Determining the Professional Development Needs of Faculty in a College of Agriculture

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Abstract

Even in difficult fiscal times it's essential for institutions to invest in faculty development to provide faculty with the necessary skills and training to advance them professionally, especially their teaching, which students consider the most important job of faculty. This study examined the professional development needs of faculty in the College of Agricultural Sciences and Technology at California State University, Fresno. It looked at their perceived level of teaching skill and their interest in teaching improvement. Faculty indicated "good" levels of skill in performing traditional teaching practices; however, in over half of the educational technologies examined faculty reported little to no skill. Respondents expressed at least some interest in improving on all of the instructional activities. Less interest was shown in further training related to the educational technology areas. The Borich needs assessment model was used to establish priority areas for future faculty development. The instructional priority areas were, using alternative teaching methods, effectively evaluating student learning, discovery learning methods, improving student reading and writing skills, and faculty self-evaluation of teaching effectiveness. The educational technology priority areas were, creating and editing digital videos, using interactive teaching technology, using multimedia tools, using Internet discussion groups, and utilizing video conferencing technology.

Introduction

A university's reputation and prestige is largely based upon the perceived quality of the institution. Although there are many factors that contribute to perceptions of an institution's quality, none may have as great an impact as the university's faculty. With this in mind, institutions typically invest in their faculty providing them with opportunities to develop new skills and knowledge in order to further them professionally and build on the perceived quality of an institution.

Even during this current period of fiscal difficulty it is important for faculty to continue to advance professionally. This investment is especially important within the scholarship of teaching, which according to students is considered to be the most important job of a faculty member (Wiedmer, 1994). Teachers must be well informed and have a deep knowledge of their field. The teaching methodology and procedures used by faculty must be carefully planned, continually evaluated, and should directly relate to their subject matter (Boyer, 1990).

In an effort to maximize the impact of precious professional development funds greater attention and focus should be given to those areas where the need for improvement across an entire college is the greatest and where funds can be used most efficiently. This approach differs from that traditionally taken by California State University, Fresno, where faculty have primary responsibility for teaching undergraduate courses, but professional development activities have historically been focused on attendance at professional and/or research related conferences and meetings. Herein lies the motivation for this action research, which will attempt to provide the leadership of the college with a greater understanding of the professional development needs of faculty.

Conceptual/Theoretical Framework

Boyer (1990) stated that teaching is "a dynamic endeavor" (p. 23) which requires the use of analogies, metaphors and images to build a bridge between the teacher's understanding and student learning. However, some view teaching as a rather routine task that almost anyone can do (Boyer, 1990). Adding support for such a belief is a shift in priorities that has occurred over the past few decades in American higher education. Once seen as institutions whose primary mission was undergraduate education, universities have shifted their focus towards research and graduate education. In spite of Boyer's (1990) challenge to reexamine the definition of scholarship and view teaching, service, and research equally; tenure and promotion procedures still reflect the increasing pressure for faculty to publish research.

Graduate degree programs which are required for university faculty positions do provide students with preparation and experience conducting research, however these programs provide little to no instruction in the practice of teaching (Ely and Ragland, 1989). This begs the question, "Where do faculty acquire the training and experience necessary to be effective in the classroom?" University faculty find themselves in a situation where they feel competent within their technical field; however, their technical competency may not prove to be adequate preparation for teaching (Bowman et al., 1986). This results in most new faculty finding they have a strong need for professional development in order to build and improve their teaching effectiveness.

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Typically, providing faculty with professional development opportunities requires financial resources. In higher education, these financial resources are precious which demands greater efficiency when allocating such funds. Decisions on how to invest in faculty development must be based on effective needs assessments to best address priorities for continued development of the academy (Witkin, 1984). This has led to a paradigm shift in which higher education has moved away from the traditional professional development activities of sabbatical leaves and attendance at professional conferences. Greater attention has been given to opportunities to increase teaching effectiveness and improved methodology (Lawler and King, 2000).

In an effort to determine the greatest areas of need for improved teaching effectiveness and methodology, researchers in colleges of agriculture have examined the professional development needs of faculty. In 1998, Kirby, Waldvogel, and Overton examined the educational technology professional development needs of faculty at North Carolina State University. These researchers reported faculty expressed a need for additional training related to using multimedia tools, constructing web pages, and computer and presentation graphics.

More recently, Wingenbach and Ladner (2002) examined the differences between the professional development needs of faculty in the College of Agriculture and Life Sciences and College of Education at Mississippi State University. Both groups reported higher ratings in the traditional teaching methods than in using new and emerging educational technology. Several differences were found between the two groups, particularly in student-centered activities.

In an effort to guide this investigation, the researcher utilized Knowles (1984) theory of andragogy as the theoretical framework. Knowles (1984) emphasized that adults are self-directed and they expect to take responsibility for their learning decisions. Four principles provide the foundation for Knowles' theory, 1) adults need to be involved in the planning and evaluation of their learning activities, 2) experience, which includes mistakes, provides the basis for adult learning, 3) adults are most interested in learning content that has immediate relevance to their job or life, and 4) adult learning is problem-based rather than content-oriented (Knowles, 1984).

An effective faculty development program begins with the process of preplanning, which according to Lawler and King (2000) focuses attention on organizational goals, needs and climate, as well as the faculty's needs and experience. Faculty and administrators might have thoughts about what they think the areas of need are, however these are usually based on impressions or on observations of only a few persons who may not be representative of the entire faculty.

The Borich (1980) needs assessment model was used as a conceptual basis for this study. This model has been found to add validity to the process of determining the professional development needs of agricultural educators (Waters and Haskell, 1989). Beginning with Barrick, Ladewig, and Hedges in 1983, the Borich model has been used in several studies to measure the inservice education needs of secondary agriculture teachers (Edwards and Briers, 1999).

Barrick and his colleagues (1983) found using a direct assessment model to be less reliable than the Borich model. The difference between the models being that the direct assessment model uses only one factor to determine the inservice education needs of subjects while the Borich model uses two or more factors to form conclusions about the needs of the subjects. Later, Waters and Haskell (1989) and Newman and Johnson (1994) would provide support for the conclusions of Barrick, et al. (1983).

The Borich needs assessment model (1980) consists of five steps. To implement the model a researcher must first establish a list of competencies. Competency statements typically reflect effective teaching practices or the objectives of the professional development program. Once the competency list has been composed, a questionnaire is developed and administered. Subjects are asked to rate their perceived level of competency and also their current level of attainment of each competency. Once data are collected, the competencies are then ranked by the ratings submitted by the subjects. Rankings are established by calculating discrepancy scores, which are based on differences between the perceived importance and perceived level of attainment of each competency. Discrepancies with the highest rank order would then have the highest priority in an improvement program. Next the existing or proposed professional development program is examined to determine if the high priority areas are receiving adequate attention. If deemed necessary, modifications are made to provide additional resources, training, or materials to better address the subjects' professional needs related to each competency area.

Purpose and Objectives

The purpose of this study was to examine the professional development needs of faculty in the College of Agricultural Sciences and Technology at California State University, Fresno, specifically looking at their perceived level of teaching skills and their interest in teaching improvement. The following research objectives guided this study:

1. Describe faculty based on rank, years of teaching experience, and selected demographic characteristics.

2. Describe the faculty's perceived level of teaching skills and interest in teaching improvement related to selected instructional activities.

3. Describe the faculty's perceived level of teaching skills and interest in teaching improvement related to selected educational technologies.

4. Determine priority areas for faculty development based on the Weighted Mean Discrepancy Score rankings for selected instructional activities.

5. Determine priority areas for faculty development based on the Weighted Mean Discrepancy Score rankings for selected educational technologies.

Methods and Procedures

This descriptive census study focused on a target population of all full-time faculty in the College of Agricultural Sciences and Technology at California State University, Fresno during the 2007-08 academic year. With the assistance of the dean's office a list of full-time teaching faculty was established for each of college's seven academic departments. This allowed the researcher to identify the target population, which consisted of 45 full-time teaching faculty comprised of seven lecturers, 11 assistant professors, 10 associate professors and 17 full professors.

The data were collected using a questionnaire developed by Wardlow and Johnson (1999) used to assess university teaching faculty's perceived level of teaching skills and interest in teaching improvement. Wardlow and Johnson (1999) established content validity of their instrument through a review by a panel of experts, which included teaching faculty from across their college. A test-retest procedure was conducted with 11 graduate students in a teaching course at four week internals to establish a coefficient of stability of .68. Additionally, a factor analysis was performed following the collection of the data to establish construct validity. In doing so, Wardlow and Johnson found that the 20 items in the Teaching Activities construct accounted for 63.5% of the variance, while the 12 items in the Educational Technology construct explained 72.2% of the variance in the data.

For this study, the Wardlow and Johnson (1999) questionnaire was modified for online delivery and the educational technology items were updated. The 79 item instrument was administered online and participation was requested via email to all faculty in the population. After an initial email request was sent to faculty directing them to the questionnaire website, two follow-up emails were sent at two-week intervals to the non-respondents. A total of 39 usable instruments were received, resulting in an 87% response rate.

To address the possibility of possible non-response error, a comparison of early to late respondents was conducted (Miller and Smith, 1983). As recommended by Lindner, et al., (2001) the latter half of respondents (n = 20) were compared to the early respondents (n = 19) on their Mean Weighted Discrepancy Scores for both Teaching Activities and Educational Technology categories. Analysis of the data found no significant statistical difference on any of the 34 items. Given these findings, it was concluded that results were generalizable across the entire population of this study.

Descriptive statistics were used to analyze data for Objective 1. For Objectives 2 and 3 interval data were reported as means and standard deviations. Objectives 4 and 5 were accomplished by calculating and ranking the Mean Weighted Discrepancy Score (MWDS) for each item as outlined by Borich (1980). To calculate the Mean Weighted Discrepancy Score, one must first determine each individual's discrepancy score for each construct item by subtracting their numerical response on the "Level of Skill" scale from their response on the "Interest in Improvement" scale. For example, if a respondent indicated on a 5 point scale their interest in improvement to be a "4" and their skill level a "1" their discrepancy score would be 3.00. In the second step, weighted discrepancy scores were calculated for each respondent by multiplying the individual's discrepancy score on each item by the overall mean of that item on the "Interest in Improvement" scale. So from the last example, the individual discrepancy score of 3.00 would be multiplied by that item's overall mean on the "Interest in Improvement" scale. At this point each respondent has a weighted discrepancy score for each construct item. The final step was to calculate the mean for each item by dividing the sum of the weighted discrepancy scores by the total number of observations. This calculation yields the Weighted Mean Discrepancy Score for each item within the construct scale. These scores were then sorted from highest to lowest to establish the item's ranking.

Results/Findings

Of the responding faculty, 15.4% were lecturers (n = 6), 28.2% were assistant professors (n = 11), 20.5% were associate professors (n = 8), and 35.9% were full professors (n = 14). The university teaching experience of the respondents ranged from 1 to 39 years with a mean of 13.97 (SD = 10.16). Nearly three-fourths of the respondents were male (74.4%, n = 29). The average age of the respondents was 48.9 years (SD = 9.41) and ages ranged from 30 to 64 years.

In objective two, the researcher set out to complete two tasks. The first being to describe the faculty's self-perceived level of skill on selected instructional activities. Secondly, to describe the faculty's level of interest in improving on their skills related to these instructional activities. Based on the findings displayed in Table 1, the faculty reported they possessed the greatest level of skill in instructional activities related to developing course syllabi (M = 4.18), lecture delivery (M = 4.13), designing and/or revising courses (M = 4.10), motivating and creating student interest (M = 4.08), and encouraging students to think critically (M = 4.05). Respondents felt they possessed the lowest skill level in activities such as, conducting observations of their

peers (M = 3.61), assisting students in improving their reading and writing (M= 3.51), using discovery learning activities (M=3.38), conducting case studies (M=3.31), and lastly, utilizing alternative teaching methods (M=3.18).

When examining the level of interest in skill improvement (see Table 1), faculty reported being most interested in improving their skills related to motivating students and creating student interest (M=4.30), evaluation of student learning (M = 4.23), encouraging students to think critically (M=4.15), using problem solving activities (M=4.11) and developing effective student assessments (M=4.08). The activities that faculty expressed the least interest in improvement were demonstrations (M=3.67), design and revision of courses (M=3.64), using case studies (M=3.56), peer observations of faculty (M= 3.36), and preparation of course syllabi (M=3.10).

With the third objective, the researcher sought to describe the faculty's self-perceived level of skill related to selected educational technology and faculty's level of interest in improving on their skill level using those technologies. Table 2 shows that respondents reported the greatest level of skill for educational technologies related to the use of computers and data projection systems (M=4.22), presentation software, such as PowerPoint® (M = 4.13), use of digital still cameras (M = 3.97), using digital scanners (M = 3.74), and digital video cameras (M = 3.30). The faculty recorded the lowest skill levels in the following educational technologies: digitally editing and producing video (M = 2.32), utilizing online discussion groups (M = 2.08), using video conferencing technology (M = 1.92), teaching via distance education (M =

Table 1. Faculty's Perceived Level of Instructional Skills and Interest in Improvement

Instructional Activities	Level of Skill		Interest in Improvement	
	M^z (rank)	SD	M^y (rank)	SD
Preparing course syllabi	4.18 (1)	.82	3.10 (18)	1.07
Lecture	4.13 (2)	.73	3.69 (13)	1.13
Designing / revising a course	4.10 (3)	.64	3.64 (15)	1.01
Motivating students / creating interest	4.08 (4)	.66	4.30 (1)	.81
Encouraging critical thinking	4.05 (5)	.76	4.15 (3)	.99
Preparing instructional materials	4.03 (6)	.60	3.74 (11)	.99
Demonstration	4.03 (6)	.81	3.67 (14)	1.20
Hands-on exercises / activities	4.00 (7)	.76	3.97 (8)	.93
Developing effective tests / assessments	3.92 (8)	.74	4.08 (5)	.97
Problem solving activities	3.87 (9)	.83	4.11 (4)	.97
Preparing effective lesson plans	3.87 (9)	.89	3.74 (11)	1.02
Discussion-based instruction	3.74 (10)	.78	4.03 (6)	.96
Evaluating student learning	3.67 (11)	.90	4.23 (2)	.99
Cooperative learning / group projects	3.64 (12)	.81	3.72 (12)	.89
Evaluating my teaching	3.62 (13)	.82	3.95 (9)	1.03
Faculty peer observation	3.61(14)	.92	3.36 (17)	1.06
Improving student reading / writing skills	3.51 (15)	.97	3.97 (8)	.97
Discovery learning activities	3.38 (16)	1.02	3.90 (10)	1.02
Case studies	3.31 (17)	1.15	3.56 (16)	1.25
Alternative teaching methods	3.18 (18)	1.10	4.00 (7)	.95

[z]Scale: 5 = Excellent, 4 = Good, 3 = Fair, 2 = Little, 1 = None
[y]Scale: 5 = High, 4 = Moderate, 3 = Some, 2 = Very Little, 1 = None

Table 2. Faculty's Perceived Level of Educational Technology Skills and Interest in Improvement

Educational Technology	Level of Skill		Interest in Improvement	
	M^z (rank)	SD	M^y (rank)	SD
Computer / data projection systems	4.22 (1)	.85	3.18 (7)	1.32
Presentation software (i.e. PowerPoint®)	4.11 (2)	.79	3.39 (4)	1.33
Digital still cameras	3.97 (3)	.89	3.10 (8)	1.29
Documents or image scanners	3.74 (4)	.95	3.23 (5)	1.25
Digital video cameras	3.30 (5)	1.27	3.21 (6)	1.26
Course web pages (i.e. Blackboard or WebCT)	3.29 (6)	1.33	3.21 (6)	1.17
Teaching web enhanced courses (some course materials and/or assignments online)	2.74 (7)	1.41	3.00 (10)	1.28
Computer multimedia materials (i.e. computer simulations and games	2.42 (8)	1.22	3.56 (3)	1.19
Interactive technology-based instruction (i.e. student response systems)	2.34 (9)	1.24	3.64 (2)	1.09
Digital video editing and production	2.32 (10)	1.16	3.72 (1)	1.21
Internet course discussion groups (i.e. live chats or threaded discussions)	2.08 (11)	1.17	3.05 (9)	1.27
Video conferencing technology	1.92 (12)	1.10	2.89 (11)	1.49
Teaching via distance education	1.89 (13)	1.16	2.76 (12)	1.34
Teaching online courses (totally online)	1.76 (14)	1.15	2.72 (13)	1.49

[z]Scale: 5 = Excellent, 4 = Good, 3 = Fair, 2 = Little, 1 = None
[y]Scale: 5 = High, 4 = Moderate, 3 = Some, 2 = Very Little, 1 = None

1.89), and teaching courses entirely online (M = 1.76).

Regarding the level of interest in education technology skill improvement (see Table 2), results showed that respondents possessed the greatest interest in improvement of skills such as, digital video editing and production (M = 3.72), using interactive instructional technology such as student response systems or clickers (M = 3.64), multimedia simulations and games (M = 3.56), using presentation software (M = 3.39), and use of digital document and image scanners (M = 3.23). The activities that faculty expressed the least amount of interest in improvement were using Internet discussion groups (M = 3.05), teaching web enhanced courses (M = 3.00), using video conferencing technology (M = 2.89), teaching via distance education (M = 2.76), and teaching online courses (M = 2.72).

Objective four sought to determine the professional development priority areas of the faculty based on respondents MWDS rankings of the 20 instructional activities (see Table 3). After calculating the scores the instructional activity with the greatest score was using alternative teaching methods (MWDS= 3.28), followed by evaluating student learning (MWDS = 2.39), discovery learning activities (MWDS= 2.00), improving student reading and writing skills (MWDS = 1.88), and evaluation of teaching (MWDS = 1.32). The instructional activities with the lowest rankings were preparing instructional materials (MWDS = -1.01), demonstrations (MWDS = -1.32), lecture (MWDS = -1.61), designing and revising courses (MWDS = -1.68), and finally, preparing course syllabi (MWDS = -3.34).

The final objective of the study was to determine the professional development priority areas of faculty based on the MWDS rankings of the 14 educational technology areas. Examination of Table 4 shows that the highest ranking for educational technology was digital video editing and production with a MWDS of 5.13, followed by interactive instructional technologies (MWDS = 4.60), computer-based multimedia

Table 3. Instructional Activities Professional Development Priority Areas by Rank

Instructional Activities	*MWDS*	*SD*	Rank
Alternative teaching methods	3.28	5.41	1
Evaluating student learning	2.39	5.88	2
Discovery learning activities	2.00	5.13	3
Improving student reading / writing skills	1.88	5.03	4
Evaluating my teaching	1.32	5.61	5
Motivating students / creating interest	1.16	4.92	6
Discussion-based instruction	1.13	4.79	7
Problem solving activities	.99	5.25	8
Case studies	.91	5.27	9
Developing effective tests / assessments	.64	6.11	10
Encouraging critical thinking	.43	5.36	11
Cooperative learning / group projects	.29	9.94	12
Hands-on exercises / activities	-.10	5.27	13
Preparing effective lesson plans	-.47	5.43	14
Faculty peer observation	-.80	4.09	15
Preparing instructional materials	-1.01	4.29	16
Demonstration	-1.32	4.72	17
Lecture	-1.61	5.72	18
Designing / revising a course	-1.68	4.24	19
Preparing course syllabi	-3.34	4.23	20

Table 4. Educational Technology Professional Development Priority Areas by Rank

Educational Technology	*MWDS*	*SD*	Rank
Digital video editing and production	5.13	5.77	1
Interactive technology-based instruction (i.e. student response systems)	4.60	5.65	2
Computer multimedia materials (i.e. computer simulations and games	3.93	5.95	3
Internet course discussion groups (i.e. live chats or threaded discussions)	2.97	4.84	4
Video conferencing technology	2.66	4.53	5
Teaching online courses (totally online)	2.43	3.88	6
Teaching via distance education	2.16	3.74	7
Teaching web enhanced courses (some course materials and/or assignments online)	.63	5.54	8
Digital video cameras	-.08	5.63	9
Course web pages (i.e. Blackboard or WebCT)	-.25	6.03	10
Documents or image scanners	-1.61	5.65	11
Presentation software (i.e. Powerpoint)	-2.29	6.24	12
Digital still cameras	-2.69	5.54	13
Computer / LCD projection systems	-3.35	5.89	14

simulations and games (MWDS = 3.93), Internet course discussion groups (MWDS = 2.97), and video conferencing technology (MWDS = 2.66). The lowest areas of need for faculty professional development activities related to educational technology were course web pages (MWDS = -.25), document and image scanners (MWDS = -1.61), presentation software (MWDS = -2.29), digital cameras (MWDS = -2.69), and lastly, computer and LCD projection systems (MWDS = -3.35).

Conclusions/Recommendations/ Implications

The purpose of this research was to examine the professional development needs of faculty in the College of Agricultural Sciences and Technology at California State University, Fresno. This study looked specifically at the faculty's perceived level of teaching skills and interest in teaching improvement. Additionally, a ranking of priority areas for future professional development efforts was established.

The first objective of this study sought to describe faculty based on their rank, teaching experience, and demographics. Based on the faculty rank of respondents it can be concluded that each rank was adequately represented with at least 80% of the total possible number of faculty responding from each rank. On average, the respondents were primarily male (75%), approaching 50 years of age and possessed significant teaching experience (14 years). The range of age was 34 years while teaching experience range was even greater at 38 years. This wide range of experience may have important implications for those planning professional development activities for faculty. Given respondents range of experience levels and different career stages, differentiated faculty development programs may be required to fully address the needs of all faculty in the college. Further study may be warranted to examine the specific professional development needs of faculty within each rank and based on their level of teaching experience. This recommendation does however create a question, "Is this type of program feasible given our current financial situation?" The college's administration will need to consider if the benefits of such an effort will outweigh the additional cost associated with providing faculty with training opportunities specific to their professional development needs.

For objective two, faculty rated their level of skill and interest in improvement related to various instructional activities. Faculty indicated they perceived their level of skill to be at least "good" (4.00 or higher) for 8 of the 20 instructional activities. When examining these activities, they were found to be traditional teaching activities required of all faculty, such as, preparing syllabi, lecturing, and preparing course materials. Overall the respondents felt they possessed at least a "fair" level of skill (3.00 or higher) for all 20 of the instructional activities.

Examining the levels of interest in improvement on the instructional activities found that although faculty perceived themselves to be fairly skilled at these activities, they still possessed at least "some" interest (3.00 or higher) in additional training for all 20 of the activities. For seven of these activities faculty expressed at least "moderate" interest (4.00 or higher) in development activities. Given these conclusions, it is apparent that overall the faculty in the college believe they possess adequate skills in using the different instructional activities examined in this study. However, even with adequate skills faculty were still interested in and believe that additional professional development activities are justified to further strengthen their teaching effectiveness and methodology. This interest in additional training should be cultivated by those in administration to ensure that faculty continue to improve their effectiveness in the classroom. Even in these difficult economic times, institutions of higher education should not abandon their efforts to improve teaching effectiveness on their campuses. Ultimately, the implications of such as decision would impact the quality of instruction in the future and the students who value it the most over any other form of scholarship (Wiedmer, 1994).

Objective three sought to describe the level of skill and interest in improvement for use of 14 different types of educational technology. Results on this scale show that overall the level of skill of the respondents using educational technology to be lower than that of the instructional activities. The data showed that in 57% (8 of the 14) of the educational technology areas respondents reported possessing no more than "little" levels of skill (2.99 or less). These types of technologies primarily dealt with teaching via the web and through distance education, using multimedia and interactive technology tools, as well as the production and editing of digital video. The only two areas faculty felt they possessed "good" skills (4.00 or higher) were in using computer and LCD projector systems and using presentation software, such as PowerPoint®.

Given the low level of skill reported by the respondents, one might expect to see high levels of interest in improvement using these technologies. On the contrary, examination of the levels of interest indicated by the faculty finds that for all 14 technology areas faculty expressed no more than "some" interest (3.99 or less) in improving. Furthermore, in three areas related to teaching online, distance education, and video conferencing respondents had "very little" interest (2.99 or less) in further training to improve their skills level in these areas. This information differs from the findings of Wingenbach and Ladner (2002) at Mississippi State University where faculty showed a strong level of interest in learning more about educational technology. This begs the question, "Why do faculty in the present study exhibit low levels of interest in additional training although they rate their skill levels to

generally be less than adequate?" Even with increasing demand for online and distance education opportunities why would faculty not recognize the need for improvement in this area? This information may be valuable to administrators should they decide to increase the college's offering of courses and degree programs delivered online and via distance education. These findings suggest that administrators may find many faculty being resistant to such change. This matter definitely desires greater attention in a future study to investigate the likelihood of faculty resistance to the adoption of online and distance education delivery methods.

Objectives four and five were to determine the priority areas for faculty development activities related to instructional activities and educational technology. After calculating the MWDS rankings for the items on the instructional activities scale the following were found to be the top five areas to be targeted for professional development activities for this group of faculty: 1) using alternative teaching methods; 2) how to effectively evaluate student learning; 3) using discovery learning methods; 4) how to improve student reading and writing skills; and 5) methods for faculty to evaluate their teaching effectiveness. On the educational technology scale the top five priority areas were: 1) creating and editing digital videos; 2) using interactive teaching tools, such as student response systems or clickers; 3) using multimedia tools, such as computer simulations and games; 4) using Internet discussion groups; and 5) utilizing video conferencing technology.

Given these priority areas, administrators in the College of Agricultural Sciences and Technology at California State University, Fresno, can utilize this information as they consider new ways to more efficiently use the limited financial resources available for faculty development. Revisions may be made to the current professional development program and new activities implemented accordingly. These modifications and additions will open the door for additional research to further examine the merits of the needs assessment model established by Borich (1980). Additionally, this study may serve as a guide for replication at other institutions as they strive to better understand the professional development needs of their faculty leading to more efficient utilization of limited professional development funding.

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