

DIVISION OF INSTRUCTIONAL INNOVATION AND ASSESSMENT

Assessment Partnership Plan 2004-2005

SUMMARY OF REQUESTS

The Division of Instructional Innovation and Assessment (DIIA) received \$77,000 in ITAC funding for 2002-03 and \$17,589 for 2003-04 for the first and second year of a multiple-year proposal to assess the use of technology in teaching and learning at The University of Texas at Austin. The results of the first year's work produced benchmark data not heretofore available, informed the assessment team, and provided clarity of focus for the second and following years of the assessment effort (see Faculty Technology Use Report 2002-2003 and Literature Review Report on the DIIA Web site). The DIIA is requesting \$130,000 for the 2004-05 third-year phase of the assessment project. It will fund recurring costs to update the first and second year's findings, new initiatives with recurring costs, and one-time capital expenditures. The goal is to embed an authentic assessment component into the culture of our existing and proposed technology-enhanced learning, focused on availability, use, and effectiveness. The result will also feed into the next Southern Association of Colleges and Schools reaffirmation of accreditation process.

Ongoing projects	\$73,000
• Analysis of ITAC Vision Plans	\$ 3,000
• Collection and evaluation of existing models and results	\$30,000
• Course management software survey and analysis	\$15,000
• Develop observational system to quantify faculty use of technology	\$25,000
New initiatives with recurring costs	\$35,000
• Student input on faculty use of technology in instruction	\$30,000
• Evaluate the effectiveness of CTE-developed faculty training videos	\$ 5,000
One-time capital expenditures	\$22,000
• Computer work stations, peripherals, software, and ergonomic furniture	\$22,000

INTRODUCTION

In early 2002 and again in 2003, the DIIA proposed to partner with the ITAC in a multiple-year plan for assessment of the use of technology in teaching and learning with

the goal of improving instruction at The University of Texas at Austin. In the first year, the DIIA began and completed work on four projects:

- A. an analysis of ITAC vision plans (Appendix A)
- B. an assessment of faculty use of technology (Appendix B)
- C. a survey of faculty use of course management software (Appendix C)
- D. collection and evaluation of existing models and research results (Appendix D)

The analysis of the ITAC vision plans is complete, and the remaining projects are in various stages of completion. More steps will be completed by the end of the current fiscal year. Nearly all of the work has been performed by permanent staff of the DIIA and its component centers, and represents many hours and salary monies of in-kind contribution; other tasks have been accomplished by skilled graduate research assistants. While there is much related expertise in the DIIA permanent staff, it is now necessary to invest in the services of a full-time program evaluation expert, with the necessary support equipment. This person, along with graduate research assistants and a reduced in-kind contribution from the permanent staff at the DIIA, will be responsible for accomplishing the projects proposed:

ELABORATION OF REQUESTS

Ongoing projects **\$73,000**

Analysis of ITAC Vision Plans **\$ 3,000**

The current report will be updated to include information reported in the current vision plans. This project is a continuation of the work reported in Appendix A and begins a longitudinal study of what is requested, what is funded, and what is spent. Graduate research assistants under the supervision of the program evaluation expert will do the analysis, update the database, and analyze the results for trends.

Collection and evaluation of existing models and results **\$30,000**

This project will inform the assessment team about the results of others who have conducted previous assessment efforts. It is a continuation of the work and plan reported in Appendix D. Graduate research assistants under the supervision of the program evaluation expert and in consultation with the DIIA staff will collect and analyze this information.

Course management software survey and analysis **\$15,000**

The work begun in this project (see Appendix C) has produced a vast array of data and revealed further lines of assessment. The program evaluation expert in consultation with the DIIA staff and with the assistance of graduate research assistants will continue the analysis of the data, and will develop and conduct additional surveys.

Develop observational system for assessment of technology use **\$25,000**

This initiative flows out of the present year's evaluation of faculty use of technology in the classroom (Appendix B). The development of a system to quantify the use of

technology will require a consultant with expertise in psychometrics and qualitative research.

New initiatives with recurring costs **\$35,000**

Student input on faculty use of technology in instruction **\$30,000**

Two initiatives—student focus groups and a student survey—to gain student input on faculty’s use of instructional technology flow from the work reported in Appendix B, section III, step B. A *Daily Texan* columnist recently suggested that there is a need for faculty training in the use of technology in teaching, without specifying what present weaknesses exist (Appendix E). The focus groups and survey will be used to obtain specific information about student perceptions about faculty’s effective use of technology in teaching, information that is representative and therefore generalizable to the entire University student population. The funds will provide compensation for time spent to participate in surveys and in focus groups.

Evaluate the effectiveness of CTE-developed faculty training videos **\$5,000**

This proposal flows from the work reported in Appendix B, section III, step C and from the first year’s proposal to embed assessment of instructional technology use throughout the instructional process. The project would obtain information from the faculty and students about the quality and effectiveness of training videos.

One-time capital expenditures **\$22,000**

Computer workstations, peripherals, software, and ergonomic furniture **\$22,000**

Funding to equip the program evaluation expert and associated graduate research assistants with office furniture and computer equipment needed for them to complete the proposed projects.

APPENDICES

- A. Analysis of ITAC Vision Plans, Fiscal Years 2000–2003
- B. Initial Report on Faculty Technology Use of Research Project
- C. IAC Courseware Survey: Preliminary Review of Responses to Critical Questions
(not for distribution)
- D. Instructional Assessment Committee: Literature Review Plan

Appendix A

Analysis of ITAC Vision Plans, 2000–2003

Executive Summary

This report reviews the Information Technology Advisory Committee (ITAC) Vision Plans submitted by the colleges and schools for 2000–2003 and identifies the top five technologies requested by the participating units, recommended by the reviewers, and reported by the recipients. This analysis will help guide the Division of Instructional Innovation and Assessment (DIIA) in identifying potential assessment opportunities to better inform the ITAC committee and University on allocating resources to instructional technology. The report was prepared by the DIIA's Instructional Assessment Committee (IAC) during the fall of 2002. The results summarized below describe the key trends in ITAC resource allocation.

Result of Analysis *(Because data collection was not standardized, making comparisons is difficult.)*

Requested by units, 2000–03:

1. Classroom improvement
2. Lab upgrades and teleconference facilities
3. Increased network capacity
4. Hardware, software, and peripherals
5. Services such as Help Desk improvement, etc. (2000–02)
6. (tie) Curriculum development (2002–03)

Recommended by reviewers, 2000–02:

1. Classroom improvement
2. Lab upgrades and teleconference facilities
3. Increased network capacity
4. Hardware, software, and peripherals
5. Curriculum development

Self-reported expenditures, 2001–02:

1. Increased network capacity
2. Lab upgrades and teleconference facilities
3. Hardware, software, and peripherals
4. Classroom improvement
5. Curriculum development

DIIA's assessment role for this project has been to observe, describe, and point out trends in ITAC resource allocation. We hope that colleges and schools will find this analysis of ITAC funding allocation useful in their efforts to provide more effective and consistent reporting, and that they will see us as partners in enhancing the role of instructional technology at UT Austin.

Process

The IAC task force reviewed the ITAC mission, members, plans, recommended allocations, and general expenditures that are posted to the ITAC Web site <http://www.utexas.edu/computer/itac/>. We examined 48 vision plans for 2000–2003, two summaries of college plans and reviews for 2000–2002, and the 1994–2000 expenditure reports for reference. (No review data were available for 2002–2003.)

We used an Excel spreadsheet to record the data by year, then by units. Within each unit is the list of requests, their dollar value, the recommendations, and self-reported items. Major technology categories were defined and tagged to each listed item. The list was then sorted by categories and ranked according to the dollar amount associated with the items.

Next, the reviewers' recommendations were studied, analyzed, and extrapolated. Note that we were unable to determine some of the dollar values associated with the recommendations, because the reviews were in text format and the items were grouped together based on a set of criteria that required various requested items to be combined. In addition, the self-reported data, in the first year these data were made available, appeared to be incomplete because not all colleges could isolate ITAC expenditures from local funds.

Observations

TRENDS

The analysis showed that there is an increase in collaborative projects among colleges submitted for funding, and further, that more services-oriented requests are on the horizon. Requests for curriculum development and professional development continue to increase as well. Networking and equipment requests, while they continue to be dominant, do not seem to be the centerpiece anymore. Classroom improvement seems to have become a priority within colleges.

PROCESS

Vice President for Information Technology Dan Updegrave began meeting with the Technology Deans Working Group last year to devise a more unified format for Vision Plan requests, and he is continuing the process again this year. As a result, colleges have shown more willingness to submit to a unified format and process. The existing reviewer process was eliminated last year, and instead, ITAC committee members, one faculty and one student each, were assigned to do site visits and to be the champion for the assigned units in the review process. To supplement the site visit, units are being encouraged to submit activity reports.

FORMAT

For the coming year, Vice President Updegrave is refining the written guidelines for the reporting format he initiated in 2002 by providing the Tech Deans group with a template

for reporting ITAC expenditures. We hope that the template will address the reporting units' inconsistency in accounting for money spent on technologies. Last year, four colleges—Education, Engineering, Graduate School of Information, and Law—were able to separate ITAC-funded expenditures from the locally funded expenses. Liberal Arts and Pharmacy did not report on their expenditures. Most colleges have indicated the difficulty they have in accurately separating local technology spending from ITAC funding. In addition, the Office of Accounting Financial Reports Services uses a different reporting format that lumps all technology spending together.

Conclusion

This DIIA IAC analysis begins the process of mapping patterns and of providing a framework for categorizing funding requests. By summarizing the trends in funding patterns, the analysis can help ITAC better understand its allocation. Future analyses would benefit from a consistent and unified format for preparing vision plans.

Appendix B

An Assessment of Faculty Use of Technology

Abstract

During the fall 2002 semester, interviews of faculty teaching in general-purpose classrooms indicated that less than 40% of the faculty used technology regularly, and then, generally, only to use an overhead projector or a document camera. The faculty's limited use of technology appears related to the versatility of equipment and faculty's familiarity with using it: among the factors faculty mentioned were lack of training, mismatches between course type and available equipment, and timely awareness of resources to allow planning for their use. Faculty reported that they believe being able to show more visuals supports student learning.

In a second study, an email survey of faculty teaching in technology-enhanced classrooms indicated that still less than 40% of the faculty were using equipment regularly, and they were more likely to use the document camera or computers than other equipment. The faculty in this second study were more positive about technology use than those in the first group. However, although many faculty felt the use of technology enhanced student attention and learning, not everyone was convinced that the results were all positive. This group expressed a desire for more training in how to use the technology and to be more aware of what is available and possible.

The next stage in this project includes interviews with student focus groups about the effects of technology use on their learning and the creation of an observation system to classify the uses made of technology during classes and to evaluate their effectiveness. Results from this research will inform programs offered by DIIA to support the use of technology as an aid to learning.

I. Results of General Technology Use Interview Study

**Questions: Which technology equipment are faculty overall using and to what extent?
What is the effect on teaching or student learning?**

I. General Purpose Classroom Interview study: quantitative data

- A. **Procedure:** A stratified random sample of classrooms representing levels of technology (four rooms from each of six clusters) was identified.

A random sample of 60% of faculty teaching in target rooms was drawn from the population of all faculty teaching in those rooms.

169 faculty were in the selected sample

73 declined to participate;

96 were interviewed;

8 were in a room different from what was indicated in the official report;

88 were in the correct room and comprise the final set of faculty included in the data, resulting in a 52% return rate.

Faculty were shown a list and asked to indicate which equipment in their room they used and how often (using a 4-point scale from never [1] to every class period [4]).

- B. **Results:** In general, most pieces of equipment were used by less than 40% of the faculty surveyed.
1. **The highest** level of use of any one piece of equipment was that of the **overhead projector**, which was regularly used by only 34.2% of the faculty. This result may be an artifact of the sampling and applies only to general-purpose classrooms overall.
 2. **The second** most frequently used equipment was the **document camera**; 33.9% of faculty reported using it regularly.
 3. **Comparison of equipment** use when both pieces of equipment were present in a room shows that **the document camera** was used more frequently than either the overhead projector or the computers. The differences, however, were not dramatic and show trends only.
 4. **Comparison of the use of built-in computers with laptop** connections, when both are present, shows there was slightly more use of **the built-in computers** reported.
 5. When Macintosh built-ins are compared with PC built-ins, **PCs were used by more faculty** either occasionally or regularly. Still, only about 21% of the faculty reported using either the Macintosh or the PC built-ins regularly.

C. Discussion

1. In interpreting these data, one should note that the rooms being used in this sample ran the gamut from some with only overhead projectors to fully equipped technology rooms such as Garrison 1. **The results are generalizable across general-purpose classrooms** on the campus. The second part of this study (the email survey) targets only technology classrooms and is, therefore, more representative of the newly enhanced rooms.
2. It appears that faculty in these general purpose classrooms **prefer to use familiar equipment (the overhead)**. However, the **document camera is gaining ground** and edges out even the overhead when compared head-to-head. Based on faculty comments, this is probably due to the

versatility of the document camera and its ability to display a broad range of materials without much preparation time.

3. Although laptop connections were used by 24.3% of the faculty who had them available, when built-in computers were also available, the latter were used more regularly.

II. General Purpose Classroom Interview study: Qualitative data

A. **Procedure:** During the interview, the faculty were also asked about how they used the equipment, if it changed their teaching, and what effect they thought it had on student learning.

B. **Results:** Interview responses were read for themes, with eight themes in two broad areas emerging:

1. Use of technology

- a. Most faculty who used technology enhancements referred to the **ability to display visual materials** to support student learning as the best and most obvious change in their teaching and the students' learning.
- b. Most faculty also appreciated the **ability to bring more resources** into the classroom easily.
- c. Many faculty who didn't use the technology regularly attributed that to a feeling that they **had not learned of its availability early enough** to build it into their courses or to a **need for more training in the use of the equipment** now that they knew it was available.
- d. The number of faculty who reported that they changed their teaching was equal to the number of those who reported they did not change. Some reported a change for the worse because the equipment interfered with or was insufficient for what they wanted to do.
- e. Some faculty identified as a limiting factor the amount of time it would take to convert their existing materials to the new display technologies.

2. Impact on student learning

- a. Opinions about **effects on student learning were mixed**. Some faculty believed that using technology increases student

attention, some that it is now expected by students, some that it has caused a decrease in attendance when materials are available on-line, and one faculty member said it made her appear more organized.

- b. Several faculty reported that technology gives the students the **opportunity to see more “real-time” data**, either through accessing the web or using simulations in class.
- c. Several faculty reported having **students use technology** to make presentations in class, thereby improving the quality of their presentations while learning to use important tools.

II. Results of Enhanced Technology Use Email Survey

Questions: Which technology equipment are faculty in technology classrooms using and to what extent?

What is the effect on teaching or student learning?

I. Technology Classrooms Email study: Quantitative data

A. Procedure: Classrooms that were classified as technology-enhanced for the first time in fall 2002 were identified (27 rooms).

Four-hundred three faculty teaching in those classrooms were contacted by email and asked about which technology they used and how often.

One-hundred fifteen responded (29%); sixteen reported using no equipment at all, while 99 used at least one piece of equipment to some extent.

B. Results: The equipment was used regularly by less than 40% of the faculty surveyed.

1. The **document camera was used regularly by more faculty** than any of the other equipment (46.4%), followed by use of the built-in computer equipment (Mac 33.3%, PC 28.2%), and use of the overhead projector (26.9%).
2. **A comparison of equipment use** when both pieces of equipment were present in a room shows that the **document camera and the built-in computers** were used at approximately the **same rate** and by more faculty than the number who used the overhead projector.
3. **The built-in computers** were used regularly by **more faculty than** were the **laptop connections**. Mac computers (built-in) were used by more faculty than the PC computers (built-in).

C. Discussion:

1. The rooms sampled for this part of the study were more nearly equivalent to one another in terms of equipment availability than were those sampled for the interview part of the study, perhaps allowing **better comparison of use patterns** for the different types of equipment **in the technology classroom designs** that are now being used.

2. If this is so, the use of the **document camera and computer projection** seems to be replacing use of the overhead projector use in these classrooms.
3. Each of these two equipment choices **represents a different potential use of technology**.
 - a. Computer projection seems to replace the traditional display of lecture outline via overhead transparencies, while also allowing access to simulations and web interface.
 - b. The document camera allows for the display of authentic materials and for the consideration of interactive problems.

II. Technology classrooms Email study: Qualitative data

A. **Procedure:** The email survey asked faculty to comment on the usefulness of the equipment and its impact on their teaching. These responses were read for themes separately from the interview data.

B. Results:

1. In general, the responses from these faculty **were much more positive** about the use of equipment than were those from the general-purpose classroom sample.
2. Most faculty reported that they used the equipment regularly and were **pleased to have it available**. Several offered comparisons with their teaching in non-technology classrooms and the comparisons were very favorable. One faculty member said he/she would never go back to the old style classroom.
3. Comments about how the use of technology affected student learning were along the same vein as those made by members of the interview sample. References to the ability to bring in a **wider range of visual supports and the use of technology in student presentations** were the most common comments.
4. There were some faculty who did not like the new technology and felt that it interfered with their ability to use the blackboard. One complained that the only time he/she touched the equipment was to move it out of the way.
5. Where there were problems with using the equipment, most faculty attributed them to:

- a. **inadequate training** for using the technology;
 - b. **unfamiliarity with how to incorporate it** into their teaching;
 - c. **a mismatch between the subject and the use of technology**;
 - d. **reluctance to use technology enhancements in only one** section of a multi-section course in the case where other sections did not meet in technology-enhanced classrooms.
6. Several faculty **expressed an interest in learning to use the equipment** in future semesters.

III. Next steps

- A. We are working on an observation system that will allow us to sit in a classroom and generate data on how the equipment is being used. This will allow us to better understand how to quantify the use of technology so it can be related to objective measures of student learning. We hope to eventually be able to **recommend technology uses that have been experimentally tested and found effective**.
- B. We are ready to **convene a set of focus groups** composed of students from the classes taught by target faculty in the previous semester. We will be able to obtain direct input from students about the use of technology and its effect on their learning.
- C. We are developing some **experimental training videos** for the Web to allow faculty to see, at their convenience, what is possible in technologically-enhanced classrooms.
- D. We are investigating the feasibility of providing **ongoing training or consultation** in classroom technology use for faculty and teaching assistants newly assigned to technology-enhanced classrooms.

Attachment A

Master Equipment List

Type of control panel used (touch screen, push button, computer controlled)
Digital projector
Built-in computers (PC and/or Mac)
Laptop connections for instructor's own computer
Document camera
Overhead projector
Slide projector
DVD capability
Videocassette player
Hookups for extra equipment
Microphone
PA system
Wireless access

Attachment B

Statistically Determined Classroom Clusters

Cluster 1 classrooms: Most technologically-enhanced

GAR 1
GAR 109
GEO 112
PAI 2.48

Cluster 2 classrooms

NOA 1.126
PAR 103
WCH 1.120
PAR 303

Cluster 3 classrooms

CPE 2.210
CPE 2.218
ENS 145
WRW 113

Cluster 4 classrooms

UTC 1.104
UTC 3.110
UTC 3.112
UTC 3.134

Cluster 5 classrooms

ECJ 9.236
ETC 4.110
CBA 4.304
CBA 4.328

Cluster 6 classroom: lowest level of available equipment

BAT 202
BUR 136
WEL 3.260
RAS 100

Appendix C

A Survey of Faculty Use of Course-Management Software

Preliminary Write-up: IAC Courseware Survey

Question Development

On Tuesday, November 28, 2000, at 11:10 p.m., Pat Davis submitted, on behalf of the e-University Steering Committee, a collection of questions to be considered for inclusion in a survey of the Blackboard pilot that began in fall 2000. IAC used these questions as a starting point for the IAC Courseware Survey. (See attachment A.) IAC members and select faculty reviewed and edited these questions, and added others. In addition, personnel at the Colleges of Engineering and Education and at the Center for Instructional Technologies submitted questions specific to their supported course tools—Prometheus, TeachNet, WebCT, and Blackboard.

Four surveys were created. While many of the questions for each survey were course-tool independent, several questions targeted features associated with the specific course tools. (See attachment B.) Therefore, separate requests to complete the survey were sent to each user group.

HTML was used to code the survey forms. A Cold Fusion script was written to push the survey responses into a Microsoft Access database residing on the University's WNT server.

Users Groups

Four courseware user groups were targeted with the surveys. Two of the tools, Blackboard and WebCT, are used centrally, meaning that any UT Austin faculty member can use these tools for a course site. The other tools, Prometheus and TeachNet, are supported by the Colleges of Engineering and Education, respectively.

Blackboard users were identified by EID. Specifically, faculty users who accessed their course sites were identified due to their use of EID to login to their sites. There were approximately 600 active Bb course sites identified.

In addition to reviews of course creation requests, WebCT courses were reviewed for activity. From these analyses a list of faculty was generated. There were approximately 96 active WebCT course sites identified.

The College of Engineering submitted a mailing list of approximately 350 potential users. Many in this group had received training on the tool, but were not active users. There were 84 active Prometheus-supported course sites identified.

The College of Education provided access to two e-mailing lists, one for Kinesiology and Health and the other for the College of Education. All faculty associated with Education have access to TeachNet, which has a robust set of communication features, but lacks the assessment feature of

the other tools. Discussion with TeachNet support personnel placed the number of active course sites at approximately 48.

Preliminary Results for Critical Questions

1. Which courseware tools are being used?

Faculty Responses Concerning Use of Courseware Tools

Courseware Tool	Fall 2002 Faculty	Survey Respondents
Blackboard	600	123
WebCT	96	21
Prometheus	84	26
TeachNet	48	7

2. What features are being used?

Based on trends in faculty responses, it would appear the features they used most frequently were group email, course-content posting, and the gradebook.

3. Are instructors satisfied with these courseware packages?

Faculty Responses to the Statement: Use of Courseware Will Positively Impact End-of-Semester Rating

Courseware Tool	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Blackboard	6	15	52	38	6
WebCT	1	1	10	8	1
Prometheus	1		12	9	2
TeachNet	1	3	1	1	1

4. How has use of courseware transformed their teaching and students' learning?

A dominant theme among faculty's responses was that courseware allowed them to be flexible in addressing students' learning strategies by making course materials available on demand, encouraging student online interaction, and supplementing in-class resources with online references.

5. What specific activities occur within the CMS that make teaching and learning unique or more powerful?

The features most often mentioned by faculty were the forum (or discussion board), the gradebook, and the capability to provide course information to the class as a whole.

CMS Survey Findings

These results are being tabulated. DIIA anticipates releasing the survey results later this year.

Attachment A
Notes from Sub-Group on Potential
Questions for the Faculty Involved in the Pilot Project

I. Functionality Issues

1. What features are you using and why?
2. What features are you not using, and why not?
3. What features did not work well for you?
4. Were you prevented from doing something you wanted to do?
5. What additional capabilities would you like the system to have?
6. Overall, does the package meet your expectations? [Note: what should be globally on/off versus under individual faculty control may be dictated by these responses].

II. Impact on Instruction

1. What impact has this application had on our instruction?
2. What impact has this application had on student/faculty interactions?
3. What impact has this application had on student/student interactions?
4. What impact has this application had on faculty/faculty interactions?
5. Did you take (or would you take) steps to evaluate the differences between using and not using this application?
6. What were your instructional goals for using this application?
7. Where was the application effective and where did it fail to meet your effectiveness expectations?
8. What feedback did you get from the students?
9. How would you characterize the time associated with the faculty learning curve? The student learning curve? If this learning curve took away instructional time, was it worth the trade off?

III. Usability Issues

1. How would you rate the ease of use of this package?
2. How would you characterize the faculty learning curve in terms of usability? The student learning curve?
3. Was the navigation what you expected and did it respond as expected?
4. Was the labeling (buttons, menus, etc) what you expected, and did labeling respond as expected?
5. Did you find that consistency among the various categories of tools, options, etc?
6. Were forms well designed & consistent with good practices?
7. How would you characterize the performance of the package (speed, loading, breakdowns, number of times you could not access)?
8. Did you find it easy/possible to report problems that arose?
9. Were the search functions useful; what you expected?

IV. Accessibility

1. Have there been any complaints from students about access to the system (availability of workstations, access to the system)?
2. Have there been any problems experienced by faculty or students with disabilities using this application?

Additional topics to be discussed:

V. Additional Student Issues (from Faculty Perspective)

VI. Should this be universally implemented?

VII. Self-Sufficiency (how much support is needed).

VIII. Who will be polled (faculty, students).

IX. Security of Information