Technology

For questions regarding the WASC Self Study contact the WASC Coordinating Office

Statement of Questions Addressed

1. What forms of technology are now being used or are planned to be used in the teaching and learning processes at Cal Poly? Do these technologies enhance or diminish teaching/learning? In particular is technology facilitating active learning?
2. What are appropriate mechanisms for assessing the effective use of technology in teaching and learning?

Background

In order to address these questions, the subcommittee had first to understand how to define the "use of technology in teaching and learning" and to develop consistent terminology in order to ask the appropriate questions. To develop this understanding, these issues were researched through literature, on the web, and through many discussions with faculty who are currently involved in using technology for teaching and learning.

Technology is used in teaching and learning in the following ways:

-Deliver education – use of technology to present content, ideas, concepts, etc.
-Learning about technology (computers) – how to use technology
-Distance education – deliver courses beyond campus
-Provide access to learning resources (within studios and labs and outside of the classroom) – access data, library resources, etc.
-Facilitate student learning outside of the classroom – interaction outside of class time - email, web, chat, file access to data, etc.
-Integration of technology into curriculum – technology is a tool used to solve problems and to assist in student learning
-Enhance the quality of learning – help with understanding through simulations etc. which are difficult to experience though traditional means
-Administration of courses – grading, development of course materials, etc.

Technology utilizes facilities such as:

-General Labs – access to learning resources – learner centered
-Teaching Labs – "guide on the side" – instructor led
-Distance Learning facilities – instructor led
-Presentation Classrooms – "sage on the stage" – instructor led
-Integrated Labs – technology part of the problem solving process – learner centered
-Remote technology – home or dorm – learner centered

The modes of teaching with technology might be categorized as follows:

-Same Time / Same Place
-Same Time / Different Place
-Different Time / Same Place
-Different Time / Different Place

Technology Issues

Much has been written about technology issues and education today. A number of authors suggest that the use of technology in education occur in three phases. First is the acquisition of hardware, including networking. Second is training faculty in the use of the technology, including software. Third is the integration of the technology with teaching and learning. It is essential we keep in mind that "Good teaching is more important than good hardware" (Jamie McKenzie, *Educational Technology Journal* (web), December 1998). Too often we see only the technology and forget that the primary goal is for students to learn.

Authors such as Steven Erhmann have suggested that technology can both increase access to education and improve the quality of education. These will become important issues as Cal Poly increases the use of technology. Often the issues of the quality of teaching and learning are overlooked. We need to understand how technology can be used to improve teaching and learning, and not just added to the way we currently do things.

Another thread that runs through the literature is the integration of technology into teaching and learning. Beyond courses that teach students how to use the technology (e.g. introductory computer skills courses) or that deliver course content on the web, courses are beginning to integrate technology to explore discipline specific problems. The integration of technology into teaching and learning is relatively new to many programs and so it might be an area appropriate for university wide support in the upcoming years.

Assessment Issues

The specific assessment of the use of technology in teaching and learning is relatively new and not yet well defined. Access to the technology can be relatively easy to measure, but quality issues are still illusive. The quality issues are beginning to be explored in papers and at conferences, but more needs to be done to understand clearly the uses of technology in

teaching and learning. A later section of this report will discuss assessment in more detail.

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Methodology

During fall and winter quarter of 1998-99, the WASC Subcommittee on the Use of Technology in the Teaching and Learning Process at Cal Poly met to refine and carry out our mission. After reviewing the issues, the committee chose to develop a survey in order to determine:

1. Which technologies are being used or will be used in the teaching and learning process at Cal Poly,
2. How various technologies are being used in courses now,
3. How learning is being assessed, and
4. To what extent does the technology enhance or diminish teaching and learning at Cal Poly.

Throughout this period the committee members reviewed teaching/learning literature and developed a framework for the survey. It was decided that we would try to obtain the input of the entire faculty as well as from a random sample of faculty members if sufficient faculty participation was not acquired. It was further decided that this would be a web-based survey with user identification providing the needed security of information. This framework included sections on demographics, course delivery questions, student learning questions, assessment, faculty use of technology in the classroom, student use of technology outside of the classroom, barriers to technology use in teaching and institutional problems limiting the integration into the courses. This survey was then reviewed and modified several times based on suggestions from the committee members and other members of the campus community. After the survey was developed to its near final form, it was beta tested on line by committee members and other outside reviewers.

The rollout period was scheduled for the end of April 1999. In order to encourage full faculty participation, a letter from Provost Paul Zingg was e-mailed to each faculty member. This letter included information on the potential planning benefits of this survey. In addition the members of the IACC went to their appropriate academic divisions and encouraged their deans and the department heads to have faculty members complete the extensive survey. After two weeks, a reminder letter was sent to each faculty member and to the deans to encourage participation in the survey and the planning process.

As the surveys came in the data was analyzed by SPSS and updates of survey question response frequencies were provided to the committee members. When the committee members were satisfied that a representative survey response (either sample or total) had been acquired, the frequency tables were completed for the entire survey. Additional statistics were also computed.

These results were analyzed and included in the final report.

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Findings, Interpretation, and Analysis

Survey results and analyses

The results of the online survey of faculty regarding their uses and interests in integrating information technologies into their instructional efforts resulted in 201 valid responses, a 24% response rate. Although much valuable information can and will be obtained from additional analyses, summarization, and follow-up (e.g., focus groups), the following analyses provide valuable insight into the various ways in which faculty use technologies, and the many different issues and concerns they have about doing so.

Demographic Information

All the colleges were represented in the respondents, with more than 30% of the Full-time Equivalent Faculty (FTEF) in two colleges responding, while one college had less than 18% of its FTEF respond (Table 1).

Table 1. College Affiliation

	CAED	CAGR	COB	CENG	CLA	CSM	Library &UCTE
No. of Respondents	24	39	15	36	45	30	13
FTEF	79.6	120	72.4	135	203.5	172.1	50.7
%of FTEF Responding	30.1	32.5	20.7	26.7	22.1	17.4	25.6

Overall % Response 24.2%

Positions of Respondents

Classification	Number	%
Assist Prof	33	16.4
Assoc Prof	25	12.4
Lecturer	37	18.4
Professor	106	52.7

Totals	201	99.9

Of those responding, more were enthusiastic about using technology in teaching and learning than those reporting merely an interest in technology use. The respondents were either enthusiastic about using technology (59.2%), or interested, but skeptical (40.8%); nobody selected the available option of being "totally against" the use of technology in teaching their courses.

Attitude toward use of technology in teaching and learning

Attitude	Number	Percentage
Interested but Skeptical	82	40.8
Enthusiastic	119	59.2
Total	201	

Instructional modes

Nearly all respondents teach at least one lecture course per year while only 2.9 percent teach any courses via distance learning. Some faculty teach 12 lectures a year, while others teach in a variety of modalities. Of those who reported teaching activity in lecture mode, nearly 62 percent of their load was in lecture mode, with the rest distributed across other modes. The faculty who teach in studio modes average 47.3 percent of their whole teaching load in that mode. Of those who teach computer based studio classes, such courses comprise 23.6 percent of their teaching load.

Annual Teaching loads and modes

Mode	Number taught per year	Percentage of Respondents	Ave. Proportion of load
Lecture	180	89.6	0.616
Seminar	58	28.9	0.2099
Lab	89	44.3	0.3799

Studio	27	13.4	0.4727
Computer Based Studio	25	13.4	0.2363
Independent Study	62	30.8	0.2517
Distance Learning	6	2.9	0.2966
Total	447		

Course Delivery—reasons for using technology to teach courses

Faculty generally reported that the ability to demonstrate disciplinary specific simulations or scenarios was the most important reason for using technology in their classes. Equally important was providing convenient, 24 hour access to course materials through the use of technology. *Access* was reflected by faculty as the most important reason for using technology. The relative importance of using technologies to reach students with different learning styles, or to stimulate the interest of students in course materials ranked slightly below access.

The frequency distributions of responses indicating the degree to which respondents agree with nine reasons for using technology are shown in this link:

Frequencies—reasons for using technology to teach courses (Appendix II.2.A)

The following table summarizes the respondents' rankings of the three most important reasons for using technology.

Relative importance of reasons for using technology in teaching courses

Summary	Variable Name		Most Important	2nd	3rd	Total
Import of reaching different learning styles	CRSRANK1		23	17	17	57
Import of immediate feedback	CSRANK2		14	18	13	45
Import of feedback on student progress	CSRANK3		2	8	8	18
Import of enabling demos	CSRANK4		38	10	17	65
Import of stimulating students	CSRANK5		15	13	27	55
Import of providing 24 hr access	CSRANK6		23	36	13	72

Import of convenient access	CSRANK7		17	26	22	65
Import of saving prep time	CSRANK8		4	1	2	7
Import of allowing more R&D time	CSRANK9		9	5	6	20

Student Learning

Faculty believe that technology facilitates student learning most importantly by helping students grasp basic knowledge, and by encouraging students to become responsible for their own learning. They also indicated that technology increases student-faculty interactions, and helps students comprehend difficult concepts.

Frequency tables summarizing faculty opinions about how the use of technology facilitates student learning as measured by their level of agreement with five statements is summarized at this link:

Frequency Table (Appendix II.2.B)

Importance of use of technologies on impacting student learning

Summary of rankings as to importance	Most Important	2nd	3rd	Total	Sum of 1st & 2nd Ranks
Rank of Student-faculty interaction	19	12	7	38	31
Rank of helps gain basic knowledge	24	19	9	52	43
Rank -understand difficult concepts	12	18	16	46	30
Rank - higher order thinking skills	8	17	14	39	25
Rank -encourages learner centeredness	25	12	24	61	37

Assessment

Two thirds of the respondents did not report on any assessment of the impacts of using technology in their courses. Of those who did, more than ¾ tried four or more different techniques of assessment. There clearly need to be some guidelines and assistance for faculty to assess the impacts of integrating information technologies into the curriculum.

Assessment methods used by respondents

Assessment Methods	No. using	Percentage of respondents

Essays	30	14.9
Written Projects	50	24.9
Simulations	20	10.0
Reflective self-reports	16	8.0
Portfolios of student work	17	8.5
Structured interviews	13	6.5
Informal problem solving	21	10.4
Lab assignments/activities	54	26.9
Specific in-class independent tasks	38	18.9
Specific in-class group tasks	36	17.9
Specific homework assignments	54	26.9
Student self-perceptions of learning	19	9.5
Spontaneous/Informal probes	24	11.9
Analyses of student group processes	9	4.5
On-line discussions	13	6.5

Use of Technology in and out of the Classroom

Cal Poly faculty make extensive use of instructional technologies in their classroom activities. In addition, they expect or require their students to use information technologies in many of the courses they teach. This link shows the statistical summary of such uses of information technology by faculty in the classroom, and by students outside of class:

Statistics (Appendix II.2.C)

Classroom Use of Technologies

The proportion of faculty using traditional instructional technologies (overhead, 35mm

projectors—not computer or network–based technologies) is greater than the proportions using particular information technologies. However, more than 71% of the respondents reported using a combination of information occasionally or nearly all the time across all modes of instruction. Of those reporting such a level of use (either occasionally or nearly all the time), the average number of courses per individual faculty per year in which such use occurred was 16, or 70.4% of the courses taught by these faculty. This table summarizes the use of information technologies in the classroom by category of technology.

IT Category	N	Proportion of Responses using IT occasionally or nearly every class	Average proportion of classes/faculty using IT category—all modes	Median--50% of respondents use IT category less than these proportions
Presentation	96	0.478	0.719	0.646
AV Conferencing	24	0.119	0.571	0.282
Software Demonstration	74	0.368	0.665	0.488
Traditional IT	128	0.637	0.850	0.815

Detailed information about the extent to which Cal Poly faculty use information technology in their instruction is summarized in this link:

Class use of new technology # classes (Appendix II.2.D)

Data collected in the survey allowed some analyses of the extent to which faculty respondents use different categories of instructional technology. Responses indicating occasional or nearly every class session utilization were lumped together and considered to be active use, whereas responses of "rarely" were considered to be non-use. Results for use of presentation software, audio and/or video conferencing, demonstration of software, and traditional (non-computer) technologies are summarized below.

Presentation

More than a third (37.5 percent) of the faculty who use presentation software in the classroom occasionally to nearly all the time do so in all (100 percent) of the classes they teach. This suggests that presentation information technologies are found to be useful in all modes of instruction by those faculty.

AV Conferencing

While the use of audio and/or video conferencing information technologies is limited (11.9 percent of respondents), 29.2 percent of those who do use AV conferencing in the classroom do so in all their classes.

Software Demonstration

Of the 74 faculty reporting that they demonstrate the use of software in their classes, 21 (28.5 percent) of them do software demonstrations in *all* of the classes they teach.

Traditional (non-computer)

Nearly two-thirds of the faculty respondents reported using traditional instructional technologies in their classroom instruction. This implies that Cal Poly must continue to provide maintenance, replacement and support for traditional equipment. However, the survey did not reveal either the extent to which faculty use combinations of traditional and information technologies in the classroom, or if there is any migration from the former to the latter. Likewise, the degree to which equipment to support information technology-based classroom presentations is limited in availability may constrain its use below the desired rate. Faculty ranked classroom delivery limitations as the second most important barrier to using information technologies in the classroom (see below).

Student Use of Technology Outside of Class

Student use of information technologies as reported by faculty expecting or assigning such use is also extensive; 144 faculty (71.6 percent) reported student use of one or more information technologies related to their courses. When faculty do expect student use of information technologies, they tend to do so in most of the courses they teach; 30.8 percent of the faculty reported information technologies were expected by students in 75 percent or more of their classes. The table below summarizes the results of the survey relative to student uses of technology.

IT Category	N	Proportion of Responses	Average proportion using IT category—all modes
Email use	123	0.612	0.792
Listserv/Chat use	12	0.060	0.656
Online Information access	74	0.368	0.738
Courseware use	69	0.343	0.616
Library electronic data	84	0.418	0.627
File sharing	46	0.229	0.598

More detailed information on frequencies of use by students expected by faculty is found in this link:

Student Use of IT Total (Appendix II.2.E)

Email

Email is the single most used information technology by students outside of class that is expected of faculty teaching them. The average proportion of classes taught by individual faculty in which email use is required is nearly 80 percent. More than half (52 percent) of the faculty who expect their students to use email in their courses expect their students to use that technology in every course they teach.

Threaded Messaging and Synchronous Chat

While only 6 percent of the faculty expect their students to use synchronous and asynchronous messaging (exclusive of email) in their courses, a third of them expect their students to use this category of information technologies in all of the courses they teach.

Accessing Online Course Information

More than a third (36.8 percent) of the faculty respondents reported that they expect students to access and use online information resources occasionally or nearly all the time in support of courses they teach. Of those expecting students to use online information resources at least occasionally, 41.9 percent of their courses require students to do so in every course they teach.

Courseware

More than a third of the faculty reported that they expect students to use courseware outside of class at least occasionally. Of those faculty, nearly a third (30.4 percent) want students to use courseware in each of the classes they teach, not just in one or two of their classes.

L*ibrary Electronic Resources*

The expectations of faculty for students to use electronic library resources in their courses was exceeded only by their expectations for email use; 41.8 percent of the faculty expected occasional or more frequent use of library resources. More than a third (34.5 percent) of the faculty expected electronic library use in every course.

File Access

About a quarter (22.9 percent) of the faculty expect students to access and/or to share files across the network in support of their courses. Students are expected to access or to share files in every class taught by 28.3 percent of the faculty respondents, indicating that access to common data sets is an important aspect of a significant number of faculty members' instructional designs.

Impediments to using Technology in Teaching

Among the many physical and psychological factors inhibiting the use of technology in teaching, respondents were most consistent in identifying the limited time available for designing and developing technologically based teaching and learning materials and methods. Inadequate classroom capabilities for faculty wanting to use technologies to deliver instruction, and inadequate support for those faculty were the 2nd and 3rd reasons most strongly agreed with as being barriers to the incorporation of instructional technologies.

The three hyperlinks below display multiple pie graphs summarizing the respondents' level of agreement with 10 statements describing factors which might inhibit the use of technologies in Cal Poly's curriculum. These pie charts clearly show that the strongest agreement was with the statement about limited time being available for designing and developing instructional technology materials and methods, followed by inadequate classroom delivery and technical support.

Technical and support inhibitors to integrating technology into courses—A (Appendix II.2.F)

Technical and support inhibitors to integrating technology into courses—B (Appendix II.2.G)

Technical and support inhibitors to integrating technology into courses—C (Appendix II.2.H)

Relative importance of various barriers to using technology in teaching

Summary of Ranked Responses	Most	2nd	3rd	Total
lab access limits	5	14	15	34
modem access limits	6	5	5	16
classroom delivery limits	28	14	11	53
time for development limits	42	19	9	70
Tech support for developing	2	13	23	38
limited HW & SW	1	5	3	9
Student tracking SW limits	5	3	8	16
Classroom tech assistance limited	3	4	6	13
Discouraging environment	2	1	4	7
Educational value not worth it	3	8	4	15

Institutional Problems Limiting the Integration of Technology into Courses

Of the four institutional inhibitors, the curriculum review process was cited as the one that most respondents agreed with as impeding the integration of technologies into the curriculum. Processes that facilitate collaboration among faculty were cited as a major factor as well. The pie charts at the link below support this summarization.

Institutional inhibitors to integrating technology into courses (Appendix II.2.J)

Relative importance of various institutional inhibitors to integrating technologies into the curriculum

Summary of Ranks for most import Institutional Barriers

Summary of Ranked Responses	Most	2nd	3rd	Total	1st or 2nd
Rank of Curriculum process	26	10	9	45	36
Rank Lack of RTP credit	19	17	12	48	36
Rank faculty collaboration mechanisms	10	17	13	40	27
Rank Intellectual property issues	11	6	10	27	17

A Discussion on "Assessment" and The Use of Technology in Teaching and Learning

Assessment Definition

"Assessment is an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education."

[By Tom Angelo, excerpted from Mary J. Allen, **Getting Started In Outcomes Assessment**, Faculty Teaching & Learning Center, California State University, Bakersfield, 1999]

Comments on Assessment of Technology in the Learning Environment

> *"The most important thing about assessment is that it promotes dialogue among faculty."*
>
> [Mary Senter]
>
> *"Self-assessment is not the goal. Self-adjustment is the goal. That's what makes Tiger Woods and Michael Jordan great. That's what makes Socrates so impressive. That's what our best students and teachers do. They self-adjust, with minimal effort and optimal effect."*
>
> [Grant Wiggins]

"Unless the distinction vanishes in some cyborg future, people will always be more interesting than technology. People have talents and intentions that technology may serve."

[Malcolm McCullough]

Assessment Goals Involving the Use of Technology in Teaching and Learning

To improve the quality of learning and instruction, for both students and faculty; quality itself is often "situation specific", but is characterized by such attributes as:

- richness of the learning experience
- consistency, excellence and ranking of performance to benchmarks
- intrinsic value, worth, and lasting value of knowledge transfer
- inspiration and mentoring at a personal level
- excellence, superiority, greatness, competitive distinction

-To establish criteria for evaluation, beyond just collecting data points
-To utilize multiple techniques (i.e. formative, summative, illuminative and integrative) in pursuit of accurate assessment
-To establish a feedback loop that improves University framework for assessment at all levels for students, faculty and administrators
-To improve the quality of measurement, thereby enhancing the institution's image and marketability to students, faculty, alumni and community/industry partners
-To understand teaching costs (in the long-term), identify symbiotic relationships campus-wide where significant gains can be achieved in the learning process
-To better understand the flexible use of space, time and technical resources

Assessment Objectives in Teaching and Learning [From *Flash Light Project**]

-Not to focus on the technology per se **but how it is used;**
-To promote uses of technology that promote larger improvements in the fabric of a student's education;
-To apply learned outcomes to our specific degree programs and students.

[*For more about the Flashlight Project, see Stephen Ehrmann's "Asking the Right Questions: What Does Research Tell Us About Technology and Higher Learning?" in the March/April 1995 *Change*. Or, check out the Flashlight Project's website at http://www.learner.org/content/ed/strat/eval.html.]

Assessment Strategies

An assessment strategy provides a mechanism for reaffirming the importance of teaching and learning (with an emphasis on student learning outcomes) as the center focus of what we do at the university. It seems like we have forgotten this. The introduction of technology into the learning environment should allow for the accomplishment of learning objectives that are not

possible otherwise. Establishing a clear set of learning objectives helps to bridge the gap between student learning and how a particular aspect of technology can be used to respond to this need. Technology can allow for students to see problems in different ways, *in promoting a better understanding by the student* * and may also *provide a student with a more efficient use of time* *. The barriers to integrating technology into the classroom and for assessing the effective use of it relate to problems of *limited time*, *money* and *lack of incentive*s*.

[*Excerpts from WASC Technology Survey Results, Cal Poly, SLO May 1999].

Examples of how technology is commonly used include:

- to enhance the teaching experience
- to enable students to learn "better" or "faster"
- to secure time for research and professional development
- to coordinate and enhance resource utilization
- to provide a students a customized or unique learning experience

Effective assessment affords instructors and administrators the opportunity to resolve:

the drive to improve the quality and effectiveness of teaching; as stated previously, quality itself is often "situation specific", but is characterized by such attributes as:

- richness of the learning experience
- consistency, excellence and ranking of performance to benchmarks
- intrinsic value, worth, and lasting value of knowledge transfer
- inspiration and mentoring at a personal level

-excellence, superiority, greatness, competitive distinction the problems of time, and the balance between research, other activities, and teaching
-the need to increase the attractiveness of courses in the face of ‘competition’ in the ‘market’
-the need to cater to greater numbers of students from varied backgrounds, and to broaden access (and to offer non-traditional entry methods) to courses, and to support different forms of transfer into higher education
-the need to provide more flexible patterns of learning
-the desire to keep up with technological developments
-the expectation of students that you will be ace researcher, top manager and brilliant orator rolled into one

Conclusions

-Best teaching and learning practices should drive how technology can be effective in the classroom environment.
-Uses of technology in the learning environment can be evaluated if assessed against the course and curriculum objectives.
-Assessment is an on-going process or continuum that uses formative, summative, illuminative and integrative techniques, and not merely "data collection."

-Substantial benefits to the institution may be realized from a coordinated, on-going assessment of technology and feedback process at multiple levels for student and faculty
-Assessment is accomplished on an ad hoc basis with varying standards and techniques, and at multiple levels (student and faculty)
-A university level educational strategy for assessment does not exist; increased coordination is necessary between centralized and college/departmental/instructor assessments
-Although we haven't gathered hard data for this report, the committee's professional judgment is that the faculty, generally, are not trained to develop assessment strategies
-The focus of assessment on campus, seems to be more on faculty teaching (e.g., quarterly student evaluations, etc.) than on student learning.

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Discussion, Recommendations, and Conclusions

Technology Related Recommendations

For this report, the committee looked at many sources involved with teaching and learning with technology. These included web sites, papers, discussions with faculty, and attending conferences. These sources, combined with the survey, led us to the following recommendations. It should also be noted that especially when it comes to the use of technology to improve the quality of teaching and learning, we are all on relatively new ground and all have a lot to learn. The recommendations address that learning process on campus.

1. Explore current assessment strategies and methods used campus-wide; compile the results and outcomes; share the results widely with the campus community.
2. Establish an assessment tool kit at the University level (e.g., The Flashlight Project, etc.), as a starting point for providing essential assessment resources and strategy.
3. Develop at a university level a set of best practices for how technology is being used to improve student learning.
4. Develop discipline specific strategies for evaluating the effective uses for technology in the teaching and learning environments.
5. Provide workshops for faculty to develop expertise in developing assessment strategies.
6. Encourage at the college and department levels the need for the development of course and curriculum objectives for assessment.
7. Establish a university framework for collecting assessment data. A suggestion of categories include information from AAHE's seven principles:

   1-student-faculty interaction, 2-co-operation among students, 3-active learning, 4-prompt feedback, 5-time on task, and also includes measures of direct and indirect outcomes from 6-self reported cognitive and behavioral outcomes, and 7-student retention. Additionally, this framework should distinguish between the categories of: hardware-software/network; faculty training; and teaching/learning.
8. Continue the WASC Technology subcommittee group, or its equivalent, and actively

engage multiple constituencies campus-wide (i.e. undergraduate and graduate students, lecturers, tenure track faculty, faculty) in strategic discussions (e.g. focus groups) and planning endeavors involved in teaching and learning uses of technology.

9. To identify funding mechanisms and baseline resources for assessment activities.
10. Encourage Human Resources and Employment Equity to work closely with campus entities to formulate and to institutionalize a *professional development plan* with a technology focus for faculty.
11. Provide technology objectives and processes that can be integrated into the Faculty Workstation Program (FWP - Phase IV, beginning Spring 2000), working in conjunction with Information Technology Services (ITS), campus committees and other entities.
12. Integrate technical support staff in workshops that provide insights and address technology in teaching and learning, in order to better understand classroom demands, teaching styles, pedagogical concerns, course content, etc.
13. Work to develop technology oriented academic facilities that are driven by the evolving needs of teaching and learning with technology.

For questions regarding the WASC Self Study contact the WASC Coordinating Office

Assessment Resources

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Cal Poly San Luis Obispo Resources

Campus Computing Resources (i.e. facilities, systems, projects, training, support services)

<http://its.calpoly.edu/index.html>

IACC - Instructional Advisory Committee on Computing

< http://www.multimedia.calpoly.edu/iacc/>

Represents Academic Affairs, Academic Colleges, the Library and students. Advises the Provost and ITS on issues affecting the instructional community.

AACC - Administrative Advisory Committee on Computing

Represents the major administrative systems, including student information, human resources, financial resources, alumni, Foundation, Library, etc. Advises the Provost and ITS on issues affecting administrative users.

IRMPPC - Information Resource Management Policy and Planning Committee

Includes executive management, student and faculty representatives. Sets policy and strategic direction for IT for the campus

Other Technology Support Organizations, Committees and Groups
<http://www.calpoly.edu/computing/support.html

FWP - Faculty Workstation Program
<http://fwp.calpoly.edu/>

Related Web Sites

CSU Center for Distributed Learning
http://cdl.edu/

National Educational Technology - Standards for Students
http://cnets.iste.org/

TRACE (Teaching Resources and Continuing Education), University of Waterloo, Waterloo, Ontario, Canada
http://www.adm.uwaterloo.ca/infotrac/highlites.html

Educational Technology Journal, Technology for Schools, Technology for Learning
http://www.fromnowon.org/

VARK and Active Learning
http://www.active-learning-site.com/vark.htm

Not Another Inventory, Rather a Catalyst for Reflection
http://www.ntlf.com/html/lib/suppmat/74fleming.htm

CLASS HOME PAGE
http://www.classnj.org/

The Learning Center For Interactive Technology (TLC)
http://tlc.nlm.nih.gov/

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