideas on how the Internet and electronic communications may be controlled, and then opposition develops largely because of the political and communications clout of those who would likely be affected by such an extension of federal power.

The final judgment on the role of technology in modern society and in the educational process is not yet in. Even were I a betting man I do believe that I would sit this one out.

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...Technology often has unintended consequences and the drive to use information technologies in the classroom may well have as its unintended consequence the end of teaching as an essentially private activity.

Privacy, Information Technology, and the Educational Process

Tweed W. Ross

In the middle of the Information Age (Toffler) educational institutions have focused on a wide range of issues relative to the application of new information technologies. Child safety on the worldwide has been a great concern for schools. Effective implementation of teacher training to use new technologies has swamped the available resources of even the most affluent schools and universities. Equal access to the tools of the information age is an important issue for schools wishing to avoid creating another inequality between those who can afford the latest technologies and those who cannot. Criminal activities involving computer hackers, drug dealers, and terrorism are significant worries. Overlooked in this plethora of concerns have been serious questions concerning student and faculty privacy and how the new means of electronic monitoring impact education.

For whatever reasons, teaching– which appears to be a fundamentally public activity– has often been the most private of concerns. Faculty members, through their negotiated agreements and common practice, have insured academic freedom by maintaining a policy of privacy. Examples of this practice are found at both the K-12 and collegiate level. In the K-12 arena administrators are often limited by negotiated agreements to classroom visits only after announced pre-conferences. University faculties quickly assert their rights to "academic freedom" when questioned about what goes on in their classroom.

A recent memo from the Provost of a major land grant university went so far to give faculty members "ownership rights" to their lectures. The Provost's memo cited an opinion of the university attorney that professors held copyright interests in their lecture and its accompanying notes which could not be posted on the web. This opinion gave credence to the view that professors owned a private holding not to be shared outside the classroom. Teachers at all levels feel invaded if video cameras were set up without their consent to record their class for later showing in a public forum.

Lewis Perelman in *School's Out* stated that, "Learning was an activity thought to be confined to the box of a school classroom." (22) It is more accurate to state that "teaching" was an activity confined to a classroom box.

Victor Hugo's great novel, *The Hunchback of Notre Dame*, has a scene where the dean of the cathedral explains that a printed work will destroy the cathedral and by implication the Church. Information technology undermines the educational enterprise by subverting the privacy held so closely in a tacit arrangement between teachers and the public. Hugo's example relates that before it was possible to print many copies of a book, architecture was a way to leave a teaching device for future generations. Hand copied books only existed in a handful of cloistered libraries and had little impact on the general populace. Knowledge was a private acquisition gained only after hard work, diligent scholarship and held only by those whose responsible use of the knowledge had been thoroughly molded and tested by the church. Books widened the available knowledge to the great masses that only had to decode reading to be able to learn the wisdom of the ages. However, books only expanded the knowledge authors wished to share.

The invention of the printing press, and the ability to mass-produce books allowed scholars a measure of certainty that their ideas would survive their deaths and be accessible to others. The energy expended in great architectural works was an effort towards building something for later generations but not wide distribution. Hugo's cleric believed the availability of a more direct way to express ideas (printed books) would lead to all energy being channeled in different directions, and that the golden age of architecture would come to a close. Not only would the raison d'être of the Church crumble, but the institutional framework as well would vanish.

Privacy, at least in education, may well be one of the casualties of the Information Age. Lewis Perelman, the outspoken critic of the educational establishment openly calls for the abolition of privacy in education sloganeered by the phrase "learning anything, anytime and anyplace." Open learning as a dominant practice, threatens the residential university and the compulsory attendance school which are no longer needed to retain the trappings of the educational establishment– scholars with annual contracts, tenure and expectations of employment. Electronic technologies that break the privacy of the classroom box, provide little merit in establishing cloistered centers of learning except to maintain the dreams of years gone by for the alumni.

Perelman was not the only critic that questioned the value of the current educational establishment. Neil Postman, *The End of Education*, redefined education, sans the educational institution. He noted that privacy and its access to the privately held knowledge of the faculty is crumbling, "Schooling may be a subversive or a conservative activity, but it is certainly a circumscribed one." (ix). Schooling is circumscribed by time frames, classrooms, curriculum, and licensing of its practitioners. Were this to fall away and education become a public open learning environment, privately held knowledge would be jeopardized.

The Information Age may provide the open, public forum enjoyed by Socrates where the only basis for knowledge was the acceptance through logic of persuasive argument. If schooling is to be defined within the forum of public debate and learning– not a closed educational exposition in a classroom– professors and teachers will find themselves open to much examination for what goes on in their new technology driven Agora. Information electronic technologies seem to be a can-opener, prying the lid off the private holdings of the educational establishment in much the same way Gutenberg's Press and Aldus' book pried open the tightly held containers of the Church and monastery.

There is a long held difference between public activities– which have no expectations of privacy– and public activities. For example, as we walk our dogs in the evening, we have no real expectation the

Tweed Ross is an Assistant Professor of Foundations and Adult Education and Director of Technology in the College of Education at Kansas State University.

community will look the other way to insure our private stroll. On the other hand both Constitutional and community standards have combined to insure that what is done in our own homes is secure from government and individual snooping. However, there is a large, ambiguous field between these two extremes. If government agents were to document every public move, every walk, every purchase in the grocery store, every conversation, privacy would be grossly compromised. Yet the activities, viewed as individual activities, carry with them no expectation of privacy. The process of monitoring and accumulating data about personal public activities can easily be viewed as a threat to privacy.

Electronics have greatly enhanced the power of individuals and public agencies to document others' day to day comings and goings. Documentation provides a thousand fold increase in the ability to invade privacy, without invading space. As the privacy of the classroom is stripped away by electronic technologies new concerns about the practice of teaching emerge. I have tried in the next few paragraphs to create some interesting– if as yet fictional– scenarios.

Uniformity

Professor Electro has been teaching Introduction to English Literature successfully for many years. This year his class has been equipped with devices where students can press a button indicating that they understand the concept and its development and Professor Electro sees a display of student understanding throughout the class period.

To help other professors this display has been kept for analysis to provide quality monitoring of Intro. To English Literature. This scenario allows the classroom to focus on only those methods the provide conceptual understanding by the most students and other methods—which may meet the needs of some learners– can be discarded for efficiency's sake.

Electronic classrooms have been enthusiastically equipped with electronic monitoring devices where students record their understanding of difficult concepts during lectures. This has been hailed as a way for teacher to modify their presentation and content "on the fly" to meet the needs of students. Would it not also provide an excellent way to insure that all instructors were teaching the same content in the same "tested" way? As state and national governments pursue establishing uniform learning standards to benchmark student progress, electronic technologies insure those in charge of instruction are working to meet politically inspired goals. The drive to test and evaluate in the name of quality assurance seems an adequate example of micro monitoring. Coupled with the power of technology it is a small step to monitor classroom teaching on a daily basis.

Data Mining

A small liberal arts college is approached by a major soft drink manager wanting to fund a substantial research project on the soft drinks preferred by its business majors. They want to be able to track the career paths of these majors and how their soft drink preferences change after they leave school.

Data mining is the process of correlating information from vast databases to establish patterns of behavior. An ominous process in public education might be to compare student test reports to immigration and naturalization reports or the Internal Revenue Service as a method of finding illegal aliens or tax cheats. Other examples compare alumni records, unpaid student loans and tax reports. Schools are the repository of vast databases about both students and parents. To insure uniformity and serve great many social purposes the individual privacy for students and parents may be erased. Much of this information is already present and available in yearbooks and phonebooks. The power of electronic technologies allows easy searching to find correlations at a much greater speed. While individual privacy may remain secure, the school in this instance has become part of process which identifies groups and opens up their collective behavior for examination.

Commodity

Professor Electro, earlier mentioned as having developed and now refined his Intro. To English Literature course, sadly passes on. The school however has taped his program and with graduate students to monitor classroom concerns, continues long into the future to offers this Intro. To English Literature course to eager students.

Information as a commodity becomes a valuable holding for educational programs to sell or exchange with commercial enterprises. Consider one small example of new student and faculty identification cards embossed on the back with the name of a local bank and a credit card emblem. As new cards are issued to the incoming freshmen each year has the information associated with the student become a commodity that the educational institution has chosen to barter for convenience?

Education and teaching in a public arena become "works for hire." Schools seeking additional funding may find outstanding classroom teachers' presentations, not as an individual performances by talented educators, but as profitable demonstrations to be captured and circulated electronically.

Global Village

Washington School District initiates a policy to help parents and students keep up on what is happening in the classroom. Using streaming video, classes are made available on the internet to students who have to remain at home or parents who want to know what their children are learning. Thirty miles away, Lincoln School District adopts the same beneficial program for its students and parents. Now the public, can for itself, compare quality of instruction in either school district.

The "global village" of McCluhan painted an idyllic vision an analogy of world where information and knowledge were shared much as knowledge about neighbors is shared in a small town. Small towns have much to recommend them. One of the things given up for living is small communities is the privacy that comes from anonymity. Neighbors know the comings and goings of virtually all whole reside there. Small towns tend be suspicious of those from the outside who enter their tranquil space.

To move to an electronic global village (albeit McCluhan never envisioned the World Wide Web) would require the professorate to come out of its village and welcome strangers into their midst. The implications of having teachers presentations and work compared in a public, electronically distributed forum, may have many hidden consequences.

Ubiquitous E-mail

An administrator sends a message reprimanding a teacher for an action which took place in their class and notes that this message will become part of their evaluation materials. Accidentally, the administrator presses the wrong key and the message is sent not to the teacher, but to the entire faculty.

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The nature of traditional mail communication was founded essentially on concepts of point-to-point communications. One wrote a letter to another person. With some exceptions, such as memos and bulletins, authors expected their communication with others would remain private. If not private their communication would remain in the control of the person they had trusted with their thoughts in the first place. Someone might share the contents of a letter. They might even make copies and share their thoughts. But there was a sense of intimacy and control in traditional postal services, not present in e-mail.

E-mail, which at first seems to be a point to point communication has a greater inclination to "shouting from the rooftop." Once the e-mail is sent to another, the very ease of the electronic forwarding totally dissolves the concept of private communications. Having once experienced the effect of forwarding a joke to another, who forwarded it to ten others, who in turn forwarded it to ten others quickly makes one recognize that privacy in electronic communications is non-existent.

Adding to the problems associated with forwarding, one should carefully consider if their electronic mail is being watched. Most would argue forcefully that school officials should periodically scan electronic mail to insure no illegal or unethical activities are being conducted. It is a small step from there to scan email for unwarranted curriculum decisions, union activities, and administrative grumblings. This very nature of privacy invasion may well have the deleterious effect of curtailing the freedom of thought and speech that has marked the liberal traditions of education.

Web publication.

A syllabus for new and unique course is published on the web for the students to use along with a copy of the professor's new book which, although the professor has a contact with a publisher to sell this book, he feels that this would be a great boon for the students. Another professor while "surfing the net" stumbles into this syllabus and its accompanying text and links to the first syllabus.

There is a great move on in universities to create and "publish" web based courses and syllabi. If the design of a course and its layout in the syllabus is the "heart" of the program, publishing them on the web makes them the most public of expositions. It takes little technological effort to copy another's syllabus, make modest changes and post it on a web server. It takes even less to read the syllabus, now available to anyone and use the major ideas in the creation of another course.

Conclusion

Each of these scenarios is not meant to be the grist of new Luddite mongering. They are how meant to open the discussion on what the future of teaching and education will appear to be in a world where the privacy that has been central to classrooms is replaced by an open forum. Learning in an open public environment as different from the closed monopolistic practices of teaching and schooling will be fundamentally different. As Edward Tenner (1996) has been quick to point out, technology often has unintended consequences and the drive to use information technologies in the classroom may well have as its unintended consequence the end of teaching as an essentially "private activity."

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...Power is inherently unequal, and this inequality is as much a part of virtual societies as it is a part of the physical world.

Promise or Peril? Electronic Technologies, Equity, and Marginalized Students

Denise M. Dalamio

A physician, a civil engineer, and a computer scientist were arguing about what was the oldest profession in the world. The physician remarked, "Well, in the Bible, it says that God created Eve from a rib taken out of Adam. This clearly required surgery, and so I can rightly claim that mine is the oldest profession in the world." The civil engineer interrupted, and said, "But even earlier in the book of Genesis, it states that God created the order of the heavens and the earth from out of the Chaos. This was the first and certainly the most spectacular application of civil engineering. Therefore, fair doctor, you are wrong: mine is the oldest profession in the world." The computer scientist leaned back in her chair, smiled, and then said confidently, "Ah, but who do you think created the chaos?"

(Source unknown)

Electronic Technologies: The Bridge to Equality and Employment

The ability to access electronic mail (e-mail), the Internet (Net), and the World Wide Web (Web) have become life skills for the 21st century. Internet users have almost instant access to facts, figures, databases, public archives, libraries, and information from around the world. Additionally, the use of e-mail has been reported to enhance both professional and personal relationships by providing a fast and efficient way to communicate with colleagues and friends– whether they live next door or half way around the world. In fact, an increasing amount of social and professional relationships are initiated and sustained through computer-mediated communication (CMC) (Elza, 1994; Fox, 1994; Johnson, 1994; Tannen, 1994). During the 1990s, electronic technologies have been riding a wave of exponential growth. In 1998, it was estimated that there were 60 to 75 million adults on the Internet with access to at least 320 million globally distributed Web pages (CyberAtlas, 1998; Network Wizards, 1998; Novak and Hoffman, 1998; Rutkowski, 1998).

A sociology professor at California State University at Northridge conducted an experiment to test the value of online learning. Randomly dividing his statistics class in half, the professor taught one half of the students through a lecture based format and the other half through assignments which were accessed on the Web and through electronic discussion groups and e-mail. The preliminary results revealed that students in the virtual classroom scored an average of 20% higher than those who had attended the physical classroom (*Chronicle of Higher Education,* February 21, 1997). This and similar research has led to many educators extolling the virtues of electronic technologies. In a 1997 poll, U.S. teachers ranked computer skills and media technology as more 'essential' than the study of European history, biology, chemistry and physics; than dealing with social problems such as drugs and family breakdown; than learning practical job skills and than reading modern American writers such as Steinbeck and Hemingway or classic ones such as Plato and Shakespeare (*Washington Post,* May 11, 1998).

Similarly, Fred Hofstetter of the University of Delaware asserts, "Citizens who do not know how to use multimedia will become disenfranchised. Cut off from the Information Superhighway, they will end up watching life go by instead of living it fully" (in *Multimedia Literacy*, 1997).

Another reported advantage of electronic technologies (ETs) is the bridge they build between universities and corporations. Students who have knowledge of, and familiarity with, the Internet and the World Wide Web are better equipped to get a job once out of college. In 1998, a survey of 100 business trainers found that 40 percent of large corporate training groups plan to create corporate/university partnerships allowing corporations to negotiate contracts that will encourage colleges and universities to provide courses and technical degrees customized for a particular business. This same survey indicated that by the year 2000 more than half of this custom training will be delivered through technologies such as the Internet and videoconferencing (*Computerworld,* April 13, 1998).

A new study by Booz, Allen & Hamilton and the Economist Intelligence Unit reports business leaders are confident that the Internet will greatly affect the world marketplace by 2001 (*Financial Times,* May 21, 1999). The study– which surveyed almost 600 executives– found that 92 percent believe the Internet would reshape the market by 2001. Sixty-one percent of these same executives felt that the Internet would allow them to achieve strategic goals, and 30 percent had already changed their strategies due to the influence of the Internet. The study also found that the majority of business leaders believe strategies based on the Internet will require significant investment, but worth the profitable future returns. Furthermore, the respondents expressed confidence that the Internet would change relations with both customers and suppliers. The study indicated that preparation for the growing influence of the Internet has already begun, with 90 percent of respondents currently offering a Web site and 61 percent planning to offer an extranet with private access to customers, suppliers, and partners.

In early 1999, Jones International University– which specializes in selling online courses for profit– became the first Internet-only school to be accredited to grant college degrees. Accredited by the North Central Association of Colleges and Schools, Jones International offers bachelor's and master's degrees in business communications. The courses are designed by professors from schools like Columbia and Stanford and are taught by part-time professors free-lancing for extra cash. Founder Glenn Jones states "In the U.S. there are 100 million people who need some kind of additional education, and there are only 15 million seats in universities (*Wall Street Journal,* March 9, 1999).

Surprisingly– despite increased interest in and use of computer technologies– the number of computer science graduates in the U.S. dropped from 48,000 in 1984 to 26,000 in 1997. "This is a real limiting factor to growth," asserts a researcher at Stanford Computer Industry Project (*Business Week,* July 21, 1997). Further, the demand for

Denise Dalamio is a Professor of Sociology at Mt. San Jacinto College in San Jacinto, California.

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computer scientists is not limited to the computer industry. Automobile makers, banks, brokerage houses and phone companies are all vying for qualified job candidates. A Netscape human resources director declared, "Everybody's going crazy now trying to find these folks" (*Business Week*, July 21, 1997). Industry observers believe the widening gap between the supply of computer science graduates and computer industry demand probably will not close for at least a decade. This shortage has led computer companies to look overseas for qualified applicants to fill their jobs– to countries like South Africa, the Philippines, India, Russia, Israel, Bulgaria and the Ukraine.

In addition to providing a more efficient form of communication and opportunities for education and employment, it has been argued that electronic technologies offer unlimited potential for democracy and equal opportunity– due in large part to the visual and verbal anonymity of computer-mediated communications. Virtual societies offer sites where one might browse to learn, to teach, to debate, and to create without those who are more dominant, more confident, or more prestigious wielding unequal power or influence. An individual has the option of not revealing cues about his or her sex or gender, appearance, age, nationality, race or ethnicity– thereby avoiding many prejudices and resulting discrimination. It seems many women have already realized some of the advantages of ETs. A test/survey[1] taken by 16,500 Internet users revealed that women are superior when it comes to surfing the Internet. Of a possible 100 points, the average score for men was 78.29 and the average score for women was 79.91. Surprisingly, women 60 years of age and older scored 71.38, whereas boys 17 and younger had an average score of only 70.64. Survey cosponsor and MCI executive Vinton Cerf explained: "The actual variation in scores is rather small. What is significant is that 60-year-old women can keep up with the younger guys" (*New York Times*, July 3, 1997).

It is clear that electronic technologies have deeply affected social interaction, and they have surely revolutionized education and the economy. However, a closer look at the fallout surrounding the ET frenzy reveals the benefits are not enjoyed equally by all people.

The Other Side of the Sword

Dissenting Voices

Critics of electronic technologies are not few. Educators, authors, and social critics have argued that the reliance on ETs has resulted in less creative and diverse writing, the cancellation of non-computer oriented programs, a comparatively higher online dropout rate, a larger time investment for educators, and questions over intellectual property rights. Additionally, the new electronic technologies have been found to put/keep some marginalized students at a disadvantage.[2] Author and social critic Gore Vidal is one of many educators and scholars voicing dissent about the love-fest surrounding computer technologies. Vidal questions the value of computers for less technologically oriented careers. He believes his own writing would have suffered over the years had he been using a computer. Vidal argues,

> "In general, people who write on computers don't write nearly as well as those who type or write longhand. They become 'easy settlers,' as we used to call movie writers who settled for their first notion of a scene. The computer page looks too perfect to alter the first time around. Hence, lousy, repetitive prose." (*Forbes,* December 1, 1997).

Internet critic, computer security expert, and astronomer Clifford Stoll shares Vidal's skepticism. Stoll– author of the best-selling book *Silicon Snake Oil*– is working on a new book that is critical of the use of computers in primary and secondary education. Stoll told the *Dallas Morning News*,

> "I've discovered that using computers... was a great way to make it look like I was doing wonderful academics when, in fact, I'm just screwing around. And for all the many, many hours that I've spent online and on computers, seems to me that most of the important work that I've done has happened independent of the hours that I've spent online. When I think of the skills that I need as an astronomer, they're skills like knowing mathematics, understanding physics, being able to manipulate a telescope, being able to write a paper, being able to read analytically and understand what someone else has written. Being able to poke holes in arguments. To be able to stand up in front of a meeting and present my ideas. These days, the computers are loaded with programs to guide the kids through things... The main thing the computer is teaching... is [to] accept what a machine says without arguing, that relationships that develop over e-mail, Web pages and chat rooms are transitory and shallow. That if you're ever frustrated, all you have to do is pull the plug and reboot the machine." (August 24, 1998).

In defiance of the conventional wisdom that it would be desirable (in the words of President Clinton) to connect "every classroom in America to the Internet by the year 2000" (1997b), there are increasingly vocal critics of the use of computers in K-12 instruction. One of these critics is William L. Rukeyser of the nonprofit organization Learning in the Real World, who maintains,

> "So many programs were being slaughtered by this perception that if it didn't involve computers, it wasn't worth anything. I quickly realized that there was this tremendous faith that computers were in fact some plaster saint that would save the day. ...We're not pushing our brand of solution, and we're not saying that the emperor has no clothes. We're just asking, Is his tie on straight and do his socks match?" (*New York Times,* March 17, 1999)

So just how effective is electronic education? Although preliminary results reveal better academic outcomes for online learners, the experiment conducted at California State University at Northridge could not determine the cause of the superior performance, i.e., whether the online students performed better because they spent more time collaborating with their classmates or because of the virtual format of the class (*Chronicle of Higher Education,* February 21, 1997). Not surprisingly, a College Board report notes that there is a higher dropout rate for online classes– 32 percent compared to just 4 percent for traditional classes. Armed with such information, officials are concerned that schools facing budget cuts might be lured online by pitches from technology providers that online learning cuts the costs of real-world learning. Meanwhile, the Institute for Higher Education polled on the extra amount of time teaching a distance learning class requires– primarily due to a high number of e-mail exchanges– and their feeling that not all courses, especially those that require hands-on training, are appropriate for the distance learning format. In addition, concerns have been voiced about intellectual property rights

in regards to posting course syllabi and lecture notes on the Web (*Wall Street Journal,* July 15, 1998). However, wariness about the consequences of ETs in education is just the tip of the sword. Researchers have revealed some disturbing developments as a result of the upsurge of CMC users.

Inappropriate and Dangerous Behaviors

The exponential increase in the use of electronic technologies is accompanied by an increase in instances of inappropriate, lewd, dangerous, and even deadly behaviors originating on the Internet (Costello, 1993; Fox, 1994; Jackson, 1993, 1994; Johnson, 1994; Monson and Dalaimo, 1994; NBC, 1994). These behaviors– directed disproportionately at women and young boys[3]– are as real in their consequences as are similar real-world offenses. On June 16, 1994, NBC ran a segment on its *Dateline* series entitled "Predators On-Line" which discussed seduction, preying on naive victims (often young boys), intimidation, harassment, stalking, and even rape as issues relevant to electronic communication. Since then there has been a steady stream of media coverage of similar behaviors and crimes over the Internet. Women, the young, and the innocent are not the only victims of electronic harassment and stalking. Recently the Microsoft Corporation won an e-mail harassment suit against a former female employee who was sending Bill Gates frequent, hostile, and unwelcome messages after her termination (Elza, 1994). A student from the University of Michigan was freed on March 10, 1995 after being denied bail for posting a sexually violent story to an electronic bulletin board. Because the author used the name of an actual person and stated privately to another list user "...just thinking about it doesn't do the trick, I need to do it..." he was charged with the federal crime of transporting threatening materials across states lines (Lewis, 1995). The fact is, all of the major computer-mediated communication providers (NBC, 1994) and many scholars in the field (Costello, 1993; Ehrlich, 1992; Elza, 1994; Jackson, 1993; Monson and Dalaimo, 1994; Peterson, 1994) report that inappropriate behavior and harassment online is a problem. A brief look at some social psychological concepts help to explain why.

In the physical world, we all employ the art of impression management at some time. Some of us are sure to be on our "best behavior" when Mother is around, and others wear suits to work where colleagues and students see us, but change into jeans or sweats the minute we get home. The difference, however, is that in face to face interaction we have visual and contextual cues that offer us additional information about each other– information that allows us to slowly come to know the people with whom we are interacting. Message coordination and feedback using ETs are also problems.

> When individuals are unfamiliar with each other's opinions and statuses, a feeling-out process occurs whereby an individual admits his (sic) views or statuses to another a little at a time. After dropping his guard just a little he waits for the other to show reason why it is safe for him to do this, and after this reassurance he can safely drop his guard a little bit more (Goffman, 1959: 192).

As CMC lacks the contextual and reflexive nature of face to face interaction, the "feeling-out" process described here by Erving Goffman occurs differently. Over e-mail and electronic listservs, information is communicated in monologues, with one person giving some information and then asking questions. Then the other reciprocates, answering the former's questions and asking a few of his/her own. There can be no mid-stream interjections or requests for clarifications. The sender and the receiver do not share the same temporal or spatial milieu. Because CMC lacks the constant feedback about one's self and the visual communication that occurs in face-to-face interaction, images of message senders develop in a different, often more spontaneous manner. Cues necessitating image revision and adjustments are not as readily available electronically as they are in person.

In addition to problems with message coordination and feedback, CMC lacks several important visual and contextual cues that reveal information about a person. These cues include, but are not limited to, voice tone and speech patterns, facial expressions, and body language, which can imply things such as mood, emotion, attitude, and intent. Also lacking in CMC are cues from a person's conduct and appearance that allow us to employ our previous experience with similar individuals by applying stereotypes to him or her (see Goffman, 1959). Some contextual cues which are absent from CMC include: insignia of office or rank; clothing; gender; age; racial characteristics; size; posture. All of these contextual cues allow us to ascribe meaning to interaction in face to face situations, help us to make sense out of a situation, and to predict how the other will act based upon our past experiences. As social beings, we are always developing relationships with others by employing generalizations or stereotypes that aid us in predicting behavior, share meanings and experiences, and develop a common basis from which to interact (Schutz, 1962). These cues help to define the situation and clarify mutual expectations.

In a face to face situation, a victim of stalking or harassment has the potential advantage of visual and contextual cues with which to assess the perpetrator's actions and the situation. Through CMC, the perpetrator has the advantage of being able to control what information the victim receives about him or her, thereby allowing no secondary or inferential information for the victim to work with. In this way, the harasser has the ability to manipulate the victim's opinion of him/her. Left with no social or contextual cues, the victim is forced to rely more heavily on subjective experience to make up for the lack of observable behavior in assessing the harasser on the other side of the computer screen.

A first impression may be more easily manipulated over electronic mail because there are no contextual cues to indicate the creation of false impressions. We often speak of "getting off on the right foot." Once made, the first impression is much harder to change with subsequent interaction (Goffman, 1959). Therefore, after making a good initial impression, a harasser may be permitted to get further than he/she would have in a face-to-face situation. Goffman stresses the fact that "the initial definition of the situation projected by an individual tends to provide a plan for the co-operative activity that follows..." (1959:12), in other words, once a harasser gains the trust of a victim, that person can be easily manipulated. The visually anonymous nature of electronic technologies seems to be a large part of why inappropriate behavior and harassment is so prevalent.

Marginalized Students

There is a historical relationship between the distribution of knowledge and the distribution of power. A major prerogative of power is the capability to control settings (Giddens, 1983: 206-9). Access to, and familiarity with, many forms of electronic technologies allows users of CMC to increase their capability to control the environments

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in which they learn, teach, and interact. It is often argued that the Internet is a more democratic environment than physical society because access to literally hundreds of millions of pages of information are available to anyone with an email account. However, when we take a closer look at who has access to personal computers– and more importantly, who does not have access– a different story unfolds.

For the purposes of this discussion, a marginalized student is one who finds him or herself on the "margins" of U.S. society, where the "center" is a theoretical embodiment of dominant group members, i.e., Anglos, the middle and upper classes, heterosexuals, Christians, the able-bodied and the able-minded, English speakers, and males. If an individual is a member of all of the aforementioned groups, he is said to be at the center of society, i.e., the ideal– the standard by which others are measured. For each of these groups an individual is not a member of, he or she is further marginalized from the center. Using this conceptualization, a middle class, heterosexual, Catholic, able-bodied/minded, Anglo female is less marginalized than a working class, gay, Jewish, disabled male.[4] Due to a dearth of research on the relationship between electronic technologies and marginalized students, the following discussion is necessarily limited to African Americans and women, and to a lesser extent, Hispanics. The effects of electronic technologies on these and other marginalized groups– especially in the areas of access and ownership– are largely unknown. There is an indisputable demand for increased investigation into this area.

Two new studies released in April 1999 question the value of online college courses for marginalized students.[5] The College Board says in its report that Internet courses could put some marginalized students who have less exposure to computers at a disadvantage. An example is the disproportionately low number– only 20 percent– of low-income households that own a computer (Associated Press, April 7, 1999). The consequences of this inequity are significant. These students will arrive at school with less computer knowledge and thus be less prepared to use many forms of electronic technology, including online courses. "There's this rush to get online and go virtual," remarks College Board researcher Larry F. Gladieux. "Colleges, policy makers, and Internet providers who are driving this market need to think about broad access" (Associated Press, April 7, 1999).

By 2005, it is predicted that at least 50 percent of the world's information technology training will happen online. However, most of today's online course designs focus on cutting-edge technology and the quality of course content, without providing a supportive environment for the student (*Sun Server,* April 28, 1999). A lack of support combined with a lack of experience with, and access to, computers may result in many marginalized students being excluded from some very important opportunities. Some marginalized groups are dissuaded – both overtly and covertly– from using electronic technologies. The aging encounter physical barriers while trying to access computer technologies. For many, the mere act of double-clicking a mouse is an impossible task. As I discuss later, many racial and ethnic minorities face structural and political barriers due in part to a lack of role models – whether real or perceived– who own and use electronic technologies. Similarly, while accessing computer technologies, women must contend with many of the same gender barriers that exist in the "real world." Research reveals that males dominate virtual communication just as they do face to face interaction. Researchers have identified typically feminine methods of communication as more relational and cooperative, and less direct and confrontational than the traditionally masculine style of communicating (Richardson, 1988; Tannen, 1994). Linguists studying e-mail communication found that women tend to be less adversarial, less assertive, and more likely to use personal experiences for support. Men were less likely to take personal offense from comments and to be more self-promotive (Herring Report, in *We*, 1994). This same report also found:

> (1) Men wrote longer messages than women.
> (2) Men wrote more messages than women.
> (3) Messages by men received more responses than those written by women.
> (4) Men threatened to leave the [discussion list/newsgroup] if there was prolonged discussion where women contributed 50% or more of the comments.

Tannen believes that, similar to co-ed classrooms and meetings, discussions on e-mail networks tend to be dominated by male voices. But unlike classes or meetings, "online, women don't have to worry about getting the floor (you just send a message when you feel like it)" (1994: 53). Linguists Susan Herring and Laurel Sutton, however, have reported that even though a woman may have the opportunity to send off a message, she still has the same problem of having her messages ignored or attacked (in Tannen, 1994). In other words, the same gender based inequalities and differences that are present in the social environment of face-to-face interaction carry over to computer-mediated communication (Frissen, 1992; Troung, 1993). "Cyberspace, it turns out, isn't much of an Eden after all. It's marred by just as many sexist ruts and gender conflicts as the Real World" (Kantrowitz, 1994: 48).

In addition to the physical, structural, political, emotional, and social barriers to using electronic technologies, it appears an individual's race can be an obstacle to accessing and owning a computer. The Spring 1997 CommerceNet/Nielsen Internet Demographic Study (IDS)[6] – a nationally projectable survey of Internet use among Americans– was the first to collect data on race and ethnicity. The study found that Whites were much more likely to subscribe to an online service than either Blacks or Hispanics. Despite increasing numbers of Blacks and Hispanics online– a number growing faster than the overall rate– the disparity between white and non-white households actually widened between 1994 and 1997. At the end of 1997, 40.8% of non-Hispanic white households owned a computer, compared to 19.4% of Hispanic and 19.3% of African-American households, a gap of 21.5%. Commerce Secretary William Daley declares "The study exposes a growing problem in our economy, one that must be taken seriously: too many Americans are not able to take part in the growing digital economy. The growing trend of information 'haves' and 'have-nots' is alarming" (*Miami Herald*, July 31, 1998).

In a 1998 study based on the IDS, Vanderbilt University professors Thomas Novak and Donna Hoffman revealed a significant racial divide among Anglos and African Americans when it came to computers and the Internet. African Americans and Anglos differ significantly in computer access and Web use. Anglos are significantly more likely than African Americans to have a home computer in their household (44.2% vs. 29.0%), and to have accessed the Web at home (14.7% vs. 9.0%). African Americans are more likely to have ever used the Web at school, and Anglos are more likely to have ever used the Web at work and at other locations such as friends' houses, libraries, etc. Anglos are also more likely to have

ever accessed the Web (26% vs. 22%), and to have accessed the Web in the past week (12.9% vs. 5.8%) (Novak and Hoffman, 1998:3).[7]

When controlling for income, Novak and Hoffman found that increasing levels of income correspond to an increased likelihood of owning a home computer, regardless of race. These findings indicate that the inequity in home computer ownership is correlated with socioeconomic status. When controlling for education, the researchers found that increased levels of education correspond to an increased likelihood of access to a computer at work, regardless of race, indicating that inequity in work computer access is correlated with education. In other words, household income explained home computer ownership and education explained access to a computer at work. However, race differences in home computer ownership are consistent across different levels of education. Within each and every education level, Anglos were more likely than African Americans to own a home computer despite controlling for differences in education.

Students are more likely than any income or educational group to have used the Web in the past six months, presumably because they have access at school. Novak and Hoffman found that when analyzing Web use among students, race does matter. While 73% of Anglo students own a home computer, only 32.9% of African American students own one– a difference that persists when adjusting for students' reported household income. Thus– unlike their unenrolled counterparts– income does not explain race differences in home computer ownership among students.

White students are significantly more likely than African Americans to have used the Web in the past six months (58.9% vs. 31.1%). However, the gap disappears when we considerthose students who have a computer at home– 66.7% of white and 63.8% of African American students with a computer at home have used the Web in the past 6 months. The gap prevails when we consider those students who do not have a computer at home– 37.8% of whites compared to 15.9% of African Americans have used the Web in the past six months (Novak and Hoffman, 1998:3).

To explain this difference, the authors considered access to computers at school. They found that Anglo and African American students appeared to have equal access to the Web at school, regardless of whether they had a computer at home.[8] Thus, of those students who did not have a computer at home, Anglos– but not African Americans– appeared to be finding alternative means of access to the Internet through friends and relatives, libraries, and community centers. These results strongly suggest that, in terms of students' use of the World Wide Web– particularly when they do not have a home computer– race matters.

The researchers' analysis also revealed that white students were significantly more likely than African American students to have used the Web in the last week. However, there were no differences in use when students had a computer at home. White students without a computer in the home were more than twice as likely to have used the Web in the last six months compared to African American students without a computer at home. The researchers concluded that white students lacking a home computer were far more likely to be accessing the Internet from locations such as homes of friends and relatives, libraries and community centers.

Thus, it is important to create access points for African Americans in libraries, community centers and other nontraditional places where individuals may access the Internet and to encourage use at these locations... (Associated Press, April 16, 1998).

Novak and Hoffman also found differences in user profiles. Black Web users are more likely to be both newer and less frequent users of the Internet and more likely than their white counterparts to use the Web during office hours (1998, p.8). Although Whites and Blacks are equally likely to search the Web for information about products in general, Whites are significantly more likely to search for product information before purchase, more likely to have purchased online, and more likely to search for company information. Due to the relatively small numbers of African Americans online, it is not surprising that they were more likely than Anglos to state they would like to acquire access: 27.2% of African Americans and 16.7% of Anglos stated they planned to purchase a home computer in the next six months (p.3). The researchers did not study why African-Americans are less likely to have computers, but say they hope that future studies will examine that issue. President Clinton's "aggressive plan to wire schools is only part of the solution– the other part has to come from industry itself," asserts Hoffman (*Wall Street Journal*, April 17, 1998).

The Vanderbilt study also revealed that things are not as bad as they seem when it comes to numbers of African American Web users. The number of African Americans online is five times the popular estimate of one million that is frequently reported in the popular press (*Interactive Marketing News*, 1997; Novak and Hoffman, 1998:8). By January of 1997, over 5 million African Americans had accessed the World Wide Web. "This means that African Americans are already online in impressive numbers, and that continued efforts to develop online content targeted to African Americans, commercial or otherwise, are likely to be met with success" (Novak and Hoffman, 1998:8). Additionally, differences in user profiles are expected to disappear as minority group members spend more time online (Novak and Hoffman, 1998:8).

Discussion

According to an April 1999 study by the nonprofit U.S. Internet Council, the race, class, and gender divide on the Internet is narrowing. Nearly one quarter (23 percent) of African Americans and slightly more than one third of Hispanics (36 percent) are now online, with both of those percentages expected to hit 40 percent or more by next year. The percent of women using the Internet is expected to hit 50 percent by next year, reaching the same level as men. The study also says that just 7.5 percent of the U.S. population lives in an area with no local Internet service provider (ISP), while over 75 percent live in area with four or more ISPs to choose from (*Washington Times,* April 14, 1999).

Another study– this one by the Pew Research Center for the People and the Press– also indicates that the demographics of Internet users are rapidly changing. The Information Superhighway is no longer an elite club of young, well-educated, computer-savvy affluent males. This study supports Novak and Hoffman's findings that the doors have been opened to a more mainstream audience, including individuals with less formal education, the middle-aged, the middle classes, racial and ethnic minorities, and women. Although the 74 million Internet users in the U.S. are still younger, better-educated and more affluent than the population at large, 40 percent of Internet newcomers never attended college and 23 percent have household incomes below $30,000 a year (Associated Press, January 14, 1999).

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Despite narrowing inequities in some areas of electronic technologies, we have a long way to go before we can claim they are fair and democratic educational tools. Information technology, which at first glance seems a non-discriminatory pedagogical tool, shares many of the inequities of traditional education. The Internet is not a place free from the influences of power, privilege, and prestige. The capability to control settings (like the Internet), is one of the major prerogatives of power (Giddens, 1983: 206-9), and– at least at first glance– this power is available to anyone with an e-mail account. However, a closer look reveals that the same types of inequalities and discrimination that plague the physical world are also present in the virtual world. Power is inherently unequal, and this inequality is as much a part of virtual societies as it is a part of the physical world.

In this next section I discuss two ways in which policy and change are likely to be effected. The first discusses developing a community based program to increase computer access and ownership among marginalized students, and the second addresses inappropriate behaviors.

Policy Implications

Increasing Access and Ownership for Marginalized Students

Asked about the impact of computers and the Internet on society, Vanderbilt University Management professor Donna Hoffman remarks,

> "Will we really transform society through the use of computers and the Internet? Well, the jury is still out. I certainly think the potential is there, but it will be realized only if we can get access in the hands of everyone. Otherwise, we are not likely to see revolutionary changes. And we will still have the schisms and chasms in society where there will be sectors of society in which people are able to partake of the wonderful riches online, and at the same time other groups are effectively excluded. I don't think there will be much evidence of the transforming powers found in creating new sources of value until we have people online who we never thought would come online. If we're serious about change, we need to be thinking of getting entire countries– the developing countries and societies– online (July 12, 1998).

Overall, white students are more likely than African American students to use the Web. However, when they have a computer at home, the racial divide in Web use disappears. Household income explains race differences in home computer ownership, but has little direct effect on Web use.[9] Moreover, increasing levels of education– itself correlated to socioeconomic status– positively influence both computer access and Web use. However, Anglos are still more likely than African Americans to own a home computer after controlling for educational differences. Additionally, Novak and Hoffman's research reveals that Whites are more likely than African Americans to have access to a computer at home and work, while African Americans are more likely to want access. The policy implication here is clear. To ensure the participation of all people in the ET revolution, marginalized students need multiple points of access to libraries, community centers, and other non-traditional places where individuals may access the Internet, and (2) education, guidance, and encouragement by community members and educators through community-based outreach and mentoring programs.

One such program is analyzed by Dr. Merlinda Gallegos (1999) in *Neighborhood Councils: A Family-Driven Approach to Community Change*, a report on Nevada's neighborhood-based, community-driven Family Resource Centers (FRCs). FRCs– instituted as facilities within "at-risk" neighborhoods– were introduced by Governor Bob Miller in 1995 as "social laboratories testing new approaches to meeting [community] need and providing a focal point for community action" (Nevada's Family Resource Center Project, 1997:1). Each FRC is responsible for organizing a neighborhood council which conducts a needs assessment of its targeted neighborhood and creates "a service delivery plan unique to the demography and desires of the residents, and responsive to changing needs and resources" of each community (Nevada's Family Resource Center Project, 1997:1). Traditionally, FRCs in Nevada have been a valuable community resource which has educated, and in many ways liberated, individuals in some marginalized areas. With the appropriate funding, FRCs in any "at-risk" neighborhoods could serve as points of access to the Internet and the Web for marginalized students and community members.[10] The idea here is simple: Access, encouragement, and education will translate into usage.

Inappropriate Behaviors

Electronic technologies are not the cause of harassment, lewdness, or stalking, rather they serve as tools that– in the wrong hands– may be used for these purposes. However, the complexities, ambiguities, and virtual anonymity of electronic communication may provide an environment that is more conducive to inappropriate and harassing behavior. Electronic harassment should not be considered any less harmful than harassment in a face to face situation. Although many victims of electronic harassment may never actually see their harasser they experience many of the same feelings as those who are harassed in person; including fear, anxiety, embarrassment, powerlessness, and anger (Monson and Dalaimo, 1994). Victims of both virtual and real-world harassment share common reasons for not filing complaints: fear of retaliation; the desire not to be labeled as emotional, oversensitive, or vindictive; and the general lack of support for victims, which is common due to organizational socialization and the implication that many of these harassing behaviors are acceptable (Paludi and Barickman: 124-25).

Colleges and universities across the country have been advised by the Electronic Privacy Information Center in Washington, D.C. to examine their harassment policies and state anti-stalking laws to determine how they deal with students and staff who electronically harass or threaten other system users (Sandler, 1994:5).The Massachusetts Institute of Technology (MIT) has pioneered a program to address issues of electronic harassment, appropriately named "Stopit." In the first year of the program's existence Stopit handled 89 incidents, including pornographic images used as screen backgrounds (27%); harassing electronic mail (23%); improper use of the system (19%); and obscene or harassing interactive messages, such as "I'm stalking you"(10%) (Costello, 1993:286).

MIT's Stopit program has addressed these problems in an intelligent and aggressive manner. Stopit was initiated after several incidents of "harassment via electronic messages, displays on public workstations offending other users, and improper use of scarce public workstations for other than intended academic work" (Jackson, 1993:1). The purpose of the program is to both educate system users as to what is appropriate electronic behavior and also to offer avenues of recourse to users who have been offended and/or harassed. As Gregory A. Jackson, Director of Academic Computing at MIT explains, the Stopit

"mechanisms" are based on the proposition that "most offenders, given the opportunity to stop uncivil behavior without having to admit guilt, will do so" (1993:1). These mechanisms were designed to (1) discover harassment, improper use, and other uncivil behavior rapidly, and (2) to communicate effectively with its perpetrators, i.e., to "Stopit."[1]

It is through the act of communicating that society actually operates and evolves, and our evolution will bear the signature of the increased use of computer-mediated communication around the world. If the social order is the "result of past human activity" and "exists only insofar as human activity continues to produce it" (Berger and Luckman, 1966: 52), then it should be possible to "re-create" a more effective, more accessible, less conflictual, and less alienating computer-mediated environment. An environment that offers the same opportunities for all individuals regardless of race, ethnicity, sex or gender, age, or ability.

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Endnotes and Sources

[1] Co-sponsored by MCI and Educational Testing Service. The test/survey can be found online at <http://www.nettest.mci.com>.

[2] A discussion of marginalized students follows in the next section.

[3] That is, individuals who portray themselves as women or yourng boys, since it is impossible to know for sure over CMC.

[4] It is important to understand that this is merely a theoretical conceptualization for analytical purposes and no comparisons should be made as to who is more marginalized than whom. Each individual situation differs in its own right with varying social, economic, political, religious contexts.

[5] Referred to as "underprivileged students" in this study.

[6] The IDS is based upon an unrestricted random digit dial sampling frame, and use a computer assisted telephone interviewing system to obtain 5, 813 respondents. Weighted, the 5,813 respondents represent and allow projection of the total population of 199.9 million individuals in the U.S. aged 16 and over.

[7] The last two differences were not statistically significant.

[8] Differences in school technology are likely to have a significant impact on the quality of access and use.

[9] Exceptions include those with either home or work access at the higher income levels.

[10] For a detailed discussion of Dr. Gallegos' participant observation research of Southern Nevada FRCs, see Gallegos, Merlinda R. (1999). *Neighborhood Councils: A Family-Driven Approach to Community Change*. Dissertation: University of Nevada-Las Vegas.

[11] For a detailed discussion of MIT's Stopit program, See Dalaimo, D. M. (1997). Electronic Sexual Harassment. Pp 85-103 in Sandler, B.R. and Shoop, R. *Sexual Haassment on Campus: A Guide for Administrators, Faculty and Students*. Boston: Allyn and Bacon.

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...The task is not knowing all of the answers to these ethical concerns, but knowing the right questions to ask about them.

Information Literacy and the Internet: Transforming the Practice of Teaching and Corresponding Ethical Consequences

Gerald D. Bailey and David Pownell

Technology pioneers have witnessed an interesting evolution of the computer over the last thirty years. In the 1970s, educators saw computers as a way of "crunching numbers." In the 1980s, a second wave, educators saw personal computers being used for word processing, spreadsheets, databases, and presentation devices. In the 1990s, computers and other technologies combined to create opportunities for electronic communication, electronic creation (Websites), and electronic collaboration (e-mail, chat groups, listservs, etc.). In the 2000s, educators will undoubtedly see more sophisticated techniques of electronic strategies for communication, creation, and collaboration. As technology leaders transform teaching and learning with the emerging technologies, ethical use of identifying, accessing, and applying technology will become one of the hotly debated issues among educators, parents, and publics.

During the last decade, teachers have used emerging technologies (computer, modem, CD-ROM, etc.) in three primary ways: (1) technology-as-aid (i.e., sometimes called "teacher talk & technology" or "electronic chalk"). Teachers who use technology applications (e.g., HyperCard®, PowerPoint®, Persuasion®,or HyperStudio®) to support direct instruction fall into the category of technology-as-an-aid, or (2) technology-as-subject Tech Ed programs or Tech Prep programs are where the curriculum is focused on the tools and subject of technology. It is common to see Tech Ed programs include courses of communication, transportation, and production. Tech Prep programs usually include vocational programs that combine secondary and post-secondary courses that lead to an associate degree or two-year certificate, and (3) technology as-empowerment-tool. In this instance, technology is seen as the core or foundation for the learning. Teachers are most interested in putting the technology hardware and software in the hands of students where students discover meaning for themselves (i.e., constructivism).

Gerald Bailey is a Professor in the Department of Educational Administration and Leadership in the College of Education at Kansas State University.
David Pownell is an Educational Technology Specialist in the College of Education at Kansas State University.

Recent Developments Which are Are Forcing Related Ethical Issues

As a backdrop to the computer evolution, futurists have provided the following information about recent changes in society:

- The amount of information is doubling every two to three years.
- Everyday 7,000 scientific and technical articles are published.
- Satellites orbiting the globe send enough data to fill 19 million volumes in the Library of Congress– every two weeks.
- High school graduates are exposed to more information than their grandparents were in a lifetime.
- Only 15 percent of jobs will require a college education, but nearly all jobs will require the equivalent knowledge of a college education.
- There will be as much change in the next three decades as there was in the last three centuries.
- Technology development is doubling every eighteen months.
- Ninety percent of the technology that people will be using in next ten years has not been invented yet, or people don't have access to it (Bailey, Lumley, and Dunbar, 1995 and Bailey and Lumley, 1997).

Taken together, these facts show a trend about the breadth and depth of change and "this new style of change" is changing our private and public lives– forcing us to deal with ethical uses of technology that most of us would have never contemplated. Specifically, access to the Internet has made teachers overwhelmingly aware of the information explosion because both teachers and students are drowning in a sea of information. Too often, teachers and students "begin fishing on the Internet" and catch hundreds of Websites. In the midst of this endless harvest of fish, there are snags, distractions, junk disguised as quality, and an incredible amount of debris. In short, it is common to see students who don't know how information is organized, how to find useful information, how to create new information, and how to use information in such a way that others can learn from them (Websites). Even more troublesome is the lack of knowledge concerning ethical use of this information by both teachers and students.

The Response

In their search for answers to these Information-age challenges, many teachers have become more interested in the concept of Information Literacy. Information literacy can be defined as identifying, accessing, applying, and and creating information. Information Literacy is an information-age problem solving process and addresses many of the challenges and problems of life-long learning in the electronic age. In 1989, the American Library Association Presidential Committee on Information Literacy outlined the basic underpinnings of Information Literacy. Additional information about the concept of Information Literacy can be found at the American Library Association's site: <http://www.ala.org/aasl/positions/PS_infolit.html>. According to the American Library Association, many groups have helped to define Information Literacy. Information Literacy is one of five essential competencies for solid job performance according to the U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS). Many educational associations including the

Association for Supervision and Curriculum Development (ASCD) have supported the concept of Information Literacy. In addition, authors such as Eisenberg and Berkowitz (See: <http://www.big6.com>) have helped refine our ideas about Information Literacy.

Whatever authority you associate with Information Literacy, they generally agree that there are steps or stages found in this process of "learning how to learn." Each step must be explained, understood, and followed if students are to become a life-long learners– making sense out of information for themselves. Likewise, each step requires thought about the ethical issues associated with information literacy.

To further clarify Information Literacy, the authors have field tested a model called Bailey-Lumley Information Literacy Model (See Figure 1) over the last five years. The Bailey-Lumley Information Literacy Model provides ideas and suggestions for putting Information Literacy into action for teachers who are creating a learning-based environment for students by focusing on the Internet as well as identifying ethical issues that teachers will encounter.

Step 1: Identifying the Right Question(s)

In the first step of Information literacy, teachers must facilitate students as they begin to ask the right question(s). To solve a problem, there must be something significant to study. There must be a problem which needs a solution. The question(s) must be relevant and worthwhile to both the teacher and student. The student must be able to apply what they have learned. Identifying the right question takes considerable practice. Here are a few of the questions that the teacher needs to get students to consider:

- What is real, authentic issue (problem), or question?
- Is there more than one question that needs to be addressed?
- What is important to consider when addressing the questions?
- Is there an opportunity for creating new information in this information search?
- Is this an integrated issue? (i.e., crosses several disciplines or one discipline)
- What do I need to know to ask the right question(s)?
- What are the related issues to the question (i.e., system's perspective)?
- Can I formulate a hypothesis about this question?

In short, "learning how to learn" requires thinking about what answers you are seeking– the learner returns to the original question to determine if the answers (which were found as a result of the search) are appropriate.

As the teacher guides students in asking the right question, ethical issues arise for both the teacher and students:

- Who owns this information?
- Does the location of this information have any legal implications for the user?
- What ethical-related questions must be identified prior to any activity in information literacy?
- How do the questions and possible answers relate to the community, society?
- Is the question worth allocating time to– is it worthy of study?
- Are the questions appropriate learning tools?
- Are there any risks or dangers to students involved (i.e., exposure to sensitive topics)?
- Are the questions age appropriate?
- Do the questions support the values of the school, community?

Step 2: Organizing Your Search

The prerequisite to Step 2 include having a basic understanding of the Internet and World Wide Web. Obviously, students need to be connected to the WWW and have an Internet browser. In addition, students must have an understanding of the basics of bookmarks, folders, and search engines. Students must have some fundamental understanding of how things work to begin getting ready to organize their search. In Step 2, questions relating to the search process include the following:

- What bookmarks are available from the web?
- What traditional print and media resources are available? Do they complement or provide different material than found in the Website sources?
- How can I organize this information quickly and efficiently? What folders do I create to house these bookmarks?
- Are there some Websites ("jumpsites") that can help in the search for information?

As the teacher guides students in getting organized (thinking about searching), ethical issues must be considered. The following questions guide the teacher and students in that process:

- Legally, what is the difference between storing and using print and nonprint materials?
- Can I use any materials without fear of copyright violation?
- What are the copyright laws?
- Who are the authorities on copyright and ethical issues?
- What are the "fair use" policies for digital materials?

Step 3: Selecting the Appropriate Search Tools (search trees and search engines)

In Step 3, the learner must know how to identify search engines which enable users to search Web documents using key words.

Web search engines attempt to create a detailed record of the Web using automated software agents– nicknamed spiders– that crawl from URL to URL, visiting every site in the public areas of the Web and recording the address. All search engines handle these initial steps in essentially the same way.

Few people give much thought to the search engines they use. They find what's handy or what they've heard about, often using what's on their browser or a favorite Website. The various search sites do seem different, but it's difficult to determine differences. As a result, a clear path of problem solving does not emerge for the learner.

Students need to understand what the various search engines do. Often, students will stay with only one search engine– the first one used rather than explore others. Search engines make significant differences in the quality and quantity of search results. Some send robot software to every site and record the full text of every page. Others first analyze the addresses in the database to determine which sites seem most popular (typically by determining the number of links pointing to the sites in question). They then send out software to

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record information at these sites only– anything from the bare HTML title and header to an algorithmically constructed summary of contents to the full text of the entire site. Whatever the scope of the database, it must be rebuilt, refreshed, or updated regularly to keep the system current.

The search logic used to extract information from the database is another crucial component of these tools. Engines should be able to find the Web sites that match the search criteria and rank the results according to a degree of relevancy.

The essential questions that learners need to address:

- Are there search trees which lead to information before selecting a particular search engine?
- Which search engines will best help me conduct the search?
- Do I know the strengths and weaknesses of each search engine?
- Who else has researched this area?
- Who are the authorities?
- Have credible researchers researched this area?

As the teacher guides students in selecting the appropriate search tools, ethical issues must be considered. The following questions can guide the teacher and students in that process:

- How much information can any one search engine gather (In other words, how much depth of information do I need)?
- How long can I store this information?
- Can teachers/board of education censor some search engines and respective materials?
- What board of education policies should be in place which deal with ethical-related questions and electronic learning?
- What search engines are "kid friendly" and which incorporate more mature topics?
- Which engines retrieve more reliable information and sites?
- Which engines have less advertising, chat, or email enticements?

Step 4: Analyzing the Resources (sites)

One of the biggest problems that teachers and students encounter is determining whether the Website is credible. A prerequisite to determining credibility is knowing the intended purpose. Is the purpose (a) commercial, (b) advocating a position, (c) informational, or (d) educational? (For more information, see Marsha Tate and Jan Alexander, "Teaching Critical Evaluation Skills for World Wide Web Resources," *Computers in Libraries*, November/December 1996.)

Once the sites are categorized for their intent, the following questions can be posed:

- Are these sites authoritative? Who are the authors? What can I find out about the authors?
- What are the credentials of these authors?
- Is the site "good" or does it just "look good?" (flash vs. substance?)
- If credibility is unknown, do others with "determined credibility" say the same thing?
- After credibility is determined, what information should be used in the product (Website)?

As the teacher guides the student in scrutinizing sites for credibility, ethical issues abound. The following questions guide the teacher and students in that process:

- Is it ethical for people to publish information that is incorrect or false? What is my responsibility if I believe the information to be?
- How do I deal with information which is questionable?
- Am I contributing to unethical behavior if I publish materials which are questionable?
- What role does the teacher have in identifying false or unethical information?
- How can students be taught to identify and understand hidden agendas and biases?

Step 5: Analyzing, Synthesizing, Sorting, and Sifting Information

Once credibility is determined, an equally tough task is determining what the information says and does not say. In essence, the learner is holding up the question posed in Step 1 to determine what information answers that question. Questions which need to be answered in Step 5 include the following:

- What are the major issues? What sources reflect these issues?
- Who has presented the strongest evidence? What is the supporting evidence?
- Which sources are of lesser importance? Why are they of lesser importance?
- Which of the authors are saying the same thing? How many are saying it?
- What new issues are being raised in this information (identified in the original search questions)?

As the teacher guides the student in analyzing, synthesizing information, ethical questions must be considered. The following questions guide the teacher in that process:

- What type of material resources are ethical or unethical to use? Some? All?
- What kind of ethical obligation do I have in providing balanced coverage of the issue?
- What is the role of the teacher in helping students identify untrue or false information?
- When should this occur?

Step 6: Generating a Product or Creating New Information (Website)

First, students and teachers must learn to frame their Website in the context of information literacy. That is, the creation of a Website is the highest form of information literacy, and without the foundational steps of information literacy, the Website is merely a product which may or may not be tied to learning.

Second, Information literacy (IL) involves more than text. IL is comprised of text, audio, video, and graphics. When combined, they become new forms of information to be learned and mastered for communication purposes. Conveying meaning from a wider spectrum of communication mechanisms rather than using one medium (text) is a new opportunity for teachers and learners. It is an opportunity to make Websites more than text with enticing "eye candy" made up of flashy graphics, blurbs of video, and sound bites.

Many of the current education (learning or instructional) Websites appear to be built around "electronic activities" (e.g., electronic pen pals, telecomputing, games, competition). The process of creating Websites needs to be undertaken in the spirit of "exploration," "experimentation," and "entrepreneurialship" with the goal of fostering Information Literacy. Creating activity-oriented Websites which are not tied to information literacy (even though, they are very sophisticated technology-based learning when compared to teacher-based instruction) will not lead to information literate learners needed in the 21st century.

The fundamental questions that need to be answered in Step 6 are:

- How do I determine audiences and their needs?
- What do I want to say to my audience(s)?
- What is the best way to structure my information to meet those needs?
- How do I show my credentials, biases, etc. to potential audiences?

As the teacher guides the student as they develop a product, ethical issues must be considered. The following questions guide the teacher in that process:

- What is the difference between legal use of print, video, audio, and graphic materials?
- How can permissions for materials be obtained?
- What ethical responsibilities do students have in identifying their own biases (authorship, purpose of Website, etc.)?
- What are the issues of privacy when making a web site?

Step 7: Testing Ideas for Feedback

Testing ideas may be one of most difficult tasks for the learner. The essential question is: what do other people think? What can I learn from the material that I put into Cyberspace? These questions have everything to do with "push/pull" concept of getting people to visit your Website on a regular basis. That is, if I "push" this information out to people, what can I do to "pull" information back (i.e., getting the observer to return and provide feedback about your Website's content and design). The essence of life-long learning is that few ideas remain stagnant and unchanged. If new information becomes available, how does that information impact the information that you have created in the format of a Website.

Essential questions that need answers include the following:

- How do I determine my audience? Motivate my audience?
- How do I get feedback from others about my new knowledge?
- How have I extended my previous knowledge?
- How, when, where, and why do I refocus on related questions or different questions?

As the teacher guides the student in getting feedback and refocusing on the next tasks, ethical issues must be considered. The following questions can guide the teacher and students in that process:

- What is the responsibility of the student(s) who finds information that was incorrect or false? Should retractions be published? Where should they be published?
- What is the responsibility of student(s) who find new information that adds new insight or relevations to the the topic?

Conclusion

Information Literacy in the context of the Internet and supporting teaching and learning strategies has great potential to transform the face of education. At the same time, ethical issues abound that were not present in nontechnology-infused teaching and learning. We can not teach information literacy without equal emphasis on ethical use of information. These ethical-related questions and materials must find their way into an already "crowded curriculum." At the present time, the role of the teacher has never been more critical in helping teachers help students become intelligent consumers and well as intelligent producers– this means dealing with ethical issues in a forth-right and substantive manner. Undoubtedly, the 21st century will bring many challenges of intelligent and ethical use of information. The task is not knowing all of the answers to these ethical concerns, but knowing the right questions to ask about them.

Resources

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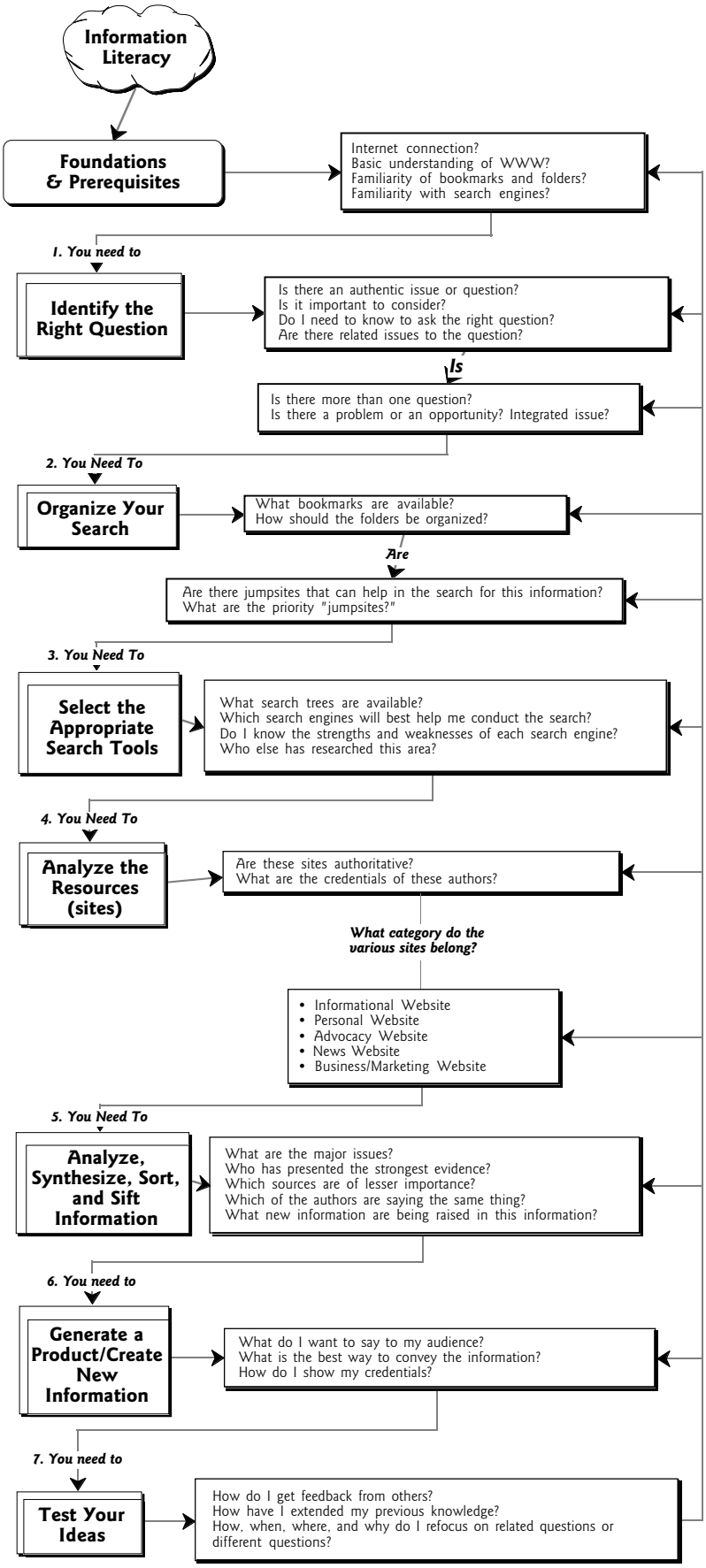
Figure 1

Bailey-Lumley Information Literacy Model©



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