Models for Faculty Training in Technology

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Abstract

What are effective ways to train faculty in technology? San Jose State University has used many different faculty training models since 1997. This session will describe the various models used, discuss their effectiveness, and highlight techniques used to draw into technology faculty who have little or no computing experience. Presently, San Jose State is using one model of training for the academic year and a different model for Summer and Winter intersession. The one-week sessions in the summer and intersession has moved technology beyond early adopters to regular faculty.

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What training models are effective in teaching faculty to integrate technology into their classes? This is the key question that this paper will attempt to address. The answer to this question is not straightforward; in addition, it is dependent upon the culture of the individual institution.

There is a growing cohort of early and mid-adopters of technology in universities but the many professors are either non-users or just beginning to explore multimedia and the World Wide Web in the classrooms. Much of the early technology training that has been developed is focused on the “innovators or early adopters” of technology. A standard strategy of presenting the technology itself and teaching people how to use the technology is most appealing and appropriate to faculty interested in technology, the “innovators.” However, mainstream faculty have different motivations and reasons for adopting technology as compared to “early adopters.” “Early adopters” and innovators are “techies” who are willing to explore and play with new technologies (Geoghagen 1994). According to Hagner (2001), early adopters or “entrepreneurs” as he names them, are motivated by internal rewards and are generally self-sufficient and independent in their pursuit of technological innovations.

According to Freeman, Brimley, and Rosen (1999), mainstream faculty are more likely “to show interest in a new technology if it is easy to use and does not require a major change in the skills they already possess.” Mainstream faculty tend to be more hesitant about utilizing technology in their classrooms for a variety of reasons. These faculty will “demand more ‘user-friendly’ levels of institutional support (Hagner, 2001, p. 6).

Most universities have established teaching and/or training initiatives related to multimedia and the WWW. Many of these initiatives have evolved from training center models—where faculty sign up for pre-established “workshops” to learn a new skill. Another presentation at Educause 2001 (Brown, de Vry, Morrow, & Watson, 2001) highlighted the work done at three universities (University of Florida, Wake Forest, and the University of Delaware) in training faculty to use technology. Among the twenty initiatives attempted in these universities, ten were the most successful including "have training computers and will travel to departments," "train for two days and get a new laptop," "standardize so that everyone is a potential help desk," "partner with faculty mentors," "disciplinary computer specialists in every academic department," "student technology consultants for course redesign." The most successful attempts to equip faculty with the skills and knowledge, as well as equipment to create multimedia based learning materials, have occurred where there is a institution-wide effort; as demonstrated at Pennsylvania State University with Project Empower (Noel and Brannon, 1997), with the STARS program at Wake Forest (Brown 1999; Brown et al, 2001) and outlined in the TESSI Project adopted by the Ministry of Education in British Columbia (Woodrow et al. 1997).

Since 1997, the author along with another faculty member (Miriam Saltmarch) have been involved in training faculty to use technology in their classrooms, first through the NSF MASTEP Project then as Faculty-in-Residence at San Jose State University’s (SJSU) Center for Faculty Development. This paper expands upon previous work by Backer and Saltmarch (1999, 2000) that described the results of the first three years of training.
San Jose State University (SJSU) is an urban university, located in the heart of Silicon Valley. It is part of the CalState university system and its primary mission is teaching. Because of this, faculty have high teaching loads (generally 4 lecture classes each semester). Also, SJSU does not have a large centralized IT support structure for course development. Unless a faculty member can obtain an internal or external grant, any technological course development is done on top of the regular teaching load. This culture puts a tremendous burden on the individual faculty member. Any type of curricular innovation, whether in technology or not, will require that the faculty adjust their time to accommodate the workload. Put another way, it is difficult to get faculty to integrate technology into their instruction within the current workload constraints at SJSU. Also, since SJSU faculty are required to complete scholarly work in addition to their teaching, they are further constrained by the requirements of the university’s retention, tenure, and promotion system. Many colleges in the university do not count technology-based curriculum development as scholarly work. The faculty who wishes to integrate technology into his/her courses will do so, in general, as an overload to teaching and scholarly requirements.

Because of these constraints, the first workshops were designed for the summer session. It was believed that faculty would have more time to dedicate to technology in the summer sessions.

### Training Models

**Model 1: MASTEP Workshop Model (Summer 1997)**

The structure for the first-year training consisted of two one-week “basic” workshops and two three-week “advanced” workshops. Workshop participation in the “basic” workshop ranged from 15 to 25 attendees. Attendance in the “advanced” workshops was much lower and ranged from 4 to 10 daily. The “basic” workshops were very structured and introductory in nature while the “advanced” workshops were project-oriented and open-ended in format. Each one-week basic workshop was followed by a three-week advanced workshop.

**Evaluation of Model 1.** The participants who entered the advanced workshops with a clear project idea were most able to take advantage of the instructional materials presented during the advanced workshops and were also closest in their performance and outcome expectations to those of the workshop instructors. Approximately one-third of the faculty attending the “basic” workshops were mainstream faculty while, in the “advanced” workshops, all attendees were “early adopters.”

Many of the participants in the “advanced” workshops also had trouble devoting enough time and energy to the workshops since they were not compensated in monetary terms nor were they assigned college or continuing education credit for attending the workshops except for the K-12 teachers. The higher education instructors from the state and community colleges were taking time from personal projects and other work projects in order to attend the workshops at cost to them. Because of these factors, attendance and attrition during the advanced workshops was a problem during the latter part of the workshop where participants did not receive formal instruction but were expected to work on individual projects. Some higher education instructors looked forward to release time during the next academic year to continue the multimedia projects.
developed during the summer workshops and these participants were more motivated to complete their projects.

Despite the high dropout in the advanced workshops, the faculty who completed these workshops had very complex projects. Much of the training in the advanced workshops was done on an individual basis. This allowed the faculty to explore many different options. Interestingly, very few faculty developed web-based projects in year 1. Most instead developed projects for delivery by CD.

**Model 2: MASTEP Workshop Model (Summer 1998)**

In the Fall 1997 semester, the author completed a Fulbright Scholar lecturing award in Peru. This project focused on providing information and illustrations on preparation of computer-based multimedia and web teaching materials for both high school and university instructors. The Project time was spent as a “lecturer” with part time teaching and part time consulting. Through this combination of teaching and consulting, the author worked with 9 different universities, the Ministry of Education, and teachers from over 20 schools to help them get multimedia “off the ground” in their organizations.

Based upon feedback from the first year and the workshops experiences in Peru, the workshop structure was changed to four one-week sessions rather than the one-week “basic”, three-week “advanced” model of Year 1. There were two different strands: the June strand was designed for college and university instructors and the July strand was for K-12 teachers. The topics for the June one-week sessions were: Week 1 Pedagogy, Week 2 Desktop Multimedia, Week 3 Using the WWW, and Week 4 Special projects.

The July workshop session was structured differently than the June workshop in some respects. This session was again divided into four weeks. However, the fourth week had a different focus (the first three weeks of this workshop paralleled the content of the same weeks in the June workshop). The attendees of this workshop were all K-12 teachers who had been selected to receive equipment and software through a proposal competition run by MASTEP. All of the workshop attendees in the July Workshop were again “early adopters.”

**Evaluation of Model 2.** Workshop participation in the one-week June higher education workshops ranged from 4-10 attendees with most of the workshop attendees again being “early adopters.” In July, since the teachers were receiving equipment and software, attendance was mandatory and eight K-12 teachers completed the July training. The K-12 teachers, by their own admission, expected that the workshops would follow a "chalk and talk" format. At first, the teachers were dismayed that they had to actively learn and produce tangible products. However, compliance to teacher expectations and motivation was high. Also, the students in this section were graded on the quality and appropriateness of their outcomes.

The attendees of these Summer 1998 workshops differed in many respects from the workshops of the previous year. Most of the faculty entered this session with highly defined, preconceived ideas of what they wanted to do. Sometimes, this led to a conflict between teacher and student expectations; incidentally, *this situation was not reflected in the teaching evaluations that were*
excellent. In many ways, students were resistant to any suggestion or teaching that did not fit into their paradigm regardless of the need of their design. For example, to engineering faculty members attended the June workshop with the goal of designing course Web pages. These faculty members refused to participate in any tutorials or class discussions, or learn any software, that was not directly related to their task at hand. Although this goal seems acceptable, this resistance precipitated the re-teaching of many concepts and software throughout the four weeks.

**Model 3: Short, focused workshops**

After reviewing participant feedback from the first two years, a consistent thread emerged. The workshop time commitment was too great for most faculty. In addition, the researchers were concerned about extending this training to mainstream faculty rather than just serving the pool of “early adopters.” It was decided to move to a topic-specific training model with short one to four day training sessions. Additionally, over the three year period, specific workshop instruction had been transformed from an open-ended, project focus emphasis into a specific topic tutorial-based, structured environment. The attendees and other faculty drove this transformation, which began in year 2 and was fully evident in year 3, interested in the workshops. To meet a trainer of trainer's objective, each topic specific workshops required that a mini project be completed after initial tutorials. The MASTEP workshops in Summer 1999 and 2000 followed this model of short, technology-focused workshops. The workshops ranged from one to four days and had enrollments of eight to 16 faculty in each.

This model was also used in Fall 1999 under the auspices of SJSU’s Center for Faculty Development & Support (CFDS). The author was appointed to serve as a technology trainer for SJSU through its centralized computer training. During Fall 1999, these workshops followed the MASTEP model from Summer 1999 with specific topics that were tutorial-based in a structured environment.

**Evaluation of Model 3:** An original objective of these workshops within the MASTEP Collaborative was directed at providing faculty who could function as trainers of other faculty. Moving from the year one model (training faculty to utilize a wide range of multimedia equipment and tools to build complete projects) to the year three model (training faculty in specific applications) changed the extent to which faculty could act as trainers of other faculty at their home school sites. Since complete multimedia or WWW projects normally require the use of various applications and equipment, faculty would have to attend a series of topic specific workshops and then attend a separate series of project based workshops to assemble a complete desktop or WWW project. The intention of this model is to meet the time constraints of mainstream faculty and yet provide the necessary training and project management skills necessary to develop a fully realized desktop or WWW project.

Under MASTEP, there were four short one to four day workshops in both Summer 1999 and Summer 2000. The overall attendance as well as the attendance at the individual workshops was much higher than the previous years (average number of 10 attendees in each workshop). Also, these workshops attracted a different group of faculty who most clearly could be categorized as “mainstream faculty.” As all of the short workshops included a project section, these faculty members were required to produce a small project demonstrating their understanding of the
topic. Overall, the results from this model showed better faculty understanding than the previous years. In addition, since these workshops appealed to a wider range of faculty, they could be considered more successful based upon that outcome alone.

During the academic year series offered for faculty at SJSU, this model was not as effective. The traditional academic year workshops still have, in general, a lower attendance than desired. They were packaged as a series and faculty taking a particular series accomplished their goals. However, because of the heavy teaching load at SJSU and the other commitments on faculty time, only a small number of faculty participating in one or more workshops during Fall 1999. Approximately 30 faculty attended one or more workshops during Fall 1999.

Model 4: Workshop Series

The low level of attendance at the Fall 1999 workshops did not seem to meet the attendance levels desired. This led to a shift for Spring 2000. Additional funding was made available from a Knight-Ridder grant and faculty were given release time to attend a workshop track--a track was a series of 4-6 intensive and focused workshops. Six tracks were offered on a first-come, first served basis: two tracks focused on basic web skills, two tracks focused on developing advanced desktop multimedia projects, and two tracks focused on WebCT. Each faculty member committed to attending all of the workshops in their track and completing a project by the end of the semester.

Evaluation of Model 4: Because of the release time, the workshops were filled quickly with faculty and including those on waiting lists. Attendance in the individual workshop sessions was excellent (attendance was mandatory in order to receive the compensation). However, the amount of faculty who completed their projects finished by Fall 2000 was low. Even with release time, faculty did not have the time to finish their projects during the academic year. Although faculty were given 0.2 release time, they did not have enough time to (1) learn the technologies and (2) apply the technologies to improving instruction in their classes. A prevailing complaint from faculty was that they did not have the time to finish their projects since most of the semester was taken up learning the pedagogy and tools to integrate technology into their classroom instruction.

Model 5: One-week intensive workshops in Summer and Intersession

In Summer 2000, CFDS offered two one-day introductory workshops (total enrollment 21 faculty) and a one-week session in August that enrolled ten faculty members. Each faculty who successfully completed the August workshop and an appropriate project was given a stipend. The August workshop included a basic overview to instructional design for multimedia and the WWW as well as tutorials on selected applications. Nine of the ten faculty members in the August workshop successfully completed their web-based projects by the end of the week. This model was repeated in Summer 2001 with a slight alteration. The workshops were formatted so that faculty who wished to receive a stipend would have to complete a two-day introductory workshop and a five-day advanced workshop. Also, the faculty had to present their project at one of several technology days on campus. To increase the instructional effectiveness, the workshop participants were divided by platform (Mac or PC). Thirty-two faculty completed the workshop
By far, the summer workshops were the most successful model to train faculty to use technology in the classroom. This agrees with other results from the University of Delaware (Brown et al, 2001). The most recent list of faculty attending in Summer 2001 indicate that more departments are participating in these workshops. SJSU, like many large institutions tends to have a high level of disparity in technology use across the disciplines. By Summer 2001, the technology workshops were attracting faculty from non-technology disciplines including: Philosophy, Social Sciences, Women’s Studies, American Studies, and Counseling Services. Despite the gains in attendance, the current workshop model does not meet demand. Approximately half of the faculty who applied for the Summer 2001 workshops could not be accommodated.

Based upon the work done at SJSU, we can reach the following conclusions.

- The use of technology in the educational setting is spreading slowly throughout SJSU
- Only a small percent of full-time faculty (FTF) use the CFDS (out of approximately 1000 FTF at SJSU). Other faculty have received training from other initiatives or are self-taught
- Need to develop further outreach for faculty

**Current institutional training at SJSU**

During the current academic year, SJSU’s Center for Faculty Development and Support offers short, focused workshops, Technology Brown Bag Discussion Groups, PC and MAC workshops, and individualized consultation sessions. The personnel in the center have been expanded and there are five full-time staff members to assist faculty. The staff is supplemented by one Technology faculty-in-residence who primarily serves as a resource person for WebCT and two faculty-in-residence for multimedia instruction. Also, the Center integrates its training with the Center for Distributed Education, operated under Continuing Education.

As compared with most other large institutions, SJSU does not provide as many resources to faculty to assist them to integrate technology into the classroom. In April 2001, seven Midwest universities participated in a Learning Technology Faculty Development Conference to “share resources and find solutions to Learning Technology (LT) faculty development challenges.” Half of the schools had grants specifically designed to integrate technology into the classroom. The other half, like SJSU, had grants to encourage general innovation (technology or non-technology based) in education.

The area where SJSU is weakest is in its production facilities. The philosophy, as well as practicality, of technology development at SJSU is that faculty will do the work themselves. As compared with similar-sized institutions, SJSU offers less production and technical support than even other universities in the CalState system (i.e., CSU-Chico, San Francisco State University). Also, SJSU does not provide student assistants to work with faculty as do at least half of the schools in the Midwest group.
Many universities are grappling with this issue—how does an institution provide training to faculty who wish to use technology in their instruction. For a public institution with limited funds, providing training is a difficult undertaking.

WWW Links

All workshops taught by this author since Fall 1999 are linked to this web page:

http://www.engr.sjsu.edu/pabacker/Workshops.htm

The projects completed by faculty in the Summer 2001 workshops are linked to the following page:

http://www.mastep.sjsu.edu/Alquist/Summer2001/faculty_web_pages.htm

The current workshop listing for SJSU is available at:

http://cfds.sjsu.edu/workshops/workshops.asp?Content=technology

References


