

Investigation of the barriers of developing E-learning in college of agriculture, Bu-Ali Sina University (Comparison of the views of and faculty members and graduate students Bu-Ali Sina College of Agriculture)

Heshmatollah Saadi ¹, Khalil Mirzayi ², Adel Esmaeeli Salumahaleh ³

¹ Ph.D, Agricultural Extension and Education Department, Bualisina University, Hamedan, Iran

² Ph.D, Agricultural Extension and Education, Agricultural Extension Dept., Bu Ali Sina University, Hamedan, Iran

³ M.A., English Language Teaching, Islamic Azad University, Takestan Branch, Takestan, Iran

Abstract

The main objective of this study is to investigate the barriers and guidelines in the development of e-learning in the College of Agriculture, Bu-Ali Sina University, from the perspective of faculty members and graduate students (MA and PhD). Scope of this study is faculty of Agriculture, University of Bu Ali Sina. The required data for this study has been developed using a survey method using questionnaire technique. Cronbach's alpha coefficient was used to determine the reliability in which the reliability of the questionnaire was obtained 0.84 for the faculty members of College of Agriculture and 0.85 for graduate students (MA and PhD). Population samples of this research were the 63 faculty members that were totally analyzed and 280 graduate students which were selected by multistage random sampling. To compare the results and of both comments Wilcoxon test was used and the results of comparing the groups indicates that the response of faculty members and students conform together in 37 items out of 46 items in the questionnaire, and they were inconsistent with each other in 9 items. In other words, 80.43 of respondents in the questionnaire had relatively similar comments and 19.57 % have different opinions.

Keywords: *Teaching, e-Learning, Information Technology, Internet, Obstacles to e-Learning development*

1. Introduction

Today, with the advent of information technologies and Internet-based networks, a new revolution in the teaching and learning process is established. The other traditional practices and knowledge that would draw less attention will be transferred via text, training paper, etc. with young people who live in a world saturated by the media. New communications technologies (especially the Internet) have exciting possibilities to overcome geographical barriers to learning and many institutions of higher education are rapidly following capabilities and features of the learning, teaching and research (Raab et al, 2002).

With the advent of information technology in education, many researchers have focused on various aspects of this research. In many of these studies, organizational factors, infrastructures, facilities, planning and policy making for e-learning are considered. In other research, the necessary competences and skills for e-learning development in education systems is addressed. Some researchers have noted the following items: the cost of internet access, lack the proper hardware and software facilities, bandwidth limitations, low speed of internet and the delay in responding (Shea et al. 2005; Zhang et al. 2002; Anstead et al. 2004; Murphy and Dooley 2000; Grant 2004; Gulati 2008; Wilson and Moore 2004).

In some studies, lack of social participation and social interaction between students and professors have been considered and their results suggested that students, in e-learning, do not possess the possibility of interacting with friends and classmates and getting help when they are faced with problems and then, probably images and texts may not be satisfying enough for them

(the students). So, the students are deprived of the sense of community in e-learning; and, the students' sense of resentment and despair in e-learning courses is more in comparison to traditional courses (Beneke 2001; Kurtus 2000; Lieblein 2000; Song Liyan et al. 2004).

Some researchers have referred to management issues such as student recruitment strategies, lack of standardization in the field of e-learning, inadequate salary for faculty members, shortage of teaching spaces which are equipped with new technologies, assessing methods of students, copy right and intellectual property issues of the content and course (Shea et al. 2005; Wilson 2003).

Kurtus (2000) and Beneke (2001) have mentioned that the main issues of virtual learning are lack of social interaction and the interval between students and faculty members' activities. According to them, students cannot interact with friends and classmates when faced with possible problems and images, and texts may not satisfy learners. Some researchers asserted cases such as illiteracy in Educational Technology, lack of training in this area, inexperienced faculty members in the effective use of new technologies, and their resistance for virtual courses as the main issues of e-learning (Anstead et al, 2004; Dillon & Walsh, 1992; Kelsey et al, 2002).

Other obstacles and limitations are that e-learning cannot be a good replacement for teachers and emotional interactions as well as face to face communication in the classroom (Twomey, 2004).

It was found that strengthening and developing telecommunication infrastructures in educational institutions and providing access to information networks in such institutions is one of the important steps in the development of e-learning; because effectiveness of e-learning depends on the reliability and accessibility of hardware and software. And, lack of good telecommunication infrastructures severely affects the relationship between the learner and the educational system. Therefore, funding for facilities and e-learning tools for universities is a serious necessity. Many researchers have cited lack of hardware and software as one of the major challenges in the development of e-learning (Anstead et al. 2004; Shea et al. 2005; Zhang et al. 2002).

However, computer-assisted learning also has its own limitations, such as lack of a good substitute for the teacher, human and emotional interactions as well as classroom face-to-face communication (Twomey, 2004). Other limitations in the use of computers in Iranian higher education are: lack of proper understanding of virtual learning environments, lack of proper infrastructure and telecommunication, lack of enough bandwidth to transmit and receive information. He argues that system of supply and demand for higher education still does not have an accurate understanding of virtual spaces and it is not well acquainted with its features and functions; and, basic IT skills are not still well known. In this system, the success of learner is associated with technical skills in the use of computers and networks (Shuster, 2003). In addition, high amount of received messages and sending the solutions is a time consuming activity and it requires information management skills.

2. Review of Literature

Arbaugh (2002) defined e-learning as the use of the Internet by users to learn specific content. Other researchers define e-learning as using modern Information and Communications Technology (ICT) and computers to deliver instruction, information, and learning content (Selim, 2007). The stakeholders of e-learning are learners, faculty, administrative and technical staff, and employers (Ozkan & Koseler, 2009).

E-learning, which is considered as both internet use and digital technologies in teaching and learning, has always been identified as either an alternative solution or a new procedure to boost traditional approaches of education. Educational institutions apply e-learning in teaching process for the following reasons:

- IT promotion: E-learning is becoming an ideal tool for teaching and learning.
- Rich information: E-learning provides the accessibility of rich information resources every time and everywhere for both learners and teachers.
- Alternative learning approach: E-learning can give the possibility and opportunity of learning process to those who were marginalized as disable students.

- Blended learning: E-learning can complete traditional classes by releasing valuable resources and developing training of a greater number of traditional students (Spender, 2001).

Wilson and Moore (2004) considered the cost of access to the internet as the problem of virtual education. They still believe that the price of Internet access is high; so, many students simply cannot use this technique as a low-cost method. In some studies, it is also referred to low speed and high cost of the purchase and development of internet technology.

In face-to-face education, students are supposed to attend in a regular time and place and they are taught face-to-face largely via textual and verbal education. In this method, training is provided in the same way for all learners and interaction always takes place simultaneously and greater emphasis is on the acquisition of knowledge. However, students have different learning styles, and several features of the rate and place of learning. They have many features by which they differ from each other. The result is that a proven method of education for all learners is not effective enough; therefore, changes in teaching methods and individualizing the instruction has been considered by training professionals (Cook & Smith, 2006).

Although e-learning in developing countries has been increasingly adopted to achieve by traditional and non-traditional students, in developing countries it is still unknown and it is not used as a training approach (Abdon, Ninomiya & Rabb 2007). However, e-learning has great facilities for solving many of the problems of education systems including education system such as limited financial resources, lack of attention to developing learners' creativity and innovative ability, little use of distance learning technologies and the Internet, little relationship of students with the international scientific community, little relationship of education sector with the private sector, mismatch between education system and global changes, use of inappropriate teaching methods, lack of a learner-centered approach in education and lack of cross-organizational relationships (Zare & Zolali, 2006).

3. Methodology

This research is a survey. The population of the study includes all postgraduate and Ph.D. students studying in the second semester of the academic year 2012-2013 and also the Faculty members of Bu-Ali Sina University Agriculture College which some of them were selected through sampling. In this study, to determine the sample size a pretest was administer over 30 graduate students in College of Agriculture and the variance was determined. Cochran formula was used and a sample size of 219 people was selected. In this study, the two-stage random sampling was used. In the first stage, the number of training courses was selected and in the next step considering the total number of students, graduates (MS and Ph.D.) and faculty members of the educational group, the number of faculty members and students in each group was determined.

In this way, the total sample size the faculty members and PhD students were considered as enumeration since the total number of them is below 200; and 180 of graduate students were determined as the population. In order to collect data, questionnaire, interviews and observations were used. The accuracy of the items in the questionnaire (or face validity) had been confirmed by specialists. To evaluate the reliability of the research instrument questionnaire was distributed among a number of experts of department of education, scientists of computer software and web experts; the results were studied and Cronbach alpha was calculated. Reliability of faculty questionnaire for 46 items was 0.84 and Reliability of graduate students' questionnaire for 46 items was 0.85. That showed high reliability of survey instrument. The Cronbach alpha, on the whole, for the faculty questionnaire was 0.86 and for the student questionnaire was 0.88. For data description, descriptive statistics such as frequency, percentage, median, mode, SD, variance, the mean was used. In addition, to compare the views of faculty members and graduate students, according to variables types, Wilcoxon test was used using SPSS / Win 16 software.

4. Results and Discussion

Based on the collected data, 74.6 percentage of faculty members were male and rest of them (25.4 percentage) were female. The mean age of them was 39.06 with the SD of 5.942. They taught in different fields. 2.3 % of them have a master degree, 12.7 % of them are associate professors, 82.5 % of them are assistant professors, and 1.6 % of them were instructors. The mean duration of their teaching is 7.43 years. According to the findings, 60% of the students were male and 40 % of them were female. The average age of students was 28.22 years old. About 95.4 % of graduate students in the College of Agriculture aged between 23 to 35 years and 6.4 % of them aged between 36 to 49 years. Course of students includes agricultural extension, biotechnology, soil, farming, gardening, animal science, irrigation and drainage, agricultural machinery, plant protection. The highest rate of students belong to farming and (50 people) and the lowest frequency belong to students of agricultural extension (13 people).

Comparison of Views

In this section, the expressed views by faculty members and students have been compared using statistical tests.

Comparison of faculty members and graduate students Comment

In evaluating these statements, according to variables type, Wilcoxon test was used. According to table 1, 46 items in the faculty and students questionnaire were compared with each other. In addition, a comparison between the views of the respondents, the comment adaptation or inconsistency of them and their level of significance was evaluated.

According to the results of table 1, among the responses of these groups to the following items, there is no significant difference. In other words, the results of the group responses are consistent with each other in the following items:

limited access to computers and online communication for students; low speed internet and the actual bandwidth; fluctuation in Internet speed and lack of real speed; lack of coverage of optic fiber in the entire country; lack of a comprehensive program for network security in e-learning; less compatibility applications with a network of e-learning; lack of funds for the development of e-learning at universities; lack of investment and credit for the development of the needed infrastructure for e-learning; the high costs of preparation and production of materials for the content of e-learning and updating them; high cost of setting up an educational technology equipment; high cost of the electronic library at universities; deficiency or absence of local manufacturing facilities, and components required for e-learning; absence or lack of incentives for virtual teaching; possible limitations of laboratory sessions through e-learning; lack of enough training in the field of educational technology for students; lack of (User friendly) and non-dynamic software in the e-learning courses; lack of transparency in e-learning goals; lack of development of e-learning at high management level and those involved in educational planning; lack of policy for the implementation and appropriate strategic management of the development of educational technology at universities; lack of giving priority to the e-learning in the comprehensive program of ICT development in the country; low e-learning system in terms of providing feedback by the students; low potential for evaluating progress in learning courses; low e-learning system for the continuity of learning activities by the learners; the low level of the learner or instructor permission to change the presentation of the course; the low proportion of structure with the needs of individuals or groups in the e-learning system; poor time management tools and planning for individual students; lack of full cooperation of the Ministry of Science and the Ministry of Communications and Information Technology regarding the development of electronic learning; the low level devices for e-learning system to express ideas for teachers and learners; low rates of encourage for e-learning system in the relationship between the learner and teacher; insufficient faculty expertise regarding the new educational technologies; stakeholders' opposition with e-learning methods; insufficient faculty expert regarding the new educational technologies; unfamiliarity of students with methods of communicating with faculty members using e-learning; lack of faculty interest in e-learning; faculty members' resistance to change and their worries

regarding electronic technology; excessive dependence students' learning on computers and neglecting from teachers' guidance; lack of experienced faculty on e-learning and e-teaching units.

However, the responses of faculty members and students are significantly different in following items. In fact, in these items, the responses of these two groups are different with each other:

Old computer system (significant difference at 99 % level); lack of technical and administrative support to maintain e-learning equipments (significant difference at 99 % level); lack of the students' access to individuals to solve problems in the field of e-learning (significant difference at 95 % level); requiring a lot of time preparing the students (significant difference at 95 % level); lack of attempt of administrators for culture-building in developing e-learning in the countries (significant difference at 95 % level); unfamiliarity of planners and administrators with the concept of e-learning applications (significant difference at 99 % level); lack of necessary policy to certify or endorse the content, quality and structure of electronic courses in universities (significant difference at 95 % level); low ability of learners to perform individual operations (significant difference at 99 % level); inability of students to change the order of presentation of the course (significant difference at 99 % level). In other words, we can say that in the present study, 37 items out of 46 items available in two questionnaires conform together and 9 items are inconsistent with each other, i.e., (80.43 %) of respondents have relatively similar comments and (19.57 %) have different opinions.

Table 1: The comparison of faculty members and students' comments of higher education in the college (MA and PhD)

No.	item	Z value	Sig.	Adaptation/ Difference
1	limited access to computers and online communication for students	1.338	0.181	Adaptation
2	Old computer system	5.570	**0.000	Difference
3	lack of technical and administrative support to maintain e-learning equipments	5.915	***0.000	Difference
4	low speed internet and the actual bandwidth	1.648	0.099	Adaptation
5	lack of coverage of optic fiber	0.161	0.872	Adaptation
6	fluctuation in Internet speed and lack of real speed	0.856	0.392	Adaptation
7	lack of a comprehensive program for network security in e-learning	1.463	0.143	Adaptation
8	less compatibility applications with a network of e-learning	0.147	0.883	Adaptation
9	lack of investment and credit for the development of the needed infrastructure for e-learning	01.657	0.097	Adaptation
10	high cost of setting up an educational technology equipment	0.120	0.904	Adaptation
11	the high costs preparation and production of material for the content of e-learning and updating them	1.377	0.169	Adaptation
12	high cost of Internet service	0.651	0.515	Adaptation
13	lack of funds for the development of e-learning in universities	0.168	0.867	Adaptation
14	deficiency or absence of local manufacturing facilities, and components required for e-learning	0.569	0.570	Adaptation
15	absence or lack of incentives for virtual teaching	1.635	0.102	Adaptation
16	high cost of the electronic library in the universities	0.322	0.748	Adaptation
17	possible limitations of laboratory sessions through e-learning	0.086	0.932	Adaptation
18	lack of enough training in the field of educational technology for the students	0.577	0.564	Adaptation
19	lack of the faculty access to individuals to solve problems in the field of e-learning	2.077	*0.038	Difference
20	requiring a lot of time preparing the students	2.916	*0.004	Difference
21	lack of (User friendly) and non-dynamic software in the e-learning courses	0.081	0.935	Adaptation
22	lack of policy for the implementation and appropriate strategic management of the development of educational technology in universities	2.452	*0.014	Difference
23	lack of transparency in e-learning goals	0.670	.503	Adaptation
24	lack of development of e-learning at high management level and those involved in educational planning	1.822	0.068	Adaptation
25	lack of necessary policy to certify or endorse the content, quality and structure of electronic courses in universities	1.713	0.087	Adaptation
26	lack of giving priority to the e-learning in the comprehensive program of ICT development in the country	1.863	.062	Adaptation
27	lack of attempt of administrators for culture-building in developing e-	4.565	**0.000	Difference

	learning in the countries			
28	low potential for evaluating progress in learning courses	1.782	0.075	Adaptation
29	low e-learning system for the continuity of learning activities by the faculty	0.603	0.546	Adaptation
30	low e-learning system in terms of providing feedback by the faculty	0.899	0.369	Adaptation
31	poor time management tools and planning for individual students	0.861	0.389	Adaptation
32	the low level of the learner or instructor permission to change the presentation of the course	0.245	0.806	Adaptation
33	the low proportion of structure with the needs of individuals or groups in the e-learning system	0.815	0.415	Adaptation
34	low rates of encourage for e-learning system in the relationship between the learner and teacher	0.967	0.333	Adaptation
35	the low level devices for e-learning system to express ideas for teachers and learners	1.271	0.204	Adaptation
36	lack of full cooperation of the Ministry of Science and the Ministry of Communications and Information Technology	1.806	0.071	Adaptation
37	insufficient faculty expert regarding the new educational technologies	1.076	0.282	Adaptation
38	unfamiliarity of planners and administrators with the concept of e-learning applications	2.179	*0.029	Difference
39	stakeholders' opposition with e-learning methods	0.097	0.923	Adaptation
40	unfamiliarity of students with methods of communicating with faculty members using e-learning	1.400	0.162	Adaptation
41	lack of faculty members interest for e-learning	1.902	0.057	Adaptation
42	excessive dependence students' learning on computers and neglecting from teachers' guidance	0.242	0.809	Adaptation
43	Faculty members' resistance to change and their worries regarding electronic technology	0.132	0.895	Adaptation
44	lack of experienced faculty on the e-learning and e-teaching units	0.848	0.396	Adaptation
45	low ability of learners to perform individual operations which finally leads to spending more time with the faculty	4.291	**0.000	Difference
46	inability of faculty to change the order of presentation of the course	5.020	**0.000	Difference

* significance in 5 percent level

** significance in 10 percent level

6. Conclusion

Investments in human resources training and training of skilled manpower are another important issue in the development of e-learning. Because development of e-learning will fail without a skilled and capable workforce and resistance of traditional training will be increased and finally, the way of approaching information technology to higher education will be harder. In addition, the nature of academic courses must be considered carefully before e-learning implementation. E-learning cannot be replaced by traditional training. E-learning should be focused on courses and subjects that traditional education system is unable to respond to them. Finally, we can say that to overcome the barriers of e-learning development at universities and educational institutions a holistic and integrated approach is needed. The policies to orient and provide the necessary resources to facilitate the development of long process of e-learning should be determined.

New technologies have great potential to transform and shape teaching and learning activities to all higher education institutions and they provide tools to design modern scientific environments which have never been possible before. For this reason, many universities in Iran want to set up e-courses using information technology capabilities in the form of e-learning or online learning. However, the review of literature shows that the development of e-learning in educational systems is faced with many problems which unfamiliarity of policymakers and educational planners with such problems can impose heavy costs on educational institutions.

It was found that strengthening and developing telecommunication infrastructures in educational institutions and providing access to information networks in such institutions is one of the important steps in the development of e-learning; because effectiveness of e-learning depends on the reliability and accessibility of hardware and software. And, lack of good telecommunication infrastructures severely affects the relationship between the learner and the educational system. Therefore, funding for facilities and e-learning tools for universities is a serious necessity. Many researchers have cited lack of hardware and software as one of the major challenges in the development of e-learning

References

1. Abdon, B. R., S. Ninomiya, and R. T. Raab. (2007). E-learning in Higher Education Makes Its Debut in Cambodia: The Provincial Business Education Project. *International Review of Research in Open Distance Learning* 8(1): 1-14.
2. Al-Wehaibi, Khawla., Al-Wabil, A. Alshawi, A., & Alshankity, Z., (2008). Barriers to Internet Adoption among Faculty in Saudi Arabian Universities ; In J. Luca and E. Weippl (Eds.). *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications* 2008 (pp. 24-33). Chesapeake, VA: AACE.
3. Anstead, T., Ginzburg, K. III Mike and R. Belloli. (2004). *Using Technology to Further the Dine College Mission*. Michigan: University of Michigan Business School.
4. Arbaugh, J. B. (2002). Managing the on-line classroom: a study of technological and behavioral characteristics of web-based MBA courses. *Journal of High Technology Management Research*, 13(2), 203–223.
5. Beneke, A. 2001. *E-Learning*. www.unil-hildesheim.de/tzieoob2/DownLaod/ELeraning.pdf (accessed May 4, 2007).
6. Cook D., Smith A. (2006). Validity of index of learning styles scores: multi-trait-multi-method comparison with three cognitive/learning style instruments. *Med Educ*. 40(9): 900-7.
7. Dillon, C. L., and S. M. Walsh. (1992). Faculty: the neglected resource in distance education. *The American Journal of Distance Education* 3(6): 5-21.
8. Grant, M. (2004). Five Key Barriers Facing Organizations in Elearning; E-learn Campus Corporation, Available on: www.elearncampus.com
9. Gulati, S. (2008). Technology-enhanced Learning in Developing nations: A Review. *International Review of Research in Open and Distance Learning* 9(1): 1-16.
10. Jansen Van Vuuren, J.C. & Coetzee F. P. (2004). ICT Education and Training in Sub-Saharan Africa. *Issues in Informing Science and Information Technology Education*, Pretoria [Online] Available at: <http://proceedings.informingscience.org/InSITE2004/116janse.pdf>
11. Kelsey, K. D., Lindner, J. R. & Dooley, K. E. (2002). Agricultural Education at a Distance: Let s Hear from the Students. *Journal of Agricultural Education*, 43(4): 24-32.
12. Kurtus, R. 2000. *What is E-Learning?* www.school-for-champions.com/relearning/whatis.htm (accessed May 4, 2007).
13. Lieblein, E. (2000). Critical factors for successful delivery of online programs. *Internet and Higher Education* 3: 161-174.
14. McPherson, M. & Nunes, M. B. (2004). *Developing Innovation in Online Learning: An Action Research Framework*. London: Routledge- Falmer.
15. Miller, G. & Miller, W. (2000). A Telecommunications Network for Distance Learning: If it s Built, will Agriculture Teachers Use it?. *Journal of Agricultural Education*. 4(1): 79-87.
16. Miller, M. T. & Mei-Yan, L. (2003). Serving Non-Traditional Learners in E-Learning Environments: Building Successful Communities in the Virtual Campus. *Educational Media International*; Jul, 40(1/2):163, Available: <http://web.ebscohost.com>
17. Mungania, P. (2003). The Seven e-learning Barriers Facing Employees. Report for Masie Centre Learning Consortium, Available at: http://www.masie.com/researchgrants/2003/Mungania_Final_Report.pdf.
18. Murphy, T. P., and K. E. Dooley. (2000). Perceived strengths, weakness, opportunities and threats impacting the diffusion of distance education technologies in a college of agriculture and soil sciences. ? *Journal of agricultural education* 41(4): 12-32

19. Nelson, S. J. and Thompson, G. W.(2005); Barriers Perceived By Administrators And Faculty Regarding The Use Of Distance Education Technologies In Pre-service Programs For Secondary Agricultural Education Teachers ; *Journal of Agricultural Education*. 46(4).
20. Ozkan, S., & Koseler, R. (2009). Multi-dimensional students' evaluation of e-learning systems in the higher education context: an empirical investigation. *Computers & Education*, 53(4), 1285–1296.
21. Panda S. & Mishra, S. (2007). E-Learning in a Mega Open University: Faculty Attitude, Barriers and Motivators. *Educational Media International*. 44(4): 40.
22. Petrides, L. A. (2002). Web-based Technologies for Distributed (or Distance) Learning: Creating Learning-centered Educational Experiences in the Higher Education Classroom. *International Journal of Instructional Media* . 29(1): 69-77.
23. Raab, R., Ellis, W. & Abdon, B. (2002.) *Multisectorial partnerships in e-learning: A potential force for improved human capital development in the Asia pacific*. The internet and higher education 4: 217-229.
24. Selim, H. M. (2007). Critical success factors for e-learning acceptance: confirmatory factor models. *Computers & Education*, 49(2), 396–413.
25. Shea, P., Pickett, A. & Sauli, C. (2005). Increasing Access to Higher Education: A Study of the Diffusion of Online Teaching Among 913 College Faculty ; *International Review of Research in Open and Distance Learning*. 6(2): 1- 27.
26. Song, L., Singleton, E. S. Hill, J.R. & Koh, M. H. (2004). Improving Online Learning: Student Perceptions of Useful and Challenging Characteristics. *Internet and Higher Education*. 7: 59-70.
27. Spender, D. (2001). E-Learning: are Universities Prepared? In Online Learning in a Borderless Market. Conference proceedings at a conference held at Griffiths University Gold Coast Campus, 59-63. Canberra: Department of Education, Training and Youth Affairs.
28. Thurmond, V. (2003). *Defining interaction and strategies to enhance interactions in Web-based courses*. Nurse Educ. 28 (5): 237-241.
29. Twomey A. (2004). *Web-based teaching in nursing: lessons from the literature*. Nurse Educ Today. Aug; 24(6): 452-8.
30. Wheeler, S., Yeomans, P., & Wheeler, D. (2008). The good, the bad and the wiki: evaluating student generated content for collaborative learning. *British Journal of Educational Technology*, 39(6), 987–995.
31. Wilson, E. and Moore, G. (2004). Factors related to the intent of professionals in agricultural and extension education to enroll in an online master's degree program. *Journal of agricultural education* 45(4): 96-105.
32. Zhang, W., Niu., J. & Jiang, G. (2002). Web-based Education at Conventional Universities in China: A Case Study; *International Review of Research in Open and Distance Learning*. 2(2): 1-24.