Post-Secondary Agricultural Teaching Faculty Need for a Methodologies Resource Sharing Web Site

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Abstract

The objective of this study was to determine the need for a centralized teaching resource that fosters faculty interactions and resource sharing among agricultural faculty. As part of a NACTA-funded project, 808 professors and administrators representing land-grant, public, and private universities as well as state and junior colleges with active standing in NACTA were administered a post-secondary agricultural instructors resource assessment instrument. The majority of participants (74%) worked at a land-grant institution and had at least a half-time teaching appointment (61.5%). Findings indicated participants seek information on classroom management (72%) and teaching methods (81.6%) from colleagues at their university, while they seek information on educational resources such as videos and graphics (76.3%), and slides and/or lectures (57.9%) from the Internet. The majority of participants indicated that convenience and trust in the source were important factors in choosing sources of information regarding classroom management, teaching methods, learning styles, and educational resources. Almost half (46%) sought educational videos or graphics most often. About 40% indicated their teaching resource needs were being met; yet, a majority of participants (72.7%) are interested in a teaching resource website containing resources from agricultural faculty across the U.S.

Introduction

Most faculty face an ongoing challenge of multiple competing demands of teaching, research, and outreach (Jepson et al., 2005). In the 18th and 19th centuries, the most prized role of faculty was teaching, but since then there has been a shift toward a research-based focus despite student perceptions that teaching is the most important job of a faculty member (Kelsey et al., 2002; Wiedmer, 1994). Today, faculty must make difficult choices between professional priorities and institutional missions, which require faculty to devote time and resources toward teaching instruction (Boyer, 1990).

It is challenging and time-consuming to learn and try new instructional methods and to keep track of an exponentially increasing number of available options that may potentially enhance teaching and learning (Jepson et al., 2005). College of Agriculture faculty have adopted Internet technology to help with the information retrieval (Dahlgran, 2003); however, Lieberman and Pointer-Mace (2010) reported educators have yet to capture the potential of the Internet and multimedia tools for professional learning. Molnar and Fields (2004) reported the full potential of this technology is centered on the sharing of instructional materials as well as the availability of online source materials (e.g., images, presentations, and diagrams) to supplement lecture materials. Currently, not all teaching resources are readily available as Molnar and Fields (2004) explained some universities and faculty have moved to protect access to course material by limiting access to course websites, while others take a community of scholarship approach and make their course materials freely available over the Internet. Additionally, instructors can find the Internet to be daunting and burdensome, and thus face dilemmas about how to stay current within their discipline, subject matter, and new teaching styles (Molnar and Fields, 2004).

To address the shortcomings of currently available resources, most institutions of higher education have instructional technology resource centers and organize faculty workshops, which allows faculty to share pedagogical and technical aspects of teaching with colleagues within and outside of their own fields (Jepson et al., 2005). Such practices encourage faculty to learn from one another and to adopt interactive modes of instruction, and promote greater intellectual community and vitality among faculty (Austin and Baldwin, 1991). Other opportunities for faculty development include participation in organizations such as the North American Colleges and Teachers of Agriculture (NACTA) organization, which provides a public forum for exhibiting teaching and learning scholarship (Rudd, 2005). Little is known, however, if faculty actively seek teaching resources and which resources they commonly seek.

The objective of this study was to determine the need for a centralized teaching resource that fosters faculty interactions and resource sharing among agricultural faculty. Specific research questions were developed to determine: 1) If NACTA members seek information on selected teaching resources from

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selected sources; and 2) Where NACTA members seek information on selected resources.

Methods

A web-based survey instrument was created using surveymonkey.com by the researchers in order to meet the specific needs of this study. A panel of experts reviewed the instrument for face and content validity. Panelists were selected based on their expertise in agricultural education, agricultural bench sciences (i.e. plant and soil sciences, animal science, etc.) and their participation in the North American Colleges and Teachers of Agriculture (NACTA) organization. The panel provided helpful suggestions that were made to improve the instrument's usability and functionality. In addition, a university institutional review board (IRB) approved the instrument and supporting materials.

The instrument consisted of multiple choice and fill-in-the blank responses related to systems teaching and learning resource use and needs of post-secondary agricultural faculty as well as demographic information. No scaled items were used in the instrument. Demographic information included questions related to faculty such as years of experience, course load, and gender, as well as questions related to their institutions such as instructional environment and type of institution (i.e. land-grant, private, junior college). The instrument measured usefulness and use of common pedagogical resources. Pedagogical resources selected for analysis were: classroom management techniques, methods related to teaching, learning styles, and educational resources such as videos/graphics and PowerPoint slides and/or lectures. Educational resources were divided into "support" materials and "lecture" materials. Videos and/or graphics were defined as "support" materials and PowerPoint presentations and/or lectures were defined as "lecture" materials. Unless a question specified, participants were able to check all responses that were relevant to their use or needs.

The instrument was administered to post-secondary agricultural faculty who are members of NACTA. With permission from the organization, email addresses from the membership were used to distribute an online survey instrument to NACTA members. Through member records, 815 email addresses were used to distribute the survey instrument. According to the June 2009 Annual report (NACTA, 2009), NACTA has about 900 members. Seven email addresses were unusable, thus the usable sample size was n=808.

Collection procedures followed standard email survey protocol (Schaefer and Dillman, 1998). Two email contacts were made during the collection time. The first contact was an introductory email informing the subject of the study and confidentially of the responses. In addition, a personalized link to the instrument was included as well as a link to "opt out" of the study. The first email was sent December 27, 2009. Another email was sent on January 11, 2010, to subjects who had not responded or had not opted out of the study. Electronic collection ended January 25, 2010. To increase response rate, a student assistant was employed to call non-participants. Phone interviews were administered for approximately four weeks before data collection procedures ceased. Overall, 304 NACTA members participated in the study for a response rate of 37.6%. There were no significant differences in early and late responses (Lindner and Wingenbach, 2002).

Frequencies were computed using SPSS 16 for Windows. Instrument reliability was analyzed by visually checking for skewness. Based on visual analysis, the data set contained no outliers and all cases were included. Missing data was removed from analysis, thus frequencies and percentages were calculated based on responses only.

Results and Discussion

The majority of participants (74%) indicated they work for a land-grant university. Almost 90% of participants work for a publicly-funded university whereas 4.3% work at a private university. Only seven participants indicated they worked at a junior college. It is not surprising that this number was small, as only approximately 4% of the NACTA membership comes from two-year institutions. (M. Parker, personal communication, August 17, 2010). Teaching appointment percentages were relatively distributed. The most frequently reported professional title was Professor (30.9%), suggesting there are a relatively large number of NACTA members who are tenured or promoted during their careers as educators. The second most frequently reported professional title was Assistant Professor (26%), indicating there are many members who would likely benefit from the expertise of more experienced members.

Most participants (84.3%) had teaching experience before starting their current position. As part of a national study conducted on faculty in Colleges of Agriculture, Simerly (1989) found that three-fourths of the faculty surveyed had teaching experience as graduate students. However, outside of graduate teaching assistantships, most faculty have had little or no practical experience in developing and delivering instruction (Davis and Beyrouty, 1995; Adams, 2002; Austin, 2002; Pals, 1988; and Wardlow and Johnson, 1999). While previous experience has the potential to provide excellent teaching experience, the experience obtained is quite variable from one assistantship to the next.

About 20% of participants teach on a 0 to 25% teaching appointment and about one-third indicated they teach on a 75 to 100% teaching appointment. One hundred seventy-eight participants indicated they hold at least a 50% teaching appointment at their institutions. The majority of participants

(70.6%) indicated their instructional contact with students is face to face or a combination of face to face and distance contact (28.7%). About three-fourths (77%) teach advanced undergraduate courses and about half (50.3%) teach at least one graduate course. Most participants indicated they teach classes with enrollments between 0 and 25 students (63.2%) or 26 to 50 students (46.1%) with the instructional environment of their classes to be mostly lecture (55.6%), laboratory (26.7%), or a combination of lecture and lab (58.2%).

Instructors often use videos or graphics to add interest to their classroom activities, regardless of the instructional environment. This is supported by data presented in Table 1. Videos and graphics were sought by more participants than any other type of pedagogical information. Only two other types of information were reported as most sought by more than 5% of participants, teaching methods and slides or lectures. Rocca (2010) found that faculty had the lowest perceived level of instructional skills in alternative teaching methods, and learning about alternative teaching methods was ranked as the highest professional development priority areas for faculty at the College of Agricultural Sciences and Technology at California State University. Additionally, Pals (1988) reported that faculty most frequently cited variety in classroom teaching methods as their greatest instructional need.

A majority of participants indicated they seek information about classroom management and teaching methods from colleagues at their institutions (Table 2). In addition, over half seek information on teaching methods from colleagues from other institutions and printed scholarly publications. More participants seek educational resources such as videos and graphics and PowerPoint slides or lectures from the Internet than any other source. However, about half also seek these educational resources from colleagues at their universities.

Participants indicated they seek information about pedagogical resources from colleagues at their institution because of convenience and trust (Table 3). About half of the participants sought information on teaching resources from colleagues from their institution because of the similarities in curriculum. Over half of the participants sought information from colleagues at different institutions because of similarities in curriculum. Most participants sought pedagogical resource information from the Internet because of its convenience. However, few participants indicated they sought information from the Internet because of trust in the source. Even though many of the participants in the present study indicated that they seek certain information from colleagues at their own institution, it is not uncommon for colleagues to be unaware of the novel pedagogical practices being used at their own institutions (Dardig 1997; Rups, 1999). However, there may be a preference for acquiring teaching advice from known colleagues, as Whaley and Wickler (1992) reported that 91% of faculty at their institution seek advice from fellow faculty members, while only 66% chose to read about effective teaching.

Table 1. Information Most Sought by Post-Secondary Agricultural Faculty from any Source (N=302)

Topic	n	%
Classroom Management	10	3.3
Teaching Methods	82	27.2
Learning Styles	4	1.3
Educational Resources - Videos or graphics	139	46
Educational Resources - PowerPoint slides or lectures	67	22.2

Table 2. Information Sources Sought by Post-Secondary Agricultural Faculty on Selected Pedagogical Topics (N=304)*

	Colleagues - same institution	Colleagues - different institution	Journals or scholarly publications - printed	Journals or scholarly publications - on-line	The Internet	Does not seek information
Topics	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Classroom Management	219 (72.0)	108 (35.5)	90 (29.6)	84 (27.6)	69 (22.7)	58 (19.1)
Teaching Methods	248 (81.6)	173 (56.9)	182 (59.9)	150 (49.3)	110 (36.2)	6 (2.0)
Learning Styles	153 (50.2)	92 (30.4)	161 (53.0)	138 (45.4)	86 (28.3)	29 (9.5)
Educational Resources - Videos or graphics	149 (49.0)	120 (39.5)	82 (27.0)	102 (33.6)	232 (76.3)	23 (7.6)
Educational Resources - PowerPoint slides or lectures	165 (54.4)	129 (42.4)	53 (17.4)	70 (23.0)	176 (57.9)	51 (16.8)

*Participants were asked to check all that apply.

Table 3. Why Post-Secondary Agricultural Faculty Seek Pedagogical Information from Sources (N=304)*

Source	Reason(s) for seeking information from sources				
	Convenience n (%)	Trust in the source n (%)	Completeness of information n (%)	Similar Curricula n (%)	Does not seek information n (%)
Colleagues - same institution	240 (78.9)	239 (78.6)	73 (24.0)	127 (41.8)	11 (3.6)
Colleagues - different institution	65 (21.4)	222 (73.0)	72 (23.7)	175 (57.6)	28 (9.2)
Journals or scholarly publications - printed	60 (19.7)	206 (67.8)	145 (47.7)	29 (9.5)	33 (10.9)
Journals or scholarly publications - on-line	204 (67.1)	108 (35.5)	89 (29.3)	40 (13.2)	33 (10.9)
The Internet	265 (87.2)	17 (3.6)	34 (11.2)	33 (10.9)	17 (3.6)

*Participants were asked to check all that apply.

As Table 4 indicates, participants sought information on selected pedagogical topics with varied frequency. About one-quarter sought support-type educational materials (videos and/or graphics) weekly. In addition, about half sought information on learning styles about once a year. Participants indicated educational resources such as graphics or lecture slides were sought most. A little over one-quarter of participants sought information on teaching resources most, whereas very few participants sought information on classroom management most. The easiest information for participants to obtain was videos and/or graphics with 145 participants selecting this type of educational resources. PowerPoint slides and/or lectures were the next easiest to obtain with 69 selecting this response. Information on learning styles and classroom management were the hardest information for participants to obtain.

These results, when considered together with information about what information is most frequently sought, suggest that information about teaching methods would be a key component of a teaching resources web site. Videos and graphics would also be an important component of the side, as this would provide a convenient and trustworthy source of learning objects frequently sought by agricultural faculty. Additionally, a community of practice section, similar to the networks currently being implemented through extension could be included to provide a forum for solving problems and sharing ideas in near real-time (Sobrero and Craycraft, 2008).

Over half of the participants indicated that their pedagogical resource needs are not being met or they are unsure if they are being met (Table 5). However, 42.2% did indicate they are meeting their current resource needs. In addition, participants were interested in a website that housed pedagogical resources for agricultural teaching faculty. Almost three-fourths of participants were interested in a website of pedagogical resources, whereas only 13 were not (Table 6). This interest in an opportunity to share resources and experiences with colleagues was also reported by Jepson et al., (2005) who found that the most beneficial component of a 14-institution animal science consortium was the exposure to current practices of other professionals. The high interest in the proposed website may also be related to the relatively large proportion of Assistant Professors in the organization. Rocca (2010) reported that most new faculty have a strong need for professional development opportunities by which their teaching effectiveness can be improved.

Table 4. How Often Post-Secondary Agricultural Faculty Seek Information from any Source on Selected Topics (N=304)

Topics	Daily n (%)	Weekly n (%)	Monthly n (%)	Yearly n (%)	Rarely n (%)	Not at all n (%)
Classroom Management	1 (0.3)	12 (3.9)	68 (22.4)	90 (29.6)	94 (30.9)	39 (12.8)
Teaching Methods	1 (0.3)	27 (8.9)	107 (35.2)	126 (41.4)	38 (12.5)	5 (1.6)
Learning Styles	0 (0.0)	5 (1.7)	57 (18.8)	147 (48.5)	81 (26.7)	13 (4.3)
Educational Resources - Videos or graphics	13 (4.3)	80 (26.4)	96 (31.7)	66 (21.8)	33 (10.9)	15 (5.0)
Educational Resources - PowerPoint slides or lectures	12 (3.9)	54 (17.8)	94 (30.9)	63 (20.7)	41 (13.5)	40 (13.2)

In conclusion, the results of the present study indicate that a website devoted to sharing pedagogical strategies and resources is needed. Most participants regularly seek information about teaching resources, but fewer than half of the

Table 5. Post-Secondary Agricultural Faculty Current Pedagogical Resource Needs (N=282)

Are pedagogical resource(s) needs being met?	*n*	%
Yes	119	42.2
No	64	22.7
Not sure	99	35.1

Table 6. Post-Secondary Agricultural Faculty Interest in a Systems Teaching and Learning Resources Website (N=286)

Interested in a teaching resources website?	*n*	%
Yes	221	72.7
No	13	4.3
Not sure	51	16.8

participants said their teaching information needs are being met. This site would likely be used by NACTA members, as 73% indicated interest in a resource-sharing website. This site would represent a source that is both reliable and convenient, which are two characteristics that most participants said are important when selecting pedagogical resources. In addition, the Internet was cited as the most convenient but least trusted source. Perhaps an Internet resource that compiled information from trusted sources would be both beneficial and utilized by NACTA members.

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