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Helping Faculty Design Online Courses:
Quality and Impact of an Online Professional Development Workshop

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Abstract

This study analyzed the quality of a 12-week online professional development workshop designed to help higher education faculty develop online courses. The study sought to describe the quality of workshop experiences and the impact of participation on the quality of portfolio materials developed by workshop participants. The study used a combination of quantitative and qualitative methods for data collection. Data from three workshops were collected to identify trends and determine quality of participation and impact. Key conclusions suggested promising connections between theory and practice, a dynamic process for workshop development, high quality of workshop experiences, and overall high ratings of portfolio materials produced by workshop participants.

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The dramatic growth in the applications of technology to online instruction has resulted in increased interest in student participation and ongoing criticism by some educators and trainers who question the quality of such courses (Conlon, 1997; Homan, 1997). At the onset of the 21st Century, virtually all institutions of higher education are promoting the delivery of online courses to meet student demands for learning and scheduling flexibility (Rahm & Reed, 1997). The premises of the Internet have universal appeal because of its convenient access, dynamic interface, media capabilities, low cost connectivity, relatively quick development, easy to update, and its potential to feature interactive environments (Motiwalla & Tello, 2000; Rahm & Reed, 1997). The appeal is even greater when institutions consider instructional costs, student demand including an increasing population of adult learners, and competition from other institutions. As a result, the number of online courses and related student enrollment has skyrocketed in recent years (U.S. Department of Education, National Center for Education Statistics, 1999).

The problem with online courses is that quality varies widely. In the rush to offer online courses, some institutions have created standardized procedures for course development whereby all courses are treated the same regardless to their implicit requirements for teaching and learning. Other institutions have simply pressured faculty to turn their on-campus courses into online courses. Even when training is provided, in many instances the focus is on the mechanics and technology for delivery rather than instructional and assessment strategies (Palooff & Pratt, 2001). In other cases, the courses are just a collection of documents including lecture notes and presentations with little teacher-student or student-student interaction and low intellectual stimulation (Noble, 1998).

As the growth of online courses continues to rise, students, educators, researchers, and policymakers have raised concerns about quality. In response to these quality concerns, the Jesuit Distance Education Network (JesuitNET) was created in 1999 as a collaborative effort involving 25 U.S. Jesuit colleges and universities. The goal of JesuitNET is to help faculty produce online courses and distance learning strategies under a constructivist theoretical framework. Ultimately, the expectation is that participating faculty will design courses featuring a well-defined set of competencies and constructivist teaching/learning strategies in lieu of the traditional seat time and content-driven approaches. At the core of the JesuitNET project is a model for distance education to help faculty make a shift from content-driven approaches to student competencies and constructivist teaching/learning strategies. The model, known as Competency Assessment in Distance Education (CADE), was initially tested with small groups before it was offered as a formal online course development for JesuitNET faculty in fall 2002, and spring and summer 2003.

The purpose of this study was to document and analyze trends in implementation factors, and outcomes related to the quality of portfolio materials developed by participating faculty. The objectives were to describe how the participants experienced the online professional development model, and the impact on learning outcomes based on reviews of portfolio materials developed by workshop participants.

Conceptual Framework

The literature on effective online teaching and learning abounds. A number of reports have described the attributes of effective learning in higher education settings and online environments (Carr-Chelman & Duschatel, 2000; Gunn, 2001; Herrington, Herrington, Oliver, Stoney, & Willis, 2001). However, there appears to be a lack of information on the actual

implementation of theoretical frameworks in organized professional development to help higher education faculty design and develop online courses. As a result, the issue of online course quality continues to linger in higher education (Herrington et al., 2001).

The JesuitNET's CADE model was created as an effort to bridge the gap between theory and practice to assist faculty in designing and developing online courses (JesuitNET, 2001). Central to the CADE model is a "backward design" process (McTighe & Wiggins, 1999). It focuses on the development of a course starting from the expected student competencies. Then the design strategy works backward to develop instructional activities and the content needed to meet course expectations. This design framework focuses on three phases of development: articulation of student competencies, identification of evidence that demonstrates mastery of competencies, and design of appropriate instructional activities. Embedded in the design is the concept of cognitive apprenticeship for teaching and learning. This concept is based on the notion of novice learners building expertise from experts facilitated by seven key teaching strategies: modeling, coaching, scaffolding, articulating, reflecting, exploring, and fading.

The foundations supporting this conceptual framework come from research on situated cognition and cognitive apprenticeship (Brown, Collins, & Duguid, 1989), supporting teaching strategies (Collins, Brown, & Newman, 1989), knowledge construction process (Hogan & Pressley, 1997; Kang & Byun, 2001), and teaching for understanding (McTighe & Wiggins, 1999; Perkins, 1993). The assumption is that faculty participating in this sustained (12-week), hands-on CADE workshop based on a constructivist framework for teaching, learning, assessment, and use of technology, will design and develop online courses featuring high levels of pedagogical quality.

Methods

The study used a combination of quantitative and qualitative research strategies. Survey techniques were used to gather information on extent and quality of workshop participation. Review and analysis of portfolio materials yielded additional data related to workshop participation. In addition, interviews with participants generated complementary data for further description and triangulation of findings. A comparative analysis of participation and outcomes associated with two offerings of the CADE workshop for faculty provided grounds for establishing trends and consistency of findings.

The study focused on documentation and analysis of workshop participation, including enrollment trends, quality of experiences, and impact of participation on the quality of portfolio materials developed by workshop participants. Three major questions guided the study:

1. *What is the demographic profile of workshop participants?* This question served as the basis for documenting participation in the workshops, profiling participants' background, and determining participation rates.
2. *What is the nature and quality of participation in workshops?* This question guided data collection on the extent of participation in discussion forums, team collaboration, general level of engagement in workshop activities, and evaluative perspectives on the workshop.
3. *What is the quality of portfolio materials developed by workshop participants?* This question guided the inquiry on the extent to which the portfolio materials developed by participants met relevant criteria for designing an online course.

Workshop Design and Development

Pilot workshops were conducted to refine the online CADE model for faculty in summer and fall 2001, and spring 2002. Based on input from participants, the CADE model for online

delivery evolved as a 12-week workshop for faculty interested in designing online courses. Formal CADE online workshops were offered in fall 2002, and spring and summer 2003 with a combined enrollment of 56 faculty.

Typically, the CADE workshops were organized into two sections with 12-15 participants in each section. The purpose was to form working groups in each section to make participation more manageable and productive. In addition, each working group was required to have the support of a technology and library resources team. The support team provided local technical assistance to each participant. The first two weeks of the CADE workshops were devoted to developing a shared understanding of the theoretical framework supporting the workshop design. Weeks 3-4 focused on the articulation of student competencies for an online course. In weeks 5-8 participants selected learning problems or situations to assess mastery of competencies and analyze them in performance and content. Appropriate teaching strategies were reviewed in weeks 9-10. In the workshop's last two weeks participants reviewed their work and developed an outline for an online course to be implemented afterwards.

Data collection Strands and Instrumentation

Three strands of data collection were used to document the CADE workshops. The first strand of data collection targeted demographic information. The second involved data on evaluative perspectives of faculty participating in workshops. The third strand was concerned with data on the quality of portfolio materials developed by participating faculty.

A 15-item faculty survey was developed to collect data on workshop participation and evaluative perspectives of the participants. Items were identified and written with input from JesuitNET staff. An electronic version was developed and included 11 items requiring a quantifiable response and 4 open-ended items to capture free comments. A checklist used to

assess quality of online instructional materials (Herrington and associates, 2001), was adapted into a rating scale to rate the quality of portfolio materials resulting from participation in CADE workshops. The resulting instrument served as the basis for analyzing each of the portfolio categories, including thinking about competencies, evidence of student mastery, evidence analysis, instructional strategies, and storyboard. An additional category, professional readability, was added since it was found to be an implicit key expectation for portfolio materials as a whole. The criteria and indicators for each category were identified through an in-depth review of workshop materials, worksheet instructions, and general expectations for completion. The quality index was represented using a 5-point scale ranging from “1 = very low quality” to “5 = very high quality.”

Data Collection Procedures

Each workshop was monitored routinely to gauge interactions and nature of questions, concerns, reflections, and discussions. At the end of the workshops participants were asked to provide summative feedback by responding to an online faculty survey. Workshop participants were directed to the survey site and assured that names were used only for managing the data and that individual information/responses would remain confidential. Also, samples of instructional materials developed by participants were collected from postings made by participants along with reflections on course participation. Finally, the review of portfolio materials was based on a random sample of materials available only from the spring and summer 2003 workshops. JesuitNET staff provided five sets of materials from each workshop. A team of two reviewers examined the portfolio materials. Reviewers’ ratings were initially compared to ensure consistency in both the reviewing process and scoring.

Analysis

Survey data were captured on Microsoft® Excel® worksheets and later imported as datasets into an SPSS format for analysis. The analysis relied on descriptive statistics to summarize results, and simple t-tests were performed when sufficient cases were available. Qualitative data were analyzed using a constant comparative approach to identify themes and patterns across online courses (Merriam, 1998). Qualitative data was managed using a Word document and analyzed in light of evaluation questions. Open-ended information was used to complement results reported through descriptive statistics.

Results

The results are organized into two major sections. First, we highlight results focusing on design changes resulting from the pilot and formal CADE workshops. Secondly, we present results addressing study questions based on survey data and review of portfolio materials.

Design Feedback

Design changes were identified in two stages of the project. The first stage involved participants' feedback from the developmental workshops. The second stage involved feedback from the operational CADE workshops.

Design Feedback on Pilot Workshops

The first pilot workshop was an intensive two-day session conducted in July 2001. The workshop was designed and taught by staff from the Georgetown University's Center for New Designs in Learning and Scholarship (CNDLS). Four faculty members from Loyola University Chicago participated in this preliminary workshop. Participants found the workshop very useful but reported that much more effort than anticipated was needed to develop an online course (Scott & McGee, 2002; faculty interview, spring 2003). This first pilot workshop provided the

basis for designing two subsequent pilot workshops. The first significant change resulted in adopting a 12-week duration for the fall 2001 and spring 2002 developmental workshops.

The second pilot workshop was conducted in fall 2001. Four faculty members, two from Fordham University and two from Saint Louis University, participated in the workshop. Overall, participants' reactions to the fall 2001 workshop were positive. However, participants were surprised to be required to think deeply about design ideas, and were overwhelmed by the new educational concepts (Scott & McGee, 2002).

Drawing from participants' feedback, various changes were made to spring 2002 pilot workshop: (a) a team of instructors facilitated the workshop rather than just one person as in the previous workshop, (b) design and production were made distinctly separate phases of the workshop, and (c) educational concepts supporting the framework of the workshop were to be presented more explicitly. Four faculty members participated in the spring 2002 workshop: two from Loyola University Chicago and two from the University of Detroit Mercy. Participants reported high satisfaction with the workshop and were very pleased with support provided by instructional staff. However, they felt some education terms (e.g., backward design, scaffolding, cognitive apprenticeship) were used too casually at the beginning of the workshop when they had not yet been well explained. The other issue was the time required to participate in workshop activities, which for the majority of the participants was more than expected (Scott, 2002).

Design Feedback on Formal CADE Workshops

Using feedback from pilot workshops, the first operational CADE workshop was offered in fall 2002. Supporting instructional materials and interface features were refined to make the workshop structures more user-friendly and easier to navigate. Also, the expectations for workshop participation were clearly communicated, including the time required to participate in

workshop activities. The treatment of education terms was refined for consistency and to facilitate understanding. Twenty-five faculty members enrolled in the workshop. Overall, the majority of participants had positive evaluative perspectives. Suggestions for improvement addressed issues related to assigning participants to workshop sections, clarifying workshop expectations, facilitating discussion forums, verifying capacity and compatibility to handle workshop technology before enrollment, allowing participants to make progress at their own pace, and approach to introducing design concepts (Hernandez, McGee, & Kirby, 2003a).

The design of the spring 2003 workshop was further reviewed based on feedback from the fall 2002 workshop. Potential participants were provided with a clear set of expectations for participation via a workshop “contract.” Before enrolling in the course, participants were provided with an opportunity to test their technological capability to participate. Another key change occurred in the form of a restructured workshop schedule to make the flow of the activities and grasp of design concepts more effective. The workshop interface was further improved, and the quality of workshop structures looked sharper. As a result, the workshop received very positive evaluations. The lingering issues related to treatment of workshop expectations and design concepts were not mentioned by participating faculty, signaling the impact of design changes. Nonetheless, eight recommendations emerged from evaluation data and suggestions by survey respondents. Suggestions for improvement of the summer 2003 workshop ranged from ensuring sustained workshop participation to providing “graduates” with follow-up access to workshop discussion forums (Hernandez, McGee, & Kirby, 2003b).

Quality of Workshop Participation

The results on quality and impact of workshop participation address the questions guiding the study. First, we present results on overall workshop participation and background

characteristics. Second, we summarize and describe patterns on evaluative perspectives based on workshop experiences. We conclude with a description of results stemming from the review of portfolio materials developed by workshop participants.

Workshop Enrollment

Overall, 87 faculty participated in the workshops from fall 2001 to summer 2003. This includes 12 faculty who participated in the pilot workshops and 75 faculty who enrolled in formal CADE workshops. An average of 12 faculty members participated in each section of the formal CADE workshops. Considering overall participation, enrollment by gender was relatively balanced (54 percent male, 46 percent female). Further, collective enrollment showed representation of practically all Jesuit colleges and universities in the United States and five international Jesuit institutions. Table 1 summarizes the background characteristics of formal CADE workshop participants based on survey responses considering data from fall 2002, spring 2003, and summer 2003.

Table 1. Background Characteristics (in percentages) of CADE Workshop (n = 44)

Background Variable		Fall 2002	Spring 2003	Summer 2003	Overall
Gender	Male	61 (8)	35 (7)	82 (9)	55 (24)*
	Female	39 (5)	65 (13)	18 (2)	45 (20)
Workshops Attended	0	8 (1)	5 (1)	9 (1)	7 (3)
	1-2	31 (4)	30 (6)	9 (1)	25 (11)
	3-5	38 (5)	30 (6)	55 (6)	39 (17)
	6+	23 (3)	35 (7)	27 (3)	29 (13)
Courses Taught Online	0	50 (6)	65 (13)	55 (6)	57 (25)
	1-2	34 (5)	10 (2)	18 (2)	20 (9)
	3-5	8 (1)	15 (3)	18 (2)	14 (6)
	6+	8 (1)	10 (2)	9 (1)	9 (4)
Years of Teaching	None	0 (0)	15 (3)	0 (0)	7 (3)
	1-5	46 (6)	15 (3)	0 (0)	20 (9)
	6-10	15 (2)	20 (4)	18 (2)	18 (8)
	10+	39 (5)	50 (10)	82 (9)	55 (24)

* Frequencies are noted in parentheses.

Based on the combined enrollment in all three CADE workshops ($n = 75$), 59 percent of all participants completed the workshop survey. Based on the number of survey completers, gender participation was relatively comparable to that observed for overall enrollment (55 percent male, 45 percent female).

Participating faculty can be characterized as seasoned teachers with the majority having six or more years of teaching experience across the board (73 percent overall). Only in fall 2002 was there a significant representation of faculty in their first five years of teaching (46 percent). Prior attendance to workshops related to teaching methods in online environments showed a higher percentage of participants reporting attendance to 3-5 workshops (39 percent, overall). This trend was relatively consistent across all CADE workshops. Further, the majority of the participants in each of the CADE workshops had no experience teaching online courses, while the rest represented various levels of experience.

Perspectives on Workshop Participation

The study of the delivery model for the workshop was grounded in the evaluative perspectives of the participants on key aspects using the following indicators: participation in discussion forums, access to workshop supports, time and effort required for participation, and overall satisfaction.

Participation in discussion forums

Two discussion forums were available in the workshops to facilitate exchange of ideas and feedback in the larger group and in working teams. Table 2 summarizes the survey responses for the large and small discussion forums across CADE workshops. Participants indicated that the quality of electronic discussions was good and equally valuable regardless of the type of the discussion forum. For some participants “the direct feedback from members [in small discussion

forums] was the most helpful,” while for others “the larger group sessions were more informative and engaging.” An examination of data in Table 2 shows that the majority of participants reported frequent access to both large and small discussion forums across CADE workshops (81 percent and 57 percent overall, respectively). As a participant in the spring 2003 workshop put it, it was “the content rather than the size of the group” that elicited participation in discussion forums.

Table 2. Rate of Participation in Large and Small Discussion Forums.

Discussion Forum		Fall 2002	Spring 2003	Summer 2003	Overall
Large Discussion Forum	Not at all	0 (0)	0 (0)	0 (0)	0 (0)
	Infrequently (a few times)	17 (2)	0 (0)	0 (0)	5 (2)
	Somewhat Frequently (monthly)	8 (1)	15 (3)	18 (2)	14 (6)
	Frequently (weekly)	75 (9)	85 (17)	82 (9)	81 (35)
Small Discussion Forum	Not at all	0 (0)	10 (2)	0 (0)	5 (2)
	Infrequently	33 (4)	21 (4)	9 (1)	21 (9)
	Somewhat Frequently	17 (2)	16 (3)	18 (2)	17 (7)
	Frequently	50 (6)	53 (10)	73 (8)	57 (24)

* Frequencies are noted in parentheses.

Although participants reported an appreciation for both large and small discussion forums, a consistent trend across CADE workshops was a marked preference for participation in large discussion forums. Overall, 81 percent of the participants reported frequent access (weekly) to the large discussion forums, compared to 57 percent for small discussion forums. Below are some explanations for this result:

“The [large] discussion board was most helpful, but that's because there was so little participation by many of the participants. If we had had full participation, the smaller groups would likely have been better, and the main discussion board would have been too chaotic. I think this is an example of how one must have several venues available” (Open comments, fall 2002 survey).

“I found the large group discussions more helpful than the small group discussions as my small group did not discuss much. I found it helpful to read the postings from other people to get their opinions on the topics being discussed that week” (Open comments, spring 2003 survey).

“I felt that the general discussion forums (large group) were more helpful since they allowed me to feel a part of the ‘whole’ group and made [the experience] feel more like a class” (Open comments, summer 2003 survey).

It is important to note, however, the rate of frequent participation in small discussion forums improved in each workshop, moving from 50 percent in fall 2002 to 73 percent in summer 2003. An explanation for this emerged in open comments. For example, in fall 2002 some participants felt “the small groups were too small and did not provide for a broadly based exchange of views/ideas/comments.” By comparison, some respondents in the summer 2003 workshop viewed the small discussion forums as most helpful because they could “have a more personal relationship with [working group] partners.”

Although overall participation in discussion forums was relatively frequent across workshops, open commentary noted some important issues preventing higher quality and frequency in participation. For example, some participants indicated it was a challenge to participate in discussion forums due to conflicts with already busy schedules. Others suggested the lack of institutional incentives (e.g., non-credit workshop) might be a factor in limiting the motivation to participating more consistently in discussion forums.

Access to workshop supports

The workshop was designed to provide participants with team supports by requiring the participation of local librarians and technology staff. Instructional support was provided through direct electronic feedback and discussion forums. Another level of support refers to the quality of workshop materials. The extent of contact with librarians and technology staff is presented in Table 3.

Contact with library and technology staff. As hinted by results about participation in small discussion forums, collaboration with librarians and technology staff across workshops

was somewhat limited. The majority of respondents in each workshop had either infrequent or no contact at all with their librarians (84% overall) or with instructional technology staff (74% combined). This trend was consistent across the three workshops.

Table 3. Rate of Contact with Local Support Staff.

Support Staff		Fall 2002	Spring 2003	Summer 2003	Overall
Contact with Librarian	Not at all	50 (6)	10 (2)	20 (2)	24 (10)
	Infrequently (a few times)	34 (4)	65 (13)	80 (8)	60 (25)
	Somewhat Frequently (monthly)	8 (1)	15 (3)	0 (0)	9 (4)
	Frequently (weekly)	8 (1)	10 (2)	0 (0)	7 (3)
Contact with Tech Staff	Not at all	33 (4)	10 (2)	20 (2)	19 (8)
	Infrequently	33 (4)	60 (12)	70 (7)	55 (23)
	Somewhat Frequently	9 (1)	15 (3)	0 (0)	9 (4)
	Frequently	25 (3)	15 (3)	10 (1)	17 (7)

* Frequencies are noted in parentheses.

In some instances the problem was related to technical difficulties with the capacity of available equipment to handle workshop materials online. One respondent reported, “There were some technical issues with the video streaming component that need to be addressed. Perhaps when the workshops are conducted locally this could be minimized” (Open comments, fall 2002 survey). Another respondent, who was unable to access the class on campus because of network problems, reported a similar problem. Combined with time demands on other activities, it is no surprise that participants might have had little time to work with librarians and technology staff on course design and development issues. In other cases the limited contact may have resulted from a misunderstanding of the purpose:

“The small group forums, as far as I can tell, were set up only to collect portfolios when the digital drop box was too complicated. I thought it was intended as a forum for library/IT folks, but they don't really have a commitment to the workshop, they are just committed to supporting their faculty directly” (Open comments, spring 2003 survey).

Whatever the case, respondents appeared to have turned this experience into a learning insight with direct relevancy to designing and teaching courses online. The following comments typify this view:

“I also learned that it was DIFFICULT to log on to meet the deadline for discussion every week. This made me understand why students often have difficulty meeting deadlines. I found myself relaxing the deadlines a bit in the two online courses I was teaching while taking this workshop” (Open comments, spring 2003 survey).

“Problems with posting lead to much discouragement. This was great! I now know how students feel when they don't receive timely responses or when technology is not working properly. I am giving lots of thought as to how I might design an online course” (Open comments, spring 2003 survey).

Contact with instructor. Feedback from instructors was appreciated across all workshops.

Overall, respondents had very positive comments about related support and thought the instructors “did a really good job” in this regard. One respondent captured the importance of quality support from the instructor: “A key to my being able to stay current in this course was the timely response to both my discussion board threads and e-mails from the instructor” (Open comments, fall 2002 survey). Another participant described the instructor as “very knowledgeable, helpful, and focused” and appreciated her patience with participants who needed frequent assistance. This was particularly important for creating a “friendly online environment” in the workshop. Others added that the workshop was demanding and challenging thanks to the role and specific feedback provided by the instructor. The comments below summarize common perspectives across participants:

“I also believe that the instructors are extremely knowledgeable in the subject. I also feel that the instructors had at all times a desire to improve the quality of education not only [related to the CADE] workshop but also of the participants’ courses used in the process” (Open comments, fall 2002 survey).

“For me this was a demanding course. The instructors clearly have devoted considerable effort in developing a thorough and challenging learning experience, and I have been

very impressed with the quality of the course, [and] with the specific feedback from the instructor” (Open comments, spring 2003 survey).

“[The instructor] was the perfect facilitator. She provided timely and insightful feedback on the worksheets. She also created an atmosphere that had been good for me, an atmosphere that allowed me to find out more about the topics we were learning so I am more comfortable applying them to the portfolio assignments” (Open comments, summer 2003 survey).

The interaction with instructors was so appreciated across workshops that in some instances respondents wished for increased contributions in discussion forums and felt they needed the instructor’s “presence” to motivate them and hold them “accountable for the work of the course.”

Workshop materials/readings. Overall, respondents had very positive feedback on the quality of workshop materials and readings across all CADE workshops. Several respondents viewed the readings and instructional tools (e.g., portfolio assignments) as very helpful because they articulated important concepts in a clear and applied manner. Further, respondents thought the “course materials were well organized” and helped them understand and complete weekly assignments. The following comments expressed the typical perspectives:

“The material covered in the textbook and articles was excellent. I’ll be going back to those materials again and again. They were very helpful and written in a very user-friendly way. As a result of these readings and the worksheets, I’ll be approaching course design in a much different way” (Open comments, fall 2002 survey).

“I appreciated the materials that made an effort to articulate a theoretical foundation for the unique experience of distance learning. The early readings from ‘Understanding by Design’ were helpful in this regard. They communicated a clear message that distance learning requires thinking anew about what specific competencies students are expected to develop as well as the specific learning activities, which offer the most useful vehicles for that development” (Open comments, spring 2003 survey).

Time and Effort Required for Participation

An important indicator of quality of participation was time spent on workshop activities. This indicator was closely associated with perceived level of effort required for participation.

Based on these indicators and overall experience, respondents also reported their ideas about the ideal duration of CADE workshops.

Time spend on workshop activities

Table 4 presents a summary of related survey results. Across all of the workshops, participants reported the workshop took more time and effort than they had anticipated. Overall, 46 percent of survey respondents reported having spent five hours or less a week (below the expected range of engagement), while 34 percent said they spent between five and nine hours a week (at the expected range of engagement). The rest (20 percent) reported working more than nine hours a week (above range of engagement). This trend was more prominent in fall 2002 with 75 percent of respondents indicating having spent five hours or less in workshop related activities. Table 4 shows that time spent on workshop activities increased in subsequent CADE workshops offered in spring and summer 2003.

Table 4. Rate of Involvement, Level of Effort, and Perspectives on Workshop Duration

Background Variable		Fall 2002	Spring 2003	Summer 2003	Overall
Time Spent on Workshop Activities	< 5 hrs/week	75 (9)	39 (7)	27 (3)	46 (19)
	5-9 hrs/week	17 (2)	44 (8)	37 (4)	34 (14)
	9-12 hrs/week	8 (1)	11 (2)	27 (3)	15 (6)
	12+ hrs/week	0 (0)	6 (1)	9 (1)	5 (2)
Level of Effort Required	Less than expected	17 (2)	0 (0)	0 (0)	5 (2)
	About level expected	25 (3)	30 (6)	36 (4)	30 (13)
	More than expected	58 (7)	70 (14)	64 (7)	65 (28)
Perspectives on Workshop Duration	Make it longer	36 (4)	16 (3)	22 (2)	23 (9)
	Keep as is	18 (2)	74 (14)	67 (6)	56 (22)
	Make it shorter	46 (5)	10 (2)	11 (1)	21 (8)

* Frequencies are noted in parentheses.

Expected level of effort

Further, across workshops the majority of survey respondents consistently reported the level of effort required to participate in the workshop was more than expected (65 percent overall) given the nature of the noncredit activity. Some respondents suggested it was difficult

trying to juggle family and busy work schedules, which prevented them from spending more time on workshop activities. For example, two respondents said:

“I miscalculated how much time would be required, and some circumstances in my day job developed prohibiting me from completing my work” (Open comments, fall 2002 survey).

“The workshop was very well organized and obviously useful, but the amount of work required much more motivation than a free, noncredit course could elicit (from me) during a teaching semester” (Open comments, spring 2003 survey).

All in all, respondents noted that the amount of time and effort required to design and develop online courses was an eye-opener, demanding but worthwhile. They added that participants should have a very strong commitment to participate along with an awareness of time demands. Open commentary also suggested the need for institutional incentives (e.g., release time, relevancy to tenure process) to ensure motivation to participate fully and consistently in workshop activities.

Workshop duration

In the first formal CADE workshop strong opinions were offered for both a longer (36 percent) and shorter (46 percent) duration. As the implementation of the workshop continued to improve in subsequent offerings in spring and summer 2003, the majority suggested keeping the duration at 12 weeks (74 percent and 67 percent, respectively). It is clear that duration of the workshop became less of an issue for participants in latter workshops, which also translated into few or no open comments in this regard.

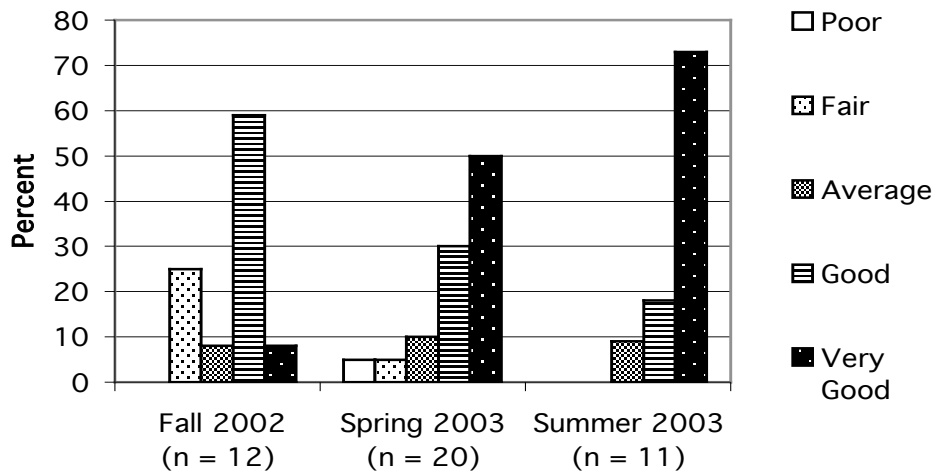
Overall Satisfaction

Figure 1 displays results on workshop satisfaction. Three important trends can be highlighted upon an examination of Figure 1. First, when considering combined positive ratings including “good” and “very good” qualifiers, the percentage of respondents sharing this

evaluative perspective increased from 67 percent in fall 2002 to 91 percent in summer 2003. This trend signals a high level of satisfaction with the workshop and might be a reflection of continuous workshop improvements. This evaluative perspective was consistent regardless of years of teaching experience, number of workshops attended, number of courses taught online, and gender.

Second, the “very good” ratings showed a consistent and substantial increase across workshops, moving from 8 percent in fall 2002 to 50 percent in spring 2003 and to 73 percent in summer 2003. Third, while the share of positive ratings was primarily supported by “good” ratings (59 percent) compared to “very good” (8 percent) ratings in fall 2002, the contribution of “very good” ratings to overall positive ratings in subsequent workshops was reversed, showing a higher share of “very good” ratings compared to “good” ratings (73 percent and 18 percent, respectively in summer 2003).

Figure 1. Level of Satisfaction with Workshop Participation.



Respondents’ feedback was consistently positive and provided specific instances of how participants benefited. In some cases the perceived benefits were immediate and tangible for both

online and face-to-face teaching, while in other cases the benefits were only anticipated. Below are some typical comments:

“There is no question my exposure to a disciplined and structured approach to course design will be beneficial in how I prepare for my face-to-face classes and for my online course” (Open comments, fall 2002 survey).

“It was a great workshop! [The workshops requires] a huge time commitment but [participation was] very worthwhile. Thanks!” (Open comments, spring 2003 survey).

“This workshop has been excellent. This is my 12th online course [as] a student, and I’m sure that this one has been better than the others” (Open comments, summer 2003 survey).

Most useful concepts

The identification of concepts deemed useful by workshop participants emerged from the analysis of open comments. Two concepts were by far consistently identified across workshops as useful for designing online courses: student competencies and analysis of learning evidence. As reported by survey respondents, these two concepts were hard to separate, and workshop participants usually referred to them jointly. The comments below summarize the typical perspectives:

“Articulating competencies [and] analyzing evidence [were most helpful]. I found the competency notion very useful. At first I was a bit put off by the educational jargon, but upon reflection the idea of beginning to design a course by articulating competencies was very valuable and hopefully will be used in my future course development. Analyzing evidence was a useful way to think about designing assessments, one part of the teaching process I have found difficult and unrewarding but necessary” (Open comments, fall 2002 survey).

“I like articulating competencies the best. I always have taught with outcomes/objectives in mind and would look for them in a textbook, which I would then use the one that matched the best. I now have changed my thinking in that I will design the course with the competencies in mind and not really worry about a textbook” (Open comments, spring 2003 survey).

“Articulating competencies and analyzing evidence were definitely most helpful to me. Articulating competencies helped me identify sources of tension in my teaching. I’ve been trying to make my courses more centered on student learning for several years and

have made superficial changes, rather than deep or structural changes in my teaching style. If I begin course planning by spelling out the competencies I want students to master, I am hoping I can put to rest the need to cover as much content as I can in a semester. I think that analyzing evidence of mastery according to different points on the expert-novice continuum will help me evaluate student work more confidently. If I distribute the criteria for different degrees of mastery, students can assess their work as they are preparing it and can ask for help to improve mastery early on instead of finding out after their work is finished and graded” (Open comments, summer 2003 survey). The backward design concept was the second most popular concept identified by

participants as useful. It appears that for workshop participants it made sense that after identifying competencies and evidence of competencies, they needed an approach to structure an online course. Open commentary across the workshops substantiated this view:

“It makes sense to design the course from the back to the front. I am reminded of the way my mother solved mazes. She would start at the END and follow the line back to the START” (Open comments, fall 2002 survey).

“The backward design process is a ‘keeper.’ It is practical and useful and satisfies many requirements for instruction: It’s interesting, it has much utility with ‘adult’ and non-traditional students because it does emphasize achievement of competencies” (Open comments, spring 2003 survey).

“[The] backward design concept was most useful to me since I have never approached the design of my courses with this in mind. It has given me a whole new approach and way of thinking as I design future coursework and apply it to existing courses” (Open comments, summer 2003 survey).

Production planning ranked third in the analysis of open commentary across workshops. Participants appeared to appreciate this concept because they saw the value of a systems approach for planning and putting all the pieces together. Another apparent reason was the fact that participants did not have much experience in this area and learned more about planning an online course, using media, and the value of working with a team. Open comments across workshops reflected these views:

“Rather, it was the discipline of a 'systems' approach to course design that required me to perform this task in a structured manner with a documented output. Production planning was beneficial in that it makes it very clear that an online course design is not a one-person task. Defining the individual tasks that create the 'whole' is an absolutely essential

requirement in OL course design. In summary, it is my opinion that the disciplined approach to 'course design' is what effectively ties together CADE concepts” (Open comments, fall 2002 survey).

“Planning the instructional experience was the most helpful. Putting together all the information into a logical sequence was helpful and enlightening” (Open comments, spring 2003 survey).

“I was anxious to learn about all the media capabilities that are possible but was worried about how I was going to learn how to create all these media elements. I learned that I am not expected to learn how to create media—that I have media consultants who are skilled in these areas. I also learned that simple media, such as using pictures to enhance lecture content, can be the best use of media for my students. And that type of media I CAN create!” (Open comments, spring 2003 survey).

Finally, a key perspective found common across workshops was the notion that CADE concepts as a whole, although designed to support development of online courses, can be fully applicable to designing face-to-face courses as well. Survey respondents indicated, “CADE concepts are equally appropriate for [online] and [face-to-face] teaching.” Across the board, respondents acknowledged the impact of workshop participation on their overall perspectives about the value and benefits of the CADE workshop. Below are sample comments:

“I believe it [participation in the CADE workshop] will forever change my philosophy and alter my methods in both traditional instruction and online instruction” (Open comments, fall 2002 survey).

“I am not sure that this workshop is just for online strategies. I think it was an excellent review of teaching learning strategies and how to adapt these to any environment to meet the students needs and the objectives of the course taught” (Open comments, spring 2003 survey).

“I definitively will apply the same concepts and ideas in my face-to-face courses to improve the learning experiences for the students” (Open comments, summer 2003 survey).

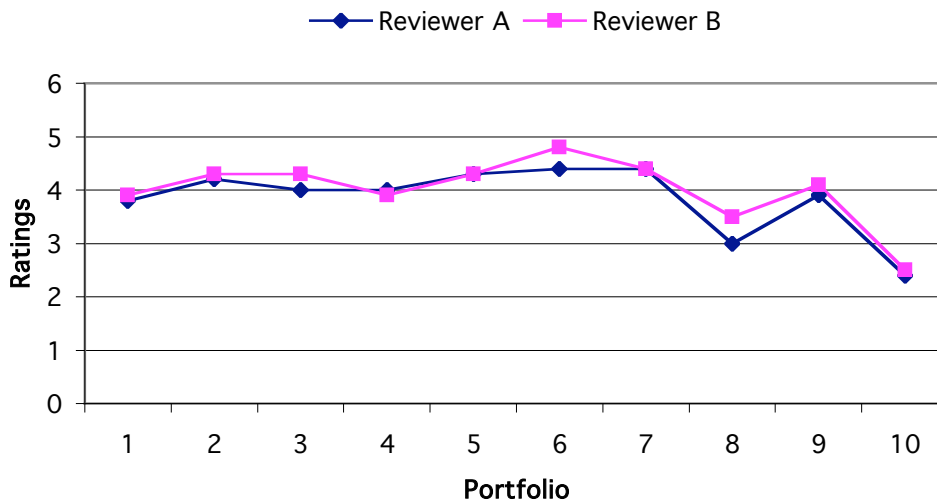
Impact of Workshop Participation: Quality of Portfolio Materials

An expected outcome of workshop participation was the development of portfolio materials focusing on a unit/section of a potential online course. The notion was that by focusing

on a unit/section of a course, participants would be able to develop in-depth understandings of the design process and complete it in a thorough fashion rather than dilute their work trying to complete an entire online course. Participants completed worksheets and accompanying narratives during the spring and summer workshops to formally document key areas of their design process. The quality of portfolio materials provided a proxy measure for gauging the extent of understanding about online course design as a result of workshop participation.

A random sample of five sets of portfolio materials drawn from both the spring and summer 2003 workshops were reviewed by a team of two reviewers. The two reviewers were knowledgeable of workshop expectations, criteria for developing portfolio materials, and the design of the rating instrument. After reviewing three sets of portfolio materials independently, the team convened to ensure consistency in the review process and to compare ratings and notes about the reviewing process. The preliminary results indicated a high level of consistency in ratings, and the team proceeded to complete the review of all materials. Figure 2 presents the resulting average ratings by reviewer.

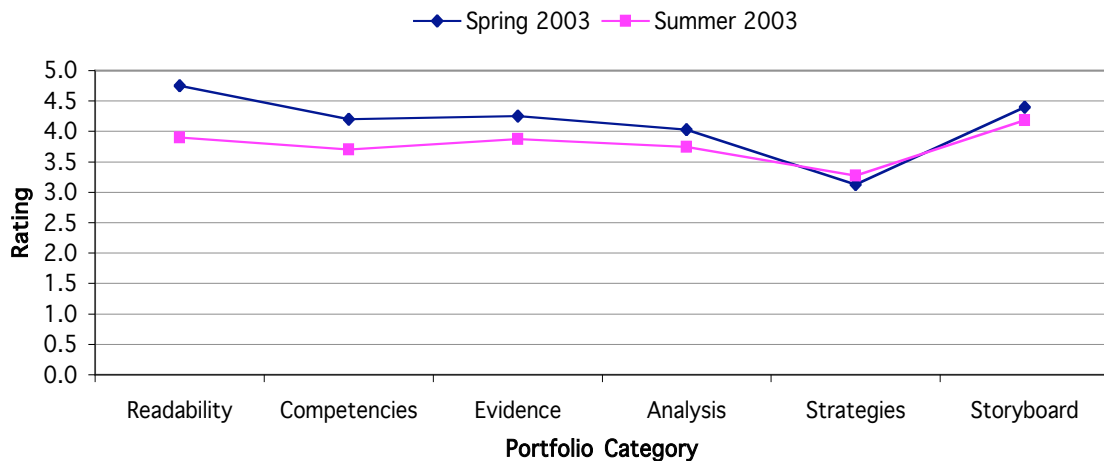
Figure 2. Average Portfolio Ratings by Reviewer.



A visual inspection of Figure 2 shows that average reviewers' ratings were highly consistent across all sets of portfolio materials. In the cases where minor discrepancies were observed, the average reviewers' ratings still fell within the boundaries of the same rating level.

Figure 3 presents a visual display of ratings by portfolio category across workshops. On average, the quality of portfolio materials drawn from both workshops was rated as high. Figure 3 indicates a similar pattern of quality across workshops and portfolio competencies. The only discrepancy in ratings was observed in the level of professional readability. Otherwise, categories of portfolio materials were rated similarly regardless of the workshop. Overall, the quality of individual portfolio categories ranged from intermediate to very high quality.

Figure 3. Quality Index of Portfolio Materials by Workshop.



Professional readability

This category was not explicitly identified as a portfolio category. However, it was found to be a common expectation across all portfolio categories, and there were specific criteria qualifying the level of expected readability. Consequently, this category was added in the rating instrument and evaluated accordingly. This is the only category where portfolio materials from spring and summer workshops differed. The mean rating for materials drawn from the spring

2003 workshop was at the “very high quality” level (mean rating = 4.8), while materials from the summer 2003 workshop rated at the “high quality” level. The difference may be attributed to the significant participation of international faculty whose English is their second language.

Otherwise, general readability was deemed high across workshops.

Thinking about competencies

This category gauged the extent to which participants were able to identify core competencies considered critical in an online course of interest. Overall, portfolio materials rated high in this category across workshops. With some variations in clarity and specificity, participants identified and described declarative content (e.g., facts, details, concepts, terminology), procedural knowledge (e.g., procedures, techniques, methods), and strategic knowledge targeting higher-order thinking skills.

Evidence of student mastery

This category was used to evaluate the extent to which participants were able to identify and describe evidence to attest whether students have mastered or achieved competencies guiding an online course. Overall, portfolio materials rated high in this category across workshops. In general, participants identified and described evidence of student thinking and behaviors serving as indicators of student mastery of strategic knowledge guiding the online course. Also, participants were able to identify valid and reasonable indicators of student mastery for core strategic knowledge in their proposed courses.

Evidence analysis

This category served as the basis for evaluating the extent to which participants were able to identify and describe assessment strategies, taking into consideration actions or behaviors representing different levels of performance (i.e., novice, recent graduate, expert). Overall,

portfolio materials rated high in this category regardless of the workshop. In general, participants identified and described a worthwhile learning situation as the context for eliciting evidence of student mastery keyed to different levels of performance.

Instructional strategies

This category helped evaluate the extent to which participants were able to identify and describe instructional strategies supporting a cognitive apprenticeship approach. These strategies included modeling, coaching, scaffolding, fading, reflection, articulation, and exploration. Overall, this is the only category that rated at the intermediate level of quality in both workshops. Due perhaps to the expanded body of knowledge regarding instructional strategies, terminology, and nuances in applications, the level of quality varied greatly across portfolio materials.

Storyboard

This category appeared to be straightforward and an area where participants seemed to have spent a great deal of time. An important workshop expectation was for participants to outline a storyboard and complete a media module to be used in a proposed online course. This category was used to evaluate the extent to which participants were able to meet the criteria for completion of the media module. Overall, portfolio materials rated high in this category regardless of the workshop. Participants were able to outline a media module with accompanying graphics and narrative.

Although the average quality of portfolio materials was deemed high across workshops, the review process yielded two important insights. First, it was evident in several cases that participating faculty were not able to put the same amount of time and effort in completing each of the portfolio worksheets. This resulted in differing quality within individual portfolios. This observation is supported by some comments voiced by participants. Second, the need for

institutional incentives might be relevant to the completion of portfolio materials as well, since it involves a substantial investment in time and effort—which may require additional external motivation to stay on task.

Conclusions

Five conclusions emerged from the analysis of the theoretical framework supporting the workshop design, workshop materials, survey data, and review of portfolio materials.

The first conclusion addresses the connection between theory and practice: *The CADE workshop represents a promising application of educational theory to designing and implementing professional development for higher education faculty interested in developing online courses.* The CADE model is guided by a backward design process, which focuses on the development of a course starting from the expected student competencies (McTighe & Wiggins, 1999). The notion is that identification of competencies allows for alignment between assessment, goals, content, and strategies. This notion is based on research on how people learn and is supported by the concept of cognitive apprenticeship for teaching and learning (Bransford, Brown, & Cocking, 1999; Brown, Collins, & Duguid, 1989). This concept predicates that novice learners can build progressive expertise facilitated by appropriate teaching strategies (e.g., modeling, coaching, scaffolding) (Collins, Brown, & Newman, 1989; Hogan & Pressley, 1997; Kang & Byun, 2001); and through an inquiry process to help participants reflect on teaching practices, implications for student understanding, and strategies to promote such understanding in an online course (Hacker, & Niederhauser, 2000; McTighe & Wiggins, 1999; Perkins, 1993).

The analysis of workshop materials, expectations, threaded discussions, participants' commentary, and of portfolio materials supports this conclusion. The workshop is organized around three phases of development. First, it requires participants to think about and articulate

student competencies. Next, participants are required to identify and analyze evidence that demonstrates mastery of competencies. This is followed by identification of appropriate instructional activities and production planning that integrates the use of media as appropriate. Through this process workshop participants engage in general and targeted discussions to reflect on important design, instructional, and practical issues. The use of portfolio worksheets reinforces the effective application of the theoretical framework. As a result, workshop participants develop an appreciation for the theoretical concepts supporting the CADE model as suggested by survey commentary and threaded discussions. The review of portfolio materials provides additional evidence of the sound application of educational theory to designing and implementing professional development for faculty interested in developing online courses.

The second conclusion refers to the developmental process of the delivery model: *The CADE workshop followed a highly dynamic and successful process for continuous improvement of workshop design and delivery.* The documentation of design changes during both developmental and operational offerings of the workshop clearly supports the qualification of a dynamic process. Feedback from participants, evaluation results, and instructors' notes was thoroughly assessed and incorporated in each of the developmental and operational workshops. As a result, the duration of the workshops evolved into a twelve-week period (subsequently reduced to eight weeks beginning in summer 2003). Other important changes involved restructuring of the core workshop phases, more explicit treatment of educational concepts, and continuous refinement of the workshop's electronic interface. Supporting instructional materials and interface features were continuously refined to make the workshop structures more user friendly and easier to navigate. Also, upon realization that participants were underestimating the time and level of effort required for participation in the workshops, the expectations for

participation were clearly communicated through a written “contract” The contract included specification of time required for participating in workshop activities. Discussion forums were enhanced with guiding questions and specific guidelines for contributions. Portfolio worksheets were incorporated as well to help participants document their work during the workshop.

Based on the review of the workshop materials, interface structures, and survey data, it was obvious that design changes had a positive impact on the quality of the workshop and, in turn, on participants’ satisfaction. The electronic site was progressively enhanced, and improvement issues were addressed appropriately and promptly. For example, in the initial workshops there was thick commentary about the following issues: confusion about educational terms, expectations for participation, and participation in discussion forums. Over time, and after developers and instructors addressed such issues, related commentary was reduced considerably. Judging by participants’ feedback, some issues became irrelevant. Concurrently, an overwhelming majority of workshop participants progressively upgraded initial “good” ratings in fall 2002 to “very good” ratings in summer 2003.

The third conclusion responds to the study question related to the quality of the CADE workshops: *The quality of the CADE workshops was consistently high and increased over time due perhaps to continuous improvements incorporated based on feedback from participants.* Based on survey data, including ratings on overall satisfaction and open commentary, there is evidence to support this conclusion. Across workshops there was a high level of satisfaction, which increased to a very high level by summer 2003. This trend appears related to improvements incorporated into the workshop delivery model as suggested by open commentary. In fall 2002 open commentary addressed several important issues related to potential improvements. As changes were made, related commentary diminished considerably and in

some instances disappeared from the discussion (e.g., clarity of workshop expectations, duration of the workshop, treatment of educational concepts). Concurrently, the level of overall satisfaction with the workshop increased from predominantly “good” ratings in fall 2002 (59 percent) to primarily “very good” ratings in summer 2003 (73 percent).

A secondary source of evidence to support this conclusion was provided by data on the most useful concepts identified by participants. The concepts identified clearly aligned with the design framework underlying the CADE model: focus on student competencies, evidence and analysis of student mastery, the backward design process, and production planning. Most importantly, a key indicator of quality emerged in the form of a widespread realization that CADE concepts are equally applicable to designing both online and traditional face-to-face courses. Also, participants provided very positive feedback on workshop materials and, in particular, about the role and contribution of instructional staff. Likewise, the quality of discussion forums received overall positive ratings and showed that participants appreciated the role of both the large and small discussion forums. Frequent access (weekly) to large (81 percent overall) and small (57 percent overall) discussion groups demonstrated this trend. Although respondents wished for more consistent participation in discussion forums, they found discussions helpful, informative, and engaging.

The fourth conclusion addresses the study question related to the impact of workshop participation on learning outcomes: *Participation in CADE workshops has a positive impact on learning outcomes as demonstrated by the high quality of portfolio materials produced by workshop participants.* The results of the review of portfolio materials support this conclusion. All in all, the level of quality was consistently high across workshops and across portfolio categories with the exception of instructional strategies, which was rated at the intermediate level

of quality. These results may be because “competencies,” “evidence of student mastery,” “analysis of evidence,” and “storyboard” concepts—although hard to grasp in some cases—presented discrete ideas that were constantly reinforced throughout the workshops. By comparison, instructional strategies included a number of ideas that required an understanding of both conceptual fit and practical applications in the planning process. Further, since most instructional strategies represented new ideas to faculty with no formal pedagogical training, it is not surprising that this category rated at the intermediate level.

As expected, professional readability rated high across workshops. This category, found as an implicit common expectation, is an important expectation about the nature of portfolio materials. This became evident to some faculty who indicated that a course should be clearly and thoroughly written so that other colleagues, with minimal guessing on their part, may teach them if necessary. Other core categories, including “competencies,” “evidence of student mastery,” “evidence analysis,” and “storyboard,” rated equally high across workshops. These results are consistent with participants’ feedback reporting the same categories as the most useful concepts learned in the workshop. Overall, it was evident that portfolio materials represented building blocks for completion of high-quality online courses.

The final conclusion highlights the potential nature of further improvements based on evaluation results: *Further improvement of the CADE model may require a new approach for implementation supported directly by individual Jesuit colleges and universities.* Certainly, there is always room for improvement in any educational endeavor. However, some issues can be directly addressed through concrete changes, while others may be harder to tackle unless the initial model is reconceptualized. For example, there is no doubt that structural changes (e.g., electronic interface) and instructional strategies (e.g., treatment of key educational concepts) can

and will be further enhanced in subsequent workshops. However, improvements in other areas may be harder to accomplish. This may include commitment for consistent participation (e.g., completing the workshop, contributing to discussion groups), access to librarians and technology staff, and completion of portfolio materials. As is, in the open delivery model accessible to individual faculty interested in participating without institutional incentives and/or accountability systems in place, any improvements requiring increasing involvement of workshop participants are most likely to linger to a certain extent.

As suggested in open commentary, interviews, and by quantitative results, a different modality may be required to increase the nature and quality of participation in the CADE workshops. An alternative may be to offer the workshop to individual colleges/universities and/or departments whereby participation may be tied to institutional needs for online courses, incentives for participation (e.g., release time, use of portfolio materials to document quality of teaching in the tenure process), and provisions for accountability. Under this alternative, electronic interfaces may be customized for compatibility with available equipment and technology, contact with librarians and technology staff may be enhanced, time-on-task may also increase, and the quality of portfolio materials may improve as well.

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