INVESTIGATING AGRICULTURAL INSTRUCTORS' ATTITUDES TOWARD E-LEARNING IN IRAN

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ABSTRACT

With the rapid changes in all types of learning and teaching environments, there is a need to implement electronic learning (e-learning) to train students with new technologies. However the trend of using e-learning as learning and/or teaching tool is now rapidly expanding into education. Although e-learning environments are popular, there is minimal research on agricultural instructors' attitudes toward these kinds of learning environments. The purpose of this study is to explore agricultural instructors' attitudes toward e-learning usage. A descriptive–correlation survey approach was used in this study. Accordingly, 175 instructors in 64 agricultural education centers are asked to answer questionnaires for investigating their attitudes. Data were collected by mailing the questionnaire. After statistical analysis, the results demonstrate that instructors have positive attitude toward using e-learning as a teaching assisted tool. Intrinsic incentives and motivators for acceptance of e-learning are important than extrinsic incentives and motivators. Based on the findings, this research proposes guidelines for developing e-learning environments in agricultural education.

Keywords: E-learning; Attitude; incentives; Agricultural instructors.

INTRODUCTION

One of the most significant changes in the context of education during the information age is the paradigm shift from teacher-oriented to learner-oriented education. The emergence of e-learning has further facilitated the wide adoption of learner-oriented education and other changes in educational practices. E-learning is one of the most popular learning environments in the information age. Thus, e-learning efforts and experiments currently receive enormous attention across the globe (Liaw et al, 2006).

E-learning has drawn significant attention from educational institutions, educational software developers, and business organizations due to the potential educational and cost benefits. Such benefits are improving access to education and training, enhancing the quality of teaching and learning and offering competitive, advantage in a fast moving market-place, reduced education cost, consistency, timely content, flexible accessibility, and convenience (Newton, 2003; Cantoni, Cellario, & Porta, 2004; Kelly & Bauer, 2004; Selim 2007).Higher education is under pressure to change or, as some would argue, simply to catch up with the change that the rest of society is going through as Clark (2006) reported. He implied that a number of political and social drivers lie behind recent pressures for changes in higher education which are:

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- ➢ **Globalization,**
- ➢ **Increased student mobility,**
- ➢ **Increased or changing student expectations,**
- ➢ **Need for increased access and flexibility,**
- ➢ **Private sector involvement and**
- ➢ **Funding pressures.**

Clark (2006) stated that it is an irreversible change and has serious implications for all aspects of higher education including the delivery of learning, administration, assessment and research. The introduction of e-learning and learning management systems is one of many interventions. Hence, it is considered that instructors' attitude about e-learning at higher education level is required to be investigated as well as other data sources before fully implementing e-learning practices.

E-learning can be described as a virtual learning environment in which a learner's interactions with materials, peers and/or instructors are mediated through information and communication technologies as cited by Alavi and Leidner (Wan, Wang and Haggerty, 2008). Another definition is that the term e-learning refers to any electronically assisted instruction, such as internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and Cd-Rom, but is most often associated with instruction offered via computer and the Internet (Urdan & Weggen, 2000). Although the concept of attitude towards e-learning has gained recognition as a critical determination the use and acceptance of e-learning, there is no single, universally accepted definition of computer and e-learning attitude construct (Liaw et al., 2002; Smith, et al., 2000). Previous research Gibson *et al.* (1991) defined attitude as a 'positive or negative feeling or mental state of readiness, learned and organized through experience, that exerts specific influences on a person's response to people, object, and situation. Fishbein and Ajzen indicated that attitude is viewed as one major determinant of the person's intention to perform the behavior in question (Fishbein and Ajzen, 1975). It has also been empirically tested as a strong mediator for motivational variables to predict behavioural intention of computer technology use (Taylor & Todd 1995).

Therefore attitude is an important element for e-learning which influences efficiency, motives, and knowledge application in e-learning environments. If agricultural instructors are to use e-learning for supplementing educational programs, it is important to know agriculture instructors' attitudes toward this technology prior to its use (Mc Caslin & Torres, 1992). In Iran, there is a lack of relevant studies to explore agricultural instructors' attitudes toward e-learning. Because of rapid changes in information technology and agricultural knowledge, agricultural instructors need to update their knowledge and skills continually to teach effectively and to ensure the quality of instruction. Whether this new education method (e-learning) can be used accepted by instructors to deliver quality instruction (Yu, S.&Yang, KF, 2006).

The purpose of this study was to identify agricultural instructors' attitude toward e-learning in educational activities. Specifically, the objectives addressed were to: Describe selected demographic characteristics of agricultural instructors in the Jihade-Keshavarzi centers. Determine the instructors' attitudes toward the e-learning in learning and teaching activities and incentives influencing these attitudes. Identify factors underlying agriculture instructors' attitudes toward the use of e-learning in educational activities.

METHOD

Design
This study conducted a cross-sectional research design. We used a structured questionnaire to collect data via a mailing method in order to investigate Instructors' attitudes toward e-learning as a way of instruction.

Population and Sample
The population of this study was the 603 instructors working in Jahad-Keshvarzi agricultural education centers in Iran. Since the general response rate of mailing methods is approximately 50–80%, we randomly selected more samples than the minimal valid samples.

In this sampling method, first, all agricultural education centers were stratified into five strata. Then, agricultural education centers in each stratum were proportionally selected by a cluster random sampling, and the instructors working at the selected agricultural education centers comprised the study sample. Excluding those who declined to participate in this study, quit their jobs, provided incomplete responses, etc., 175 instructors finally completed the questionnaire, with a response rate of 82.0%.

Instrument
A questionnaire was used to collect data in this study. The questionnaire was developed by reviewing the literature, conducting personal interviews and through expert consultation. The questionnaire was self-administered and consisted of two parts: independent variables (including personal and work factors) and dependent variables (attitude toward e-learning).

Basic Data
Personal factors
This category included age, educational level, years of teaching, job experience, computer facilities and on-line hardware at home, average hours spent in computer use at home per week, previous experience in e-learning and personal basic computer competency. To measure personal computer competency, a 25-items questionnaire (called "the Computer Competency Scale") was used to investigate instructors' computer skills, including Microsoft Word, Excel, PowerPoint, Internet Explorer (IE), and E-mail application capability. A 10-points scale was used as follows: 10, very familiar; 5, average; and 0, unable to use. The maximum score was 250. Total scores were between 0 and 250, with a higher score indicating greater computer competency.

Working factors
They included computer facilities and on-line hardware in agricultural education centers, average hours spent in computer use at the worksite per week, and average hours spent on-line at the worksite per week.

Scale of attitude toward e-learning
There were 14 questions in this section of the questionnaire 2 negative and 12 positive questions. Positive statements were answered with a response ranging from five to one, representing "very much in agreement", "agree", "no comment", "disagree", and "very much in disagreement".

A higher score indicated a higher degree of agreement. The negative statements were scored in the opposite way. The range of the total score was 14–70 points, with higher total scores indicating that instructors had a more positive attitude toward e-learning. For reliability and validity, five experts in the fields of computer science and information technology, agricultural extension and education were invited to validate the questionnaire. In terms of reliability, the coefficients for "Basic Computer Competency scale" and "Scale of Attitude toward e-learning" were 0.81 and 0.84, respectively, indicating good reliability in both scales.

Data Collection
Data were collected by mailing the questionnaire. After the list of selected agricultural education centers was confirmed, we filed the official letter with the relevant centers for administrative recognition and support. The questionnaires were sent according to the list, and pre-survey contact, follow-up, and promotion was performed during the process to improve the return rate. There were two follow-up efforts, and recipients were reminded of the mailing in weeks 2, 3, and 4 after the questionnaire was sent. Of the 214 recipients, 175 returned completed questionnaires, with a return rateof 82.0%.

Data Analysis
The statistical package for social sciences (SPSS) version 17.0 for windows was used for statistical analyses. Statistical methods used included frequency, percentage, mean, and standard deviation for univariate analysis. For bivariate analysis, we used Pearson's correlation, the independent t-test, and one-way analysis of variance to examine the relationships between independent and dependent variables (i.e. attitude toward e-learning). Finally, a step wise multiple regression analysis was used to examine predictors of attitude toward e-learning.

RESULTS

Personal Factors
The average age of the Instructors was 38.02 years (SD =5.79). The average experience in teaching was 6.27 years (SD=5.37), 89% of instructors were man and 11% were woman. Also 94.1% of the instructors had computer and on-line hardware at home, and their weekly on-line time in home or worksite was 8.18 h/week (SD =5.69), which was long time. As for computer competency, we found that instructors computer competency was good (M=116.7, SD=43.5, range=48-175).

Working Factors
Instructors in all the selected agricultural education centers had access to computer and internet facilities. On an average instructors spent 2.25 h/day (SD=3.36) using a computer for their teaching or job tasks. The most commonly competency in software was word processing (with score 8.54 from 10; SD=1.5), presentation software (score 8.33 from 10; SD=1.73) and electronic communication software's (score 7.79 from10 SD=1.8).

Incentives and Motivators of E-Learning
Table: 1 indicates the incentives and motivators that help instructors to participate in e-learning. Personal interest for use of information technology, participation in e-learning for job progress, professional development and English language learning were first priorities in e-learning incentives and motivators.

These responses indicate that because of these items are intrinsic incentives, most of instructors believe that intrinsic incentives and motivators for acceptance of e-learning are important than extrinsic incentives and motivators.

Table: 1
Descriptive statistics of incentives and motivators of e-learning

priority	Incentives	Mean	SD	Cv.
1	Personal interest for use of information technology	4.68	0.74	0.158
2	Participation in e-learning for job progress	4.24	0.78	0.183
3	Professional development	4.11	0.81	0.197
4	English language learning	4.04	0.83	0.205
5	Changes in educational paradigm from teacher – centre to learner-center	3.95	0.84	0.212
6	Attention to e-learning in educational policy	3.8	0.83	0.218
7	Supporting the culture of e-learning in departments	3.62	0.8	0.220
8	Educational workshop in e-learning field for instructors	3.59	0.82	0.228
9	Access to e-learning equipments and software	3.51	0.85	0.242
10	Flexibility in time and place in e-learning	3.40	0.86	0.252

Scoring: 5 = Strongly Agree, 1 = Strongly Disagree

Attitude Towards E-Learning and Influencing Factors
Table: 2 show the Scores of survey items in the scale of e-learning attitude. The mean score for the 14 survey items was 3.55. The highest item mean score was 4.14 (item 1); the lowest item mean score was 2.97 (item 14).

In interpreting the findings, it is important to remember that the data collected in this study were ordinal.

The item of "e-learning should become an integrated part of university curricula" (M=4.14) and the item of "e-learning is an effective educational method" (M=4.03) recorded the highest mean score. The third highest mean score was recorded by the item of "I would like to use (or already use) e-learning in delivering of my courses "(M=3.98).

These responses indicate that most of the instructors believe that e-learning become an integrated part of university curricula, e-learning is an effective educational method, and their like to use e-learning and encouragement to use of e-learning can increase use of e-learning.

The lowest mean score recorded by the item "Effectiveness in use of class time for teaching and learning in e-learning isn't same as on-campus face to face courses" (M=2.97).

Table: 2
Scores of survey items in the scale of e-learning attitude (n=175)

Statements	Mean	SD	Rank
E-learning should become an integrated part of university curricula	4.14	0.88	1
E-learning is an effective educational method	4.03	0.89	2
I would like to use (or already use) e-learning in delivering of my courses	3.98	0.92	3
Instructors should be encouraged to use of e-learning technologies for their teaching	3.97	0.94	4
E-learning degrees should be valued as equivalent to on-campus degrees	3.89	0.93	5
Students spend less time working on e-learning than on-campus courses	3.88	0.95	6
Using e-learning technology to deliver instruction improves faculty teaching skills	3.82	0.94	7
E-leaning can be a educational method to increase access to education	3.61	0.96	8
Our department need to develop more e-learning courses	3.5	0.95	9
Effective student-professor interaction is possible in e-learning courses.	3.49	0.99	10
E-learning can be a replacement of some on-campus courses	3.28	0.99	11
E-learning courses can be an appropriate educational method for agricultural education	3.02	0.98	12
E-learning is not an effective attempt Because of technical barriers [a]	3.01	1.01	13
Effectiveness in use of class time for teaching and learning in e-learning isn't same as on-campus face to face courses [a]	2.97	1.02	14

Scoring: 5 = Strongly Agree, 1 = Strongly Disagree
[a] Represents negative statements.

All statements were scored so that higher the score, the more positive the attitude, and vice versa.

For measuring overall attitude toward e-learning we sum the scores of attitude and classified in three groups (low, moderate, and high). Table (3) indicates distribution of respondent's attitudes toward e-learning. Overall attitudes of Instructors toward e-learning tended to be positive (M=49:74, SD=7.95, range=14–70). Majority of respondents have a high positive attitude toward e-learning whereby it accounted for 52.5% of the respondents and 42.9% have a moderate attitude, only 4.6% of the respondents have a low attitude towards e-learning. This is a good indicator for the future of e-learning in agriculture education as that most of the instructors accept this learning method and imply e-learning in their teaching.

Table: 3
Distribution of respondent's attitude toward e-learning

Attitude	frequency	percent	mean	SD
Low (14-32)	8	4.6	49.74	7.95
Moderate (33-51)	75	42.9		
High (52-70)	92	52.5		
Sum	175	100		

Table: 4 indicate the results of regression analysis. Multiple liner step wise regression was used to predict attitudes of instructors toward e-learning from a combination of age, computer usage, Internet usage, online communication competency. Stepwise regression analysis indicated that the multiple correlation coefficient (R) using all the predictors simultaneously, is .56 and the adjusted R2 is .32, meaning that 32% of the variance in attitude toward e-learning can be predicted from combination of age, computer usage, Internet usage, research in internet competency, online communication competency.

Table: 4
Liner regression for prediction of changes in attitudes of instructors toward e-learning

variables	Unstandardized Coefficients (B)	Standardized Coefficients (ß)	t	Sig.
constant	19.685	-	4.794	0.000
Age	-.602	-.428	-6.172	0.000
computer usage	.992	.240	3.666	0.000
Internet usage	.429	.210	3.114	0.002
Online communication Competency	2.249	.168	2.542	0.012

CONCLUSION AND SUGGESTION

Agricultural instructors are faced with many technological advances in the delivery of education. These changes call for instructors to consider new and creative ways of offering educational programs. The use of e-learning technology to supplement education is one technique that is available. This is the first study to explore the attitude of agricultural instructors toward e-learning in Iran. However, the findings of this study could provide suggestions for spreading e-learning in other areas because e-learning must be the future trend for agricultural education and in agricultural in-service training.

The results showed that most instructors had a positive attitude toward e-learning, implying that such learning methods may be used as a new educational method in agricultural education centers. The basic computer competency of instructors was good, meaning that instructors have basic e-learning competency for applying e-learning successfully.

Additionally, this study indicates that e-learning is a significant new way of teaching and learning, because it can overcome some limitations of traditional teaching and

learning. In connection with instructor's positive attitudes, this study shows the strengths, which are also the guidelines in developing e- learning including high flexibility in time, low limitation in space, greater learning choice, and diverse content.

This study showed that intrinsic incentives and motivators for acceptance of e-learning (e.g. personal interest for use of information technology, participation in e-learning for job progress and professional development) are important than extrinsic incentives and motivators (e.g. Access to e-learning equipments and software). Personal interest can be reinforced by making provisions for functional infrastructure, continuous training followed by definite provisions for implementation towards course development and learner support.

The results of multiple liner step wise regression in prediction attitudes of instructors toward e-learning showed 32% of the variance in attitude toward e-learning can be predicted from combination of age, computer usage, Internet usage, research in internet competency, and online communication competency. This indicated that in implying e-learning programs, these factors must be considered.

Based on the findings of this study, we would proffer the following practical recommendations that should be of use to any educational institute considering e-learning as a teaching–learning strategy. Have a comprehensive system-wide implemental policy on e-learning with definite provisions for design, implementation, evaluation, reflection, and cumulative expansion. Ensure reliable access to network and technology support for maintenance Create an environment of sustainable e-learning by encouraging the motivating factors (Panda, 2007).

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