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# Western Washington University Faculty Instructional Technology Survey Results

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# WESTERN WASHINGTON UNIVERSITY FACULTY INSTRUCTIONAL TECHNOLOGY SURVEY RESULTS

Prepared by Richard Frye and Carl Simpson

## INTRODUCTION

This survey was designed to discover whether and to what degree faculty members at Western Washington University utilize various instructional technologies in their classes. The survey was posted on the World Wide Web in late January, 2000 for completion and submission online; faculty were notified of the survey and how to access it via email from their respective Deans.

There were 233 responses to the survey, constituting about 55% of the faculty population. The distribution of responses was quite consistent with the distribution of faculty by College, by rank, and by appointment type (full time or part time); therefore no adjustments were made to the data to correct for bias associated with any of these factors.

However, since about 10% of the faculty do not have Internet access or use email, the pool of responses was adjusted to account

for this non-participating group by adding 23 empty responses to the data. These responses serve to correct observed proportions of responses to various questions to account for the non-participating faculty members.

## FINDINGS

### INSTRUCTIONAL TECHNOLOGIES USED

Participants were asked which, if any, instructional technologies they had used in their classes during the past year as *elements of instruction*. They were given a list of nine choices, shown in Table 1, including an "Other" category, which provided an option to write in technologies not listed.

As shown in Table 1, use of email for correspondence among faculty and students enrolled in their courses has become nearly universal, used by over four-fifths of faculty (83%). Computer labs and web pages are also widely used, with over half of respon-



dents reporting that they have used them (54% and 52%, respectively) in their courses in the past year.

Over a third of faculty used telephone office hours (39%), Powerpoint presentations (38%), or the electronic grade books (37%) compiled by the Office of Institutional Assessment and Testing. Nearly a third (32%) used some form of videotaped instruction, while a very few (less than 8%) used interactive television in their classes.

Over a third of all respondents (35%) mentioned using one or more other instructional technologies besides those listed. As shown in Table 2, analysis of these comments revealed that these additional instructional technologies, while covering a very wide range, fell into three fairly distinct categories: other hardware, other software, and other internet applications.

About half of this "other technology" group used other hardware in their classes, which included cameras, slides, musical equipment, lab equipment, calculators, and CD-ROM's. Well over a third (41%) used a wide range of other internet-related resources and technologies in their classes, including interactive websites around the world, multimedia re-

sources, and library and scientific resources. And between a quarter and a third (28%) of those who used other instructional technologies used various specialized software applications in their classes, ranging from desktop publishing, to online testing, to graphic design, to computer simulations.

WEBSITE CONTENT AND FEATURES

As shown in Table 1, over half (52%) of the respondents have at least one course-related website. The two most common features of these websites, as shown in Table 2, are links to related sites (42%) and lecture notes or other course materials (39%). Other features tend to vary more widely. About 16% of websites have some form of discussion board, online forum, or chat room for discussion of course material; a similar number feature practice exams.

Very few course websites feature online surveys or graded exams.

Although about one-sixth of respondents submitted comments on additional features of their websites, most of the comments were redundant to the listed choice categories. Nearly two-thirds (62%) of these comments listed variations on course materials such as syllabus, assignments, schedules,

Table 1: Instructional Technologies Used Last Year

	PERCENT
Email	82.6
Computer labs	53.7
Web page	52.1
Telephone office hours	39.0
Powerpoint presentations	38.4
Electronic grade book	36.8
Video-taped instruction	31.8
Interactive or real-time TV	7.7
<b>Other technologies, from comments:</b>	<b>34.6</b>
other IT, hardware-centered	17.5
other IT, web-related	14.4
other IT, software-related	9.7

and other “housekeeping” information. Half (50%) of the comments referred to the actual posting of various references, or links to relevant reference materials elsewhere on the web, including articles, summaries, writing style guides, photos, and maps.

Nearly half (45%) of the comments listed other instructional materials either posted on the website or linked through it, such as video clips, Powerpoint presentations from class, or student reports. Similarly, most of the remaining comments were variations of categories specifically listed in the question, such as exams, discussion areas, and feedback.

INTEREST IN USING INSTRUCTIONAL TECHNOLOGY

Virtually all respondents (87%) were either “very interested” (51%) or “moderately interested” (36%) in incorporating more instructional technologies into their classes. Fewer than 10% were only “moderately interested”, and only 3.4% “were not at all interested.”

CONSTRAINTS ON USE OF INSTRUCTIONAL TECHNOLOGY

Faculty members identified a number of principal constraints on their use of instructional technologies in their classes. Responses to the question illuminate a number of important limitations and concerns, as shown in Table 3.

The severe demand on time was by far the most frequently named constraint on the use of instructional technology in the classroom; about two-thirds of respondents (71.8%) listed it as a major factor. Running a website and responding in a timely fashion to student email were mentioned as particularly time-consuming activities.

Over half (45.7%) listed limitations of classrooms as a major constraint, and about half (45.5%) felt impaired by their individual lack of the skills necessary to use various technologies in their classes.

A similar number (41.6%) cited a lack of technical support staff as a primary limitation. Distribution of responses was independent of both College and academic rank.

Lesser constraints included lack of up-to-date facilities in their own offices (16.7%); methods not being applicable to their courses (14.7%); and costs

(11.6%). Very few cited “lack of interest” as a limitation (3%).

Comments regarding “other” perceived constraints were written in by 15% of respondents, and fell into ten general categories, covering a fairly wide range of categorical limitations. Six respondents reported some skepticism that instructional technologies would actually improve learning. Six respondents an-

Table 2: Features of Instructional Websites

	PERCENT
Related links	42.1
Lecture notes/course materials	39.0
Discussion boards	16.0
Practice exams	15.5
Surveys	5.4
Graded exams	4.7
<b>Other features, from comments:</b>	<b>16.3</b>
Course info	10.1
Reference	8.2
Instructional material	7.4
Assignments	5.8
Interaction	1.9
Feedback	1.6

anticipated problems with individual student accessibility, including computer literacy and access, and incompatible family situations and responsibilities.

A few respondents pointed to a lack of either appropriate training opportunities or a supportive institutional climate, and about a dozen cited the lack of several kinds of technical support, including lack of appropriate software and hardware, especially in classrooms and at off-campus sites. The biggest area of complaint was the “hassle factor” associated with the limited availability of well-equipped classrooms and labs, and the substantial inconvenience of checking out and setting up equipment of questionable reliability. This theme is amplified below.

CLASSROOM MEDIA:  
DISCUSSION

Faculty were asked to elaborate on perceived limitations of media equipment available in Western classrooms; the volume of comments indicated clearly that this is a topic of some considerable intensity to many. Although only about half (49%) indicated that lack of appropriate media equipment in classrooms was a “principal constraint” on their use of more instructional technology, some 65% of respondents wrote comments, many of them quite lengthy, about the inadequacy of media technology in classrooms.

Although classroom shortcomings fell into seven distinct categories, they were strongly centered on one central theme: the ready availability of computers and computer projection equipment. Of the 168 sets of comments submitted on this question, 74 (44%) were related in some way to having computer projection facilities in classrooms: 21 (12.5%) wanted Powerpoint projection facilities in particular; 32 (19%) wanted easy Internet access together with projection capability; and 38 (22.6%) wanted on-site computers and computer projection equipment for various other reasons.

Another 26 comments (15.5%) specified other hardware limitations, including CD-ROM capability and various equipment accessibility and quality issues; and 29 (17.2%) called for improved video/vcr/television capabilities.

Finally, twelve respondents commented at some length on the

“hassle factor”—the substantial inconvenience of checking out, setting up, debugging, and returning instructional equipment to a central or departmental pool. Although until quite recently the infrequent use of such equipment made it reasonable to have limited availability and to tolerate some small amount of inconvenience, it is now clear that very many faculty would like to incorporate computer projection of Powerpoint slides, websites, and video and other media clips into their classroom presentations on a regular ba-

Table 3: Constraints on Use of Instructional Technologies

	PERCENT
Time	71.8
Classroom media	45.7
Skills	45.5
Technical Support	41.6
Office	16.7
Not applicable to course	14.7
Costs	11.6
Lack of interest	3.0
<b>Other constraints, from comments:</b>	<b>15.1</b>

sis. With such high demand for these instructional resources, this “hassle factor” represents real resource costs in the form of wasted faculty time and nuisance disincentives for pedagogical innovation.

#### USE OF TECHNICAL SUPPORT

Nearly three quarters of respondents (72.6%) have received some technical support from Western’s Academic Technology and User Services (ATUS). Between one third and one half (38%) have received technical support from their departments or colleges. About one sixth (15.8%) have received support from Western’s Center for Instructional Innovation (CII), and some few (6.8%) have received support from other sources.

#### HOW TECHNOLOGY HAS ENHANCED LEARNING

In an unrelated recent survey, Western faculty demonstrated their strong commitment to student learning; 97% rated the goal of “being a good teacher” as either “very important” or “essential,” and 88% thought “promoting intellectual development” should be a “high” or “highest” institutional priority. On this instructional technology survey, faculty were asked to list the primary ways in which the use of instructional technology had enhanced student learning. About two-thirds of respondents (65%) expressed the perception that instructional technologies do improve learning, in a number of ways.

Qualitative analysis of faculty comments revealed four major types of mechanisms by which instructional technology was found to improve student learning: 1) enhancement of communication and interaction with others; 2) improved access to materials and information, 3) expansion of learning into several different sensory channels through a variety of different media and pedagogical approaches, and 4) improved efficiency or economy of instruction.

- *Enhance communication:* About a third (35%) of the respondents to this question believed that use of email, a course website, and online discussion boards or “chat rooms” all served to improve contact between students and the instructor, and also between and among students.

Several of this group (12%) mentioned specifically that “shy” students who ordinarily do not participate in “live” class discussions did participate actively in online discussions, benefitting both themselves and others through a richer exchange of ideas. About two thirds of the comments (24% of all respondents) mentioned specifically that these technologies have enhanced interaction among faculty and students. These are very desirable outcomes, since they suggest increased student involvement, via increased levels of contact and sharing, and increased involvement has been demonstrated to improve student learning.

- *Enhance materials and information access:* Over half the respondents to this question believed that improved access to materials and information, especially through course websites, was a primary mechanism for improving student learning.

These benefits were perceived to accrue from 24-hour access to course “housekeeping” information like schedules, syllabus, and assignments; an online “virtual classroom” environment through which to share ideas outside of class; unlimited access to related information from around the world; exposure to state-of-the-art tools, software, practices, and information relevant to major disciplines; and availability of a variety of presentation and demonstration software which engage student interest in more dimensions than the traditional lecture.

- *“Multi-channeling” improves learning:* Nearly a third (29%) of the comments indicated that instructional technologies improved learning directly. This was largely perceived to be facilitated by the ways in which multimedia approaches and different methods of teaching allow students to learn via a number of different “channels” and learning styles; faculty are able to “innovate, explore, and present information in new ways,” offering students a richer learning experience.

Improved learning is also seen to be associated with the enhanced communication and interaction made possible by electronic media, with its improved “richness and depth of dialogue.” In addition, instructors can make available on a course website slides, films, lecture notes, and other materials which otherwise students would only see once, in the classroom, but which now they can review many times.

Specific comments describe many ways in which technology “has allowed students to do a greater variety of conceptual tasks,” or “has given students access to new data in my field (e.g. Hubble images) and made it possible to tailor a course to specific student abilities, needs, and interests,” or “enables students to experiment with and explore mathematical concepts in several different ways.”

- *Economy:* About a third (29%) of the 167 comments for this question mentioned economies which accrued from the use of instructional technologies, in the form of saved time for either faculty, or students, or both, or in the form of more efficient delivery of information.

These included the ability to receive and respond to student questions outside of class

in a timely manner; providing class notes online, thus freeing students from note-taking to participate more fully in classroom discussions; and the ability of a website to function as a “library reserve room,” providing easy access to a great deal of reference material while saving time for both faculty and students alike.

Other economies of instructional technology included the ability of presentation software (like Powerpoint) to organize complex material and make it available to students online, saving both money (from pre-printing and copying) and valuable class time; savings of paper from eliminated handouts, homework submissions, and exams, through electronic posting; and the ability to engage students more fully in large lecture classes, through small electronic discussion subgroups.

#### HOW TECHNOLOGY HAS BEEN COSTLY OR INEFFECTIVE

Over half (145, or 54%) of the respondents offered comments on the negative aspects of instructional technology. These generally fell into five major categories: 1) the poor reliability of classroom equipment; 2) the time costs of learning and using the technologies; 3) the “hassle” factors associated current equipment; 4) the lack of technical and clerical support staff; and 5) the expenses associated with using these technologies.

- *Reliability:* About a fifth (22%) of the comments mentioned equipment failure as a major roadblock to the use of instructional technology in the classroom. These included computer systems being “down” too frequently; classroom hardware failing unpredictably due to age and/or poor maintenance; uncertain access to classrooms that have the desired technology; and the associated need to “double-

prepare" classroom presentations in order to hedge against equipment failure.

- *Time:* Over a third of the comments (37%) mentioned the high time cost of using many of these technologies. These were associated with physically moving equipment to and from the classroom, and subsequent setup and teardown; the non-uniformity of hardware and software from classroom to classroom; the time required to develop personal expertise with the necessary hardware or software; and the sometimes huge amount of time necessary to apply the technology to the course, as in preparation of course websites, video series, Powerpoint slides, or demonstrations.
- *"Hassle" factors:* About a quarter (24.8%) of comments referred to the substantial inconveniences, irritations, frustrations, and confusions associated with the pickup, setup, and teardown of equipment; the incompatibilities that exist among computer platforms and among classrooms; the failure of equipment to work properly; the unreliability of computer systems and networks (as in being able to access a course web page in class); the need to have an alternative presentation prepared in case of equipment failure; and the uncertainty of assignment to a classroom with the required technology.

At least one faculty member commented on the clutter that existing equipment makes in some classrooms, preventing access to blackboards. But most of the perceived "hassles" are really associated with the ways in which current classroom conditions create extra work for instructors that they feel could be reduced by the ready availability of reliable equipment maintained in good working order. Many of these complaints were also categorized under "reliability" and "time."

- *Technical support:* About a sixth (17.2%) of comments considered limitations of technical support for instructional technologies to be a major shortcoming. These included: a lack of technical support staff who can advise and train instructors in the use of equipment, both inside and outside their departments; a lack of clerical support staff to assist with websites and other media presentations; and a shortage of technicians to keep classroom equipment maintained and running properly.
- *Expense and resource allocation:* About an eighth of the comments (13%) expressed concern about the monetary expense of some instructional technologies. *Personal* expenses of concern include computer hardware and software upgrades, particularly on home computers, and the purchase of peripheral media resources like videos and CD's for use in class. Concern about superfluous *institutional* expenditures revolve around the ideas that many of these technologies may be very costly to the University yet seldom used, while at the same time, many classrooms and departments may have unmet needs, perhaps even for relatively inexpensive equipment.

Finally, a handful of comments suggested that at least some students may be excluded because they may not have compatible home computers or internet access, or they may lack the expertise to participate fully in some courses that are heavily oriented toward particular computer applications like the internet. Similarly, some faculty feel that they themselves lack the necessary expertise to use some instructional technologies, the time to learn them on their own, and the support of the University to acquire and use the necessary skills.

## CONCLUSIONS

Responses to the survey demonstrate that Western faculty already make extensive use of instructional technologies in their classes. There is a widespread feeling that many of these technologies promote student involvement, enrich student experience, and improve student learning. Moreover, faculty appear eager to include even more such technologies. A vast majority of respondents (87%) plan to increase their use of instructional technologies in the near future.

Already the use of email and a course website have become commonplace. But the popularity of these technologies raises many questions about the best ways to support faculty in designing, constructing, and maintaining course websites, which are a great deal of work.

Survey responses suggest a strong consensus among faculty that most, if not all, classrooms should be minimally equipped with similar, mutually compatible computers with attached projection facilities, internet access, and the most common presentation software; a television and VCR; and a transparency projector (which most classrooms already have, and which many faculty appreciate and regularly use).

Whether, how, and how quickly to address this demand for classroom media equipment is a complex question beyond the scope of this survey. However, these data clearly indicate a strong and rapidly growing demand among faculty that these needs be addressed, and the conviction of many that such developments are of significant value improving both instruction and student learning.



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