FROM RESEARCH TO PRACTICE: TOWARDS THE DEVELOPMENT OF AN INTEGRATED AND COMPREHENSIVE FACULTY DEVELOPMENT PROGRAM

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ABSTRACT

This article describes the design and development of a professional development program based upon research on the competencies necessary for online teaching success [1] conducted at Penn State University in 2009-2010. The article highlights how the results of this research are being aligned with various professional development courses comprising the certificate program for online faculty at Penn State's World Campus. This article describes the process of research design and implementation to the direct application for professional development.

KEYWORDS

Online Course Development, Online Faculty Development, Instructional Design, Competencies for Online Teaching Success

I. INTRODUCTION

This research on competencies for online teaching success began with the intent to construct a professional development program based upon a defined set of skills and competencies necessary for online teaching success. An additional inquiry was posed as to the effectiveness of professional development programs for online instructors and the articulation of measures and metrics to determine impact. The research question guiding Phase I of the study dealt with identifying the competencies necessary for online teaching success. In order to ascertain this list, a survey instrument was used to collect input from professionals experienced in online teaching. These teaching tasks were represented as statements of behaviors, attitudes, and beliefs about teaching online. Each survey item was presented as a behavioral statement of a best practice for online instruction. A "competency" was defined as the constellation of behavioral statements not an individual behavior, attitude, or belief. (Readers interested in the development of the survey instrument, and the research it was based on, are encouraged to review [1]. The results, however, are repeated below.)

The results of this research on competencies for online teaching success is critical to the construction of a professional development program because applying the results ensures that all developmental activities for faculty are grounded upon a defined set of skills and competencies necessary for online teaching success. At the start of this process it was difficult to envision the impact of this research project on the creation of an integrated and comprehensive professional development program. The value of the data collected, has continued to inform and influence the direction of professional development programming. These results and the subsequent process of application to the design and development of a professional development program have impacted the grouping, sequencing, and delivery formats of programs for the online instructor. An additional dimension yet to be implemented as a result of this research is the development of assessment and measurement of mastery of these skills by the online instructor.

The data from Phase I of the empirical study resulted in the confirmation of the best practices for online teaching. With the most important best practices identified, the application process integrated these teaching behaviors across the curriculum map of professional development programs. Decisions needed to be made about the appropriate positioning of these tasks over the professional development cycle of the online instructor. In this article, we explain how the research results are being articulated into a faculty development program that integrates a faculty self-assessment tool and evaluation tool.

II. SURVEY RESULTS

A. Survey Construction

In order to identify key competencies associated with online teaching success, a survey was administered to participants with experience in the field of online teaching. This survey of best practices for online teaching success was constructed based on a review of the literature as well as interviews with experienced faculty and staff reflecting on their best practices for online teaching. Finally, the researchers' experience in online instruction influenced the survey instrument. The resulting statements were framed as teaching behaviors or tasks. It is important to note that this survey focused exclusively on tasks related to the delivery of online instruction and tasks related to instructional design were *not* included. A brief overview of the survey procedures and the results obtained follows.

B. Survey Procedures

The survey instrument consisted of sixty-four statements, each of which identified a teaching behavior. The following sentence provided the guideline for responses: "Indicate how important you believe each behavior, belief, or attitude is for online teaching success." Participants responded on a scale of one to seven, where one was described as "not important" and seven was described as "very important." One open-ended question asked participants to identify any additional key competencies that may have been omitted, but were thought to be important. The survey also gathered demographic information about the participants, asking that they identify their number of years of online teaching experience, their gender, their current academic position, and their primary academic discipline.

An invitation to participate in this research project was sent via e-mail to listservs whose membership included professionals experienced in the field of online education. Those interested in participating in this project were given directions for requesting a pass code in order to access the survey; a total of 260 requests were received. Of the 260 requests to participate in the survey, 199 surveys were submitted. The survey was administered online, through a secure website, and remained open from October 2009 to March 2010. When a participant submitted the survey, data were stored in a secure database and then exported into Excel/SPSS for analysis.

C. Results

Survey results helped us understand what experienced online professionals considered important to online teaching effectiveness. Means, standard deviations, and frequencies were calculated. Means of the 64 items ranged from 4.59 to 6.83, on a seven-point scale. Standard deviations ranged from 0.46 to 1.81. The statement, "The instructor shows respect to students in his/her communications with them," had the highest rating, with a mean of 6.83 and a standard deviation of 0.46. The statement had the greatest frequency of seven as a response. In fact, statements with the highest mean were all related to instructor/student interactions or communications. Table 1 lists these statements and their means, along with the frequency of the responses of seven, six, five, four, or three. Note that no respondent awarded a value of two or one ("not at all important") to any of these statements.

Please indicate how important you believe each behavior, belief, or attitude is for online teaching success.	Mean and Frequency of Ratings					
Statement	M	7	6	5	4	3
The instructor shows respect to students in his/her communications with them.	6.83	171	22	4	1	0
The instructor provides students with clear grading criteria (e.g. rubrics, description of how assignments will be graded).	6.74	163	25	7	3	1
The instructor clearly communicates course goals.	6.73	154	36	9	0	0
The instructor clearly communicates course content.	6.70	148	42	7	1	0
The instructor shows enthusiasm when interacting with students in the learning environment.	6.69	146	45	7	1	0
The instructor provides clear, detailed feedback on assignments and exams that enhances the learning experience.	6.65	140	46	11	0	0
The instructor communicates with students about course changes, reminders of due assignments, relevant additional resources through announcements/emails.	6.62	145	37	13	4	0
The instructor can effectively manage the course communications by providing a good model of expected behavior for all course communication.	6.61	138	46	10	4	0
The instructor provides prompt, helpful feedback on assignments and exams that enhances learning.	6.57	134	49	12	4	0
The instructor clearly communicates expected student behaviors.	6.55	127	53	16	1	0

Table 1. Statements with Means Greater Than 6.55

Three items had means less than 5.0, all with standard deviations greater than 1.4, indicating a dispersion of responses as shown in the frequencies recorded in Table 2.

Please indicate how important you believe each behavior, belief, or attitude is for online teaching success.	Mean and Frequency of Ratings							
Statement	M	7	6	5	4	3	2	1
The instructor uses peer assessment in his/her assessment of student work, where appropriate.	4.59	17	34	68	37	18	12	10

The instructor provides choices for graded projects so students can choose topics based on interest.	4.8	32	45	41	45	13	11	11
The instructor gathers data on students' background, interests, and experiences in order to relate them to course content.	4.84	20	48	64	37	15	7	8

Table 2. Statements with Means Less Than 5.0

A factor analysis (principal components, varimax rotation) was conducted on the data where the researchers examined patterns in the response data that might lead research-to-practice application. Generally, it is accepted that factors with an eigenvalue greater than or equal to 1.0 can be considered noteworthy. Our survey produced seven reliable factors (which are referred to as "competencies" in this paper) that fit this criterion, some of which contained as few as two behavioral tasks/items as a result of the conservative exploratory procedures (see Table 3). All seven factors/competencies had eigenvalues over the accepted 1.0 cutoff score; six of the seven factors had eigenvalues higher than 2.0, with the final factor/competency approaching 2.0 (1.93). Items were only included that had inter-item correlations of 0.40 or greater, which resulted in 30 of the 64 items loading on a single factor. In all, 46 percent of the variance in the items was accounted for by the seven competencies.

Competency	**Items (inter-item correlations)**
Active Learning (10 items, eigen=14.00)	• The instructor encourages students to interact with each other by assigning team tasks and projects, where appropriate. (r = 0.819) • The instructor includes group/team assignments where appropriate. (r = 0.766) • The instructor encourages students to share their knowledge and expertise with the learning community. (r = 0.721) • The instructor encourages students to participate in discussion forums, where appropriate. (r = 0.682) • The instructor provides opportunities for hands-on practice so that students can apply learned knowledge to the real world. (r = 0.582) • The instructor provides additional resources that encourage students to go deeper into the content of the course. (r = 0.574) • The instructor encourages student-generated content as appropriate. (r = 0.531) • The instructor facilitates learning activities that help students construct explanations/solutions. (r = 0.506) • The instructor uses peer assessment in his/her assessment of student work, where appropriate. (r = 0.472) • The instructor shows respect to students in his/her communications with them. (r = 0.427)
Administration/ Leadership (5 items, eigen=3.79)	• The instructor makes grading visible for student tracking purposes. (r = 0.683) • The instructor clearly communicates expected student behaviors.

	(r = 0.682) • The instructor is proficient in the chosen course management system (CMS). (r = 0.591) • The instructor adheres to the university's policies regarding the Federal Educational Rights & Privacy Act (FERPA). (r = 0.509) • The instructor integrates the use of technology that is meaningful and relevant to students. (r = 0.454)
Active Teaching/ Responsiveness (5 items, eigen=2.99)	• The instructor provides prompt, helpful feedback on assignments and exams that enhances learning. (r = 0.741) • The instructor provides clear, detailed feedback on assignments and exams that enhances the learning experience. (r = 0.714) • The instructor shows caring and concern that students are learning the course content. (r = 0.514) • The instructor helps keep the course participants on task. (r = 0.429) • The instructor uses appropriate strategies to manage the online workload. (r = 0.426)
Multimedia Technology (2 items, eigen=2.44)	• The instructor uses a variety of multimedia technologies to achieve course objectives. (r = 0.788) • The instructor uses multimedia technologies that are appropriate for the learning activities. (r = 0.749)
Classroom Decorum (4 items, eigen=2.38)	• The instructor helps students resolve conflicts that arise in collaborative teamwork. (r = 0.761) • The instructor resolves conflicts when they arise in teamwork/group assignments. (r = 0.680) • The instructor can effectively manage the course communications by providing a good model of expected behavior for all course communication. (r = 0.533) • The instructor identifies areas of potential conflict within the course. (r = 0.431)
Technological Competence (2 items, eigen=2.14)	• The instructor is proficient with the technologies used in the online classroom. (r = 0.884) • The instructor is confident with the technology used in the course. (r = 0.724)
Policy Enforcement (2 items, eigen=1.93)	• The instructor monitors students' adherence to policies on plagiarism. (r = 0.847) • The instructor monitors students' adherence to Academic Integrity policies and procedures. (r = 0.803)

Table 3. Factors/Competencies

The factors do appear to have value in terms of the practical application of the research results. How the results of this research are being applied to a current faculty development program will be discussed more thoroughly in the next section. In reviewing the items that were loaded into the top seven competency groupings, it is obvious that they represent a breadth of skills and behavioral tasks that should be included in any professional preparation program.

The factorial analysis alone does not represent the totality of successful online teaching skills and competencies. Further examination of the results left many questions unanswered. For example, 19 of the top 37 behaviors, all with a mean score of 6.0 or higher, did not load into the seven competency factors. It is not clear why this phenomenon occurred. Each of the 19 items was identified via the mean score as being very important. If an item were rated very important, it would be expected to load into a factor. Results such as these reveal the need for further expert interpretation as well as further statistical analysis of the data to understand the results.

III. RESEARCH-TO-PRACTICE

A. Brief History of Faculty Development at World Campus

The World Campus began delivering online courses in January of 1998. For the first seven years the predominant model of faculty preparation for teaching online was via the instructional design process, that is, as faculty authored their course with a team of instructional design specialists, they thoroughly understood and internalized the course rhythms, pace, and instructional strategies. In most situations, the original course author was also the course instructor. As programming via the World Campus expanded, more courses were offered with instructors that had not been involved in the original course design and development. Additionally, many of these new instructors were appointed to instruct online rather than self-selecting for the role. This sequence of events led to the need within the World Campus for a dedicated faculty development unit to aid in the preparation of online instructors. The Faculty Development unit was created in June of 2008 with the intent of creating a more systematic and comprehensive approach to preparing faculty for online teaching success.

From the beginning, the faculty development unit considered constructing a competency-based faculty preparation model of services. By identifying the necessary competencies needed for online teaching success, the unit could focus on the organization and strategies needed to develop these skills. The process of identifying the necessary skills and competencies and applying these to the construction of a faculty development program has been an evolutionary experience. Over three years, the research team has collected, analyzed, and assimilated data into a framework that has impacted the organization, planning and delivery of professional development opportunities for online instructors at Penn State.

B. Current Faculty Development Efforts

At Penn State's World Campus, the design, development, and delivery of programming to address the needs of faculty who teach online has been based on staff experience, intuition, and the examination of other successful faculty development programs. Input gathered from interactions with online students and faculty, conflict resolution advocates, advisors, learning design professionals, and a thorough literature review also informed this process. Furthermore, this strategy of faculty development was somewhat dependent upon the interest and perspectives of the staff. Although this rich diversity of input and interpretation was valuable, a faculty development program built upon a formal research foundation was desired to ensure the most effective and efficient system possible.
The staff supporting the faculty development programming for the World Campus consisted of a full-time director, a half-time graduate assistant, and several other staff with limited allocations of time available to support the program. Over a period of three years, these individuals crafted a curriculum series for faculty teaching online, referred to as the "Online Learning (OL) Series." Design considerations included the selection of topic areas, duration and timing of course delivery, workload demand, and delivery format

including face-to-face, blended, and independent learning or cohort format.
The courses identified for inclusion in the Online Learning Series were the direct result of literature reviews, staff interactions, as well as faculty and student input, and represent a systematic and organized structure that is appropriate to the climate and culture of Penn State. For example, all online programs represent a partnership between the academic departments that deliver the courses and World Campus, the online department of Penn State University. Because all academic authority resides with the sponsoring academic unit, a high degree of collaboration and cooperation is required between the World Campus Faculty Development and the academic partners. Although it is in the power of the academic departments to require faculty participation in the Online Learning Series, it is not within the domain of the World Campus to do so.

C. Challenges and Changes

Although the courses contained within the Online Learning Series represent a range of delivery formats and content domains, they lacked a direct connection to a research foundation that delineates the required skills and/or competencies that would result in successful online instruction. Despite the fact that much research on competencies and effective practices already exists, it was felt that given the sheer number of competencies identified in the research literature, these competencies needed to be reduced to a manageable number that would be appropriate for our institutional context. Additionally, the lack of a connection to research-defined competencies suitable for this context impacts the ability of the Faculty Development unit to track a personal development plan for individual online instructors. That is, in order to establish and manage the professional growth of instructors teaching courses for the World Campus, it would be beneficial to have a list of required competencies to track. Unlike some approaches that begin with a needs analysis of faculty to determine the content for professional development programs [2], a preference was expressed to construct the professional development programming on the research-based best practices and competencies identified in the prior research.

D. The Online Learning Series

The World Campus Online Learning Series consists of 12 individual courses covering a range of topics and delivery formats. The series is organized into four levels reflecting content and delivery format. For example, the OL 1000 series addresses the orientation and introduction of the field of online learning to the novice online instructor. These courses are designed as independent study courses that require between two and four hours of work. The OL 2000 courses in the series are pedagogically oriented and contain the foundation course titled, “Effective Online Instruction.” OL 3000 courses address new and emerging technologies and the OL 4000 series focuses on authoring online courses. The 2000, 3000, and 4000 level courses were devised as cohort-based offerings.

Offerings of courses within the Online Learning Series range from one to twelve times per calendar year. OL 2000 is the highest-demand program and as of this date has served over 1000 individuals. In some cases, academic departments that do not offer online courses, regardless of whether they participate in World Campus delivery or not, require their faculty to complete OL 2000. Other courses, for example, OL 3000: Exploring Technology in Online Learning, are modified and offered as requested by academic programs. One of the newer additions to the Online Learning series, OL 1900: ProveIT!, is designed as a technology, competency-based program through which faculty can demonstrate their mastery of the learning management program.

Recently, a Certificate for Online Teaching has been established and made available to academic programs for use with their faculty. This effort formalizes a path through the professional development series that encompasses the critical competencies identified through the Competencies for Online Teaching Success research. The structure of the core five-course sequence will be enhanced by the use of a variety of “elective” courses (See Figure 1) selected by the academic program chair to suit the needs of their particular faculty. However, these academic units will determine if participation in the certificate would be a requirement for faculty teaching in their online program. The World Campus Faculty

Development unit would then manage the offerings, arrange for instruction, and track faculty participation in the certificate program.

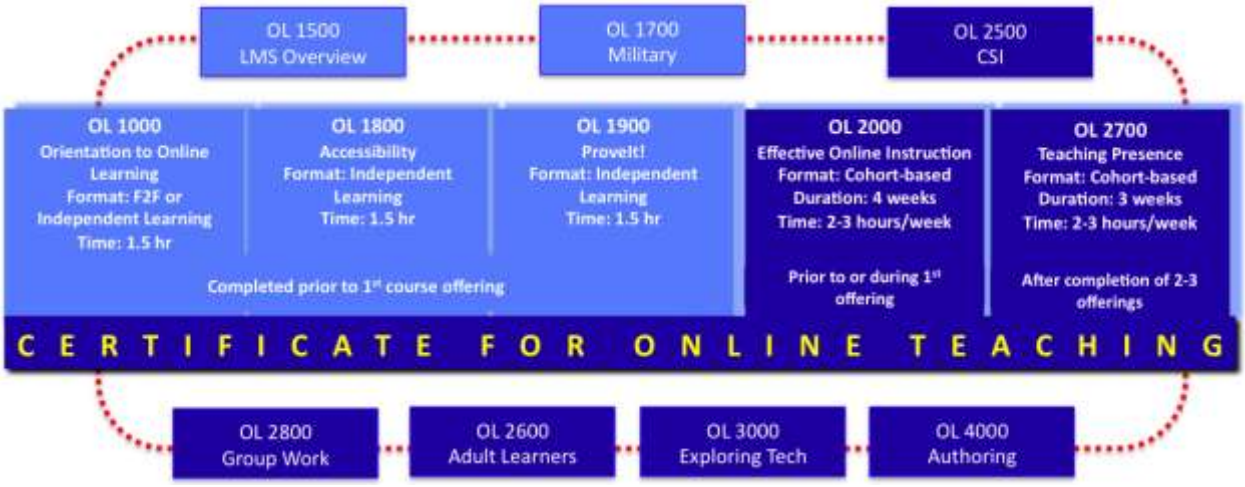

Figure 1. Online Learning Series Courses

E. Application of Competencies for Online Teaching Success to Faculty Development

The initial design, development, and delivery of all courses within the Online Learning Series use standard instructional design practices including the development of stated learning outcomes for each course and an examination of the most effective delivery format [3]. Moreover, applying the findings of the Competencies for Online Teaching Success research required a re-examination of the learning outcomes for each certificate course and decisions as to where each teaching behavior would be taught (See Table 5). Although not all courses have been developed for online delivery, learning outcomes have been identified for the five (5) core certificate courses (OL 1000, OL 1800, OL 1900, OL 2000, and OL 2700). This was the starting point for subsequently matching the teaching behaviors to each certificate course. Table 4 lists the learning outcomes for each of the core courses in the proposed certificate for the online teaching program:

OL Series Course	**Learning Outcomes** Upon successful completion of this course, the instructor will be able to:
OL 1000 – Orientation to Online Teaching Delivery: Face-to-face, 1.5 hour workshop	1. illustrate the unique characteristics of online teaching and learning including class dynamics, time management, and basic technology interface 2. introduce and explain the structure of the World Campus as a delivery system and highlight the relationship with the academic unit/department
OL 1800 – Accessibility Delivery: self-paced, independent	3. identify the appropriate resources available to assist in the management of accessibility accommodations 4. describe the commonly experienced student accessibility issues and the impact on the online learner

study over a 3-week period	5. post and reinforce within the classroom common protocols that may benefit both students with and without disabilities
OL 1900 – ProveIt! Delivery: self-paced, independent study	6. demonstrate competencies in using the most common tools and features of the ANGEL learning management system 7. be familiar with policies concerning syllabus requirements, FERPA, academic integrity, and student behavioral expectations in the online classroom e.g., netiquette guidelines
OL 2000 – Effective Online Instruction Delivery: cohort-based, 4-week course facilitated by an experienced online instructor	8. identify and perform essential preparation tasks prior to teaching the course 9. articulate an instructor's role in an online learning environment 10. develop appropriate strategies for promoting active learning 11. recognize learner characteristics and learning styles 12. apply appropriate strategies for monitoring and facilitating students' online learning 13. apply effective strategies for facilitating and assessing online discussions 14. manage time, workload, and administrative issues related to teaching effectively online
OL 2700 – Teaching Presence Delivery: cohort-based, 3-week course facilitated by an experienced online instructor	15. apply effective strategies to establish a teaching presence that fits your instructor persona and your online courses 16. articulate the role teaching presence plays in students' social and cognitive presence for learning online 17. apply effective strategies to maintain an effective and efficient instructor-student relationship during your online courses 18. apply a schedule for feedback on students' learning in your online course

Table 4. Learning Outcomes and Delivery Format of Core Courses

It is important to note that additional learning outcomes may be added or deleted while others may be restated. Table 5 shows how the teaching behaviors map over to the core courses in the certificate program.

OL Series Course	**COTS Teaching Behaviors**
OL 1000 – Orientation to Online Teaching	17. The instructor uses appropriate strategies to manage the online workload. 21. The instructor is confident with the technology used in the course. 22. The instructor is proficient in the chosen course management system. 50. The instructor has an understanding of the course technologies sufficient to help students with basic technical issues.
OL 1800 - Accessibility	23. The instructor communicates accessibility of resources to students with disabilities. 29. The instructor's communication demonstrates sensitivity to disabilities and diversities including: cultural, cognitive, emotional, and physical. 32. The instructor demonstrates flexibility in efforts to accommodate different student needs/circumstances.

	46. The instructor varies their use of teaching methods to accommodate students' different learning styles. 54. The instructor uses a variety of multimedia technologies to achieve course objectives.
OL 1900 Prove-It (ANGEL CMS)	1. The instructor shows respect to students in his/her communications with them. 10. The instructor clearly communicates expected student behaviors. 12. The instructor creates a learning environment that is safe and inviting. 14. The instructor adheres to the university's policies regarding the Federal Educational Rights & Privacy Act (FERPA). 21. The instructor is confident with the technology used in the course. 22. The instructor is proficient in the chosen course management system (CMS). 24. The instructor makes grading visible for student tracking purposes. 30. The instructor communicates course expectations regarding classroom behavior (netiquette guidelines). 33. The instructor adheres to instructional policies related to syllabus development. 35. The instructor monitors students' adherence to Academic Integrity policies and procedures. 39. The instructor communicates to students the required technological equipment and software. 50. The instructor has an understanding of the course technologies sufficient to help students with basic technical issues.
OL 2000 – Effective Online Instruction	1. The instructor shows respect to students in his/her communications with them. 2. The instructor provides students with clear grading criteria (e.g., rubrics, description of how assignments will be graded). 3. The instructor clearly communicates course goals. 6. The instructor provides clear, detailed feedback on assignments and exams that enhances the learning experience. 8. The instructor can effectively manage the course communications by providing a good model of expected behavior for all course communications. 15. The instructor is actively involved in monitoring student progress. 16. The instructor provides meaningful examples that help students understand course content. 17. The instructor uses appropriate strategies to manage the online workload. 19. The instructor encourages students to participate in discussion forums, where appropriate. 20. The instructor facilitates learning activities that help students construct explanations/solutions. 26. The instructor plays an active role in online discussions when appropriate. 27. The instructor monitors students' adherence to policies on plagiarism. 31. The instructor uses various assessment methods to evaluate student performance. 34. The instructor responds to student questions within 24 hours. 35. The instructor monitors students' adherence to Academic Integrity policies and procedures. 36. The instructor is open to students' ideas and incorporates students' ideas for improving the course.

	41. The instructor encourages students to share their knowledge and expertise with the learning community. 42. The instructor helps keep the course participants on task. 48. The instructor is a facilitator of the learning process and does not direct the students' learning process. 49. The instructor helps students resolve conflicts that arise in collaborative teamwork. 50. The instructor has an understanding of the course technologies sufficient to help students with basic technical issues. 52. The instructor encourages student-generated content as appropriate. 53. The instructor encourages students to interact with each other by assigning team tasks and projects, where appropriate. 55. The instructor identifies areas of potential conflict within the course. 56. The instructor includes group/team assignments where appropriate. 57. The instructor resolves conflicts when they arise in teamwork/group assignments. 61. The instructor returns graded assignments within 48 hrs. of the due date of the assignment.
OL 2700 – Teaching Presence	1. The instructor shows respect to students in his/her communications with them. 4. The instructor clearly communicates course content. 5. The instructor shows enthusiasm when interacting with students in the learning environment. 7. The instructor communicates with students about course changes, reminders of due assignments, relevant additional resources through announcements/emails. 8. The instructor can effectively manage the course communications by providing a good model of expected behavior for all course communication. 10. The instructor clearly communicates expected student behaviors. 11. The instructor is helpful in guiding the class towards understanding course topics in a way that helps students clarify their thinking. 12. The instructor creates a learning environment that is safe and inviting. 15. The instructor is actively involved in monitoring student progress. 16. The instructor provides meaningful examples that help students understand course content. 25. The instructor provides guidance on how students can link new information to their existing knowledge. 26. The instructor plays an active role in online discussions when appropriate. 29. The instructor's communication demonstrates sensitivity to disabilities and diversities including: cultural, cognitive, emotional, and physical. 30. The instructor communicates course expectations regarding classroom behavior (netiquette guidelines). 32. The instructor demonstrates flexibility in efforts to accommodate different student needs/circumstances. 34. The instructor responds to student questions within 24 hours. 36. The instructor is open to students' ideas and incorporates students' ideas for improving the course. 38. The instructor logs into the course daily in order to monitor and engage students in the course content. 42. The instructor helps keep the course participants on task.

	46. The instructor varies their use of teaching methods to accommodate students' different learning styles. 48. The instructor is a facilitator of the learning process and does not direct the students' learning process. 49. The instructor helps students resolve conflicts that arise in collaborative teamwork. 55. The instructor identifies areas of potential conflict within the course. 57. The instructor resolves conflicts when they arise in teamwork/group assignments. 58. The instructor acknowledges the receipt of assignments within two days of submission. 60. The instructor conducts office hours that accommodate students' schedules.

Table 5. Teaching Behaviors Mapped to Certificate Program Courses

In theory, it would have made sense to group as many teaching behaviors together by competency categories (See Table 3) and map competencies to different courses. However, since too many teaching behaviors did not fall into one of the 7 competency categories, the research team decided that it made more sense to map each of the 64 statements to one or more of the OL series courses. Some overlap occurred; for example, in Table 5, teaching behavior #22 (The instructor is proficient in the chosen course management system.) is addressed in both OL 1000 and OL 1900 because the subsequent course in the certificate program goes into deeper aspects of that particular teaching behavior. Similar overlaps can be seen for teaching behavior #57 (The instructor resolves conflicts when they arise in teamwork/group assignments), which is taught in OL 2000 and OL 2700. The process of mapping all 64 teaching behaviors is continuing at this time while additional elective courses are in development. Through a process of collecting feedback data from faculty who have taken or are taking various certificate courses, further improvements and refinements will be made.

F. Institutional Variables and Impact

As in any research-to-application process, the institutional context greatly informs and shapes the speed, direction, and effectiveness of implementation. This institutional context may also inform the content selection, delivery format, timing of delivery, and sequencing of the course curriculum. As previously stated, academic authority, in the case of Penn State resides not with the World Campus but the academic unit. Although the World Campus Faculty Development team can build programs based on best practices identified in the research, what is offered and accepted by the academic units is left to their discretion. Course development must consider the systems, processes, and workflow that are driven by the "business functions" of the institution [4]. Market demand (student enrollments), market expectations (demographics), and technology infrastructure are also institutional factors that impact course production and delivery. In this research-to-application case, the relationship between the World Campus delivery system and the academic units is critical to serving the needs of all online instructors.

Finally, institutional resources available for faculty development activities at both the delivery unit and academic departmental level must be considered. In the case of the Penn State's World Campus, professional development program design, development, and delivery have been successful because of the engagement of professionals, staff and faculty across the institution. By developing partnerships across the institution, online faculty have benefited from the diverse skill sets, perspectives, and experiences of all contributors and partners. The outcome has been an improved integration of online teaching and learning experiences to serve all of the institution. A prime example of this collaboration is the development of a list of 30 critical competencies for successful for online instruction. This list was developed based on the Competencies for Online Teaching Success but adjusted to serve the needs of all online faculty at Penn State, not just those teaching via the World Campus. Table 6 features the derivative

list of 30 competencies accepted by the Penn State Online Coordinating Council.

	Pedagogical Competencies
1	Attend to the unique challenges of distance learning where learners are separated by time and geographic proximity and interactions are primarily asynchronous in nature
2	Be familiar with the unique learning needs and situations of both traditional age and adult learners, providing an educational experience that is appropriate for both
3	Have mastery of course content, structure, and organization
4	Respond to student inquiries
5	Provide detailed feedback on assignments and exams.
6	Communicate with students about course progress and changes.
7	Promote and encourage a learning environment that is safe and inviting and mutually respectful.
8	Monitor and manage student progress.
9	Communicate course goals and outcomes
10	Provide evidence to students of their presence in the course on a regular basis
11	Demonstrate sensitivity to disabilities and diversities including aspects of cultural, cognitive, emotional and physical differences
	Administrative Competencies
12	Complete basic computer operations
13	Successfully log into the LMS and access the course
14	Successfully navigate the course space
15	Set-up and manage student grades
16	Effectively use course communications systems
17	Manage the course roster
18	Manage student submissions
19	Manage the course files and folders within the LMS (when appropriate)
	Technological Competencies
20	Log-in to the course and actively participate
21	Communicate to students when assignments and exams will be graded and returned.
22	Provide a comprehensive syllabus that adheres to institutional Syllabus Policy 43-00.
23	Mediate course-related student conflicts
24	Adhere to the institutional policies regarding the Federal Educational Rights & Privacy Act (FERPA)
25	Revise course content and instructional materials based on student feedback
26	Know where and when to get technical assistance and support for you and your students
27	Communicate expectations of student course behavior

Table 6. Derivative list of 27 competencies developed by the Penn State Online Coordinating Council

Another example of the integration of the results from the Competencies for Online Teaching Success research is the design and development of an assessment instrument for determining faculty readiness to teach online. The current version of the faculty self-assessment readiness tool [5] has been operational for over four years (http://weblearning.psu.edu/news/faculty-self-assessment) and was in need of an upgrade. The Penn State Online Coordinating Council sub-committee for Faculty Engagement has been actively applying the list of 27 competencies to the redevelopment of the faculty self-assessment rubric tool. Work yet remains to begin on the development of an instrument that would enable faculty performance to be assessed against the established competencies. The alignment among the research results with faculty training, a faculty self-assessment tool, and a performance evaluation tool highlights the potential impact of a research to application process.

IV. CONCLUSION

Creating a professional development program that prepares online instructors for teaching success has been an evolutionary process. This process began with a desire to ground the design, and development of professional development programs in the current literature of best practices as well as validation from a global collection of online teaching and learning experts. From that desire emerged a research question that involved identifying which teaching behaviors, beliefs, and attitudes were most important for online teaching success and has culminated with the articulation of a set of core program offerings that make up a Certificate for Online Teaching.

The application of research findings to the practice of faculty development, although still an ongoing process, illustrates the iterative and evolving process in a real-world context. Establishing a foundation for program design based on research findings provided a structure for faculty training less arbitrary than intuition and therefore more likely to be successfully marketed to academic partners and faculty alike. The research team remained adaptable and fluid in their approach of research to application enabling adjustments as necessary for program success.

The transition by instructors from a face-to-face format to the online classroom requires careful adaptation of a wide variety of skills and competencies. Although the general principles represented in a "good teaching is good teaching" approach is a starting point, new competencies are necessary beyond those essential for the face-to-face classroom. By statistical standards, the factor analysis process in the Competencies for Online Teaching Success survey was extremely successful, applying very conservative criteria and producing statistically strong factors. These results alone could serve as the definitive building blocks for a professional development program.

As suggested earlier, additional research is needed to further explore the necessary competencies for online teaching success. That many of the individual items in the survey were rated as "very important" according to their means, but did not cluster into any of the seven factors/competencies, indicates that more analysis and possibly more research needs to occur. Nonetheless, the 64 teaching behaviors still provide important best practices that should be mapped to either existing or newly created faculty development courses.

The identification of the appropriate courses, their content, sequencing, and evaluation of the effectiveness also remains an ongoing challenge because successful implementation of a faculty development programs is dependent upon other institutional partners. The resulting competencies identified through this research is an excellent starting point for the design and development of a faculty development program because they provide a solid structure and organizational system around which to align the learning outcomes and content for each course. As a starting point, the competencies must be operationalized within the context of the governance, policies, and organizational and technical infrastructure of the institutional setting. The research-based findings do provide an impartial basis for the review of which competencies are appropriate to the university's operating parameters. Professional development staff across the institution is more likely to accept and use the competencies framework because of this research foundation.

The Competencies for Online Teaching Success project was predicated on the belief that "teaching success" was a definable or, at the very least, a recognizable construct made up of discreet behaviors and observable tasks. It has become evident that there are multiple perspectives to the definition of teaching success and that a broader definition of teaching success is necessary. A successful professional development program is one that produces positive, measurable outcomes reflected in variables such as student retention [6] and success [7, 8], student and faculty satisfaction [8, 9], positive student attitude and progress toward a final educational goal. At the institutional level there may be additional indicators such as financial, administrative, or enrollment-based indicators. In terms of a broader application of the important teaching behaviors identified in this study, each institution or even academic program needs to articulate a meaning of "teaching success" or teaching effectiveness that considers the desired outcome of the course as well as the indicator metrics. It is the intention of this research team to continue the

definition of success variables that can help determine the effectiveness of the implementation of best practices identified in Phase I.

The Competencies for Online Teaching Success research team has entertained multiple conversations and reflections on what constitutes "teaching success." Their perspectives, opinions, and conclusions are heavily based on their personal values and beliefs and influenced by programmatic and institutional values. The Competencies for Online Teaching Success research initiative has shed additional light onto the desired specific teaching behaviors that lead to success for the online instructor. However, this research must be extended in order to answer the question of whether or not the identified best practices have any direct bearing on student learning. The desire of this research team and many others in online learning is that such investment in the success of the online instructor ultimately be reflected in the success of the online learner.

V. ABOUT THE AUTHORS

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Shannon Kennan, M.Ed., is a senior lecturer and instructional designer in the College of Communications at Penn State University. Her research interests focus on the intersections of psychology, technology, and pedagogy with specific interests in the use of social media, teaching presence, and pedagogical techniques in online learning, media ethics, and the discourse surrounding addiction to new media technologies. Shannon's background includes teaching elementary school, practicing family therapy, and working as university faculty and administration. She is a Ph.D. candidate in Mass Communications.

Janet May Dillon serves as Associate Director for Evaluation and Senior Program Manager at Penn State World Campus. As Associate Director for Evaluation, she evaluates the success of courses, programs, and faculty through multiple surveys. Her program management responsibilities include managing the portfolio of courses and programs offered in conjunction with the College of Science. She taught mathematics for fourteen years at Penn State DuBois before joining the World Campus. In 1988, she began teaching a correspondence mathematics course for Penn State's Independent Learning unit, which subsequently became the World Campus's first online mathematics course. Additional professional interests include how technology can be used to enhance mathematics education.

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