AGE, COMPUTER COMPETENCY AND GENDER AS PREDICTORS OF DISTANCE LEARNERS' ACCEPTANCE OF E – LEARNING INSTRUCTIONAL MODE OF STUDY

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Abstract
The study examined the attitude of Distance Learners in two selected institutions towards e-learning instructional delivery mode. Two hundred (200) participants drawn from the National Open University of Nigeria and University of Ibadan Distance Learning Centre on the basis of one hundred and eleven (111) and eighty nine (89) respectively were used for the study. Stratified and Random sampling techniques were used in the selection of the participants. Data were collected through the use of a validated questionnaire that was designed for the purpose. Three research hypotheses were generated for the study with two of them bothering on age and computer literacy level being accepted while the one on gender was not accepted. All the hypotheses were tested with the aid of chi-square statistics (χ^2) at 0.05 level of significance. Some far reading recommendations were made at the concluding aspect of the study.

Background to the study
Since the Open University in United Kingdom first offered undergraduate degree via *"Virtual Classroom"* in 1969 **(Educom Staff, 1996)**, many other universities in the world have moved in similar direction. The California Virtual University, which lists 1,000 distance education courses, and the Western Governor's University, a Consortium of 18 Western States in the US are both Classic example of the partnerships being formed to promote distance education as a liable alternative to classroom instruction **(Koss–Fader, 1998)**.

Distance Education has been widely accepted as an effective educational system aimed at providing education that transcends barriers and hindrance. Through Distance Education, the issues of age, gender, geographical barrier, work place etc have become non-hinderances to the provision of functional and quantitative

education. Distance Education and by extension open schooling have extended the chances provided by governments to enable citizens have equal access to education.

It should be established that Distance Education started as a form of correspondence education. Through this means, course materials were prepared and made available to students who read and wrote examinations. The trend has however changed significantly with the adoption and integration of modern day Information Communication Technology (ICTs). Although we still have a lot of Distance Education providers making use of texts, many of such institutions are finding it more convenient to use the modern day ICTs in the provision of some aspects of their services.

It is now very common to note the provision of DE through the Internet. Distance learners all over the world are now faced with the challenges of learning to access information through the NET. Apart from filling admission forms on-line, course materials are put in the NET either to be read or downloaded by the students. Examination and in fact some other vital information are put on the NET. The trend in the utilisation of the Internet is not limited to the developed countries, here in Nigeria, some institutions such as the National Open Universities of Nigeria, University of Ife, University of Lagos, University of Ibadan to mention a few have started experimenting the integration of the Internet in the provision of DE.

As the use of technology to facilitate and deliver distance learning courses has increased, new challenges have emerged for the administration, faculty, staff and students of universities developing and implementing distance learning programmes **(Drazdowski, Holoduck & Scappaticci, 1998, and Fulford, 1993)**. Many faculties for instance fear that distance learning is a means of reducing their ranks or a means to solve budget problems. Others fear the dehumanization and alienation of students as well as loss of critical thinking and social skills **(Novek, 1996)**.

On the other hand, **Swalec (1993)** suggests that rather than feeling threatened, faculty should embrace e-learning as a way for more students to access their courses, resulting in a greater intellectual and less chance of a course being cancelled. Good enough, educational institutions, research centres, libraries, government agencies, commercial enterprises, and advocacy groups have rushed to the web

(Johnson, 1999). It seems clear to most observers that the web profoundly influences society in general and universities in particular. One of the consequences of this tremendous surge in online communication has been the rapid growth of technology mediated distance learning at the higher education level.

This extraordinary growth of technology mediated distance learning in higher education has prompted several different agencies to develop principles, guidelines, or benchmarks to ensure quality distance education. These organisations included the American Council on Education, the National Education Association, the Global Alliance for Transnational Education (GATE), the Southern Regional Electronic Campus, the Commission on Higher Education for the Middle States, Association of Colleges and Schools, and the Western Cooperative for Educational Telecommunications.

The quality assurance benchmarks promoted by these organisations are designed to apply to a wide variety of institutional contexts and consist of fairly broad statements. However, virtually all of these strategies include such factors as course development, faculty training, student services, learning resources, infrastructure and assessment of outcomes.

"e – Learning" is a term that refers to a broad range of electronically distributed teaching and training materials. It most commonly refers to anytime, anywhere electronic or computer – supported learning and is often associated with online course.

Previous researches listed several advantages for e-learning. These include:

- Obtaining grades from the Web;
- Communication with the course instructor;
- Discussions on course content through the discussion-board;
- Easy access to course related materials;
- Submitting assignments through the Web;
- Enhancement of course understanding;
- Flexibility, accessibility, convenience;
- Multimedia capability;
- Increased reliability;
- Cross-platform capability;
- Web browser, software and Internet connections are widely available;

- Inexpensive worldwide distribution;
- Ease of update;
- Just-in-time, personal, adaptive, user centric;
- Travel cost and time savings;
- Can take it multiple times (improved retention, comprehension).

Every application has two sides. E-learning also has its disadvantages:

- ***Access capabilities:*** Application accessibility should be ensured 24x7x365.
- ***Internet connection speed/bandwidth:*** Care should be taken to ensure that students with low bandwidth can also access the information.
- ***Cost (longer development time):*** One of the observed factors here is the high cost and long time of development used in bringing an effective e-learning platform to its users.
- ***Development limitation:*** Many institutions willing to adopt the e-learning have difficulties in the development of e-learning platforms despite the availability of the various open sources such as Modules, a-Tutor Wikipedia, Blackboard, among others.
- ***Type of content (not all content is suitable for* e-learning*):*** There is an erroneous believe in some quarters that e-learning is not robust enough a platform for the teaching and learning of some curriculum contents. However, recent development in the application of e-learning has shown that it is a versatile instructional delivery platform that can accommodate any form of content in any field of study.
- ***Learner motivation and initiative:*** Most students are used to live motivational initiatives provided through the face to face teaching and learning environment. Therefore, there is the fear that e-learning cannot provide adequate and realistic learner motivation. However, this fear seems unfounded as e-learning designed in the form of synchronous platform seem to have solved the perceived incapability of e-learning. Students have the opportunity to interact through a chat and forum thereby providing

opportunity for interactivity and immediate knowledge of results.

- ***Portability:*** e-learning platforms should be made portable and compatible to all computer applications via CD's and DVD's and Internet.

- **(Mihhailova, 2006)** identified the under-listed as the main problems concerning e-learning:
- ***Lecturers' lack of time:*** Mainly it is related to preparing the e-course and
- adjusting existing courses into e-course format.
- ***Lack of clarity in comprehension system:*** e-learning is different from
- ordinary learning and teaching. Unfortunately, so far no clear rules have been formulated as to how to measure and pay fairly for the work of an e-teacher.
- ***Uncertainty on how to measure teaching quality and little interest in***
- ***cooperation between e-course developers:*** It appears to be still unclear about how to measure teaching quality in e-learning and also the rules and guidelines on how to prepare and develop a good e-courses are missing.
- ***Learning materials and time management:*** In case of ordinary learning situation, the planning and time management is being done for the students by curriculum administration department. But in case of e-learning course the student himself/herself has to take active roles in it and that necessitates much more self-discipline and becomes one of the major issues why students drop e-courses. The best learning results can be achieved and number of dropouts reduced if an admixture of ICT means (e-cameras, videoconferencing, etc.) as rich as possible, are being used and blended and when this is done, the negative side effects of e-learning would almost be trimmed down to make the e-learning process an exceptional and exhilarating great experience.
- ***Loss of "teacher's aura" and possibility of discussion:*** Some special subjects (e.g. social work, law etc) require a lot of discussion and quick feedback and that makes the notion of

turning these courses into full-fledge e-course highly questionable. Blended learning offers solution: lectures in virtual environment, seminars, and practical assignments in classroom – in face-to-face environment.

- ***Time management:*** Although students find themselves at ease and working at their own pace as a benefit of the online school, they struggled with procrastination in their academic work because their teachers did not set deadlines on their cyber school projects, making it easy to put them off. Old students of e-learning in particular mentioned this setback that impedes the academic attentiveness and time consciousness.
- ***Technology:*** The technology issues followed two main themes: hardware problems with the school's network server and internet bandwidth issues that prevented students from uploading their assignment files easily.
- ***Lack of face-to-face communication:*** Some younger students expressed regret that they were not able to sit in math class with peers.
- ***Comparison to regular courses:*** Some students felt that their on-line course work was more difficult than the work their peers in normal regular school were doing. Others said that they felt their cyber school courses took more time than that of their peers in regular courses. One had also remarked that there was a drop in his math score in the on-line school compared to what he had obtained in a regular course the previous year.

Further, several barriers to the implementation of e-learning as identified in literature include:

1. Increased time commitment (workload) for academic staff;
2. Development time;
3. Delivery time;
4. Lack of extrinsic incentives/rewards;
5. Lack of strategic planning and visions;
6. Lack of support;
7. Lack of training in technological developments;
8. Lack of support for pedagogical aspects of developments.

Dillon and Morris (1996) defined students' acceptance as *"the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support teachers"*. Although e-learning is increasingly used in the Malaysian tertiary distance institutions, the question of how well learners accept e-learning as a learning medium has not been well-researched. **Hong, Lai and Holton (2003)** investigated an e-learning course at Universities of Malaysia and reported that more than half of their participants had high level of acceptances with the e-learning course. The students who had high level of acceptance indicated that the e-learning course was convenient and flexible. Nonetheless, some students faced difficulties with the web-based learning environment. They found the e-learning course to be a new learning experience and felt that they needed more guidance and time to adapt to the learning environment **(Hong et-al, 2003)**. Meanwhile, **Poon et-al (2004)** studied e-learning learning environments at several local universities in Malaysia and reported that their participants were not fully comfortable with e-learning. Likewise, **Poon et-al (2004)** posited one possible reason was that the students were unfamiliar with the e-learning medium. On the positive side, **Hong et-al (2003)** and **Poon et-al (2004)** reported that students generally agreed that the e-learning helped in their studies. However, past research showed that a number of factors such as students' and instructors' characteristics **(Hong et-al, 2003)**, **Ndubisi, 2004; Poon et-al, 2004); Rafaeli and Subweeks, 1997)**, institutional support **(Passmore, 2000; Latifah and Ramli, 2005)**, course content and knowledge management **(Selim, 2005; Rosenberg, 2001)** and online tasks and discussion groups **(Mc Donald, 2001, Webb, Nemer, Chizhik and Surgue, 1998)** could influence learners acceptance of e-learning. Martins and Kellermans **(2004)** opine that student acceptance of DL is one of the critical factors that should be evaluated in order to adequately assess whether the successful implementation of a DL system can support teaching-learning activities and the student experience.

Previous research generally found no differences between males and females in attitudes towards e-learning. For example, **Abouchedid and Eid (2004)** found no significant differences between males and females on the interest scale except on four items. It was reported that females registered on a lower mean rank (124.1) in e-teaching than males (144.9) with $P<0.05$, i.e. they did not favour e-

teaching and were also not interested when compared with males in using technology in the classroom as well as in displaying their course syllabus on the net. Females, however, were significantly ($P<0.05$) more interested than their male counterparts in receiving e-learning training.

Generally speaking, gender does not have an obvious effect on students' level of acceptance in applying e-learning for business courses. However, the means for males almost always appeared to be higher than those for females.

Salah (2008) citing Compeau and Higgine(1995) defined computer competency as the judgment of one's information technology capabilities. Student computer competency is measured by the frequency of computer use, knowledge of software, frequency of internet use, and type of internet use. These concepts are believed to have important roles in the success of the ODL model. Hypothetically, a student with strong computer literacy will likely have a positive disposition/tendency toward a DL environment (Salah, 2008).

The factor of age as it relates to students use of e-learning in particular and ICT instructional delivery strategies in general should be of interest to providers of DE. This is because DE is fast becoming attractive to both old and young learners. It is on this note that we consider it worthwhile to find out the disposition of students to e-learning based on the age variable.

Statement of the Problem

This study investigates the factors of age, computer competency and gender as they influence the readiness of the distance learners in using e-learning platform as a new mode of instructional presentation in distance learning in Nigeria.

Hypotheses

Hypothesis 1: Age has no significant effect on students' perception of e-learning as instructional delivery mode.

Hypothesis 2: Students' computer literacy has no significant effect on their perception of e-learning instructional delivery mode.

Hypothesis 3: There is no significant difference in the perception of male and female students on e-learning as an instructional delivery mode.

Research Design and Methodology

This study is a descriptive study using a survey design to investigate the attitude of distance learners in two selected institutions toward e-learning.

The population of this study consisted of all the distance learners in the University of Ibadan and the National Open University of Nigeria (NOUN), Ibadan Study Centre. Two hundred participants were selected through the adoption of simple random techniques for the study. In all, 111 participants were selected from NOUN while 89 were selected from the University of Ibadan respectively. The participants were selected across four academic disciplines of Education, Science, Arts, and Social Sciences.

The main instrument for the collection of data for this research was the questionnaire designed by the researchers. The questionnaire was made to undergo content and construct validity. The reliability of the instrument was calculated using Cronbach's alpha. The overall alpha score for the pilot data was 0.75 which indicated high reliability of the instrument. The responses from the questionnaire constituted the data upon which the research questions were examined. The questionnaire for the study was titled Attitude of Distance Learners towards e-learning instructional delivery mode technique (ADLTE). The questionnaire comprised some items placed on a 5-point likert format scale measurement. It also consisted of checklist responses from which respondents were asked to choose from one or more alternatives that best reflected their opinions, thus making the checklist easy to answer. The instrument had 25 items in all.

Validity was established by comparing the content of the instrument to the known instrument in the computer competency area. This comparison was used to validate the belief that the tool accurately represented the information we sought to gather. In addition, opinions of experts in educational technology, educational evaluation and distance learning were sought for and used to modify the instrument.

The questionnaire was administered to students who attended distance learning centres, University of Ibadan and National Open University of Nigeria, Ibadan Study Centre. Cautions were taken to avoid sharing of opinion among respondents so as to reflect the innermost feeling of each of the respondents. All the questionnaires were

completed within 20 minutes with each of the respondents and were collected immediately.

The data generated from the study were analysed using descriptive statistics, such as frequency percentages and inferential statistics i.e. Chi square (χ^2).

Hypothesis 1: Age has no significant effect on students' perception of e-learning as instructional delivery mode.

Results

Age	**Frequency**	**Percent (%)**
less than 21years	17	8.5
21-30years	83	41.5
31-40years	50	25.0
41years & above	50	25.0
Total	**200**	**100.0**

Table 1 reveals the distribution of the respondents by their age. The result shows that 8.5% of the respondents were within the age range that is less than 21years, 41.5% of the respondents were within the age range of 21-30years, 25% of the respondents were within the age range of 31-40years while 25% of the respondents were within the age range of 41years and above.

Age as Predictors of Perception e-learning Instructional Delivery Mode

Age	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Strongly Disagree	χ^2	df	Sig.
less than 21years	2	0	9	2	4	17			
	1.0%	.0%	4.5%	1.0%	2.0%	8.5%			
21-30years	0	5	22	15	41	83			
	.0%	2.5%	11.0%	7.5%	20.5%	41.5%			
31-40years	4	10	6	7	23	50	50.977	12	.00
	2.0%	5.0%	3.0%	3.5%	11.5%	25.0%			

41years & above	0	8	0	14	28	50			
	.0%	4.0%	.0%	7.0%	14.0%	25.0%			
Total	6	23	37	38	96	200			
	3.0%	11.5%	18.5%	19.0%	48.0%	100.0%			

The data collected were analyzed with the aid of chi-square statistics (χ^2). The null hypothesis tested at 0.05 level of significance stated that there is no significant difference between the age of learners and their perception of e-learning instructional delivery mode.

The χ^2 observed value is 50.977 and degree of freedom is 12. This is significant since probability value is 0.05 (P< 0.05). Therefore, the null hypothesis is rejected since f-calculated (50.977) is greater than f-tabulated (21.03). This study therefore confirmed that there is significant difference between the age of learners and their perception of e-learning instructional delivery mode.

Hypothesis 2: Students' computer literacy has no significant effect on perception of e-learning as an instructional delivery mode.

Computer literacy Level	**Frequency**	**Percent**
Sound computer knowledge	32	16.0
Lack of computer knowledge	20	10.0
Have Internet literacy	121	60.5
Computer literate but not internet compliant	27	13.5
Total	**200**	**100.0**

Table 2 reveals the distribution of the respondents by their computer literacy. The result shows that 16% of the respondents were computer literate, 10% of the respondents had no computer knowledge while 13.5% of the respondents were computer literate but not internet compliant.

Table 2 Students' Computer Literacy as Predictors of Perception of Distance Learners to e-learning Instructional Strategy

Computer Literacy	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Strongly Disagree	χ^2	df	Sig.
Computer Literacy	4	4	12	0	12	32			
	2.0%	2.0%	6.0%	.0%	6.0%	16.0%			
Lack of Computer Knowledge	0	3	1	7	9	20			
	.0%	1.5%	.5%	3.5%	4.5%	10.0%			
Internet Literacy	2	16	24	18	61	121	51.687	12	.000
	1.0%	8.0%	12.0%	9.0%	30.5%	60.5%			
Computer Literate but not Internet Compliance	0	0	0	13	14	27			
	.0%	.0%	.0%	6.5%	7.0%	13.5%			
Total	6	23	37	38	96	200			
	3.0%	11.5%	18.5%	19.0%	48.0%	100.0%			

The result of the data collected was analyzed with the aid of chi-square statistics (χ^2). The null hypothesis tested at 0.05 level of significance stated that there is no significant difference between the learner experience and their perception of e-learning instructional delivery mode.

The χ^2 observed value(s) is 51.687 and degree of freedom is 4. This is significant since probability value is 0.05 (P< 0.05). Therefore, the null hypothesis is rejected since f-calculated (51.687) is greater than f-tabulated (21.03). This study therefore confirmed that there is significant difference between the learner experience and their perception of e-learning instructional delivery mode.

Hypothesis 3: There is no significant difference in the perception of male and female students on e-learning as an instructional delivery mode.

Gender	**Frequency**	**Percent**
Male	108	54.0
Female	92	46.0
Total	**200**	**100.0**

Table 3 reveals the distribution of the respondents by their gender. The result shows that 54% of the respondents were male while 46% of the respondents were female.

Gender as a Predictor of Distance Learners Perception of e-learning

Gender	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Strongly Disagree	χ^2	df	Sig.
Male	6	10	18	17	57	108			
	3.0%	5.0%	9.0%	8.5%	28.5%	54.0%			
Female	0	13	19	21	39	92	8.992	4	.061
	0%	6.5%	9.5%	10.5%	19.5%	46.0%			
Total	6	23	37	38	96	200			
	3.0%	11.5%	18.5%	19.0%	48.0%	100.0%			

The result of the data collected was analyzed with the aid of chi-square statistics (χ^2). The null hypothesis tested at 0.05 level of significance stated that there is no significant difference between the gender of learners and their perception of e-learning instructional delivery mode. The χ^2 observed value(s) is 8.992 and degree of freedom is 4. This is significant since probability value is 0.05 (P> 0.05). Therefore, the null hypothesis is accepted since f-calculated (8.992) is less than f-tabulated (9.488). This study therefore confirmed that there is no significant difference between the gender of learners and their perception of e-learning instructional delivery mode.

Conclusion and Recommendations

The findings from this study showed that more could be done to improve the attitude of distance learners toward e-learning instructional delivery mode.

Distance Learning Institutions in Nigeria should assist and prepare their students for distance learning and in particular guide them in

utilizing e-learning delivery mode. Institutions should also provide course to guide students to teach them the use of web based for learning purpose. It is hoped that the findings of this study would assist distance learning institutions in Nigeria improve the quality of web based learning in their institutions.

Based on the findings the following are recommended:

1. Government and/Management of Distance Learning Institutions should provide
2. (ICT) office, materials like (Desktops, Laptops and Internet facilities) in all the study centres to make it more easier for all students to have access to e-learning.
3. Regular electricity and standby generators should be provided by the institutions.
4. Institutions need to include some courses to download material from internet Examinations, TMAs/Assignment to arouse students interest on e-learning .
5. Recruitment of facilitators should be based among other factor knowledge and skill in ICT.
6. Government and Institutions need to organize and sponsor in-service training, workshop, seminar and overseas training to improve the knowledge of the facilitators.
7. Facilitators' general welfare should be adequately taken care of by the government to improve their morale and general attitude to work.

References

Dillion, A., and Morris, M.G. (1996). User acceptance of information technology: Theories and models. Annual Review of information science and Technology, 31, 3-32.

Dradowski,T.A., Holoduk, N.A & Scappaticci, F.T., (1998), Infusing technology into a teacher education program: three different perspectives. Journal of technology and Teacher Education, 6 (2/3), pp. 141-149.

Educom Staff (1996), should distance learning be rationed? Point Counterpoint with Larry Gold and James Mingle. Educom Review, 31(2), 48-50, 52

Fulford,C.,and Zhang. S. (1993). Predicting Student Satisfaction from perceptions of interaction in distance learning. The Tele-teaching, ed. G. Davies and B. Samways, pp. 259-268. North Holland: Elsevier Science Publishers.

Hong, K.S., Lai, K.W., and Holton, D. (2003). Students' satisfaction and perceived learning with a web based course. Journal of educational technology & society 6(1). Retrieved January 15, 2004, from http://ifets.ieee.org/peridical/vol1 2003. html.

Johnson.J., (1999). "the thread of a great and long tradition."techknowlogic. Vol. 1, No.1 pp. 9-12.

Koss-Feder,L.(1998 July 20), Brushing up. Times, 15-19.

Latifah, A.L., and Ranili, B. (2005). Priority satisfaction survey: A tool in developing affective retention strategies Paper presented at the Conference on Research in Distance and Adult Learning in Asia.(Open University of Hong Kong. P.R. China, June 20-22, 2005). Retrieved February 9, 2006, from http://www.ouhk.edu.hk/cridal/cridala2005/latifbahroom.pdf.

Mac Donald, J. (2001). Exploitng online interactivity to enhance assignment development and feedback in distance education. Open learning, 16(2), 179-189. Retrieved June 5, 2005, from http://taylorandfrancis.Matapress.com/media/3duf6u8jin5urn5euqt/Contributions/h/i/5/u/h/5ubwh/tqmuf/tu.pdf.

Mihhailova G. (2006). E-learning as internationalization Strategy in Higher Education; Lecturer's and Students Perspective. Baltic Journal of management; Volume 1 Number 3. pp; 270-284.

Ndubisi, N.O.(2004). Factors influence e-learningadoption intention: Examing The determinant 2004 Conference. (Miri, Sarawak, july, 4-7.2004) Retrieved January 2, 2004, from http:www.herdsa.org.au/conference 2004/contributions/RPapers/P057-jt.pdf.

Novek, E.M., (1996).Do Professors dream of electronic sheep? Academic anxiety about the information age(ERIC Clearinghouse on Resources ED 399594).

Passmore, D.L.(2000). Impediments to adoption of web-based course delivery among university faculty. ALN magazine, 4(2).

Poon, W.C., low, L.T., and Young, G.F. (2004). A study of web-based learning (WBL) environment in Malaysia. The Inrenational Journal of Educational management, 18(6), 374-385.

Rafaeli,s., & subweeks, F (1997). Networked interactivity. Journal of computer-mediated communications. 2(4) Retrieved July 17, 2004,from http://www.ascusc.org/jcme/Vol12/issue4/rafaeli.sudweeks.html.

Rosenberg, M.J. (2001). E. learning: Strategies for delivering Knowledge in the digital age. New York: Mc Gran Hill Retrieved February 23, 2004, from http://reach.ucf.edu/%eme6457/main.html.

Salah Al-Fadhl (2008). Factors Influencing Acceptance of Distance Learning: A Case study of Arab Open University in Kuwait, http://www.westga.edu/-distance/ojdla-

Selim, H.M (2005). Critical Success factors for e-learning acceptance: confirmatory factor models. Computer and Education. Retrieved February 9, 2007 from http://mail.

Swalek, J.J. (1993). Engaging faculty in Telecommunications-based instructional delivery system (ERIC Clearing house on information Resources Ed 368418).