Land-Grant Faculties' Differences in Teaching Skills and Educational Technologies

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Abstract

Teaching faculty in the Colleges of Agriculture and Life Sciences (CALS) and Education (COE) at Mississippi State University were surveyed to determine their perceived levels of skill and interest in learning more about selected educational technologies and teaching methods. Faculties rated themselves higher in the traditional methods of instruction than they did in the new and emerging educational technologies. However, they showed a strong level of desire in learning more about educational technologies. Differences were noted between COE and CALS faculties in several areas, notably in student-centered activities. Also noted were similarities between the two faculties in the areas of developing a teaching portfolio and case studies. A positive correlation was found between formal instruction in pedagogy and the interest to learn more about interactive technology-based instruction. COE and CALS faculty members reported being discouraged from learning more about educational technologies because of a lack of administrative support and/or equipment.

Introduction

Access to information technology and the Internet and the ability to use this technology effectively are becoming increasingly important to full participation in America's economic, political and social life. While computer and Internet access has exploded in recent years, America faces a 'digital divide'-- a gap between those who have access to Information Age tools and the skills to use them and those who don't (Clinton, 2000).

On April 4, 2000, President Clinton issued a National Call to Action for turning the digital divide into a digital opportunity. Clinton established an initiative whereby technology is being used to bring people together, for the sake of using information technology (IT) to help make the American dream a reality for more people, regardless of race, income, education level, geography, or disability. Clinton's initiative is based on two goals: 21st century learning tools for every child in every school, and digital opportunity for every American family and community.

A plan for achieving the first goal has been implemented. The idea is that for children to succeed in life, they need to master basic IT skills at an early age. A critical element in this supposition is for an assumed level of knowledge regarding IT literacy. To achieve this IT knowledge level, focus is being placed on a comprehensive approach to integrating technology into teaching and learning while recognizing thatas powerful as technology isit is no substitute for an inspiring teacher or a loving parent (Clinton, 2000). One measure for achieving Clinton's first digital divide goal is to ensure that teachers are technologically literate and can integrate technology into the curriculum. How can the American public be assured that teachers, both current and future, have received an appropriate training in IT at the university level? What are the faculty members' current level of IT skills in the colleges of agriculture and education?

The development and use of IT is certain to bring about change in education. Moore and Thompson (1990) found that many states were in the process of installing telecommunications technology to allow distance education to occur in all levels of education, cradle to grave (Murphy and Terry, 1998). The use of educational technologies such as computers and telecommunications offers great potential for improving the delivery of already high quality instructional programs (McCaslin and Torres, 1992; Day et al., 1998). As noted in other land grant university studies (Kirby et al., 1998; Wardlow and Johnson, 1999), university faculties had much interest in learning about current educational

technologies such as using multimedia, constructing web pages, and incorporating computer-aided materials into their curricula. These studies, and Clinton's National Call to Action, assumed that interest in IT alone could transform teachers into IT teachers at all levels. If this is true, then what variables might be associated with university faculties' IT use in the classroom? Does IT create enough interest among faculties to learn more about it?

Teaching skills and/or the interest to improve those skills among university faculties have enjoyed a renewed public interest in the past five years. Wiedmer (1994, cited in Wardlow and Johnson, 1999) found that 96% of the students from 17 universities believed that teaching was the most important job of the professor, followed by service, then research. While some might argue the merit of this finding, most will agree that teaching, research, and service are the cornerstones of a highly successful educational model in the land grant university. Land grant faculties vary in number and specialization, just as they do in their preparation for teaching at the university level. While faculties in Colleges of Education have experienced a formalized education in pedagogy prior to their collective university-level teaching duties, the same cannot be said of all faculty members in most Colleges of Agriculture. Does the presence of formal pedagogical training influence faculty members' perceived levels of teaching skill and/or skill in using educational technologies?

A 1999 report from the U. S. Department of Education (CEO Forum, 2000) found that only 24% of new teachers felt very well prepared to integrate technology into their curriculum. How do we ensure Americans that future public school teachers will be IT literate? Before this concern can be addressed, there exists a need to assess land grant faculties' teaching skills and interests in improving their teaching techniques.

Purpose

The purpose was to determine College of Agriculture and Life Sciences (CALS) and College of Education (COE) faculty members' perceived levels of teaching skill and educational technology use, and their interest levels for improving those skills. The study focused on teaching methodology and techniques along with the implementation and use of technology in the classroom. The specific objectives were: (1) Determine faculty members' perceived levels of teaching skill, (2) Determine faculty members' levels of interest for learning more about teaching activities, (3) Determine faculty members' perceived levels of skill in using education technologies, (4) Determine faculty members' levels of interest for learning more about educational technologies, (5) Explore relationships between faculty members' perceived levels of skill and interest in learning more about both teaching activities and educational technologies, and (6) Explore the relationships between the faculty members' level of interest in learning more about teaching activities and technologies and their related demographics, such as the existence of having received formalized instruction in pedagogy?

Methods

A descriptive correlational study was conducted of CALS and COE teaching faculties at Mississippi State University. A list of all current CALS and COE faculty members was obtained from each respective dean's office. Individuals were selected from a target population of 262 (CALS = 152, COE = 110) teaching faculty members on the basis of having taught at least one course within the previous two years and holding a tenure-track position with some percentage assigned to teaching. A total of 181 faculty members were included in the purposive sample (CALS = 104, COE = 77). This study was conducted as part of a USDA Higher Education Challenge Grant in association with the University of Arkansas.

Following survey research guidelines, completed surveys were returned from 118 faculty members (CALS = 70, COE = 48) after three instrument mailings (plus two additional reminder mailings between each instrument mailing) for an overall response rate of 65.19%. Responses were received from all departments in both colleges. To control for non-respondent error, a double-dip stratified random sample of 20% (n = 13) of the non-respondents was taken and telephonic data collection was conducted using the research instrument as an interview guide (Miller and Smith, 1983). Results from the double-dip sample were compared to the respondent sample. No statistical differences were found, thus the findings may be generalized to the entire population of CALS and COE teaching faculty members at Mississippi State University.

Data were collected using a survey instrument based on the work of Wardlow and Johnson (1999), which contained two specific categories: teaching activities (20 items) and educational technologies (12 items). These two categories were split between three instrument sections: common teaching methods and techniques, teaching technologies, and general teaching factors. The instrument also included five

questions pertaining to the respondents' teaching appointment and experience.

Section I required the respondents to rate their current level of skill (Excellent, Good, Fair, Poor) and level of interest to learn more (High, Moderate, Low, None) for nine specific teaching methods such as lecture, demonstration, case studies, etc. Section II required respondents to use the same scales in rating their skill and interest levels for educational technologies such as digital cameras, videoconferencing, Internet course web pages, etc. Section III allowed respondents to use the same scales mentioned above to rate their skill and interest levels for general teaching factors such as preparing course syllabi, encouraging critical thinking, faculty peer observations, etc. Section III contained items for both categories, teaching activities and educational technologies, which were combined from the items found in Sections I and II. The instrument has been reviewed for validity and reliability previously (Wardlow and Johnson, 1999) and received a coefficient of stability of r = .68. In this research study, the instrument was tested, revealing a coefficient of stability of r = .94.

Descriptive statistics and bivariate analyses were used to describe the data. Relationships were explored using Spearman's correlation coefficients. Davis' (1971) convention was used to describe the magnitude of relationships.

Results and Discussion

Data analyses showed CALS and COE faculty members averaged 13.7 (SD = 9.43) years of university teaching experience. Teaching appointments averaged 51.14% (SD = 30.66) of faculty members' assigned time with 5.63 (SD = 6.15) graduate hours and 7.97 (SD = 8.27) undergraduate hours taught annually. Graduate class sizes were 15 (SD = 10.98) students per course, while undergraduate courses averaged 25 (SD = 23.84) students per class.

The first objective sought to determine faculty members' perceived level of skill for 20 teaching activity items; no item was rated with an overall mean of excellent (M ≥ 3.50). Respondents rated their skill levels as good for 19 of 20 items (M = 3.49—2.50), only one item, developing a teaching portfolio, had a mean skill level of fair (Table 1). Differences between groups were noted in 11 items. Two teaching activity items revealed differences of particular interest between the faculty member groups, motivating students/creating interest and developing a teaching portfolio. COE faculties perceived their skills for motivating students as excellent, while CALS faculties rated their skills as good for motivating students. COE faculties rated their skill levels as good in developing a teaching portfolio, compared to CALS faculties who considered their teaching portfolio skill levels as fair.

Table 1
Respondents' Level of Skill in Teaching Activities (N=181)

	Grand (n = 118)		COE (n = 48)		CALS (n = 70)		
Teaching Activity	μ[a]	SD	$\bar{x}$[a]	SD	$\bar{x}$[a]	SD	F
Preparing course syllabi	3.35	.63	3.46	.65	3.27	.61	2.52
Lecture	3.33	.66	3.38	.71	3.29	.62	0.56
Demonstration	3.29	.65	3.43	.62	3.19	.65	3.98*
Hands-on exercises and activities	3.26	.73	3.46	.66	3.13	.75	5.79*
Preparing instructional materials	3.25	.68	3.27	.74	3.24	.65	0.05
Motivating students / creating interest	3.24	.66	3.50	.58	3.06	.66	14.15*
Designing / revising a course	3.23	.66	3.33	.66	3.16	.65	2.05
Preparing effective lesson plans	3.14	.74	3.33	.78	3.01	.69	5.45*
Discussion-based instruction	3.11	.68	3.43	.62	2.90	.65	19.33*
Hands-on problem-solving activities	3.06	.76	3.19	.77	2.97	.75	2.35
Encouraging critical thinking	3.06	.70	3.23	.66	2.94	.70	4.99*
Evaluating student learning	3.05	.68	3.15	.74	2.99	.63	1.60
Evaluating my teaching	2.92	.78	3.08	.74	2.80	.79	3.85*
Cooperative learning (group projects)	2.83	.81	3.17	.79	2.59	.74	16.34*
Improving student reading / writing	2.82	.82	2.94	.89	2.73	.75	1.75
Learning about alternative teaching methods	2.77	.76	2.91	.86	2.67	.68	2.84
Discovery learning activities	2.73	.80	3.02	.77	2.52	.75	11.55*
Case studies	2.67	.91	2.93	.84	2.49	.93	6.57*
Faculty peer observation	2.61	.84	2.76	.86	2.51	.82	2.30
Developing a teaching portfolio	2.46	.88	2.74	.91	2.28	.82	8.12*

[a] Excellent = 4, Good = 3, Fair = 2, Poor = 1
*p<.05

To complete the second objective, respondents rated their level of interest in learning more about the selected teaching activities (Table 2). As a group, COE and CALS faculties had at least a moderate interest (μ = 2.50) in learning more about all of the selected teaching activities (high = 4, moderate = 3, low = 2, none = 1). Differences were noted in four items, but one item only revealed a surprising result. COE faculties were moderately interested ($\bar{\chi}$ = 3.21) in learning more about developing a teaching portfolio, while CALS faculties had only a low level of interest ($\bar{\chi}$ = 2.38) to learn more about portfolios.

Table 2
Respondents' Level of Interest to Learn More About Teaching Activities (N=181)

	Grand (n = 118)		COE (n = 48)		CALS (n = 70)		
Teaching Activity	μ[a]	SD	$\bar{x}$[a]	SD	$\bar{x}$[a]	SD	F
Encouraging critical thinking	3.28	.91	3.42	.90	3.19	.92	1.83
Motivating students / creating interest	3.25	.92	3.29	.87	3.23	.95	.13
Hands-on problem-solving activities	3.23	.90	3.35	.85	3.14	.93	1.41
Learning about alternative teaching methods	3.15	.93	3.29	.97	3.04	.89	2.03
Evaluating my teaching	3.15	.92	3.38	.89	3.00	.92	4.81*
Evaluating student learning	3.11	.90	3.25	.86	3.01	.92	1.96
Improving student reading / writing	3.10	.98	3.15	1.02	3.06	.95	.23
Hands-on exercises and activities	3.09	.87	3.18	.83	3.03	.90	.78
Demonstration	3.04	.92	3.21	.81	2.91	.98	3.03
Discovery learning activities	3.04	.94	3.20	.96	2.92	.92	2.28
Lecture	2.97	.97	3.04	.94	2.91	1.00	.49
Discussion-based instruction	2.97	.90	3.07	.91	2.90	.89	.94
Cooperative learning (group projects)	2.96	.92	3.11	.98	2.87	.87	1.89
Preparing instructional materials	2.91	.93	3.00	.99	2.86	.90	.66
Faculty peer observation	2.91	.92	3.18	.87	2.71	.91	7.13*
Case studies	2.88	.95	3.21	.83	2.68	.97	8.86*
Preparing effective lesson plans	2.83	.99	2.94	1.02	2.75	.96	.99
Designing / revising a course	2.82	.90	2.96	.92	2.72	.88	1.98
Developing a teaching portfolio	2.72	1.03	3.21	.98	2.38	.93	21.25*
Preparing course syllabi	2.59	.98	2.71	1.05	2.51	.92	1.21

[a] High = 4, Moderate = 3, Low = 2, None = 1
*p<.05

The third objective sought faculty members' perceived levels of skill in using 12 different education technologies (Table 3). As a group, COE and CALS faculties rated their skills as good (μ = 2.75) to fair (μ = 1.61), but only two items had a grand mean of 2.50 or higher. Two factors revealed statistical and practical differences. CALS faculties rated their skill levels as good ($\bar{\chi}$= 2.91, 2.67 respectively) in the use of presentation graphics (ex: PowerPoint) and computer projection systems, while COE faculties rated their skill levels as fair (χ= 2.49, 2.24 respectively) for these same educational technologies.

Table 3
Respondents' Level of Skill in Using Educational Technologies (N=181)

	Grand (n = 118)		COE (n = 48)		CALS (n = 70)		
Educational Technologies	μ[a]	SD	$\bar{x}$[a]	SD	$\bar{x}$[a]	SD	F
Presentation graphics (ex: PowerPoint)	2.75	1.05	2.49	1.08	2.91	1.00	4.64*
Computer projection systems	2.50	1.00	2.24	.96	2.67	1.00	5.14*
Digital cameras (still cameras)	2.31	1.05	2.09	1.00	2.46	1.06	3.47
Interactive technology based instruction	2.28	.93	2.43	1.06	2.17	.82	2.07
Document or image scanners	2.25	1.07	2.13	1.01	2.33	1.11	.90
Computer multi-media materials	2.21	.95	2.13	.92	2.26	.97	.46
Digital video cameras	1.89	.96	1.80	.92	1.94	.99	.60
Internet course web pages	1.86	.93	1.70	.91	1.97	.93	2.40
Teaching via distance education	1.86	.89	2.00	1.02	1.76	.77	1.93
Videoconferencing technology	1.67	.83	1.78	.88	1.60	.81	1.24
Internet course discussion groups	1.64	.76	1.72	.77	1.59	.75	.92
Teaching via interactive video	1.61	.83	1.77	1.03	1.51	.66	2.75

[a] Excellent = 4, Good = 3, Fair = 2, Poor = 1
*p<.05

To complete the fourth objective, respondents rated their level of interest in learning more about the selected educational technologies (Table 4). COE and CALS faculties were moderately interested in learning more about all educational technologies. All item means were contained within the narrow range of 2.83 to 3.43. Differences were found in all educational technologies but one, Internet course web pages. However, the only items of practical interest between the two faculties were interactive technology based instruction and computer multi-media materials. For both items, COE faculties were interested highly in learning more about these educational technologies ($\bar{\chi}$ = 3.76, 3.50 respectively) while CALS faculties were interested only moderately ($\bar{\chi}$ = 3.22, 3.06 respectively) in learning more about these same technologies.

Table 4
Respondents' Level of Interest to Learn More About Educational Technologies (N=181)

	Grand (n = 118)		COE (n = 48)		CALS (n = 70)		
Educational Technologies	μ[a]	SD	$\bar{x}$[a]	SD	$\bar{x}$[a]	SD	F
Interactive technology based instruction	3.43	.83	3.76	.57	3.22	.91	12.61*
Internet course web pages	3.35	.85	3.52	.77	3.23	.89	3.30
Computer multi-media materials	3.23	.94	3.50	.86	3.06	.95	6.40*
Computer projection systems	3.17	.90	3.48	.72	2.96	.95	10.07*
Digital video cameras	3.11	.98	3.40	.91	2.93	.99	6.58*
Digital cameras (still cameras)	3.09	1.00	3.33	.92	2.93	1.02	4.56*
Presentation graphics (ex: PowerPoint)	3.04	.99	3.38	.89	2.81	1.00	9.63*
Document or image scanners	3.03	.96	3.33	.87	2.83	.97	7.95*
Videoconferencing technology	2.96	1.00	3.35	.79	2.70	1.05	12.87*
Internet course discussion groups	2.91	1.00	3.15	.92	2.74	1.02	4.82*
Teaching via interactive video	2.89	1.04	3.15	.97	2.71	1.07	5.03*
Teaching via distance education	2.83	1.03	3.06	.96	2.68	1.06	4.00*

[a] High = 4, Moderate = 3, Low = 2, None = 1
*p<.05

The fifth objective explored relationships between faculty members' perceived levels of skill and their interest in learning more about both teaching activities and educational technologies. Davis' conventions (1971) were used to describe the magnitude of the relationships. Respondents' perceived levels of skill and levels of interest to learn more about teaching activities were correlated to determine if significant associations were evident for COE and CALS faculty members. Two specific teaching activities, case studies and developing a teaching portfolio, produced low positive relationships (r = .20 and .19 respectively); two more activities, designing/revising a course and preparing effective lesson plans, produced low negative relationships (r = -.24 and -.23 respectively).

In similar fashion, respondents' perceived levels of skill and their interest to learn more about educational technologies were correlated to determine if significant associations existed. Two educational technologies, interactive technology based instruction and videoconferencing technology, produced low positive relationships (r = .19 and .22 respectively); three more technologies, computer projection systems, presentation graphics, and document or image scanners, produced low negative relationships (r = -.21, -.24 and -.25 respectively). To complete the final objective, selected teaching-related demographics were correlated with faculty members' levels of interest in learning more about teaching activities and educational technologies. Due to the nature of the data in this study, Spearman correlation coefficients were calculated for all items. Twenty-nine significant relationships (both positive and negative) resulted in COE and CALS faculty members' desire to learn more about teaching activities and educational technologies and their teaching related demographics. For practical purposes, only the relationships of moderate magnitude or greater were considered for further examination. A positive correlation (r = .30) resulted between having received formal instruction in pedagogy and interest to learn more about interactive technology based instruction.

Summary

Mississippi State University teaching faculties from the College of Agriculture and Life Sciences and the College of Education provided the responses for this study. The average respondents' teaching experience was just under 14 years. COE and CALS faculty members held teaching assignments of 51% (SD = 30.66) of their time annually for teaching about

eight credit hours of undergraduate instruction, and about six credit hours of graduate instruction. Respondents were interested only moderately in learning more about teaching activities and educational technologies, despite the variability in assigned teaching loads.

Teaching Activities

Faculty members rated their perceived skill levels for 20 teaching activity items. Overall, respondents from both colleges rated their skill levels in traditional teaching activities as good. This was true also when comparing the two colleges independently. In terms of current skill level, teaching methods such as preparing syllabi, lecture, demonstration, and hands-on activities consistently were rated high for each college's faculties. On the other hand, items such as developing a teaching portfolio, faculty peer observation, case studies, and discovery learning activities consistently were rated low for both faculties. It is possible that these items reflect less traditional areas for educators who have been teaching for more than 10 years. These findings are in agreement with the results found by Wardlow and Johnson (1999) for agriculture faculties at the University of Arkansas.

Both studies revealed faculties' perceived strengths in the traditional teaching methods, while underscoring the need to further develop newer teaching methodologies that provide for greater student participation in the learning process. If faculty members value the learning process and the relevance of student interaction in that process, then COE and CALS faculties would be wise to further explore student-centered instructional methods. As noted by Somekh and Davis (1997), traditional classroom teaching methods have always created a dilemma for conscientious instructors; what is possible for the group may not be ideal for the individual. It is unlikely that all students have identical learning needs or preferred learning styles.

Among the skills listed on the survey, education faculty members rated all teaching activity skill areas as good, and one area as excellent. COE faculties perceived their greatest skill was in motivating students and creating interest in the classroom. The converse shows their weakest perceived skill area was in developing a teaching portfolio. Agriculture and Life Science faculties perceived their highest skill level was in using the lecture method. CALS faculties rated their skills as fair for developing a teaching portfolio. These results may suggest that both faculty groups request in-service workshops for developing teaching portfolios, if this is a needed skill area for university faculties. Further study might determine whether other faculties value the teaching portfolio as a realistic portrayal of an educator's skills and abilities.

When faculties rated their level of interest to learn more about teaching activities, one expected outcome occurred. The expected outcome was that the highest perceived skill level, preparing course syllabi, also received the lowest level of interest for learning more. Both faculties were interested only moderately in learning more about all 20 teaching activities. A positive finding was that CALS respondents were interested most in learning more about motivating students/creating interest, which demonstrates the need for engaging students in the learning process. Wardlow and Johnson (1999) found similar results for University of Arkansas faculties, with the exception that MSU faculties were not as interested in learning more about the lecture and demonstration methods.

Significant relationships, although low in magnitude, occurred between faculties' perceived skill levels and their levels of interest to learn more about case studies and developing a teaching portfolio. As respondents' perceived skill levels for these two items increased, so too did their desire to learn more about these two teaching methods. The converse held true for two additional teaching methods, designing/revising a course and preparing effective lesson plans. As respondents' perceived skill levels increased or decreased, their desire to learn more about these two items increased or decreased in the opposite direction.

Educational Technologies

Respondents' perceived level of skill in using educational technologies was considerably lower than their level of skill in teaching activities. Faculty members rated themselves most proficient in the use of older technologies such as PowerPoint, projection systems, and still digital cameras. Faculties' lowest perceived skill levels resulted in newer and somewhat emerging technologies such as teaching via distance education, interactive video and Internet discussion groups. Data from this study and the study by Wardlow and Johnson (1999) indicate that faculties from both universities had a high level of interest to learn more about all these technologies, not just the emerging technologies.

CALS and COE faculty members' rated interactive technology based instruction highest, for learning more about its use in education. Computer-assisted instruction can be designed to accommodate individual learner diversities by combining a mix of

text and media, and can be accessed by learners individually or in small groups. These materials are more student-centered than teacher-centered, and may better meet the learning needs of the individual (Brooks, 1997). Faculties' desire to learn more about interactive technology based instruction shows promise for promoting more student-centered instruction at the university level.

An interesting fact occurred when respondents' rated their level of interest in learning more about educational technologies. Faculty members' interest level was low for learning to teach via interactive video, although they rated this item as their weakest skill area. This result may indicate one of three possibilities; respondents considered themselves unskilled in using interactive video and did not want to improve upon it, they considered themselves unskilled in using interactive video and did not perceive it as a valuable educational technology, or the question may have been misleading to the respondents. Further study of university faculty members' skills on a longitudinal basis may provide clarity in understanding this skill area.

COE and CALS faculty members' desire to learn more about teaching activities and educational technologies were correlated with their teaching-related demographics. Individuals who had received formal training in pedagogy held a significantly stronger desire to learn more about interactive technology based instruction, than did respondents without formalized training in pedagogy. Although one might argue this is an expected result without consequence, these researchers believe it alone distinguishes the need for further study and professional development activities in the use of educational technologies. To dismiss this finding might promulgate the use of educational technologies in lieu of sound instructional design. All educators would be well advised to heed the warning of Bernstein (1998), who found that many computer-assisted instructional materials (CAI) are developed by technical professionals who have the critical technical skills necessary for successful implementation, but lack knowledge of educational principles. The resulting CAI materials are technology-driven rather than pedagogy-driven. Educational programming devoid of educational principles cannot withstand the test of time, regardless of the technology glitz associated with it.

Respondents in this study perceived themselves to be competent and reasonably proficient in all teaching activities. A concern may arise from the perceived deficiencies found in the less traditional teaching methods. A real concern was found in the use of educational technologies. Most respondents indicated in their written responses that they had not received formal instruction in using these technologies, and have had to learn use them through a trial-and-error approach. While some instructional workshops in educational technologies are currently in place at MSU, many respondents noted that the classes were to short to learn adequately how to use these technologies in the classroom. Other concern expressed was that university administrators supported integrating technology into the classroom, but very little equipment is made available for faculty use.

Based upon the findings of this research, it is apparent that faculties are interested in the integration and use of educational technology, but a lack of administrative support and/or equipment makes it difficult to use technology in the classroom. Compounding this scenario is that most faculty members have not received formal training in the use of educational technologies. Future research may discover the barriers to attending and maintaining a professional development program to learn about current teaching methods and educational technologies.

Future workshops should be developed to address specific teaching methodologies and educational technology use in the classroom, especially distance learning activities, for those faculty members who perceived their skill levels as lacking or low. Specifically, faculty members were most interested in learning how to motivate students, encourage critical thinking, use interactive technology based instruction, develop Internet course web pages, and incorporate computer multimedia materials in the teaching and learning process.

The results of this study show that certain faculty members in the colleges of agriculture and education at Mississippi State University have much to learn before they can answer Clinton's National Call to Action for turning the digital divide into a digital opportunity. To create knowledgeable IT literate students, it is of the utmost importance for inspiring teachers and inspiring teacher educators to become IT literate too.

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