

**Faculty Instructional Development:
 Supporting Faculty Use of Technology in Teaching
 Consortium Benchmarking Study**

**California State University – Center for Distributed Learning
 Site Visit Report**

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Site Visit Participants

CDL Staff

Chuck Schneebeck	Director
Lou Zweier	Program Manager
Abbe Altman	Project Coordinator
Rachel Smith	Distributed Learning Specialist
Michelle LaMar	Analyst/Programmer

CDL Partners

Gerry Hanley	Director, Center for Usability in Design and Assessment; Director, Faculty Development, CSU Long Beach; Professor of Psychology, CSU Long Beach
David Ernst	Executive Director, Integrated Technology Strategy, CSU
Gary Hammerstrom	Acting Assistant Vice Chancellor, Academic Affairs, CSU
Jeffrey Bell	Associate Professor of Biology, CSU Chico
Bill Evans	Information Technology Consultant, CSU Chico
Richard Karas	Provost and Vice President, Academic Affairs, CSU San Marcos
Martin Koning Bastiaan	Senior Scientist and Development Manager, EOE Foundation
Mary Jo Gorney-Moreno	Professor of Nursing, San Jose State University
Marty Frankel	Lecturer, Nursing, Sonoma State University
Paul Adalian	Librarian, Cal Poly San Luis Obispo
Loy Zimmerman	Slide Curator, CSU Long Beach
Jim Green	Biology Publisher, Addison-Wesley Longman

Sponsor Representatives

Bemidji State University	Henry Wang	Director of Instructional Information Systems
Bemidji State University	Patricia Rogers	Asst. Professor, Instructional Technology
Connecticut Department of Higher Education	Joseph Zikmund	Chief Information Officer
Minnesota State Colleges and Universities	Barb Herrmann	Director, Instructional Technology
Northland Technical College	Bob Bollesen	Regional Dean of Management Education
University of Nevada, Las Vegas	Barbara Cloud	Associate Provost for Academic Affairs
University of North Carolina	Judy Stillion	Associate Vice President for Academic Affairs
University of Oklahoma	Bob Swisher	Associate Provost
University of Wisconsin	Ann Iwata	Special Assistant, Learning and Information Technology
Winona State University	Tess Kruger	Director HR/Affirmative Action Officer

Study Team Representatives

American Productivity and Quality Center (APQC)	Marisa Brown	Senior Benchmarking Specialist
State Higher Education Executive Officers (SHEEO)	Rhonda Epper	Project Director
University of British Columbia	Tony Bates	Director, Distance Education and Technology

Overview

The California State University System (CSU) consists of 23 campuses, spread over the state of California. Student enrollment in the system is approximately 340,000, and there is a substantial additional number of students in extended education programs. The CSU system has 17,000 to 18,000 faculty members.

The mission of the California State University's Center for Distributed Learning (CDL), which reports to the system's Chancellor's Office, is to support the development of distributed learning environments for CSU's faculty and students on all 23 campuses. CSU's definition of a distributed learning environment is an approach to education and training that is intended to be learner-centered, enabling both synchronous and asynchronous interaction through the integration of pedagogically-appropriate technologies. The model is based on blending suitable educational technologies with aspects of campus-based delivery, open learning systems and distance education. Distributed Learning environments promote the use of the Internet (World Wide Web) to help students find, evaluate, and process information; solve problems; communicate ideas; work collaboratively; and learn how to learn.

The development of distributed learning environments within the CSU is a response to challenges in the educational environment. The shift from an industrial economy to an information economy is creating more adult students who require lifelong learning. In addition, there will be a significant increase in the number of "traditional" students in the state who need an education.

By locating the CDL at a campus, the system leverages an existing physical and technical infrastructure while keeping CDL staff at a minimum and building virtual groups. Being in Sonoma County, the CDL also gives the Chancellor's Office, located in Long Beach in the southern part of the state, a presence in the northern part of the state. The CDL has a good working relationship with the Sonoma State campus, which is quite receptive to their presence.

In general, CDL projects are faculty-defined and faculty-driven. The CDL influences projects by showing how technology can be used for enhancement/improvement. The CDL builds course elements and tools, but not whole courses. This approach leaves faculty members in control of the learning environment. Also, the CDL strives for multicampus participation on all of its projects. An individual faculty member may turn to the IT organization on his/her campus for assistance with an individual course.

Current Institutional Context

- 1. How does your strategic plan support technology and faculty development? Please discuss the evolution of this plan over time. Who ensures that it remains current? What is the proportion of Ftf:technology (face-to-face to technology-based instruction)?**

CSU campus presidents at the end of 1993 began discussing the tremendous amount of money being spent on information technology on all campuses for academic and administrative uses. A year later the system hired a consultant to drive the systemwide technology planning process and ensure the implementation of projects that resulted. That position has become the Executive Director, Integrated Technology Strategy (ITS). The planning process involved doing an assessment of the current state and then doing a visioning exercise for the future state of technology in the system. The focus was not technology; rather it was what the CSU stood for as an institution and what it wanted to stand for in the future. The ITS is using technology as a backdrop to bring people together to focus on institutional priorities across the CSU system.

“This whole planning process was about the fact that we’re wasting a lot of money by having all these wheels invented over and over again. Part of our objective here is to try to bring the wheels together and see if we can do a few things well by collectively using our resources.”

—David Ernst, Executive Director, ITS

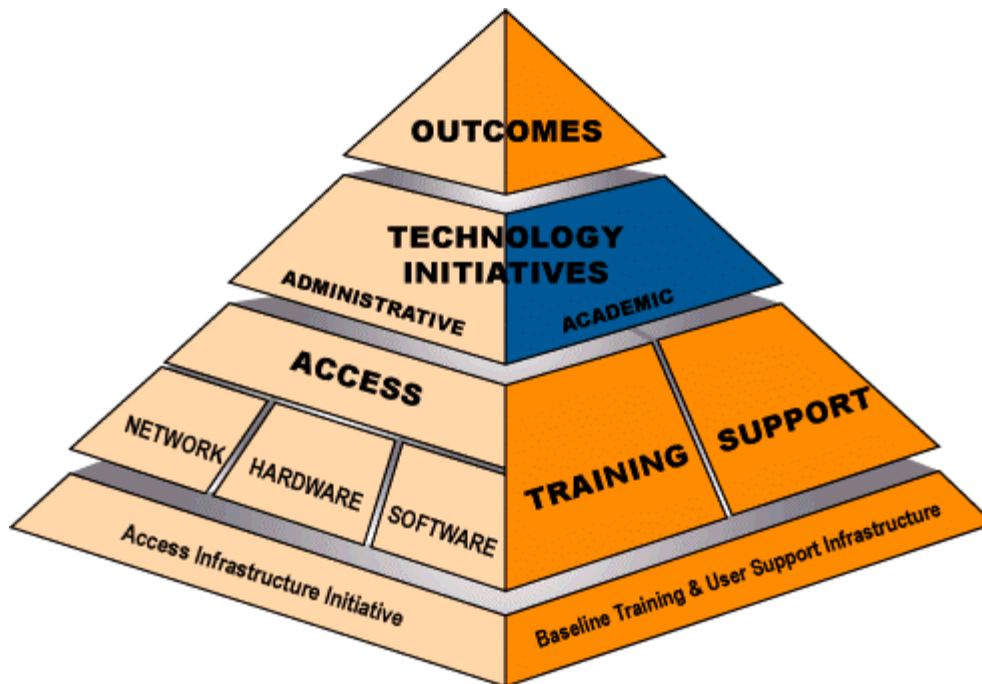
The ITS Planning Assumptions (revised December 1995 and included in Appendix A) were arrived at through focus groups and discussions. The forces included are academic, political, social, economic, organizational, and technical. For the system, going through the process to arrive at the list was the most valuable thing, not the end result. CSU developed a set of planning principles to weave together the bits and pieces (see Appendix A), including overarching, priority, and design principles.

The planning group resisted the urge to pick projects and do them too soon because it needed to develop a methodology to narrow the list to the most important projects that would have systemwide and campus impact. After the ITS executive director visited each campus in 1995, the immediate focus, from an individual’s point of view, was that every person needed access to a ubiquitous network connection, hardware, software, and training support. While providing for these basic needs is “unsexy,” it had to be “job one.” Building this base of the ITS pyramid (see page 5) was critical.

The second focus was on the outcomes at the top of the pyramid. CSU identified as critical the following outcomes involving the use of technology and received agreement from all campuses on them:

- Personal productivity
- Excellence in learning and teaching
- Quality of student experience
- Administration productivity and quality

Originally, the ITS did not create a written plan because there was no desire to divert resources to write a document that would sit on a shelf. However, a plan was eventually written because the state legislature required it.



Within CSU, the statewide, policy-making Commission on Learning Resources and Instructional Technology (CLRIT) has a diverse structure with widespread representation. Its mission is to enhance the quality of teaching and learning, the student experience, and student access through the effective use of learning resources and instructional technology. To achieve these ends, CLRIT develops recommendations to the chancellor and oversees implementation, evaluation, and widespread dissemination of the results of CLRIT initiatives.

Another planning document “Standards and Criteria for Selecting Projects” (see Appendix A) was adopted by CLRIT as a policy piece that was designed to give strong guidelines about what the CDL is doing and how projects should be selected. These standards must be met as a project develops. The two biggest issues for the CDL are scalability and sustainability of projects, and these issues are addressed up front when planning projects.

The CDL operates under the ITS, working with academic technology initiatives (see Appendix B). The CDL provides coordination services, facilitation services,

and implementation services for both policymaking and projects and research. The CDL also:

- 1) develops collaborative relationships (with academic vice presidents, faculty work groups, academic technology staff, the Chancellor's Office, etc.);
- 2) creates models (includes models for the project selection process—determines who “gets to play,” software development process map, scalable and sustainable issues, rapid prototyping, creating and working with virtual work groups); and
- 3) develops tools (MERLOT, Biology Labs Online, CLRIT projects, CATS organization).

2. What are the main ways in which technology is being used in teaching at the moment at your institution?

One of the main philosophical thrusts behind how the CDL encourages the use of technology for teaching is to build **tools**, not tutorials, because tools can present students with a problem to solve in active learning mode. Technology is not a replacement for a course; it is an enhancement for a course. Technology is being used in many different ways in projects at the CDL, and here are a few examples. (See the CDL “Projects” page at www.cdl.edu/html/projects.html.)

1. *Multimedia Educational Repository for Learning and Online Teaching (MERLOT)* — This multimedia repository functions as a place to share educational objects and technical tools for the faculty and academic technology staff by holding these learning objects and Internet links. It is also a place that provides points of contact for people within disciplines. Faculty members can post pedagogy and reviews, and staff can place technical notes on each learning object. The opportunity is there to create communities of interest to surround and sustain the learning objects in MERLOT.
2. *Biology Labs Online (BLOL)* — The purpose of BLOL is to create distributed learning environments where students use the Web and other relevant technology to enrich their learning opportunities, choose when and how long they will spend on a topic, and make choices that will match their individual learning styles. One piece of BLOL is EvolveIT, a simulation of evolution, where the user can control several key variables.
3. *CLRIT Proposal Development and Implementation process* — four projects have resulted:
 - a. *Nursing: Painless* (pain management simulation) — The CDL facilitated a group of nursing faculty members from various campuses to create this simulation for pain management. The question was asked, “What content is most difficult to teach that will be best served by students in simulation mode?” With the Painless simulation, students can practice giving medication with a simulated patient. The CDL/developers hope this project will increase faculty productivity, be more exciting for students, and be safer for real patients. The simulation is programmed with variables so a different patient is presented each time, and beginner,

intermediate, and advanced levels are available. Painless can cross all groups from undergraduates to master's degree candidates. This model can eventually be used in nursing, medicine, and kinesiology—with wide-ranging variability.

Faculty members involved in the development of this project have a password-protected, online threaded discussion list that allows faculty members from various campuses and the project programmer to communicate. This discussion list allows for a new way of developing classroom material.

“It is truly a collaborative effort to produce content. It wasn't painless. It was painful. But it is wonderful.” — Mary Jo Gorney-Moreno

- b. CSU Information Competency site: *Mastering Essential Techniques for the Information Superhighway (METIS)* — This site has tutorials and active learning components to aid students in finding, evaluating, and authoring information. This project addresses both basic computing skills and more advanced information literacy. Seven team members from four campuses have been involved in this project.
- c. Digitized Images: *Collection for First-Year Art and Architecture* — The project involves creating a collection of digital images of works of art for introductory survey courses in art and architecture. Teaching art and architecture requires access to large volumes of images of various works. Most art departments use slides — 100,000 items or more per campus is typical. This project will put these images on the Web for “anytime, anywhere” access. It also involves creating a CD-ROM with higher-quality images. Work products created so far include a concordance database with a list of all the slides required for the collection, a copyright release form, and Frequently Asked Questions (FAQ) about how the images will be used.

3. What role does technology play in a typical day in the life of a:

- **Faculty member teaching?**
- **Student learning (what kinds of students, how and where)?**
- **Someone in faculty support/development?**

See the examples of projects listed in the answer to Question 2.

Some CSU campuses have adapted the STAR System — Student Technology Assistance Resource staff. The program involves students who start as freshman lab monitors. The good ones receive additional training in the use of technology and tools, so that when they are juniors and seniors, they can be assigned to faculty members as assistants. The students gain experience, skills, and payment, while the faculty members get their own personal resource staff member.

4. Currently, how do students access learning through technology?

The Humboldt and Sonoma campuses have a standard that requires every student to have in his or her possession a machine that has been purchased, rented, or loaned. The system is committed to providing access for faculty and staff by purchasing equipment for them. Computer access in all offices is the standard it is shooting for across the system.

5. How are faculty members currently supported in the use of technology for teaching? What are the main activities? What has worked best? What changes would you like to see?

The CDL tries to support faculty in the use of technology through its projects. The CDL conducts workshops on projects such as MERLOT and Biology Labs Online for faculty development purposes throughout the system. The intent is not to have only the CDL staff conduct these workshops. Attempts are made to get partners on the campus, particularly the directors of faculty development, to help with doing the workshops. The focus is on getting the right function, not title, to be involved in customizing the workshops to fit the culture of the campuses. Projects also involve cross-departmental interaction as they move across subject areas (e.g., Biology Labs Online involves faculty members with demographics knowledge, in addition to biology). Also, in defining its business model, the CDL endeavors to ensure that each lab can be applied to different levels of the discipline. Additionally, a workshop from the Center for Usability in Design and Assessment (CUDA) will also be presented on various campuses to help faculty members ensure that their tools are usable and assessment is done early on to minimize rework.

Every CSU campus has something similar to a Center for Faculty Development or a Center for Enhancement of Teaching or Teaching and Learning. There is a CSU Faculty Development Council, a loose federation of all the campus faculty development personnel, that is coordinated by the system-level Institute for Teaching and Learning (ITL). The ITL was created seven years ago by Academic Affairs. Because the faculty development directors are driven by local culture and local needs, there is a movement to have ITL provide funding for sharing best practices and systemwide coordination.

In addition, the CDL is trying to empower the campus academic technology staff members to be more effective and efficient through the Consortium of Academic Technology Staff (CATS) program. The CATS participants in turn help the faculty members. In April 1998 the CDL recognized the need for creating a sense of community for this group and brought 118 people together for a three-day conference. Peer leaders from across the system were involved in defining the needs for this group, deciding what needed to be done in the conference, and inviting their colleagues (e.g., it was planned and presented *for* the staff, *by* the staff). Afterward, the CDL built a listserv and other Web tools for this group to

use for communication. Within CATS, subgroups have formed for different purposes, including a half-day videoconference to talk about WebCT. Now the administrative technology staff is interested in doing something similar to CATS, too.

Teaching and Learning Issues

6. Are your organization's faculty development activities based on any particular theories of teaching/learning?

(See Appendix C "Learner-Centered Psychological Principles: A Framework for School Redesign and Reform" abridged version). CDL has always focused on learner-centered, project-based learning models that drive teaching processes. APA guidelines, developed by approximately 60 people, serve as the philosophical underpinnings of the CDL's strategies and discuss what the critical factors are to consider when developing learner-centered principles. The factors include both cognitive and metacognitive (knowledge about your own thinking process), motivational and affective, developmental and social, and individual difference factors. A top-level principle on being learner-centered then filters down and impacts all the tools and projects being developed.

Practical implementation of CDL strategies is the recognition that people learn by doing, so faculty development occurs when the faculty work on the technology-based projects. By going through the steps on the CDL Developmental Process Map (Appendix C) — defining the problem, formulating requirements, evaluating alternatives, etc. — faculty members are in an active learning mode where they make decisions, use critical thinking skills, and take an approach that can then be modeled for their students. The emphasis is on hands-on, problem-solving contexts.

7. How do you provide faculty/instructors with the necessary skills for using technology effectively in teaching? Where is the main emphasis (e.g., technical, pedagogical, project management)?

The main emphasis is pedagogical. Through their work in developing applications, faculty members develop instructional design skills and insight into how to apply technology to the learning problem. The CDL's project management process models a collaborative, project-based learning environment.

8. Have you defined a minimal knowledge base for what faculty should be able to do with instructional technologies?

The tool set the CDL requires for remote group collaboration is extremely simple. Faculty members must be able to use a Web browser, e-mail, Web-based threaded discussions, and the telephone. The CDL intentionally wants to keep it simple and

work with people using tools they understand. An early attempt to use an Internet Chat Group failed and was discarded because it required participants to learn something new. Instead, teams use Web-based threaded discussions that show the hierarchy of messages.

The CSU system does not have any standards set for the use of instructional technologies. The system sets the desired outcomes, and the campuses devise their own strategies and sets of standards.

9. What lessons have you learned in providing faculty members with the skills they need for the effective use of technology for teaching? What should NOT be done?

Lessons the CDL has learned:

- Focus on learning problems not on what technology will do.
- Have people work in small teams.
- Carefully select the tools that you use (keep it simple).
- Process is as important as the actual products developed. It is through experience with sound process that instructional design skills are transferred to faculty members participating in projects.
- Identify the valued and trusted people on the campuses (in one case, the librarians and computer center staff) and work with/through them to make programs successful.
- Keep the core working groups smaller with a larger, consultative group.
- The project manager should be outside of the development team.
- Don't promote the latest and greatest technology all the time.
- Don't put technology first. Students should interact with the subject, not the technology. The technology should be secondary.
- Don't make involvement mandatory. Emphasize peer-issued invitations.

The CDL has also learned much about how to manage remote collaboration for projects. In a distributed environment, it is important to initially meet face-to-face to create cohesion in the team and then periodically to maintain that cohesion over time and prevent the group from breaking apart. CDL recommends meeting every other month, or at least quarterly, to help maintain group cohesion. Between meetings, conference calls can be used to support the group's work. In a few cases, the CDL held telephone conference calls before the groups ever met face to face. This approach was less effective because people did not have a face to go with a voice.

The vice president for academic affairs from CSU, San Marcos, one of the newer California State campuses with 4,000 full-time equivalent students, shared some lessons learned at the campus level:

- Try very hard to focus on rewarding good teaching and learning—not focusing on technology for its own sake. Boyer's views on the scholarship of teaching

are helpful. Keep communicating at all levels the message that you are after the best possible teaching and learning. Proving that will get people rewarded.

- Understand the anthropology of the campus—know the key people who can sway others’ opinions of new tools and products, and use their influence.
- It is helpful for the campus to conduct workshops on intellectual property rights. The focus is on unbundling the pieces of property rights and making faculty aware of their rights.

10. How does your institution help faculty members get from *concept* to *realization* for technology-based teaching?

The CDL Development Process Map (Appendix C) shows the way, and the CDL has the structure and support to help make it happen. Appendix D shows a flow chart of “Where Faculty Development Occurs in CDL Processes.” The software development process where “few develop” results in an intensive faculty development process that leads to the creation of learning tools. The tools are made available to many faculty members (who are influenced in their teaching by the adoption of these tools) through workshops on MERLOT, through CATS members, and other CDL efforts. Because it is difficult for every campus to have the CDL’s level of committed expertise to each project and because of the competition with campus daily operational support needs, it is important that the CDL remain as a strategic system initiative. It is the products that are scalable, not the CDL processes. The CDL draws resources from the whole CSU system and creates virtual work groups for the various projects. These team members then become champions back on their campuses to help other faculty members get from concept to realization for using technology in teaching.

Organizational Issues

11. What is the overall organizational structure for faculty development and support in the use of technology for teaching?

- **Organizational chart?**
- **Roles and composition of faculty development team?**
- **Why is it the way it is?**
- **How was it implemented?**
- **Would you do it the same way again?**

The CDL has relatively few staff members of its own. Instead, the CDL culture is to work in teams with virtual organizations and multicampus projects. (See Appendix D “CDL-Web of Resources.”) The CDL works with many different groups including the private sector, campus research centers (e.g., CUDA), directors of campus faculty development centers, campus IT staff (CATS–100-plus people), nonprofit organizations (e.g., EOE, which is helping develop MERLOT), campus faculty members, the statewide academic senate, and the administration

(Chancellor's Office, ITS). Throughout its efforts, the CDL emphasizes the need to be sensitive to local campus culture.

CDL full-time staff members include: director, program manager, project coordinator, distributed learning specialist, and analyst/programmer.

- 12. How are technology-based teaching projects organized and managed?**
- **Do you provide training in project management?**
 - **Do you have a team approach? Who are the members of the team?**
 - **What works best?**

The CDL takes a team approach to project management. Project management itself resides in a separate project manager outside the team. The development team structure, which resembles a target (see Appendix D), is the approach used for CDL software development. The core team includes content experts, a designer, and a programmer.

This team structure reflects the lessons the CDL has learned. Although it is valuable to bring together a sizable group of people at the beginning of a project to give direction, the overhead costs rise considerably if more than two or three content experts are involved for a project's duration. CDL projects now have few people who do the work and a larger group that provides feedback. This model is efficient and effective. The tensions are to balance having enough people involved so the project has broad support and input while limiting it to a few core people. Issues of verification and validation of the product's design are key. The larger advisory group has to both validate (Are we doing the right thing?) and verify (Are we doing it right?). If this cycle doesn't occur, the result may not be a scalable and sustainable learning tool.

The CDL has discovered that paying a small amount for people to be involved in the early stages of a project is worthwhile. Also, self-selection for content experts has been quite successful. However, content experts have to understand they must operate within the ITS and CDL principles and process, which provide discipline in the project.

- 13. How do you ensure consistency in faculty development for technology across departments?**

There is no formal effort to provide consistency across departments. By involving multiple units in each project, the CDL tries to effect a cross-section of the system.

- 14. In what ways are faculty members rewarded for developing skill in technology-based teaching? Please provide specific examples of incentives, practices, and constraints, if any.**

The CSU system has a collective bargaining agreement with two pieces, the Retention, Tenure, Promotion (RTP) process and the Performance Salary Step Increase (PSSI) process. Both processes have standards set at the program level that flow upward through local committees to campuswide committees to the vice president for academic affairs who makes the decision, which is then endorsed by the president. Please see Appendix E for the “CSU Retention, Tenure, and Promotion Policies and Technology Mediated Instruction.” It includes Principles for the Effective Use of Technology from Cornerstones, a CSU system report, and a list of statements from various campuses regarding how technology-mediated instruction is considered in their RTP policies. (See particularly CSU, Long Beach.)

RTP peer groups set broad and vague standards that allow deans and vice presidents to emphasize particular things. For example, CSU, San Marcos has started having workshops for the candidates and, more importantly, for the peer evaluators. The president, vice president for academic affairs, and deans attend and show examples of effective teaching and learning, which often include using technology.

15. How do you deal with the issue of faculty workload for technology-based teaching?

Rather than assume a one-size-fits-all approach, the CDL has asked faculty, “What do you need to make this (developing technology-based learning tools) work for you?” Most faculty members say they want release time, some want a stipend in the summer, while others want money to hire a graduate student so they can keep their classes but free up their time. If a nontenured faculty member wants to work on a CDL project, the CDL checks with the campus department chair and dean to be certain that this person is not putting himself or herself in jeopardy if the RTP process fails to recognize his or her activities with technology.

16. How has the institutional culture facilitated or hindered the implementation of strategies for faculty use of instructional technologies? How has this affected faculty development activities?

The CDL is careful to respect the unique culture of each campus it works with to maximize the effectiveness of its efforts. Participation in faculty development activities is often done on a voluntary basis to avoid having people feel it is being forced on them.

Policy and Financing Issues

17. How do you set priorities for faculty development and support?

CDL projects, which provide hands-on faculty development opportunities, come from a variety of directions. The projects being undertaken by the CDL represent a blending of events taking place across the system. A fundamental principle for the CSU is the need to do only a few things well that have systemwide applicability so that individuals are going to see make a difference in their day as a result of these successes. The focus is on the individual, not optimizing on providers or institutions.

One primary source for CDL projects is the CLRIT Commission, which dedicates funds to project creation via a changing and dynamic process. CLRIT wants to invest in those areas where there can be significant impact on campuses. To generate projects, the commission asked people with ideas to come forward and then looked for common themes, trends, and hot spots across the system. Responses came from faculty, staff, and administrators all over the system. The CDL then helped these individuals develop and refine proposals for CLRIT that resulted in some CDL projects.

“Little guys have it tough in the CSU.” — Richard Karas

Because smaller campuses are limited in the faculty resources, time, and money for faculty development, they have different priorities and do things differently. Richard Karas, vice president of academic affairs at CSU, San Marcos, has organized a consortium of smaller CSU campuses to try to build the sense of intellectual community that already exists on larger campuses. There is a \$15,000 requirement from each small campus to be part of this group. The CDL was the means for providing the coalescence for this consortium that is in the process of soliciting ideas for projects from campus faculty members. The goals are to create the sense of community and possible joint academic programs. This approach is “turning the current model on its head,” and it has the needs coming from the bottom (campuses) rather than from the top (chancellor’s office).

18. What is your institution’s funding strategy for faculty instructional development?

- **How do you get your funds (e.g., formula, incentive, external grants)?**
- **How do you distribute it?**
- **How is it budgeted (regular or periodic)?**
- **What are the pros and cons of external grants/funding?**

*“What the CDL does is at the very heart of what the core mission of the university is. Therefore, we (the system) are willing to spend money on it.” —
David Ernst*

The ITS budget includes an allocation for the CDL budget. Currently, CLRIT does not have anything to do with CDL funding, but it does have a say in how the CDL conducts its operations. The CDL annual budget is \$400,000 (including salaries).

Project budgets are above and beyond the CDL budget. Project budgets supply the money for faculty members to be remotely involved. Project budgets come from a variety of sources. They may be grants from CLRIT, external national grants, or joint partnerships with companies such as AWL. More than 80 percent is internal funding.

At the system level, CSU changed from originally wanting the CDL to become self-funding in three to five years. The concern was that the search for revenue would decrease the focus on CSU priorities. The CDL may become more entrepreneurial, but it does not have to be self-funding.

CSU has a program called Basic Access Training and Support (BATS) in which additional state funds have been used to supplement funding that campuses had for providing desktops, software, training, etc. Each campus had to develop a plan for how they were going to achieve the BATS standards. Based on campus plans, the system allocated dollars using a formula of \$75 per headcount student. While CSU is not yet up to that level — this year the funds will be up to \$50 per student — the money is available for faculty and student machines. There is a gap between the baseline for adequate access to the network, hardware, and software and the current state. Two years ago, CSU estimated that another \$300 to \$400 million would be needed to get to the optimum level because the destination is always moving.

“The ‘there’ is constantly changing.” — David Ernst

19. What role, if any, does the state legislature play in supporting or inhibiting faculty instructional development?

There is no widespread state mandate about faculty instructional development. A few individual legislators have been very interested in technology per se and its application to learning and teaching. Overall, CSU has tried to educate the legislature, particularly the funding committees and the educational policy committees, about the ITS. CSU’s high-level strategy has been to say that there is a strategy to show that its is spending the money against a plan with a strategy. CSU has a long educational period with the legislature, but there is no official state stand on the use of technology in teaching.

The Commission on Postsecondary Education in California (CPEC) has been extremely helpful to CSU by leveraging its influence and helping to educate the legislature on the “good” things CSU is doing in its use of technology to further learning and teaching.

“They [CPEC] have been a very strong ally of ours.” — David Ernst

20a. Are your efforts in Faculty Instructional Development linked to any multicampus or consortial efforts? If so, please describe. How well do these approaches work?

As part of the CSU system, all CDL projects are multicampus efforts by design.

20b. Does your institution outsource for faculty instructional development activities? If so, why? How well does this approach work?

CSU's relationship with publisher Addison-Wesley-Longman (AWL) is a partnership more than an outsourcing arrangement. CSU would like to duplicate this successful arrangement with AWL and other publishers where possible because it addresses a large scalability and sustainability issue. The partnership is not a traditional customer-vendor relationship because both sides are transformed by the process of learning skills, changing the ways the organizations work. This partnership has tremendous value because getting an academic organization to change how it is going to work with a publishing company involves modifying the old model of the editor and faculty member. It is very important that partners can coordinate cultures and activities while everyone is on the learning curve. While this partnership process has worked with AWL, a for-profit company, it has also worked with nonprofit organizations as well.

For example, CSU also enjoys a strong partnership with the Educational Object Economy (EOE). EOE has just changed from being an Apple Computer-driven organization to a nonprofit foundation. The advantage of this partnership is the expertise in the EOE group, which developed the basis for MERLOT. Along with EOE, there are a number of associated groups, such as JCampus, that are going to be the core of the CDL's community building effort.

The CDL is in discussions with Apple Computer regarding ways the CSU may use some of Apple's projects to help in teacher education. The CDL may broker this deal for others in CSU and then step back. CDL is quite willing to play this role if it will help teachers and students.

20c. Are you a provider of instructional development for other organizations? How well has this worked?

From its experience with the California Educational Technology Initiative (CETI), CSU has learned some lessons. This initiative was an attempt at a public-private partnership at the CSU system level that did not succeed. (See Appendix F for more lessons learned.)

“Don't try it unless you can act like a system. What torpedoed the CETI project was CSU's inability to act like a single unified group.” — David Ernst

A successful approach to reaching agreement in developing the relationship between CSU and AWL involved both parties jointly writing a white paper. This paper went through several iterations on each side until both parties were comfortable. The representatives from both sides then created a spreadsheet for

financials and a budget. Next, the parties created a letter of intent, which was a list of the critical points for the attorneys to talk about. This step allowed the partners to anticipate what the legal departments would say. The partners did not go to their respective legal departments until they had agreed on the white paper, budget, and letter of intent. This saved negotiating time for the lawyers because the same message was delivered to both sets of lawyers.

21. Have you been able to move faculty use of technology for teaching from the early adopters into the mainstream? If so, what strategies/tactics did you use to do this? How have you maintained momentum?

There are several ways the CSU tries to involve all faculty members in using technology in teaching. First, there are the workshops the CDL has done/is doing that focus on the various tools developed (Biology Labs Online, MERLOT, etc.). Second, there are ITL Fellows on various campuses to help faculty members who want to adapt courses to the Web. Finally, the CATS consortium will help the academic technology staff members, who in turn help the faculty members use technology and create community.

The CDL focuses on getting the early adopters to develop materials that will appeal to people at the middle of the adoption bell curve. Most of the CDL's projects (MERLOT, Biology Labs Online, etc.) are not focused on the early adopters. They are focused on the core users within the institutions. Also, the CDL focuses on creating quality projects that will be useful to a broad range of users.

“Quality is critical. The things that we make have to have quality and must have value back to the end users.” — Chuck Schneebeck

Performance Measurement

22. What are the goals (if any) for faculty development in the use of technology for teaching:

- **At the system level?**

At the system level, CSU has its Cornerstones project, which includes the principles for the effective use of technology, and the ITS pyramid (see page 6). There is no formal process in place for the system to decide if it would continue to fund the CDL. The original plan was for the CDL to become self-sustaining after five years or so. Since then, the system and the CDL have discussed the role the CDL is playing in the ITS pyramid and its importance to the middle initiatives—the middle of the pyramid is the reason for the base (see page 5). Therefore, the system is going to continue to fund the CDL. The amount and direction of funding will continue to be an open question.

- **At the institutional level?**

RTP documents are one source for determining what people believe is the connection between technology and teaching (see Appendix E).

- **At a program or department level?**

The intent of the CDL process is for faculty to become more reflective on teaching and learning processes, figure out the key areas to teach, and then continue to redo that process. One of the tools used to analyze the key areas is called a value matrix (see Appendix D). In creating Biology Labs Online, the tool was used to ask faculty member what is important for students to learn in the area of biology, and if they only had one lab, what would they teach. After brainstorming, they consolidated ideas, looked for underlying principles, and then identified barriers to teaching these concepts. The 14 biology faculty members then ranked the items and got consensus. Items with a “1” ranking are seen as a barrier, “0” ranked items are not barriers. While using a value matrix to achieve consensus can be a painful process, it is very effective.

- **For individual faculty/instructors?**

The CDL’s goal is to help faculty members get better at instructional design. Faculty members may be content experts but they may or may not know how to apply that content to a certain type of instructional technology. To accomplish that transition, they either know or learn about instructional design through the CDL development process. By working in groups they figure out how to best meet learning goals.

23. What has been the effect of your faculty development activities on faculty behavior with regard to the use of new technologies for teaching? How do you know?

The CDL is at the phase of building the concept and awareness of its technology tools. The tools are not quite in full utilization yet. Currently, the evidence of success is anecdotal. The campus staffs and discipline groups are going to have to monitor and influence the use of the CDL-developed tools. Centrally, though, CSU doesn’t monitor what is going on at each campus.

“We don’t have eyes on all campuses.” — Gerry Hanley

In the “Few Develop, Many Use” picture, the CDL can say how many faculty members have participated in the software development process. The CDL tracks only those faculty members directly involved in developing its products. It doesn’t track the numbers of faculty members who are using the products. The CDL has had 177 participants from 22 campuses, including 118 staff from the CATS conference, involved in its programs. There are increasing numbers of people using the products, such as EvolveIT, because the number of servers needed to maintain it is increasing. Additionally, the CATS facilitation has led to many different projects, and the community of academic technologists has exploded and begun to develop many new ideas and products.

24. Describe your methods for evaluating your faculty development efforts to encourage the use of technology for teaching.

- **What performance indicators/measures do you use?**
- **Do you measure faculty and/or student satisfaction?**
- **How are the collected data used?**

Various CDL products have different measurement methods. For EvolveIT, measurement is the number of times the experiment is run. For FlyLab, every move that is made is a “hit.” For TranslateIT, the number of times the program is downloaded is the measurement. The CDL is responding to the usage patterns they see, and in one case CSU has gotten AWL to run a commercial server to handle the volume for EvolveIT.

In the CUDA Usability Testing workshops, the instructors talk about how important it is to engage in an evaluation process at every phase of a project’s development. (See Appendix F “Usability Testing and Faculty Development: Is there a connection?”) Forty-seven faculty and staff members participated in the Usability Testing workshops. Of the 50 percent who returned the assessment of the workshops, all indicated that the workshop helped them understand how to create an effective learning environment for their students and brought them together with their colleagues in a way that advanced their professional and/or personal development.

Because one of the CDL’s products is the development process, its staff members want to repeat what works well. The following two examples are evaluation results from CDL projects.

A. What do faculty members think about CDL “facilitation processes?”

Four discipline groups of faculty developed proposals to design instructional technology prototypes. Twenty of the 36 involved in the projects completed a survey to assess CDL’s facilitation processes:

Just Right, Inadequate, or Excessive? Help, Hindrance, or Neither?

The amount of direction and guidance provided?	84% - Just Right
The type of direction and guidance provided?	76% - Helpful; 11% - Neither
The information provided?	79% - Helpful; 5% - Neither
The group Web site?	96% - Helpful; 4% - Neither

B. What do faculty think about virtual FlyLab?

FlyLab received 365 e-mail messages from instructors asking questions and providing comments. These instructors were then provided with an electronic survey to assess FlyLab, and 102 of them responded. Seventy-three percent were from the United States; others were from around the world. Fifty-five percent were college faculty, 41 percent high school or middle school faculty, and four percent represented other areas. Here is a subset of the questions asked and the responses:

True or False? (Percentage Responding True)

Virtual FlyLab has improved my ability to teach genetics.	87%
Virtual FlyLab has improved my students' understanding of genetics.	88%
I have encouraged other instructors to use Virtual FlyLab.	85%
Virtual FlyLab speeds up learning and frees up time for other activities.	12%

“Data doesn’t always convince someone, but it helps inform the decision making process. ... You’re always in front of a jury and you have to convict yourself of doing a good job.”

— Gerry Hanley

Because the CDL wants to know if it is asking the right questions, it uses responses such as the 12 percent above as red flags to investigate further.

25. How do you determine if there is a link between faculty development activities and changes in student learning outcomes?

Faculty development occurs through the CDL software development process. The CDL has done usability testing on the user interface for most of its tools, but results showed that students were able to learn concepts just using a tool once. Student survey data from 83 students (69 percent biology majors) shows that EvolveIT was very helpful for biological evolution knowledge and graphing (more than 80 percent rated these a 4 or 5 on a 5-point scale). Fifty-five percent said EvolveIT was very helpful in understanding hypothesis testing. Results showed that computer competency was not correlated with the helpfulness of the tool. Once user interface problems are eliminated, computer competency becomes a non-issue because technological distractions have been removed.

“If you can’t use the tool, you’re not going to be able to learn from it.” — Gerry Hanley

26. How do you determine good practice in the use of technology for teaching? How do you disseminate good practice/new ideas?

The spreading of good ideas and projects that the CDL develops basically depends on individual campuses to pick up the ideas. There is a strong belief at the CDL that adopting these projects should be voluntary, not mandatory for the campuses.

To market the products that have been developed, the CDL uses its partnership with publisher Addison-Wesley-Longman. For dissemination, workshops are provided to faculty members on all campuses by invitation with faculty peer presenters. The CDL has three workshops it presents at all campuses in the system. One workshop is focused on usability in design and assessment. The other two are Biology Labs Online and MERLOT (which has yet to be delivered). By inviting faculty members to come to workshops being presented by their colleagues, the CDL tries to create a resident expert on each campus to serve as a resource to aid in dissemination. To use redundancy to get the word out about the projects, the CDL will work through discipline groups, faculty development directors, the faculty development council, and many other avenues. Other pressures that are motivating the faculty to adopt these technology-based tools are student demands and peer pressure from colleagues who are using them.

“We recognize that the reality is that few develop [these technology-based teaching projects], hopefully many use.” — Chuck Schneebeck

**27. California State University System question:
What are the particular advantages and disadvantages of a system-level approach to faculty instructional development?**

Advantages to being at the System Level:

- Outside of local campus culture (independent of many territorial, cultural issues)
- Address strategic issues
- Can facilitate multicampus groups/endeavors (The CDL won't even work with a group if it doesn't represent multiple campuses.)

Disadvantages to being at the System Level:

- Low trust of central office (People on the campuses don't want to hear “We're from the Chancellor's Office. We're here to help.”)
- Challenges of remote collaboration (requires a cultural change to be accomplished)
- Must be sensitive to campus cultures (while not a disadvantage per se, the CDL has to expend additional effort to create credibility because it comes from the system.)

Having leadership in the top-level system office that is sensitive to opportunities and enables creativity is critical to having something like the CDL develop. In addition, hiring a good staff is also vital for success. Rather than authoritative command-and-control, it is more of a facilitative, opportunistic approach.

For the CDL to function and succeed, two conditions must be present. First, the CDL must be given the authority to operate. At the beginning, as a new entity, the CDL had difficulty getting permission to do the tasks it was charged with—a political issue that has to be worked through in any system. Ultimately, the

authority came from organizations that make policy and do systemwide planning, namely CLRIT and ITS. The second condition is that the services and products of the CDL must be seen as relevant to the faculty and staff on the campuses. In essence, the CDL gets its authority from the fact that it works between system-level policymakers on one side and faculty and staff on the other side. The CDL has been more effective because it is not driving the policy-making agenda for CSU.

At the system level, both the ITS and CDL are in the area of Information Resource Technology in the Chancellor's Office, while the ITL is in the Academic Affairs department. In the last year-and-a-half, CSU has been working to get better communication and cooperation between the entities sitting under two different structures in the Chancellor's Office. The CDL and ITL are looking to work together and make strides cooperatively to provide better services to the CSU community.

Some challenges are still ahead because the success of the CDL is only now being recognized throughout the CSU. As the CDL becomes better known in the system, people might want to ensure there is no disconnect between policy and operations.