

Investigating Factors Influencing Use of Internet by Agricultural Faculty Members for Educational and Research Activities

¹Mahtab Pouratashi and ²Mohammad Mokhtarnia

^{1,2}Department of Agricultural Extension and Education,
Faculty of Agricultural Economics and Development, University of Tehran, Karaj, Iran

Abstract: At the information age, Internet looks as one of the most important tools for access to information. Nowadays Internet is used in various forms at academic centers. The main purpose of this study was to investigate factors influencing use of Internet by agricultural faculty members for educational and research activities. The statistical population included faculty members of agricultural colleges in Iran. A sample of 307 faculty members was selected by using stratified random sampling method. A questionnaire was used for data collection. Reliability and validity of instrument were determined through opinions of faculty members and application of Cronbach's Alpha. Descriptive and inferential statistics were used for data analysis. The findings revealed that agricultural faculty members had positive opinion toward Internet use. Computer skills, acquaintance with Internet, English language proficiency and research activities were positively and significantly ($p < 0.01$) correlated with the extent of Internet use by agricultural faculty members. Income was positively and significantly ($p < 0.05$) correlated with the extent of Internet use by agricultural faculty members. Regression analysis indicates that about 52.1% of the variation in the extent of Internet use could be explained by variables consisting English language proficiency, acquaintance with Internet and research activities.

Key words: Internet • Faculty member • Education • Research

INTRODUCTION

Technology has become very important in human life at the Information age [1] and can be considered as a key factor for successful development in all industries [2]. At the present time, one of the recent technologies to gain prominent attention is Internet. Internet is one of the most fascinating phenomena [3] that powers our access to information [4], offers new ways of communication [3, 4, 5] and serves many on-line services in the spheres of commerce, entertainment and education [3]. Internet has the potential of providing an alternative and more effective teaching and learning tool in education and is known as a key to education in 21st century [6]. Internet enhances the quality of teaching and learning through its potential as a source of knowledge [7, 8, 9, 10], a means of interaction [5, 9], online learning [11, 12, 13], a medium to transmit content [9, 14], life-long learning [15], encourage more immediate, relevant and authentic learning [16, 17, 18]. Internet enables new local, regional and global education synergies on teaching and learning, for

enhanced higher education to unlimited audiences, beyond time and distance boundaries, easily and conveniently [19].

Internet maybe considered as the most important opportunity for planners in agricultural organizations and the quick expansion in the use of Internet resources in agricultural education is a significant development [20].

While there are massive benefits that can be derived from effective use of Internet in educational and research activities, there is the need to understand factors associated with agricultural faculty members' use of Internet and to expand their uses in order for academic centers and individuals to benefit.

Attention to studies in the field of factors influencing use of Internet has found different answers. Movahed and Iravani [6] represented that research activities and number of scientific publications have relationship with use of Internet. According to Karimi and Mokhtarnia [21] and Buttles [22] has confirmed that acquaintance with Internet influences use of Internet. Based on other studies Movahed and Iravani [6], Yaghoubi [20] and Karimi and

Mokhtarnia [21], use of Internet may differ according to English language proficiency. According to Haffman *et al.* [23], has confirmed that income influences use of Internet. Gender has been reported to influence use of Internet [14, 23, 24]. The influence of age on using Internet is not clear. Whilst some of the researches found that age had no influence on using Internet [25], other researcher reported that age is an important variable in using Internet [14, 24]. According to the studies of Movahed and Irvani [6], Porter [14], Al-Ammari [26] and Heysung [27], computer skill is one of the effective factors in use of Internet. Perceptions of Internet have been reported to influence use of Internet [14, 24, 27, 28].

Purpose and Objectives: The main purpose of this study was to investigate factors influencing use of Internet by agricultural faculty members for educational and research activities. The specific objectives of the study were:

- Identifying the amount of time agricultural faculty members spent on using Internet in a (typical) week;
- Identifying the level of Internet use by agricultural faculty members for educational and research activities;
- Analyzing correlation for independent variables and the extent of Internet use by agricultural faculty members;
- Regression analysis for the extent of Internet use by agricultural faculty members on independent variables.

MATERIALS AND METHODS

Population and Sample: The statistical population of this descriptive-correlation study included faculty members of agricultural colleges in Iran. A sample of 307 members was selected by using stratified random sampling method. Of the 307 faculty members, most of them were male (94.8%) and only 5.2% were female. Respondents were on average 45 years old and the most frequency was between the age of 39 and 47 years (36.8%). Also, 22.2% of respondents were less than 39 years old, 28.3% of respondents were 48-57 years old and 12.7% of respondents were more than 57 years old. 89.9% of respondents were married and the rest (10.1%) were single. 31.9% of respondents had less than 10 years record of services. 47.9% of respondents had 10-20 years record of services and 20.2% of respondents had more than 20 years record of services.

Instrumentation: From a review of literature, the researchers developed a questionnaire divided into four sections. The first section included personal characteristics of the target population. The remaining three sections consisted questions related to research objectives. A Likert-type scale was used to quantify the responses. Content and face validity of the questionnaire were tested by a panel of experts consisting of faculty members at University of Tehran, College of Agriculture. Reliability of the questionnaire was estimated by calculating Cronbach's alpha. Reliability of the instrument for various questions varied from 0.84 to 0.91 that showed the high reliability for the instrument.

Data Analysis: For data analysis was used descriptive and inferential statistics. Statistics such as frequency distribution, percentage, mean and standard deviation were used in the descriptive section. Correlation coefficient and multiple regression analysis were used in the inferential analysis section. To determine factors influencing use of Internet by agricultural faculty members, correlation analysis was used. Furthermore, a multiple regression analysis (stepwise method) to explain variation in the extent of Internet use by agricultural faculty members was used. In applying these statistical techniques, version 11.5 of the Statistical Package for Social Science (SPSS) was used.

RESULTS AND DISCUSSION

The Time Faculty Members Spent on Using Internet in a (Typical) Week: Faculty members were asked how many minutes they spent on Internet in a (typical) week. The range was 0 to more than 360 minutes. The findings are shown in Table 1. indicated that 39.4% of respondents spent 121-240 minutes on Internet per week and 10.1% spent more than 360 minutes on Internet per week. 19 faculty members (6.2%) did not spend any time.

The Level of Internet Use by Faculty Members for Educational and Research Activities: The level of Internet use by faculty members for educational and research activities is shown in Table 2. Among faculty members, 32.2% indicated much Internet use and only 8.8% indicated no Internet use for educational and research activities. The comparison of agricultural faculty members' level of Internet use according to academic major indicated that there was no difference in level of Internet use among faculty members. This result refers to the importance of Internet use for faculty members in different academic majors.

Table 1: Time spent on using Internet in a typical week

Minutes per week	F	%
None	19	6.2
1-120	53	17.3
121-240	121	39.4
241-360	83	27.0
More than 360	31	10.1
Total	307	100.0

Table 2: Use of Internet by faculty members for educational and research activities

Use of Internet	F	%	Mean	Sd
None	27	8.8	3.35	1.12
Little	42	13.7		
Some	86	28.0		
Much	99	32.2		
Very Much	53	17.3		
Total	307	100.0		

Table 3: Correlation analysis between independent variables and the extent of Internet use by faculty members

Independent variable	Label	r
Age	Age	- 0.102
Income	Income	0.14*
Acquaintance with Internet	AI	0.55**
Computer skills	CS	0.30**
English language proficiency	ELP	0.58**
Research activities	RA	0.47**

*Significant at p<.05

**Significant at p<.01

Correlation Analysis: Correlation for independent variables and the extent of Internet use by faculty members are presented in Table 3. It is recognizable that computer skill is positively and significantly ($p<0.01$) correlated with the extent of Internet use. This result is accordant to different studies were done by Movahed and Iravani [6], Porter [14], Al-Ammari [26], Heysung [27]. There is positive and significant correlation ($p<0.01$) between acquaintance with Internet and the extent of Internet use. This result is accordant to the result of Karimi and Mokhtarnia [21] and Buttles [22]. Perhaps one explanation for these results is that the Internet provides the means for access to valuable educational and research resources. Therefore, faculty members for access to valuable resources via Internet need computer skill and acquaintance with Internet. English language proficiency is positively and significantly ($p<0.01$) correlated with the extent of Internet use. Different studies have confirmed

Table 4: An overview of stepwise model

Model	R	R Square	Adjusted R Square
1	0.58	0.342	0.34
2	0.70	0.497	0.49
3	0.72	0.521	0.51

Table 5: Regression analysis to explain variation in the extent of Internet use by faculty members

Variables	Label	Unstandardized Standardized		t	Sig.
		B	Beta		
Constant		-134.310		-6.928	.000
English language proficiency	ELP	27.304	.454	10.840	.000
Acquaintance with Internet	AI	15.258	.290	5.476	.000
Research activities	RA	11.740	.200	3.903	.000

this result (Movahed and Iravani [6], Yaghoubi [20], Karimi and Mokhtarnia [21]). To describe this finding, we can say many international resources in Internet are in English. Hence, faculty members' English language proficiency for exploiting the potentials offered by the Internet is a necessity. There is positive and significant correlation ($p<0.05$) between income and the extent of Internet use. This result is accordant to the result of Haffman *et al.* [23]. Research activities is positively and significantly ($p<0.01$) correlated with the extent of Internet use. This result is accordant to the study was done by Movahed and Iravani [6]. Perhaps one explanation for this result is that the Internet is a whole world in itself with enormous research resources, which individuals can access to valuable data in the shortest time and minimal costs. Also, Through the Internet, faculty members can communicate with other faculty members and researchers throughout the world and receive any needed information.

Regression Analysis: In order to explain variation in the extent of Internet use by agricultural faculty members, a multiple regression analysis was conducted. An overview of stepwise model is shown in Table 4. Among independent variables that have significant correlation with dependent variable, English language proficiency, acquaintance with Internet and research activities have entered to regression equation by three steps.

The R Square value of 0.521 reveals that 52.1 % of variations in the extent of Internet use by agricultural faculty members could be explained by aforementioned variables.

Considering the results shown in the table 5, regression equation in standard situation will be as follow:

$$Y = \text{constant} + B_1X_1 + B_2X_2 + B_3X_3 \quad (1)$$

Equation (1) shows that (Y) is used as dependent variable that representing the extent of Internet use by agricultural faculty members, (X_i) is independent variable and (B_i) is the coefficient of independent variable. Consequently, final equation of regression is:

$$Y = -134.310 + 27.304 \text{ ELP} + 15.258 \text{ AI} + 11.740 \text{ RA}$$

The findings also showed that agricultural faculty members had positive opinion toward Internet use. Respondents identified the advantages of using Internet in education and research activities, predominantly, as ease access to information and resources, increase the level of knowledge, enhance communication and interaction between colleagues within faculties and between faculties and students. The main purposes of respondents from searching in Internet were doing research activities and updating professional information.

CONCLUSIONS AND RECOMMENDATIONS

According to results, Computer skill was positively and significantly correlated with the extent of Internet use by agricultural faculty members. In addition, acquaintance with Internet was positively and significantly correlated with the extent of Internet use by agricultural faculty members. Therefore, we recommend that Colleges of agriculture enhance computer and Internet skills of faculty members by establishing educational courses about computer and Internet.

According to results, English language proficiency was positively and significantly correlated with the extent of Internet use by agricultural faculty members. This result refers to the fact that providing incentives such as establishing English language courses, As well as preparation compact discs of English language lessons and distribution those among faculty members will increase the extent of Internet use amongst agricultural faculty members.

According to results, research activities were positively and significantly correlated with the extent of Internet use by agricultural faculty members. We recommend that Colleges of agriculture increase faculty members' access to the web via dialup access services from their homes in order to provide greater opportunities for effective applications of Internet in research activities.

REFERENCES

1. Hançer, A.H. and A.T. Tüzemen, 2008. A research on the effects of computer assisted science teaching. *World Appl. Sci. J.*, 4(2): 199-205.
2. George, J.f. and J.L. King, 1991. Examining the computing and centralization debate, *Communications of the ACM*, 34(7).
3. Nachmias, R., D. Mioduser and A. Shemla, 2001. Information and communication technologies usage by students in an Israeli high school. *Edu. Inform. Technol.*, 6(1): 43-53.
4. Brown, D.G., 2002. Proven strategies for teaching and learning. Presentation in the new educational benefits of ICT in higher education conference, Rotterdam, September 2, 2002. Retrieved on 15 June, 2004, from: <http://www.wfu.edu/brown>
5. Rosswall, T., 1999. The role of ICT in higher education at the beginning of this new millennium. Retrieved on 20 June, 2004, from: <http://www.kennis.org/eva/eva06/ictslu.htm>
6. Movahed, H. and H. Iravani, 2002. A model for Internet use by graduate students of selected agricultural faculties in Iran. *Iranian J. Agric. Sci.*, 33(4): 717-726.
7. Fung, A.C., 2001. Using ICT as a strategic tool in Education, Hong Kong Baptist University, March.
8. Hakim, T., P. Prentice and S. Barker, 1999. The Internet cultural phenomenon. Retrieved on 20 November, 2002, from: <http://www.tenj.edu/~hakim/index.html>
9. Jenkins, J.M., 1999. Teaching for tomorrow the changing role of teachers in the connected classroom, EDEN 1999 Open classroom conference-Balatonfüred, Retrieved on 10 July, 2006, from: <http://www.eden-online.org/papers/jenkins.pdf>
10. Mumtaz, S., 2000. Factors affecting teachers' use of information and communications technology: A review of the literature. *J. Inform. Technol. Teacher Edu.*, 9(3): 319-341.
11. Hanafi, A., A.R. Zuraidah, M.I. Rozhan and M.J. Mohdzubir, 2003. Readiness towards online learning in physics: Competency in ICT related applications. Paper presented at the ICASE 2003 world conference on science and technology education, held in Penang, Malaysia, 7-10 April 2003.

12. Rossemi, D., A.K. Aidiah, A.E. Mohamed and M.J. Zalizan, 2003. The implementation of a proposed solution to develop an e-learning system. Paper presented at the ICASE 2003 world conference on science and technology education, held in Penang, Malaysia, 7-10 April 2003.
13. Sridhar, S., 2005. E-Government, A proactive participant for e-learning in higher education, *J. Am. Academy of Business*, Cambridge, 7(1): 258-268.
14. Porter, T.L., 1997. Level of use of the Internet by Ohio State University extension educators. Unpublished Dissertation, the Ohio State University, Columbus.
15. Schollie, B., 2001. Student achievement and performance levels in online education research study, Alberta Online Consortium, Edmonton. Retrieved on 10 July, 2006, from: www.albertaonline.ab.ca
16. Combs, B.L., 2000. Assessing the role of educational technology in the teaching and learning process: a learner-centered perspective, The Secretary's conference on educational technology 2000, Department of Education, USA, Washington DC. Retrieved on 4 January, 2008, from: www.ed.gov/Technology/techconf/2000/mcombs_paper.html
17. Dodge, B., 1997. Some thoughts about web quests. San Diego State University. Retrieved on 10 June, 2004, from: http://edweb.sdsu.edu/courses/EDTEC596/About_WebQuests.html
18. Hawkins, R., 2003. World links for development program, World Bank. Retrieved on 10 May, 2005, from: <http://www.cid.harvard.edu/cr/pdf/ch04.pdf>
19. Mlitwa, N., 2006. Global perspectives on higher education and the role of ICT. Retrieved on 10 July, 2006, from: http://eprints.rclis.org/archive/00004668/01/Global_Perspective_on_Higher_Education_and_the_Role_of_ICT%E2%80%A6.pdf
20. Yaghoubi, J., 2003. Professional Search in Internet for agricultural students. Zanjan: Zanjan University.
21. Karimi, A. and M. Mokhtarnia, 2006. An investigation of the effective factors involved in the use of information and communication technologies in agricultural vocational Education. *Iranian J. Agric. Sci.*, 37(2): 321-332.
22. Buttles, T.T., 1999. An assessment of Internet use in Wisconsin secondary agricultural education department. M.Sc. Thesis, Agricultural education department, University of Wisconsin-River Falls.
23. Haffman, D., L. William, D. Kalsbeek and T.P. Novak, 1996. Internet and web use in the United States: Baseline for commercial development, project 2000 working paper, July 10. Retrieved on 20 November, 2002, from: <http://www.2000.ogsm.vanderbilt.edu/baseline/1995.Internet.estimaes.html>.
24. Al-Mortif, A.F., 2000. The effect of college students' educational level and gender on their use of Internet as an instructional tool, a research tool, a communication tool, an entertainment tool (Doctoral Dissertation, Ohio University, 2000).
25. Layfield, K.D. and D.C. Scanlon, 1998. Factors encouraging use of the Internet by secondary agriculture teachers: A national perspective.
26. Al-Ammari, J.A., 2004. Benefits and barriers to implementing computer use in Quatrai elementary schools as perceived by female teachers, an exploratory study. Retrieved on 10 July, 2006, from: <http://www.lib.umi.com/dissertations>
27. Heysung, P., 2004. Factors that affect IT adoption by teachers. Retrieved on 10 July, 2006, from: <http://www.Digitalcommons.unl.edu/dissertations/AAI3126960/>
28. Holecombe, M., 2000. Factors influencing teacher acceptance of the Internet as a teaching tools: A study of Texas schools receiving a TIF or a TIF grant. (Unpublished master's thesis), University of Baylor. USA.