**Needs Assessment:**

**Technology Integration and Training for Online Course Development**

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**Abstract:** Colleges experiencing an enrollment boost due to the poor economy need to hire more teachers to accommodate student demand. Offering distance education courses helps meet the needs of a growing student body while alleviating infrastructure and scheduling conflicts. This needs assessment study surveyed faculty at a small Pacific college to determine if there is a desire and what types of support, technology integration and training are needed to convert their face-to-face courses to a successful online format. The survey contained quantitative and qualitative questions regarding types of technology and applications used or desired, and experiences with distance learning and course creation. Survey results indicated there is a desire to explore teaching online and to receive technology integration training.

**Introduction**

Higher education institutions have seen student enrollment rise more than 50 percent since the fall of 2005 due to the recession, layoffs, unemployment and post-secondary training programs (Essoyan, 2010; Palloff & Pratt, 2000; University of Hawaii, 2010). Colleges hire more faculty and schedule more courses to accommodate the student enrollment increase, but when facilities and infrastructure are not able to keep up with the changes, online alternatives may help. Distance education may help without further impacting facilities, staff and student scheduling (Abel, 2005). Faculty, however, may not feel ready to teach courses online because of academic and technological barriers such as time and effort required and additional training needed to integrate technology tools with instruction (Clayton, Brinthaupt, & Draude, 2008). A Needs Assessment (NA) study can help determine if there is a desire to teach online and what types of support, technology integration and training the faculty at a small Pacific university want so they are able to convert their face-to-face (f2f) courses to a successful online format. The information collected can be used to design additional training workshops or to explore software and applications that are not currently utilized.

**Background**

**Faculty Buy-in**  
The possibilities of teaching online can elicit responses from faculty that vary from excitement to hesitation to doubt. An important question to ask is how does faculty feel about online instruction? As suggested by Caplan (2004), that value of faculty support “should not be underestimated.” Different types of support can help improve buy-in, such as assurances that
jobs will not be lost but be expanded, support from peer mentoring and instructional design, online technology and pedagogy support, as well as frequent and clear communication of the reasons why moving towards online education is important (Abel, 2005; Caplan, 2004).

Cost and benefits analysis
An evaluation of costs and benefits found that while classrooms, facilities, and parking areas are alleviated of overcrowding by additional students who are enrolled online, other costs increase. These costs can include appropriate hardware and software that must be purchased to in order to promote distance education, the retraining of instructors to new software, as well as additional costs for the student to purchase a computer in order to take an online course (Lei & Gupta, 2010). The technology used to deliver course material can be a help or hindrance in developing course materials. Instructors can choose to work with Instructional Design professionals skilled in course design while others may choose to work alone (Lockyer, Sargeant, Curran & Fleet, 2006). Faculty can reduce the amount of time and effort needed to learn new applications and technology for IT integration by using departmental and course templates.

Hybrid courses offer many benefits to colleges as well as to students. Hybrids also allow institutions to maximize their available resources while minimizing costs, such as for paper and photocopying (Gould, 2003). Students who participate in both settings, online and traditional, are more likely to have flexible schedules and to develop their time management skills than those in traditional courses. Hybrid courses also tend to be more writing intensive because of the different methods of participation and communication such as discussions, emails and journals.

Making the transition from face-to-face to online
A successful online course cannot be measured on course material alone. A common mistake made by many educators is thinking that just converting traditional f2f course material and using f2f approaches will work in an online setting (Palloff & Pratt, 2000). Lockyer et al. (2006) reported that online facilitation is more challenging compared to f2f. What is not taken into account is the difference of stimuli and information that students receive. While long documents of continuous text are similar to lectures that are common in higher education (Simonson, Smaldino, Albright, & Zvacek, 2009), most online classes do not have the physical interaction of f2f classes. Thoughtful incorporation of technology to deliver the course material can help engage the students on multiple levels of intelligence (Gardner, 2008; Lei & Gupta, 2010; Palloff & Pratt, 2000). As a result, the following research questions are put forward:

R1: What level of effort do the faculty feel is needed to teach online courses when compared to f2f traditional class alternatives?
R2: What level of effort do the faculty feel is needed to develop an online class or convert to an online format when compared to f2f traditional class alternatives?

Online Pedagogy
Technology and course material may be a large part of an online course, but if pedagogy is not incorporated, students may not learn the material as well as the instructor anticipated. Implementing best practices should transition from the traditional classroom to online classrooms and become ‘electronic pedagogy’ or the art of teaching online (Abel, 2005; Palloff & Pratt, 2000).
Methods

Participants
Thirty faculty (22 women or 73.3%, eight men or 26.7%) participated in the study. All (96.7%) but one was full-time faculty. 18 (60%) faculty were 55+ years old and 12 (40%) were between the ages of 35-54 years old. When asked how long they’ve been teaching, 19 (63%) replied 11+ years, while the rest (37%) were relatively new with 0-3 years. All stated that they possessed basic computer skills and were comfortable with a computer and used the college’s course management system.

Method of Delivery
An email invitation was sent to 274 faculty to participate in a voluntary and anonymous online survey created with Survey Gizmo (www.surveygizmo.com). Survey Gizmo was used because it utilized page logic and branching features which jumps the survey taker to a specific page dependent on the answer supplied to the previous question.

Study design
The university human subjects study review committee approved all materials and procedures. The researcher used some questions from the 2009 survey conducted by the NASULGC-Sloan National Commission on Online Learning at Central Michigan University, Michigan. The reliability of the survey using Cronbach’s alpha could not be determined at this time. A demographic and computer and technical skill survey from the Instructional Design Service located at the subject college was also used.

The survey used open-ended, likert scales, multiple-choice, categorical, and numerical type questions. Subjects were asked two open-ended questions regarding what they liked and disliked most about online instruction. Quantitative questions asked for information regarding demographics, professional training, online experience, computer skills and types of online applications used.

Protocol
After contacting the Vice Chancellor of Academic Affairs and Faculty Coordinator and addressing the department heads, input was sought by the college’s Instructional Design Service staff with regards to demographic and computer skill portions of the survey.

Results
A survey invitation was emailed, using a listserv, to N=274 full-time regular and temporary/adjunct faculty. Of those invited to participate, n=30 (10.94%) completed the survey from the 41 (14.96%) that responded. The survey was administered to the participants between January 27 and February 15, 2012, with one (1) email reminder.

Online Experience
Faculty were asked if they taught an online class or took one as a student. Of the 30 responses, 11 (36.7%) responded they have taught an online class while 19 (63.3%) didn’t. When asked if they took an online class before, 19 (65.5%) out of 29 responded yes, while 10 (34.5%)
responded no.

Research question 1 (R1) asked the teachers what they felt was the level of effort needed to teach an online class when compared to f2f traditional class alternatives. 16 (53.3%) responded to this question. 8 (50%) felt that teaching an online course is “a lot of effort”, while two groups of 4 (25% each) felt that teaching an online class was “somewhat more effort” or “about the same level of effort” as compared to a f2f traditional alternatives.

Research question 2 (R2) asked the teachers what they felt was the level of effort needed to develop online classes or convert to an online format when compared to f2f traditional class alternatives. 15 (50%) responded to this question. 7 (46.7%) felt that developing an online course is a lot of effort. 2 (13.3%) thought it was somewhat more effort. 5 (33.3%) thought it was the same amount of effort and 1 (6.6%) felt that it was somewhat less effort.

Attitudes toward Online Instruction
Faculty were asked to answer two (2) open-ended questions, ‘What do you like most about online instruction?’ and ‘What do you dislike most about online instruction?’ 22 (73.7%) faculty responded to both questions. Many of the responses mirrored those reported by the NASULGC - Sloan National Commission on Online Learning. While positive comments can confirm the reasons why online instruction should be offered, the negative comments may hold more weight as they can help identify issues that need addressing (See Tables 2 & 3 in the Appendix).

Want to teach online?
An examination of the data identified that more than half (16 or 55.2%) of the sample (n=29) do want to teach online. 10 (62.5%) have reported that they are currently teaching. The remaining 6 (37.5%) expressed they do want to teach but need help. Six (20.6%) participants indicated they would teach if they were paid development time. 7 (24.1%) indicated they do not want to teach online (see Table 1 in the Appendix).

Assistance Needed
Faculty were asked to specify from whom they would want help and support from. Five (16.6%) people responded to this question. The participants were able select any of the available choices that best answered the question. The data identified all of the participants wanted help and support from the Instructional Design Services located on campus. Four (80%) needed more information as well as IT computer help and support. Two (40%) wanted help from peers. One (20%) needed help from the department head. Another individual (20%) wanted help regarding the college’s course management system.

Discussion
The purpose of this study was to determine if the faculty at a small Pacific college desired to teach online and what types of support do they need to develop and convert f2f, traditional courses to an online format. The results of the survey indicated more than half of sample, 16 out of 29 participants who responded, do want to teach online and some are in need support and training.
The sample size, n=30 (10.94%) was small compared to the population size of 274. No correlations could be made because of the sample size. Possible reasons for the low respondent turn-out could be technical difficulties such as poor internet connection; lost email invitation, email not in the listserv used; or the survey website could have been down or in maintenance at that time. An alternative method of issuing the survey, while still preserving the participants’ anonymity, is to distribute paper versions to the faculty via their mail box with a self-addressed stamped return envelope.

A few problems occurred with the study. The first problem was the timing of when the survey invitation was sent out to the faculty. The researcher informed the department chairs of the survey and study on December 6, 2011. Because of the upcoming Fall semester’s final testing week, the researcher was advised to send out the survey invitation two weeks after the beginning of the Spring semester. This would allow faculty time to complete Fall semester finals and to settle into their Spring classes. It is recommended for future studies, the survey launch date be scheduled mid-semester as to not conflict with busy events of the academic calendar.

Another problem involved two questions being made available to the entire sample, as opposed to being hidden by the logic and branching tool. These two questions should have been shown only to those who responded ‘Yes’ to the previous question. If it was implemented correctly, the accurate amount of respondents to those questions should be half of the current amount. Because those questions were available to all, their reliance and validity became questionable and therefore thrown out.

The researcher received a few email comments from some faculty. A faculty member felt that the survey contained redundant questions and took longer than 15 minutes. The researcher recommends additional survey testing prior to deployment to prevent these problems. Another faculty member commented that she received the survey invitation but felt that she should not complete the survey because she recently retired. It is recommended for future studies to use a listserv that contains current faculty.

The attitudinal data collected from the “What do you like/dislike most about online instruction” questions (See Tables 2 & 3 in the Appendix) provided insight as to which areas need addressing. Online pedagogy, integration of online tools and suitable applications/software can assist faculty in regard to student retention, online community creation, interactive media, effective communication and classroom dynamics (See Table 4 in the Appendix for a list of applications and online tools).

**Conclusion**

Half of the faculty sample indicated they want to start or continue to teach online. While this sample is small, the researcher felt there could be a growing attitudinal trend among the faculty who support teaching online. Faculty need the necessary tools and support to teach and/or create classes that use multiple intelligences to educate students. A diverse list of tools and resources will include peer mentoring, an online-based web conference/classroom application, a knowledge base that includes workshops on Web 2.0 tools, course specific templates based on subjects, strategies for teaching online, and information on creating and/or incorporating project-
based learning into the online classroom (See Table 4 in the Appendix for a list of applications and online tools). The researcher also recommends the study be expanded into a research project and follow participating faculty as they develop courses and pedagogy to successfully teach their courses online.
References


University of Hawaii. (2010). *Headcount enrollment of credit students, by campus, university of hawai`i, spring semesters 2001 to spring 2011*. Institutional Research and Analysis
Appendix

Table 1: Do you wish to develop and teach online courses?

<table>
<thead>
<tr>
<th>Count</th>
<th>Percent %</th>
</tr>
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<tbody>
<tr>
<td>Yes, I am currently and want to continue</td>
<td>7</td>
</tr>
<tr>
<td>Yes, I am currently and want to teach more</td>
<td>3</td>
</tr>
<tr>
<td>Yes, but I need additional help and support</td>
<td>6</td>
</tr>
<tr>
<td>No, it’s not for me</td>
<td>7</td>
</tr>
<tr>
<td>No unless I get paid development time</td>
<td>6</td>
</tr>
<tr>
<td>Yes and want to teach totally online</td>
<td>0</td>
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Participants were asked two qualitative questions on what they liked and disliked the most about online instruction. Many of the responses (Table 2 & 3) mirrored responses reported by the NASULGC - Sloan National Commission on Online Learning.

Table 2. Responses to “What do you like most about online instruction?”

- 24/7 availability
- Asynchronous teaching learning allows more people to participate
- Convenient, accessible to Outreach students
- Creativity, reaching the new wave of computer learners
- Flexibility of time and location
- It can be very useful to address and test material
- Very clear and thorough
- Some students engage more online than in person
- Time friendly
- Working people can return to college, whereas they would not be able to do so if they had to rely on f2f classes.
- Students have access to lecture, discussion and projects 24/7. Allows for in-depth analysis of knowledge. In general written work is better.
- Captures involvement by students who are sometimes quiet in class. Requires more reflection before responding. Students on other islands connect with each other.

Table 3. Responses to “What do you dislike most about online instruction?”

- 24/7 availability
- Can be challenging to connect with students in a personable manner
- Challenging to get answers “in a moment”
- Need to be self-motivated
- There needs to be some sort of audio and visual interaction
- Lack of interaction
- Student disengagement
- Student retention
- Students do not do the work
• Students who need more face-to-face are now even more reluctant to find face-to-face office time with instructor.
• Free idea discussion is limited in the online format. Sometimes talking out an idea allows more creativity and thinking outside the box.
• No hands on lab component.
• Intense amount of time for development, lack of support for students with tech issues. People assume that students all have access to internet – not true. Online is seen as superior to interactive TV, not necessarily true.
• Lack of personal interaction and classroom dynamics, reading, correcting/editing, commenting on online writing
• Easy for students to drop out or become overwhelmed with work. Very hard to have a personal relationship with a student.

Table 4. Applications & Online tools

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<thead>
<tr>
<th>Interactions</th>
<th>Blackboard Collaborate</th>
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<tr>
<td></td>
<td>Secure Social websites</td>
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<td>Peer Reviews</td>
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<td>Blogs</td>
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<td>Projects</td>
<td>Problem Based Learning (PBL)</td>
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<td>Course Creation</td>
<td>Course Specific Templates</td>
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<td>Peer Mentoring</td>
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<td>Collaboration</td>
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<td>Edmodo</td>
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<tr>
<td>Course Website Creation</td>
<td>Google Sites</td>
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<td></td>
<td>Weebly</td>
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