AAAE Members' Computer Technology Assessment

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Abstract

The purpose was to identify AAAE members' computer anxiety levels, attitudes toward computers and perceptions of Web-based survey methods. A total of 389 AAAE members participated in this experimental study. Respondents were assigned randomly to Web- and paper-based data collection method subgroups. AAAE members perceived that they did not suffer from computer anxiety, held positive attitudes toward computers and perceived that Web-based survey methods provide valid, reliable, and secure methods of collecting data. Significant differences showed that Web-based respondents held significantly more positive attitudes for "computers eliminating tedious work and improving higher order thinking skills" and significantly stronger perceptions that Web-based surveys "are as reliable as paper surveys and researchers could feel confident in reporting data obtained in Web-based surveys." Females held significantly different attitudes toward computers (less favorable) and perceptions of Web-based survey methods (more favorable) than did males. Full professors had significantly higher computer anxiety levels, less favorable attitudes toward computers, and a more limited view of the usefulness of Web-based survey methods than did all other respondents. AAAE members are encouraged to used Web-based survey methods to collect research data and participate in computer workshops offered by their universities' faculty development programs.

Introduction

The anxieties caused by software glitches, computer breakdowns, lost data or files, and program errors have besieged most university students at some point during their academic careers. In the same manner, it is fair to state that similar anxieties have been experienced by agricultural education faculty members. Such anxious-filled moments may hamper university-level educators' enjoyment of and benefit from utilizing the true power of computing in their professional tasks.

If agricultural educators are experiencing computer-related anxieties, can we deduce that those same educators hold unfavorable attitudes toward computers or a disdain for the Internet? Since the mid 1990s, the Internet has grown into a multi-billion dollar industry that is present in many American homes. As the role of the Internet has increased in daily American life, it also has increased the role it plays in today's educational system. Over 90% of schools now have some type of access to the Internet, someplace in their building (Becker, 1999). The impact of the Internet in higher education is even greater (Gromov, 1995). Higher education institutions have been connected to the Internet from its start; it is only natural that educators and researchers would find new uses for the Internet. The latest is the use of the World Wide Web as a data collection method in social science research (Ladner, Wingenbach, & Raven, 2002).

Theoretical Framework

Much research has been conducted on computer usage in post-secondary agricultural education programs during the past 10 years. These studies have focused on students' attitudes towards computers, preferred learning styles, and levels of computer anxiety (Marrison & Frick, 1994; Raven, Newman, & Day, 1997; Day, Raven, & Newman, 1998; Wingenbach, 2000) and academic achievement, teaching method, and learning styles (Sexton, Raven, & Newman, 1998; Sexton, Newman, & Raven, 1998). However, studies concentrating on university faculty members' computer anxieties and/or attitudes toward computers are absent from the literature base in agricultural education.

In researching the educational technology skills and desires to learn additional skills in these technologies, Ladner and Wingenbach (2001) found that Mississippi State University faculty from the Colleges of Education and Agriculture and Life Science rated their skills higher in the traditional methods of instruction than they did in using new and emerging educational technologies. However, a strong level of interest was apparent in their desire to learn more about educational technologies. Faculty members from both colleges reported being discouraged from learning more about educational technologies because of a lack of administrative support and/or equipment. Compounding the problem was that most faculty members had not received formal training in the use of educational technologies in the classroom. Although specific anxieties were not measured in this study, respondents took opportunities to record their anxieties throughout the data collection instrument. Specifically, one respondent noted,

> *I care very much about my teaching and the quality of my teaching. I am frustrated by the "double speak" I hear from the upper administration. We get messages like we teach too much. In the next breath we are filling out surveys*

such as this and documenting retention of students while being given poor facilities, poor equipment, and no budget.

Future use of computer and information technologies is certain to bring about changes in education. The use of educational technologies such as computers and telecommunications offers great potential for improving the delivery of already high quality instructional programs (McCaslin & Torres, 1992; Day, Raven, & Newman, 1998). As noted in other land grant university studies (Kirby, Waldvogel, & Overton, 1998; Wardlow & Johnson, 1999), university faculty 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 assumed that interest in information technology alone could transform teachers into information technology users at all levels. If this is true, then what impact does computer anxiety or attitude toward computers have on university faculty members' computer and information technology uses in the classroom? Does computer anxiety or attitude toward computers affect an agricultural educator's perception of using the Internet as a research data collection tool?

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 classroom. How do we ensure that future agriculture teachers will be prepared to use computer and information technologies in the classroom if teacher educators are not fully utilizing those same technologies because of anxiety and/or undesirable attitudes toward technology? What are the American Association for Agricultural Education (AAAE) members' computer anxiety levels, attitudes toward computers and perceptions of using the Internet as a research data collection tool? This study established evidence to support answers to these questions.

Purpose and Objectives

The purpose of this descriptive study was to identify AAAE members' computer anxiety levels, attitudes toward computers and perceptions of Web-based survey methods. The following research questions guided this study.

1. What are AAAE members' perceived levels of computer anxiety, and are there differences in the perceived levels when compared by survey data collection method subgroups?
2. What are AAAE members' attitudes toward computers, and are there differences in their attitudes when compared by survey data collection method subgroups?
3. What are AAAE members' perceptions of Web-based survey methods, and are there differences in their perceptions when compared by survey data collection method subgroups?
4. Are there differences in AAAE members' computer anxiety scores, attitudes toward computers, or perceptions of Web-based survey methods when compared by selected demographics?

Procedures

A control group post-test only design was used in this study (Campbell & Stanley, 1963). The study employed Web-based and traditional paper-based survey data collection methods. This

true experimental design allowed random assignments of individuals to treatments ensuring treatment groups were equivalent (Borg & Gall, 1989).

The population for this census study consisted of dues-paying members of the AAAE. The AAAE member database was obtained in February 2001 after all dues had been processed. A total of 424 subjects were selected from the database, using their valid email addresses. Subjects were divided randomly into two groups. After the first mailing, 35 subjects (21 in the Web-based group and 14 in the traditional group) were found to not be AAAE members, reducing the population to 389. Data collection began was completed in 35 days. The first reminder was sent 14 days after collection began; a second reminder was sent in the third week of collection. Upon conclusion of data collection, 98 (51.3%) Web-based group and 159 (80.3%) traditional group responses were collected for a total of 257 (66.1%).

The instrument used was developed by Chou (1997) and modified by Wingenbach (2000). The research instrument contained four sections measuring: 1) computer anxiety, 2) attitudes toward computers, 3) perceptions of using Web-based surveys, and 4) demographics. The first section contained a 12-item, four-point, Likert scale measuring responses to computer anxiety. Responses could range from Strongly Disagree (1) to Strongly Agree (4). Chou reported a Cronbach's alpha coefficient of .83 and Wingenbach achieved alpha coefficients of .86 and .89 in two rounds of testing. Cronbach's alpha was .89 for this study.

Section two also contained a Likert scale, but consisted of 26 items that measured attitudes toward computers. Chou's study had an alpha of .94 in this section; Wingenbach's alphas were .92 in the first test and .90 in the second test. The alpha was .90 for this study. The third section was developed by the researchers and was used to measure respondents' perceptions of Web-based surveying. This section contained 12 items based on a Likert scale similar to the ones used in the first two sections. Perceptions of Web-based surveying items were derived from the CASRO Web site (2000). This section also was modeled after the Attitudes toward Electronic Exams subscale developed by Wingenbach (2000). Wingenbach achieved Cronbach's coefficients of .78 and .82 in pilot tests, and a final alpha of .84 for the subscale. In this study, a Cronbach's alpha of .85 was achieved.

Respondents in the experimental group were contacted via email and regular mail at the beginning of the study. A short cover letter similar to that of the paper group was mailed to respondents to ensure that respondents knew the survey was an academic endeavor and not spam email. The email contained a link that directed respondents to a Web site on the Mississippi State University Agricultural Information Science and Education (AISE) server. When respondents accessed the AISE server, they were prompted for a password (code number). After submitting the code number, respondents could gain entry to the survey. The appearance of the Web-based survey was exactly the same as the paper-based survey. Once the survey had been completed, respondents submitted it, saving the data into a secure database. Follow-up emails were sent on the 14th and 23rd day of collection.

Those selected for the traditional paper-based group were sent an initial mailing that consisted of a cover letter, survey instrument, and a self-addressed stamped return envelope. Non-respondents were sent follow-up post cards 14 days after the initial mailing. Those still not

responding were mailed an additional cover letter, survey instrument, and self-addressed stamped return envelope 23 days after the initial mailing.

To measure for non-response error, researchers compared early to late respondents (responses received before and after the third mailing). ANOVA was conducted on the responses and showed that for each subscale there were no differences between the two groups; therefore the results may be generalized to the entire group of respondents. Descriptive statistics were derived for each section and the instrument as a whole. Demographic data were analyzed using percentages and frequencies. Alpha levels were set at .10 *a priori* due to the exploratory nature of this study.

Findings

Among the respondents were 190 males and 40 females. Males accounted for 73.9% of the respondents. It was noted that 10.5% of the respondents (n = 27) chose not to respond to the gender question. Data showed 81.6% of the respondents in the Web-based group and 69.2% in the paper-based survey group were male (Table 1). Ages ranged from under 29 to over 60 years of age. The 40 - 49 age range contained 35.0% (n = 90) of the respondents, closely followed by the 50 - 59 year age group with 30.7% (n = 79).

AAAE respondents were described on the basis of teaching appointment (Table 1). Full professors made up the largest percentage with 37.7% of the total (n = 97). The "Other" category accounted for 40 respondents (15.6%). Persons in the category of "Other" could be professor emeriti, visiting professors, staff, graduate students, and instructors. Years of teaching experience at the post-secondary level are shown in Table 1. A large percentage of the population (44.4%) had taught for 16 or more years. Those with the least experience recorded the second highest percentage with 41 respondents (16.0%) having taught from one to three years.

Respondents' level of experience with Internet protocols is illustrated in Table 1. When referring to Internet technologies, questions addressed use of the World Wide Web, email, search engines, ftp, and telnet. Internet technology experience ranging from 4 to 15 years was possessed by 59% of the respondents. The number of years respondents have been using computer technologies is shown in Table 1. Computer technologies referred to a general working knowledge of computers. The survey instrument used descriptors such as Word, PowerPoint, Excel, and Solitaire. The largest percentage (35%) of respondents had 16 or more years of computer technologies experience and the smallest percentage (1.9%) had one to three years experience.

Table 1

Demographic Frequencies of AAAE Respondents (N = 257)

	Paper		Web		Total	
Gender	*f*	%	*f*	%	*f*	%
Male	110	69.2	80	81.6	190	73.9
Female	22	13.8	18	18.4	40	15.6
No Response	27	17.0	0	0.0	27	10.5
Age						
29 and under	4	2.5	6	6.1	10	3.9
30-39	25	15.7	21	21.4	46	17.9
40-49	64	40.3	26	26.5	90	35.0
50-59	44	27.7	35	35.8	79	30.7
60 and over	21	13.2	10	10.2	31	12.1
Position						
Assistant Professor	38	23.9	21	21.4	59	23.0
Associate Professor	33	20.8	24	24.5	57	22.2
Full Professor	62	39.0	35	35.8	97	37.6
Other	25	58.1	18	41.9	43	16.7
Years Taught at the Post-Secondary Level						
1-3	22	13.8	19	19.4	41	16.0
4-6	20	12.6	8	8.2	28	10.9
7-9	9	5.7	11	11.2	20	7.8
10-12	19	12.0	9	9.2	28	10.9
13-15	17	10.7	6	6.1	23	8.9
16+	70	43.9	44	44.9	114	44.3
Internet Technology Experience (years)						
1-3	3	1.2	5	5.1	8	3.1
4-6	47	18.4	20	20.4	67	26.1
7-9	46	18.0	31	31.8	77	29.9
10-12	35	13.7	22	22.4	57	22.2
13-15	15	5.9	13	13.2	28	10.9
16+	13	5.1	6	6.1	19	7.4
Computer Technology Experience (years)						
1-3	4	2.5	1	1.0	5	1.9
4-6	12	7.5	5	5.1	17	6.6
7-9	17	10.7	11	11.2	28	10.9
10-12	31	19.5	27	27.6	58	22.6
13-15	38	23.9	21	21.4	59	23.0
16+	57	35.9	33	33.7	90	35.0

The first research question sought to determine AAAE members' perceived levels of computer anxiety, and to find out if differences existed in those levels when compared by survey data collection method sub-groups. As shown in Table 2, AAAE respondents perceived that they did not suffer from computer anxiety, regardless of the survey data collection method sub-group

to which they were assigned. Additionally, further analyses of the data revealed no other statistical differences between the sub-groups.

Table 2

Perceived Levels of Computer Anxiety by Data Collection Subgroups (N = 257)

	Paper (n = 159)		Web (n = 98)		Total (N = 257)		
Statements	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
I am confident using computers.	3.40	.63	3.35	.78	3.38	.69	.31
I understand the technical aspects of computers.	3.04	.77	3.00	.80	3.02	.78	.14
I am secure about my ability to interpret a computer manual.	2.96	.75	3.02	.83	2.98	.78	.42
I am confident teaching my peers about new software programs.	2.68	.84	2.85	.93	2.74	.88	2.45
I like walking into a room filled with computers.	2.61	.78	2.54	.79	2.59	.78	.47
I enjoy discussing computer programs with my colleagues.	2.61	.71	2.55	.82	2.59	.75	.37
Computers are too prominent in our society.	1.70	.67	1.82	.72	1.75	.69	2.01
It scares me to think that I could cause the computer to destroy a large amount of information by hitting the wrong key.	1.62	.74	1.66	.84	1.64	.77	.17
Working with computers makes me feel "cut off" from other people.	1.38	.58	1.42	.71	1.40	.63	.21
Computers make me feel uneasy and confused.	1.27	.50	1.25	.46	1.26	.48	.11
I dislike working with computers that are smarter than I am.	1.24	.51	1.24	.59	1.24	.54	.00
I have avoided computers because they are unfamiliar to me.	1.25	.57	1.21	.52	1.23	.55	.21
I hesitate to use a computer for fear of making mistakes that I cannot correct.	1.24	.50	1.21	.50	1.23	.50	.15
I am afraid that if I use computers, I will become dependent upon them and lose some of my reasoning ability.	1.24	.51	1.21	.50	1.23	.50	.25
I am hostile toward computers.	1.24	.49	1.22	.46	1.23	.48	.15

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

The second question requested AAAE members' attitudes toward computers, and if differences existed in their attitudes when compared by survey method subgroups. Table 3 illustrates the descriptive statistics in answering this question. In general, AAAE respondents held positive attitudes toward using computer technologies. However, additional analyses revealed significant differences between subgroups for the statement, "*Computers can eliminate a lot of tedious work for people*," and "*Computers can improve learning of higher order thinking skills*." Respondents in the Web-based group held significantly more positive attitudes than did respondents in the paper-based group for both statements.

Table 3

Attitudes toward Computers by Data Collection Subgroups (N = 257)

	Paper (n = 159)		Web (n = 98)		Total (N = 257)		
Statements	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
I am comfortable using computers.	3.53	.58	3.48	.58	3.51	.58	.38
I could learn to use a new type of software I hadn't seen before.	3.38	.53	3.38	.55	3.38	.53	.00
Computers can eliminate a lot of tedious work for people.	3.31	.66	3.47	.61	3.37	.64	3.74*
I am confident learning terms relating to computer software (cut, copy, open, merge, etc.).	3.31	.59	3.34	.63	3.32	.60	.20
I am confident learning terms relating to computer hardware (CPU, disk, drive, processor, etc.).	3.21	.68	3.16	.73	3.19	.70	.26
Generally, I feel okay about trying a new computer software program.	3.13	.56	3.21	.54	3.16	.56	1.48
Educators should use computers for instruction.	3.12	.61	3.22	.55	3.16	.59	1.63
I think working with computers is enjoyable.	3.08	.62	3.07	.53	3.08	.59	.02
Teaching with a computer adds something to my regular instruction.	3.04	.65	3.09	.60	3.06	.63	.47
Computers improve education.	3.01	.55	3.02	.66	3.02	.59	.01
Using computers makes my job very interesting.	2.90	.72	3.04	.70	2.96	.71	2.26
Computers can improve learning of higher order thinking skills.	2.73	.77	2.95	.61	2.81	.72	5.55*
Computers motivate students to do better work.	2.64	.71	2.72	.63	2.67	.68	.70
When there is a problem with a computer that I can't immediately solve, I stick with it until I have the answer.	2.67	.76	2.65	.76	2.66	.76	.05
If I had a computer problem that I couldn't solve, I would continue to think about it afterward.	2.57	.76	2.68	.73	2.61	.75	1.27
I am confident in troubleshooting computer problems.	2.60	.81	2.49	.84	2.56	.82	.96
Teaching with a computer is more enjoyable than using teaching techniques.	2.37	.74	2.34	.74	2.36	.74	.05
I find it hard to stop once I start to work with a computer.	2.27	.70	2.43	.69	2.33	.70	2.96
The challenge of solving problems with computers does not appeal to me.	2.24	.80	2.19	.82	2.22	.80	.27
I am not sure I could learn a computer language.	1.91	.69	2.05	.66	1.96	.68	2.81

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.
*p<.10

The third research question asked for AAAE members' perceptions of Web-based survey methods, and sought to determine if differences existed in their perceptions when compared by survey method subgroups. AAAE respondents perceived that Web-based survey data collection

methods provide an equally valid, reliable, and secure method of collecting research data as do traditional paper-based research methods (Table 4). Statistical differences existed between the subgroups for the statements "*Web-based surveys are as reliable as paper surveys*" and "*I am confident in reporting data obtained in Web-based surveys*." In both instances, respondents in the Web-based group agreed significantly stronger with these statements than did respondents from the paper-based group.

Table 4

Perceptions of Web-based Survey Methods by Data Collection Subgroups (N = 257)

	Paper (n = 159)		Web (n = 98)		Total (N = 257)		
Statements	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
Web-based surveys provide a valid means for conducting research.	3.11	.70	3.25	.58	3.16	.66	2.79
Web-based surveys are as reliable as paper surveys.	3.11	.72	3.32	.61	3.19	.69	5.86*
Using the Web for conducting surveys is a secure method of collecting data.	3.10	.71	3.24	.52	3.15	.64	2.97
I am confident in reporting data obtained in Web-based surveys.	3.02	.73	3.26	.53	3.11	.67	7.51*
Web-based surveying allows the researcher to collect a random sampling of Web users' perceptions.	2.81	.80	2.86	.76	2.83	.78	.21
Web-based surveying allows the researcher to gather a representative sample of Web users' perceptions.	2.87	.77	2.96	.69	2.90	.74	.78
Web knowledge is common enough for using Web-based surveys.	2.83	.64	2.84	.67	2.83	.65	.02
Web-based instruments are only useful for quantitative research.	1.96	.59	1.90	.59	1.94	.59	.55
Web-based instruments are applicable for all types of research.	3.07	.55	3.13	.53	3.09	.54	.57
Web-based instruments are only useful in researching Web users.	2.56	.79	2.48	.81	2.53	.80	.57
I am confident in constructing Web-based survey instruments.	2.38	.83	2.35	.89	2.37	.85	.06
Access to Web-based survey information cannot be controlled.	1.94	.63	1.87	.59	1.91	.62	.72

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

*p<.10

The fourth question sought to determine if there were differences in AAAE members' computer anxiety scores, attitudes toward computers, or perceptions of Web-based survey methods when compared by selected demographics. Due to space limitations, only those statements where significant differences were found are reported. Table 5 shows that male and

female respondents differed significantly in their agreement levels for statements in all three subscales. Females held significantly less favorable attitudes toward computers, but more favorable perceptions of Web-based survey methods than did males.

Table 5

Levels of Computer Anxiety, Attitudes toward Computers, and Perceptions of Web-based Survey Methods by Gender (n = 230)

	Male (n = 190)		Female (n = 40)		Total (n = 230)		
Statements	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
Computer Anxiety							
I have avoided computers because they are unfamiliar to me.	1.26	.58	1.08	.27	1.23	.54	3.91*
Attitudes Toward Computers							
Computers can improve learning of higher order thinking skills.	2.89	.68	2.56	.75	2.83	.70	6.93*
The challenge of solving problems with computers does not appeal to me.	2.19	.77	2.47	.89	2.24	.80	4.08*
Perceptions of Web-Based Survey Methods							
Web-based surveys provide a valid means for conducting research.	3.13	.65	3.38	.67	3.17	.66	4.83*
Web based instruments are only useful for quantitative research.	1.98	.60	1.72	.51	1.94	.60	6.58*

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.
*p<.10

Table 6 shows that respondents differed significantly in their agreement levels for statements in all three subscales when compared by current faculty status. In every case, full professors had significantly different scores than did their colleagues. Full professors had significantly higher computer anxiety levels, less favorable attitudes toward computers, and a more limited view of the usefulness of Web-based survey methods. To conserve space, only statements where significant differences existed are presented in Table 6.

Table 6

Levels of Computer Anxiety, Attitudes toward Computers, and Perceptions of Web-based Survey Methods by Current Faculty Position (n = 256)

Statements	Asst. Prof. (*n* = 59) *M*	Assc. Prof. (*n* = 57) *M*	Full Prof. (*n* = 97) *M*	Other[a] (*n* = 43) *M*	Total (*n* = 256) *M*	*F*
Computer Anxiety						
I understand the technical aspects of computers.	3.22	3.05	2.84	3.12	3.02	3.24*
I am confident using computers.	3.49	3.46	3.20	3.51	3.38	3.72*
Working with computers makes me feel "cut off" from other people.	1.31	1.34	1.54	1.28	1.40	2.75*
I am confident teaching my peers about new software programs.	2.95	2.75	2.50	2.98	2.74	4.73*
Attitudes Toward Computers						
Generally, I feel okay about trying a new computer software program.	3.21	3.16	3.05	3.33	3.16	2.71*
I am confident learning terms relating to computer software (cut, copy, open, merge, etc.).	3.30	3.44	3.20	3.44	3.32	2.74*
Perceptions of Web-Based Survey Methods						
Web-based instruments are only useful in researching Web users.	2.38	2.51	2.72	2.39	2.54	3.01*

Note. [a]Other includes professor emeriti, visiting professors, staff, graduate students, and instructors; Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.
*$p<.10$

Several comments were collected from respondents. The most common respondent statement was that there needed to be a neutral category on the four-point Likert-type scale. Respondents did not like being forced into a category, and some avoided choosing a category by not responding to some statements. Other comments included "*Some of the items (computer anxiety) may have been issues years ago, but may not matter now. Computer support personnel may have removed a lot of the anxiety about the technical side of the computer use.*" Two respondents were deemed to be anomalies. One respondent chose not to respond to the survey stating that he/she "*had no anxieties or time to complete another survey*." The other respondent stated that he/she "*would not even use a computer if it were not for email*."

Conclusions and Recommendations

AAAE respondents in this study were mostly male (73.9%) full professors (37.7%). The respondents had a wealth of experience in teaching at the postsecondary level with 44.4% having taught 16 or more years. These data are in contrast to that of using Internet technologies, where 59.2% of respondents had nine or less years of experience. However, respondents had high levels of computer technology usage with 80.6% of respondents recording ten or more years of experience. More than 75% of the respondents were over the age of 40. Significant differences among subgroups suggests that some respondents held unfavorable attitudes toward computers, but overall, they perceived the usefulness of Web-based data survey methods as an equally valid, reliable, and secure method of collecting and reporting social science research data.

AAAE researchers should be taking advantage of the Web in collecting survey research information. The results of this study suggest a possible interaction of testing and treatment, especially for the Web-based group. This result indicates that as more Web-based surveys are used, the Web will become more dependable as a collection medium in the eyes of the participants. In turn, this practice leads to cleaner data due to the lack of errors created by coding and entering data from paper surveys into computer analyses packages.

AAAE members who prefer the "old-fashioned" ways of using computers (MS-DOS, etc.) should learn about the advantages offered by the Internet, especially in terms of research capabilities. Powerful online databases can add much to the research process. If an AAAE member is unfamiliar or anxious about using the Internet, he/she should take computer technology in-service course offered by the information technology department at his/her university. Similarly, AAAE members who do not use Internet tools in their research studies could benefit from discussing the possibilities with members who do use the Web for collecting, analyzing, and sharing their research data. The data found in this study suggest that the AAAE provide regional and/or national pre- or post-conference workshops for those interested in using the Internet to conduct their future research studies in agricultural and extension education.

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