

1997 AAHE RESEARCH FORUM

Learning, Teaching, and Technology
A Research Agenda for the Way We Work

AMERICAN ASSOCIATION FOR HIGHER EDUCATION

Colleges and universities have an essential role in clarifying what technology can and should do for society. But as we create cyberspace for others, we must not neglect our own use of technology on campus, nor the careful study of its impact. As technology joins the fundamental mission of teaching and learning, does technology advance or hinder faculty and student learning? In the *13th annual AAHE Research Forum*, AAHE members considered how teaching-for-learning informs our use of technology and related goals: access, quality, and productivity.

What questions might shape our scholarship? What kind of community learning sustains deep and meaningful human connections? Is active, interactive learning enhanced (or depleted) with technologies? What misconceptions hinder our progress? This research agenda is devoted to asking these and other questions about how our responsibilities for the quality of teaching and learning might merge with new technologies.

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What is the Purpose of the Research Forum? Involvement and critique from educators in dialogue with researchers is a critical element for achieving clarity about what research will benefit educational policy and practice. The AAHE Research Forum is convened annually to involve individuals committed to research and scholarship in higher education. The Forum stimulates educators' involvement in creating a research agenda that speaks to current educational concerns. Each year's agenda is developed around the conference theme. Thus, educators and researchers can continually rely on the Forum agenda as an up-to-date source of common research questions that flow from the year's most central educational issues. The Forum enables educators to provide leadership and support for those researchers who share educators' interests, who speak clearly to educators about their findings, and who actively respond to educators' most pressing questions.

Since 1985, the AAHE Research Forum has provided leadership from educators for bridging the gap between research and practice, and has enabled educators and researchers to define the kinds of contexts that need to be reshaped within colleges and universities for research findings to benefit students.

Why AAHE? AAHE has traditionally brought together a wide range of interested educators, and has been successful in defining current issues that stimulate a broad spectrum of higher education constituencies. A recent survey shows the AAHE annual conference to be the most stimulating meeting of its kind. There are other forums where research results are presented and discussed, but many of them are not regularly attended by or directed toward higher education administrators and educators. AAHE membership has the desire and potential to stimulate research among its members, and to engage the research community in continual dialogue about research questions and findings that directly relate to educational practices for governance, for teaching and learning, and for student development.

What is the Forum Process and Product?

1. **The invitational Pre-conference session.** Educators (selected from conference presenters) generate research questions on topics that emerge as central to the conference theme through a specially designed group process. Experts on each topic serve as group leaders and synthesizers. Each topic group reviews the current issues around their topic and dialogues with those who currently, or are likely to, research the year's agenda. Questions are synthesized in each group, and session leaders edit and prepare them that evening for distribution at the All Conference Session. For the 1997 agenda, 32 conference presenters who work in one of six topic areas generated questions for the agenda on March 15.
2. **The All Conference Forum and panel.** Forum leaders bring the questions generated in the pre-conference session to the attention of the conference membership and involve the larger audience in discussion of issues and research questions in their own settings. Forum leaders also elicit discussion of research questions by a panel comprised of experts on the year's conference theme. The 1997 theme was *Learning, Technology, and the Way We Work*. The panelists were **Edward (Ned) Hallowell**, Psychiatrist and Instructor at the Harvard Medical School, and **Diana Laurillard**, Pro-Vice-Chancellor for Technology Development at the Open University (Great Britain). Group discussions on each topic follow the panel and allow for more focused critique and discussion of the pre-conference questions. Experts on the topics serve as leaders and synthesizers in each group. In 1997, 89 persons attended this session and participated in the topic groups, for a two sessions total of 121 individual contributors to the final agenda.
3. **The research agenda and its dissemination.** Following the session, Forum leaders edit and integrate questions from topic group syntheses and individual work sheets for a final agenda. Thus, AAHE's annual research agenda is a timely, collaborative product of interactive, on-

the-spot discussion. It is another way of knowing about the professional interests of a wide range of educators. The research agenda is a product of a process that captures and articulates the informal conversation that occurs at AAHE meetings about what should be researched. Conference presenters generate research questions on emerging topics in higher education, elicit questions from their colleagues, and then synthesize all questions. Dissemination and discussion of the agenda with researchers follows.

4. **Dissemination.** The agenda is disseminated to all contributors; participants are credited. Advisors to the Research Forum process and other associations/groups in higher education also receive the agenda. The history and rationale for the American Association for Higher Education Research Forum as described in M. Mentkowski and A. W. Chickering, "Linking Educators and Researchers in Setting a Research Agenda for Undergraduate Education," *The Review of Higher Education*, 1987, 11(2), 137–160. The 1987 agenda, *The Classroom Researcher's Research Agenda*; the 1988 agenda, *Improving the Odds for Student Achievement: A Research Agenda*; the 1990 agenda, *The Future of the Professoriate: A Look in the Mirror*; the 1991 agenda, *Achieving the Promise in Diversity: A Research Agenda to Inform the Issues*; the 1993 agenda; *Reinventing Community: A Research Agenda to Create Common Purposes, Build Commitment, and Sustain Improvement*; the 1994 agenda, *A Research Agenda for Envisioning the 21st Century Academic Workplace Through Responsive Academic Citizenship*; the 1995 agenda; *The Engaged Campus: Creating a Research Agenda to Serve Societies's Needs*; the 1996 agenda; *Crossing Boundaries: Creating a Research Agenda Toward Productive Learning and Community Renewal*; and the 1997 agenda; *Learning, Teaching, and Technology: A Research Agenda for the Way We Work* are available from Marcia Mentkowski, Alverno College, 3401 South 39th Street, P.O. Box 343922, Milwaukee, WI 53234-3922, Phone: (414) 382-6263.

1997 Research Forum Leaders

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FOREWORD

This year's conference theme, *Learning, Technology, and the Way We Work* challenges us to attempt to break open the meanings of the terms "learning," "technology," and "work." As speakers as diverse as George Gilder and Paul Duguid have argued with passion and conviction, we need to revisit our assumptions about these categories. It is not surprising that the participants in our Research Forum articulated a series of thematic questions which invite us to do just that in order to determine what kind of research will lead to answers. Themes included reconfiguring teaching and learning, issues confronting universities regarding campus infrastructure and policy, the dilemmas inherent in connecting communities through technology, the reexamination of faculty roles, and the challenges of sustaining technological innovation.

As you can see by the number of questions, there is going to be a very rich field for further investigation, but some questions stand out as particularly provocative in the way they break open definitions:

- Does the ease of response in electronic-mediated learning short-circuit thinking?
- How can student expertise in technology—which often out-distance that of their instructors—change the nature of student-teacher interactions? How can student/faculty mutual learning about technology improve learning for both groups?
- What sorts of learning spaces are appropriate in new technological settings?
- What is the nature of community identity and development essential for students involved in distance learning? What should the nature of these students' experience of community be?
- What happens to faculty who resist technology? What processes, rationales, or experiences influence their views?
- What are the broader cultural implications that are impacting higher education that might affect how faculty decide to become involved in using technology to make changes in teaching and learning strategies?
- How do we measure the intangible benefits of higher education when learning takes place through technology?
- What dynamic is emerging between the promises of technology and educational aims? To what extent is technology becoming the driver for the educational agenda?

If one of our goals is to consider how to come to a clearer understanding of the terms of our questions, another definition we have to take into account is the definition of "we" in "the way we work." The ways in which we have conventionally thought of ourselves as students, faculty, administrators, higher education institutions, teachers, learners, and members of a community are already undergoing rapid and profound change. As we ask the questions which expand our understanding, we have to remember to question the boxes into which we put ourselves. This may be the most difficult reconceptualization we have before us, but the most exhilarating opportunity we will have in our lifetime.

TECHNOLOGY FOR RECONFIGURING STUDENT LEARNING

There are critical issues around the use of technology in learning. Most experts advocate starting with the question, “What learning do we want our students to achieve?” Is this view widely held among educators in our colleges and universities? If so, how are U.S. educators framing the questions in relation to those posed by Diana Laurillard of Great Britain’s Open University? How can and does technology contribute to teaching in an understanding of student learning?

This question raises others. What premises about student learning are and should be guiding the use of technology? What essential learning outcomes might be enriched and enhanced through technology? How are various technologies redefining what we view as essential learning outcomes? How might technology actually aid in assessment of student performance and learning outcomes?

What do we know and need yet to know about how and how well learners learn, especially when learning is mediated by various modes of technology? For example, interactive learning is an especially important element in higher education because it values learning in communication with others. How effective are technologies that structure communication (e.g., voice video, graphics) for enhancing learning? What kinds of learning are best served by these means?

We know little about how learners come to use and respond to emerging uses of technology. This complex question includes the significant factor of differences among learners. What are the implications of differences, for example, in terms of learning styles or how information is received and processed that can influence learning mediated by newer technologies? What are cultural or generational influences on orientations to technology-aided learning? What other learning differences have serious implications for using technology to support and enhance learning? Further, what can we anticipate that new technologies will contribute to our understanding of learning? And, how will our enhanced understanding of learning shape new technologies?

On Connecting Student Learning and Technology

How do we know that connectedness really matters? In what ways and to what extent does human connectedness facilitate learning? How much face-to-face interaction is needed?

If human connectedness does matter, how can we best integrate connection and technology? What forums, structures, and creative methods will exploit the best of technology and preserve the best part of human connectedness?

Are there different kinds of connectedness in light of individual differences (e.g., cultural, ethnicity, cognitive development?)

What is the interplay of individual differences in relation to other factors such as motivation to learn in a specific situation?

How might information about “how I learn” and “how I manage my learning” be useful to students? How should that kind of information be gleaned? How should it be communicated to students?

What might be the impact on student learning if the notion of learning disability was framed in light of this question: What form does my learning challenge take? How can I best deal with this?

How can technology help promote self-reflection as part of student learning?

How can student unwillingness to learn/study on their own be reduced with the help of technology? What are the specific roots of this unwillingness?

Can the quality of student learning be enhanced via the use of technology? In what ways can instructional technology best be used to enhance student progress toward different learning objectives? To enhance the variety of approaches and conditions of learning? To enhance the benefits of different types of technology? What uses of technology produce learning that is important and may not be achieved through conventional methods?

What are the characteristics of students who succeed in technology-based learning and of those who do not succeed?

How can technology make learning more efficient and less time-bound and still maintain quality, credentialing, and credibility?

What is the role and effect of student visual and auditory experience with TV in adapting to new technology?

On Connecting Teaching, Learning, and Technology

What tools can we give to educators to promote student learning? If we start with the notion of what activities we want students to be engaged in (rather than what we want to author), what are the specific learning objectives that could be extracted, across a variety of subject areas, to form generic learning tools?

What is the relationship between the outcomes teachers desire and the various types of technology? How do we maximize the relationships between learning objectives and technology?

Does technology *in* the classroom aid learning more than current methods compared to use of technology *outside* the classroom? Is it a barrier or benefit?

What is the value and effect of the co-presence of time and space? Do these elements change how the learner engages her/himself in learning? What blends of teaching strategies are most productive for what types of learning objectives and styles?

How can values be developed through technology-based teaching, as well as knowledge transmission? Are we leaving behind other outcomes such as self-esteem, confidence, etc?

How does the multi-cultural and multi-lingual background of our students complicate the use of technology—that is, when layperson language (text) and metaphor (text and graphic) cannot be assumed? What is the role of language (text) in technology? In particular, how does it affect ESL students?

How might a problem-based learning approach be used in a distant learning model?

What methods and mixes of independent work, student-student interactions, and student-teacher interactions, maximize adaptive responses to technology?

How do we compare completely on-line courses, partially on-line courses, and traditional courses? For example, how do on-line students' mental pictures of courses compare with on-campus students' pictures? How can we use that understanding to better design our courses?

As students make more use of Internet resources, they sometimes assume that information sources are of equal value and authenticity. How do we help students deal effectively with the quantity of information, evaluate the quality of information, and turn information into valuable knowledge?

What are "best practices" in faculty design of electronic-mediated learning in relation to student learning—given student differences in cognitive and affective responses? What are the important cognitive and affective correlates one might consider in the design of electronic-mediated learning?

On the Role of Student Expertise in Supporting Faculty Learning and Technology

How can student expertise in technology—which often outdistances that of their instructors—change the nature of student-teacher interactions? How can student/faculty mutual learning about technology improve learning for both groups?

On Applying Principles of Cognitive Psychology

How can principles from cognitive psychology help us to understand the effects of educational technology on student learning outcomes? How can cognitive psychology help us to understand the computer-mediated learning environment in terms of students' cognitive and affective responses to specific characteristics of that environment?

What helps students become self-reflective (meta-cognition), directly cognitive (learning), and "socially cognitive" (helping students learn)? How can technology mediations help students achieve significant "deep reflection" in both subject/content issues and in meta-cognition about themselves as learners?

How well can students "push" each other to engage in deep reflective practice? What factors are involved? For example, are there cultural barriers to "pushing" each other to these depths? What about students without an experience base or those without the tools and strategies for deep reflection?

How might technology help students "push" each other in deep reflective practice? How might it get in the way?

Does the ease of response in electronic-mediated learning short-circuit thinking, particularly if there is no need to struggle with thought?

On Shaping Technology for Learning

What do principles of student learning imply for web design and electronic-mediated learning? What cognitive and affective interactions determine student responses that lead to complex learning?

What are different uses of technology for in-class vs. distance learning? How does technology help meet the objectives for these different uses?

What technological mediations are appropriate for *learning outcomes* with different student cohorts (e.g., for general education courses or for the disciplines)?

What is the developmental cycle for course design with technology?

How do we plan appropriate technologies for student learning given changing demographics and technology product cycles? How best do we consider student differences (gender, culture, motivation)?

How can multi-media be student-centered when the presentation itself is fixed?

What are the relationships between the use of technology in K–12 and in colleges and universities? What can we in higher education build better liaison with K–12?

On Assessment

The integration of technology and assessment promises to break the molds of how we assess. But how? For example, how can technology ease the process of assessment, increase its frequency, and improve its quality? How might various types of technology help us improve feedback to students? How might electronic portfolios assist students to engage in assessment of their own performance?

How can assessment be used to improve the use of a technology?

What are the appropriate measures of learning outcomes with regard to academic performance? To real world competence? To retention rates in course programs? To student attitudes?

On Enhancing Community

How can technology help students and faculty connect to external communities, such as K–12 educational institutions, community groups, corporations, and government agencies?

TECHNOLOGY FOR RECONFIGURING TEACHING

Images of teaching have shifted from the sage on the stage to the guide by the side. Technology-aided instruction may yet again require other images of teaching. What will/does the use of technology (e.g., computer-based, CD-ROM, interactive television) mean for the roles of teachers? In the triad between teacher, student and material, how might/does technology help to define or influence the relationships among the three? What alternative conceptions of teaching might be shaped and tested by the use of various technologies?

What skills will teachers need to satisfy student learning as defined by institutional mission? If conceptions of teaching shift because of the use of various technologies, how will teaching effectiveness be evaluated? In what capacities will technology enhance teaching effectiveness? Conversely, how might teaching effectiveness be diminished by technology?

What are useful criteria for selecting technologies to match particular learning situations? In what ways are the criteria, and hence technology strategies, influenced by subject matter in the disciplines, student differences such as learning styles, and cultural and generational backgrounds? What, then, are the pedagogical advantages—accounting for both effectiveness and efficiency—of various media? What research is essential to avoid disadvantages?

On Creating Environments for Learning

What sorts of learning spaces are appropriate in technologically-enabled settings? What kinds of learning spaces should be supported by institutions?

How best can we encourage student collaboration? What are some ways to form teams to support faculty and student collaboration?

How does the use of communication technologies change interaction/communication patterns in class? How do these technologies change class power relations?

How can we better evaluate student outcomes in multiple modes of teaching and learning?

How is the learning experience in a distance class different from that in a face-to-face classroom?

On Making Effective Use of Technological Capacity

How do we make best use of technological capacity? The promise may not always match performance. How then can we improve appropriate support for technologies?

The “appropriate” technologies don’t always mean the “cutting edge” ones. This recognition may be an advantage for students and faculty who are not now interested in using technology. What examples of appropriate uses of technology by “early adopters” could be role models for these individuals? What are effective ways for that to happen?

How should resources be allocated between “early adopters” and those who follow?

What sorts of data should we be gathering on student and faculty use of technology? More important, what are the key questions?

On Support for the Faculty Role

What is the role of the faculty in relation to technology?

What is the nature of effective college-wide support for faculty members who are innovators in reconfiguring teaching?

Lack of technological support may lead to cynicism on the part of faculty, making it more difficult to promote the value of technology for teaching and learning. Suppose we target in-depth training for specific groups (faculty or staff) rather than involving all individuals in broader training. Are we more likely to reduce or encourage broader socialization processes within the college or university as a result? Are both types of training necessary? What kinds of training are appropriate when?

How will faculty find time to learn to use technology? What strategies and support are needed?

How might faculty be persuaded to use technology when their view is that “we’re doing okay already”?

On Reconfiguring Teaching

What are the various ways technology might reconfigure teaching? (For example, a faculty member might spend time identifying students’ interests and then ask students’ help in relating their interest to electronic-mediated research that is also contextualized within course objectives.)

How can technology be used to help instructors rethink and restructure their courses and instructional objectives?

What of our current methods do we want to preserve, and what new strategies can be supported by technology?

What other ways are there to use technology to reconfigure teaching?

How can faculty use technology to help students to become more responsible for their learning?

Students as Teachers of Technology

How can we involve our students in collaborative development in new uses of technology?

How do we harness the “hidden” workforce on campus, that is students who are expert at technology? Students as support staff can help us, but how do we include students in technology development processes?

Including students as computer lab assistants and promoting these assistants for student use, is one strategy for turning students into teachers of technology. What other ways capitalize on such student expertise as a campus resource?

How do we encourage faculty to ask for student “help” with technology?

How does the use of organic (student-generated) criteria assist us in selecting technologies to match particular learning situations?

CONNECTING CAMPUS INFRASTRUCTURE, POLICY, AND TECHNOLOGY

As technology significantly alters how students learn, where they learn, and when they learn, institutions are struggling to develop adequate campus infrastructure and policies that encompass this change.

Most of the national discussion of infrastructure issues tends to deal with models that can be replicated on individual campuses, or with problems that might be solved at the local level. However, policy issues are dealt with simultaneously at the national and local levels. For example, national organizations (the Commission on Higher Education of the Middle States Association of Colleges and Schools; the American Council of Education) have recently developed policies related to distance learning. Other organizations have provided legal expertise on issues relating to intellectual property.

Faculty and administrators also work to resolve significant policy questions around distance learning, ethics and intellectual property issues. Faculty often include several additional issues: ensuring academic freedom; creating a home page; E-mail censorship; quality standards for teaching and learning using new technologies; the kind and number of faculty responsibilities at the campus level, and creating a “virtual” university. What should be the role of national technology organizations, individual institutions in higher education, and disciplinary organizations in determining policies and standards?

Infrastructure issues facing administrators range from prioritizing faculty needs to determine who gets the next generation of computers, to determining how to afford to install adequate telephone lines. Infrastructure questions frequently include: How best can students gain the ready, easy access to technology they now come to college expecting? How might the budgets of already hard-pressed colleges be able to expand to accommodate ever-more extensive, expensive technology? What can help units from across campus—telecommunication, computer, video, library, information services—collaborate successfully to plan and provide services? How can campuses bring equity to faculty and staff “haves” and “have nots?” As the pace of technology continues to increase, how might colleges cope more effectively with obsolescence? How can public-private partnerships provide solutions to infrastructure problems? If campus infrastructure includes researching cost/benefit ratios, and the relationship between technology use and student learning outcomes, what are the issues?

On Managing Campus Change in an Uncertain Future

What will the role of universities be in the information age when knowledge is not as “owned” or controlled by institutions? What are indicators of such changes?

Are institutions going in the right direction? How do we know? What is the role of research in such a quickly changing environment?

How do institutions afford the costs of retrofitting, reconfiguring, wiring, etc?

Can colleges and universities afford to keep giving away services and access (Internet, etc.) when student expectations are rising, along with the costs of realizing them?

What does “giving technology away” mean for developing campus processes for prioritizing and marshalling resources, so that faculty, students, and administrators are able to stop doing certain things in order to afford to do other, more important ones?

What is the role of campus leadership in the movement toward expanded uses of new technology? What forms of leadership will be most appropriate?

With the growth and development of the Web-based courses and other information sources, should all universities be “content developers” or should we work with (broker) existing courses from other universities?

Many states are facing declining state support and increasing student populations (+10-30%). While most agree that there will be less “bricks and mortar” in the infrastructures to support new student populations, most state legislatures are not funding technology initiatives without convincing assessment data. How, then, does higher education change this public perspective?

What will be the effect of technology on communication between faculty and students? How will this affect policy and decision-making? What are the implications for non-traditional students? What types of communication support systems will need to be in place?

On Servicing Students

How do educators serve students adequately in relation to campus policies and infrastructure, whether they are on campus or distant learners?

How can we include “surfing the net” as part of library research training?

Should building community among students technologically be a goal?

As we reach out to “non-traditional” students, what kinds of campus support to teaching and learning do we need to provide? What are the key elements in instructional-learning support?

How do we assure access and equity, so that the gap between the “haves” and the “have nots” does not become greater?

What is the impact of technology on policies concerning students, such as honor codes, disciplinary codes related to cheating, or safety and security issues?

On Faculty Roles

How might faculty best determine quality standards for on-line courses? How will these be similar or different from current standards for classroom-based learning?

How can faculty become more aware of the external pressures or forces that are affecting higher education, so that they can become full partners in managing change?

Who should have the most influence in shaping curriculum and policies about curriculum? Are current faculty governance practices adequate, or does another kind of oversight need to be created or even centralized, due to cost and infrastructure issues?

What are the characteristics of a safe environment for exploring, risk-taking, and even making faculty feel hungry to try new technologies and, more difficult, new and useful pedagogies?

How will scholarship in teaching be affected by the advent of technology?

What new criteria for tenure and promotion are being developed incorporate Boyer's new forms of scholarship in relation to changing faculty roles? How effectively are institutions (e.g., promotion and tenure committees) evaluating faculty's work in various forms of scholarship?

How will faculty workloads be configured with increasing and varied uses of technology in teaching?

How will faculty members be picked to take initiative to guide other faculty, especially when this is done through a faculty development initiative? What are their responsibilities to teach and support other faculty?

CONNECTING COMMUNITIES THROUGH TECHNOLOGY

Many users argue that it is easier to establish communities through technology, because issues of distance, time, and personal characteristics do not complicate people's ability to communicate. However, others see technology as leading to "superficial" virtual communities rather than "true" communities. What are the existing forms of virtual communities, and how do they compare with other forms of community? What is the role of higher education in encouraging communities that not only exist on campus but include distant learners?

Other critics raise issues around the disparity between those who have and are familiar with technology and those less familiar and with less access. Are there innovative ways in which inclusive community-building can be enhanced through technology? How can colleges and universities collaborate with K–12 educators to encourage the establishment of communities that encompass students at all levels?

Another issue concerns the role of the private sector in the establishment of communities through technology. How can the private sector help develop technology that augments curricular innovations such as learning communities?

What are the value frameworks that ground various forms of community—that ground a virtual community? How are these values acted upon in practice? For example, how can technological communities remain civil communities, where members are respected and manners are not lost?

On Defining and Participating in Community

What is meant by the term community? Are there multiple definitions? Are they compatible?

How do we begin to think of communities as we involve ourselves more and more in virtual ones? What is the nature of a virtual community? What is lost and what is gained by this new understanding of community?

What is the role of anonymity in building or dismantling community? What is the role of personal identity?

How does technology change our way of *being* in community?

What are the characteristics of an effective community of learners that are connected through technology? What are examples of best practices?

How do we differentiate between on-line learning and on-line learning communities?

Can we have real community without some face-to-face interaction?

How can higher education take a leadership role in using technology to create a global community that addresses global issues?

What is the nature of vision and leadership in a virtual, asynchronous world?

What is the role of higher education in joining technologically-deprived and/or under-prepared individuals to a technological community of learners?

How do faculty become full partners in the technological community?

What qualities and techniques characterize good community builders (e.g., LISTSERV moderators)? How can they be trained?

How might the use of technology expand and advance the development of community both within and beyond the traditional classroom?

How can we encourage faculty to learn how to build community through delivery technologies?

How do we encourage faculty's commitment to the university community, rather than to colleges and disciplines?

How can we assess community formation and quality? What is the nature of community identity and development that is usually experienced by students taking courses on campus? What aspects of a "sense of community" are essential for students who are involved in distance learning? What should be the nature of these students' experience of community? How can this best be accomplished?

On Teaching and Learning in Communities

How do we promote collaborative learning and group learning when students and faculty are connected through technology? What means and techniques can be developed to incorporate collaborative and participative learning into distance learning?

How do we assess the impact of learning in communities through technology?

In what ways can we match uses of technology to effective pedagogy to meet the needs of a diverse community of learners?

There is a current debate around the value of using technology to increase access to learning communities. Some believe increased access will decrease the value that accrues from face-to-face interaction. How do we address what appears to be competing "agendas" of using technology to expand access, and maintaining the benefits of face-to-face human interaction? What is the appropriate balance? How will we know when balance is achieved?

What kinds of research (e.g., on collaborative learning, learning styles, mentorship, student peer groups, project-focused learning) should be initiated and extended to better understand the appropriate uses of computer-mediated learning?

On Pedagogy and Technology

What is the relationship between technology and pedagogy? Who is driving the use of technology to create learning communities—the technology or the faculty?

What are the purposes for connecting learners through technology? How do we avoid the

problems that may accrue from using technology just because it is there, and rather, continue to explore the pedagogical reasons?

How can technology be used to better connect faculty and students on geographically separated campuses?

On Resources, Standards, and Measures

What are the leading indicators of teachers and students for success with different communication technologies (e.g., synchronous vs. asynchronous)?

How do we measure the intangible benefits (e.g., student satisfaction with the university, student development) of higher education when learning takes place through technology?

What resources are needed for campuses to develop communities aided by technology?

What standards of technological reliability and dependability are needed to insure broad access and use of technology by a community of learners (faculty and students)? How should resources be allocated?

The “technology revolution” is expected to expand the mental ability of individuals just as the industrial revolution expanded their muscle power. How can we begin to assess this?

FACULTY-AS-LEARNERS AND TECHNOLOGY

Many in higher education are experiencing deep tensions as the nature of faculty work is challenged and reexamined in the context of technological innovations. Increasingly, faculty are expected to meet the multiple demands of their institutions, their disciplines, and learning to use diverse technologies to reconfigure their teaching, based on sound educational principles. What technological skills and abilities will faculty need? How can higher education best meet and support the technological needs of their faculty? How should institutions address issues of technology apprehension among faculty? How institutions balance the ongoing need for authentic faculty education with the rapid rate of technological developments has implications for the role and impact of technology in faculty learning.

Technology often serves as a tool, aiding the delivery and construction of messages, increasing opportunities for communication between students and instructors, and connecting diverse communities. However, technology also serves as a medium and a message. How can faculty best prepare themselves to take up the necessary vision and technological skills for each of these functions? How do faculty decide what communication equipment, software, or other technology-assisted interactions they should learn, design, and commit to?

Understanding how faculty create technology—assisted learning that reconfigures student learning—is essential. What learning principles should be at the heart of the effort? How do faculty determine which technological mode is most appropriate for student learning? When should faculty use technologies that are interactive, problem-oriented, and relevant to real-world issues, and when are “low” technologies more appropriate? How do institutions provide structures that enable faculty to sort out the differences?

Faculty expect to keep up with the rapid pace of technology given their multiple roles. As institutions increase their investment in and expectations for the use of technology, changes will likely occur in faculty roles, responsibilities, and rewards. The role of faculty members who are in the midst of technological change and how they take responsibility for these changes is a key issue. How might such activities be evaluated and rewarded?

On Adoption of Technology

What are the characteristics of those faculty who are among the first to use technology in their teaching? Are they the “best” teachers?

What are the patterns of behaviors, over time, among early users of technology? For example, do early users continue to innovate? Do they plateau?

What happens to faculty, over time, who “resist” technology? Do their perceptions persist or change? What processes, rationales, or experiences influence their views?

What kinds of collegial and institutional experiences with technology are most likely to influence faculty who initially resist using technology? What kinds of experiences sustain the early adopters?

What key factors correlate most highly with faculty adoption of technology (e.g., faculty characteristics, infrastructures, rewards, models of best practice, particular training models)?

What are the consequences when faculty do not adopt and then adapt the use of technology—for faculty themselves, for students, for the college or university?

What kind of change agent role do faculty development staff play in incorporating technology into the academic culture?

What are the broader cultural changes that are impacting higher education that might affect how faculty decide to become involved in using technology to make changes in teaching and learning strategies?

On Teaching-Learning Relationships

If the focus were on teaching faculty about learning and learning processes, what would be the impact on faculty use of technology, and faculty effectiveness in promoting student learning?

What kinds of faculty teaching goals correlate with stages of faculty adoption of technological innovations? What are the correlations, if any, with student learning goals?

How does technology influence the interaction between teaching goals and learning goals? Or the interaction between process and content goals?

On Faculty Experience with Technology

How can technology help faculty integrate their research with their teaching? their classroom research with student learning?

How do teaching goals and various technologies influence the nature of faculty members' teaching experience?

How does the new public nature of teaching with technology affect faculty orientation to learning about, using, and experimenting with technology?

How is a faculty member's teaching changed by using technology? In what ways is teaching improved? In what ways is it impeded?

On Reconfiguring Faculty Learning

As institutions become more learning-centered, what impact might this shift have on the role and type of faculty learning that is needed?

What are some key characteristics of "faculty-as-learners" when it comes to enhancing one's use of technology?

What adult learning principles might be applicable when faculty are learning about and using technology for various purposes?

What strategies are most effective in assisting faculty to learn to use technology—e.g., offering small grants to support local conversation and application, modeling best practices, building the technical skills base, focusing on higher order learning skills, providing broader conceptual frameworks?

Is individual or even group faculty development of instructional modules a realistic possibility given constraining time and resources?

Will “off-the-shelf” disciplinary-specific packages become viable in a widespread fashion? With what advantages and disadvantages for the teaching-learning agenda?

How do current reward systems shape faculty members’ attitudes and behaviors toward learning how to use technology?

What kinds of collaborative arrangements are most effective in engaging faculty in use of technology? What are the advantages and disadvantages of cross-departmental collaboration? Of cross-college collaboration? Of system-wide collaboration?

How do conversations about technology aid faculty in opening up to each other about teaching and learning issues? Are these conversations better held within disciplines or across them?

On the Costs of Faculty Development in Technology

What are the costs of faculty development in technology? What are the trade-offs regarding one-shot vs. ongoing training (that includes conversation)?

How might we best measure the benefits of investing in faculty development regarding use of technology to support teaching and learning?

SUSTAINING INNOVATION THROUGH TECHNOLOGY

In the more recent wave of educational innovation, institutions have advocated and tested several approaches. These have included improved access for a broader diversity of students, programs that foster open learning, and outcomes that engender capacities for lifelong learning. The array of innovative programs typically extend their reach across space and time, as illustrated in distance learning and distributed education models. How do we sustain and continue the growth of now seasoned innovations, as well as meet the next set of challenges and opportunities for retooling the higher education system? These weighty tasks can be aided greatly by technology—or can they? How might technology sustain and guide innovation?

Many of the successful innovations of the past 25 years now face challenges of growth and geographic expansion. In that changing arena, innovators must continue to ask, “What are our core competencies? What do we do in the name of higher education that other educational providers do not?” Technological advances make possible going beyond traditional paradigms of distance and delivery to promote interactivity. How, then, can technology be used to honor the interactive, communal character of learning? What does community mean, and how is it constructed, when technology is part of the picture? How can technology be used to actively engage learners in the processes of creating knowledge from multiple sources, to, in Dewey’s terms, help individuals engage in “productive inquiry”? What research is essential to avoid the liabilities of technology and to build on its strengths?

On Sustaining Change and Innovation

Given the rapid changes in technology, how do institutions decide which innovation cycle to enter and when to advance? What are the advantages and disadvantages of being in the first generation, or the third or fourth generation of technological innovation?

What change models can assist us in bringing in and sustaining technological change and innovation? Change has a cost: The increased down-time to learn a more advanced system. One change model suggests that users may *not* be disadvantaged when they cannot afford to advance to the next generation of technology. Rather than suffering ill effects, users can conserve their energy and skip a generation or two, because they can easily leap to the most advanced generation when they are ready.

What models of planned change are consistent and effective in assisting faculty and staff to accept (even welcome) the advent of technological change?

What is the relationship between change and innovation as it relates to technology?

What are the institutional and environmental characteristics that serve to sustain innovation? How do innovations in technology affect faculty development? How do they affect promotion and tenure decisions?

How do we get a common understanding established for recognition of limited resources by policy makers? How do we appropriately educate constituents to accept shifting funds to technology innovations? When should the university invest and expect (reasonably) faculty and students to be ready to participate fully in use of technology?

How can distance education schools prepare for successful accreditation? What is appropriate for accreditation bodies to insist distance education schools excel at? What should be different? How do we document learning outcomes that are not in traditional forms? How do we use this evidence to prove value to all the constituencies, including accreditation bodies, legislators, and the workplace?

On Faculty and Student Rewards and Support

How do we encourage faculty to continue to take innovative risks? How might we move them from collaborative models to distance education without their losing connectedness?

What types of faculty development options are most effective in increasing competence and comfort level with rapidly changing technologies?

How should faculty be rewarded for maintaining technological designs, programs, and projects? What is current practice? What is desired practice?

What support services for faculty are required who adopt and use new technologies in facilitating student learning?

Is support for students a necessary element when considering technology innovations? What is an appropriate level of support? What rewards do students experience from using technology?

What reward structures encourage faculty to undertake changes in their classrooms? In their own scholarship?

On Technology Maintenance and Development

What strategies help ensure that there is appropriate technological movement and development? What strategies are now used that others can learn from?

How does technological development sustain innovation in the use of technology itself?

How does technology maintenance and development help to sustain the educational agenda?

On Creating Technological Innovations that are Grounded in Educational Frameworks

As we move from a teaching to a learning-centered model, what is considered a “technological innovation?” What advances in technology help promote learning-centered aims?

Many faculty are eager to use technology to enhance collaborative, face-to-face, interdisciplinary learning. Yet, they perceive they are being pressed to substitute technologically-mediated teaching in the place of student-centered learning. Faculty view this as retrogressive, not progressive, engendering strong resistance among faculty. How do we take and make use of the best of both?

What educational criteria are relevant for technology decisions?

How can standards, assessment and technology work together to improve student learning?

How can institutions locate and maintain an appropriate balance between educational goals/mission and the imperative to utilize technology in multiple ways? For example, how can technology usage advance an institutional goal of achieving more adequate learner-centeredness?

What dynamic is emerging between the promises of technology and educational aims? To what extent is technology becoming the driver for the educational agenda? What is the proper role of technology in shaping and supporting the educational agenda?

What is the nature of community that is created among students, among faculty, and among students, faculty and staff in distance education programs? What can we learn from these educational models about how technology can help create community? How might we become more aware of the limitations of such models?

On Enhancing Access and Respecting Diversity

How might the growing emphasis on technology and its sophisticated uses affect those who historically have been underserved in higher education? Will technology widen or lessen the gap? What studies already exist to inform our understanding of these issues?

What is the institutional responsibility to ensure that the uses of technology do not increase the disparity between those who are financially advantaged and those who are not? How can that responsibility be implemented?

What differences exist in attitudes, usage patterns, barriers and the like to technology competence and utilization on the basis of demographic characteristics, gender, age, race, culture, ethnic origins, etc.? What are the issues particular to gender concerning access to and use of technology for learning and research purposes?

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