A Study on the Relationship between Demographic Factor and E-learning Readiness among Students in Higher Education

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ABSTRACT: *Learning is a lifelong process in this competitive world where we have to update the knowledge everyday with global exposure. To sustain competitiveness in education we induce technology in to learning process. Using the tools of technology, learning and teaching process happens in any electronic medium such as audio, video, TV and satellites across the world. E-learning is technology enabled learning method which emerged as a potential tool for education industry and also being used for training and development in many other industrial sectors. Higher education is at booming stage, where people around the world spend more than 2 trillion USD for education. E-learning plays a major role in knowledge dissemination where more than 90% of colleges in the United States offer e-learning courses and countries like India have a huge potential growth for higher education through e learning mode. There is an existing gap in student enrolment (CAGR) and faculty Compound Annual Growth Rate (CAGR). It is also evident that a huge gap exists between the undergraduate and post graduate enrolments in India. As per population census more than 60% of people in India are from middle age group who are engaged in full time employment and would want to enrich and update their knowledge with out attending class room teaching. The biggest challenge the E-learning faces is monitoring and validity of the person as to the course has been taken and gone through the assessment in a legal or right manner. The higher education institutions and corporate agree upon making E-learning a part of the course but do not consider it as equivalent to class room teaching.*

This study is about the readiness of the students to e-learning process and usage. It analyzes the levels of awareness of the student, degree of acceptance and adoption of the student towards the e-learning environment. E-learning courses provide global exposure and help students to have real time experience even in distance education mode. This study tries to identify the demographic factors that influence on three important variables like the readiness of the student towards e-learning environment and knowledge and level of comfort in technology they use.

1. Introduction

A large amount of business models emerged during 1990's with the emerging popularity of the internet and technology. One among those business models was transferring knowledge through online i.e. teaching and learning through online. Education industry experienced a changeover from traditional face to face classes either full time or through distance education to a hand held compact disc with benefit of real time course. The growth of e-learning id much higher in developed countries when

compares with developing nations. The usage of internet and the online environment is about 5.4 percent in India, it about 9.3 percent in china whereas it is 69.3 percent and 67.2 percent in USA and Japan respectively. Even though it is very less usage in India earlier, it is getting much better and moving in the improvement path and concentrates on the technological infrastructure, user capability, etc. E-learning readiness assessment conducted by EIU in the year of 2003 reports that India ranks 45 among 60 nations with the score of 4.56 out of 10. There is a gradual increase in the score by 2008 India scored 4.96 and ranked 54 out of 70 (Economist Intelligence Unit (EIU), 2008).

E-learning has growth across the length and breadth of the globe as the popular medium of education for both training and education purpose. The educational industry and as well as many organization makes a significant investment in the technology enabled learning – E-learning systems. The overall size of the market increases as the result of remarkable change in the Indian education system. New opportunities were created for both education providers and the users by the segments like virtual universities for various courses like management, medical, etc and for schools tutoring through online, K-12,etc. the enrolment of online education contribute more to the enrolment of overall higher education in USA. The e-learning market was dominated by 70 percent only by USA and Europe (Allen and Seaman, 2010). Technical experts like Adobe Sys Inc, Blackboard Inc, Cisco System Inc, IBM Corp, etc dominates the overall global market of e-learning. Meanwhile organization like Tata Interactive System, Educomp solutions Ltd, etc plays a vital role in driving the Indian market to next level.

Now a day's most of the firms concentrate in cost reduction in order to sustain in the stiff competition due to various reasons like globalization, liberalization, etc. The firm adopt e-learning to train their employees instead of tradition methods as it is more cost effective. This is possible due to easy access to high speed bandwidth at very low cost. The IP rate of India has increase to 8.5 from 0.5 in 2000 – static report of internet world stats (www.internetworldstats.com).To uphold themselves from the adverse effects of current economic condition people prefer to pursue higher studies like management studies. To pacify the increase in demand, the education institution offers course in online. The online course helps to experience the global exposure. Few institutions like XLRI, IMT, IIM – Bangalore, Kozhikode, Kolkata, etc and institution like IGNOU provide though distance education. Meanwhile it is very important to know the level of awareness, preferences and readiness to accept and adapt to the technology enabled e-learning environment. Not only private institutions, now a day's government also comes forward to promote education via e-learning to have smooth cardial relationship between the teachers and students (Rao, 2011).

2. Literature Review

The way of communication and learning through electronic medium is known as e-learning or online learning (Roffe, 2004). The organization providing training to their employees through online and other electronic mode shows the strength of the nation to optimize the digital technology for communication and trade purpose which leads to the development of social and economic condition of nation to the greater extent EIU 2008. Learning objects, videos on demand, virtual labs, simulations etc are some of the communication media (Roffe 2002). The many users feel that flexibility is one of the most benefited things that they get through e-learning (Sim son et al 2004). Due to the multi factor nature of e-learning, it provides a wide range of approaches techniques (Clark, 2007). The various technologies like distance learning communication through mails, computer assisted instruction learning with the help of web and multimedia materials etc. are utilized through online learning (Hilty & Turnoff, 2008). E-learning has disadvantage like lack of communication and feedback, lack of bonding between the students (Hirrchheim, 2005). From the above discussion, it is very vital thing to assess the involvement of student for online learning before starting the journey of education through online. E-learning provides educational content in more dynamic and personalized way with more interaction with other learners and the tutor (Pillay et al, 2007). Inspite of flexibility and freedom provided by e-learning the learner should be self motivated and self disciplined (Kearsly, 2000. Wong, 2007).

3. E-Learning Readiness Model

All available e-learning readiness instruments are not suitable for all nations. Most of them are suitable only to the developed countries and not to the developing countries (Aydin & Tasci, 2008). The assessment approaches also need to be upgraded and up to date as the frame work and models of the readiness of learner with new technology (freeze et al, 2010). The update of assessment tools are very important for educational institution since the quality of their business lies in the level of ability of student to examine the quality of the technology that keep on changing (freeze et al, 2010). A scale to measure the internal reliability and inevitability of result of self assessment categories like motivational level, access to technology online skills and bending, etc was given by (Watkin, 2003).

A model called IS model was designed to determine the effectiveness of e-learning with six components by assuming them as procedures of e-learning readiness (Delone & Mclean, 2003). With the dimension as flexibility, quality, technology and self discipline scale was designed to know the personal readiness for online environment (Parnell & Carraher, 2003). The most accentuated factor in most of the e-learning models are readiness in structure, culture, and content (Darab & Montager, 2011).

The tendency of the people to grasp and make use of technology at their convenient places either their home or workplace is known as technology readiness (Parasuraman and Colby, 2001). The e-learning model designed with more than 150 qualitative and quantitative criteria which are categorized as education, industry, government, society with its components like connectivity, capability, content and culture was named as "E-learning assessment model" was given by EIU in 2003 and it was further improved by EUI in 2008 has six criteria namely, Connectivity and technology infrastructure, business environment, social and cultural environment, vision and business adoption, government environment and legal environment. Many empirical studies were done regarding perception and readiness towards e-learning environment, but they were all conducted regarding readiness of various professionals towards e-learning and very few were conducted regarding the readiness of the students and their perception on e-learning environment. (Allen ad Seaman, 2008).

When considering on the gender impact on the readiness towards e-learning, the perception regarding intension to use computer as well as e-learning generally differs among the men and women. The result of the study was not conclusive. The gender gap in perception and readiness can be eliminated regarding the usage of e-learning. Earlier studies regarding the readiness of gender towards e-learning with respect to perception and attitude shows that female students were less positive when compared with male students towards the use of computers and readiness to undergo e-learning courses.(Koohang, 2004).

Few studies state that there are no significant differences in usage of computers, attitude towards computers, efficiency to use computers and pursue e-learning courses between the genders. (Morris and Morse, 2008). The studies based on TAM supports that the gender has impact on the relationship towards intension to use computers and readiness towards e-learning. It states that males have greater affinity and behavioural perceived usefulness and readiness to use computers and e-learning than females. (Gefen and Strab, 1997. Venkatesh & Morris, 2007).

4. Research Objective

1. To assess the awareness level of e-learning among student in higher education institutions.

2. To assess the degree of familiarity with various e-learning technologies and tools.

3. To identify list of factor that influence e-learning readiness and determining the importance of each of these factor.

4. To examine whether the respondents could be segmented based on their education back ground and in turn how it influences their e learning awareness.

5. To understand the relationship between the demographic variable and their impact on e-learning readiness.

5. Research Methodology

5.1. Sample
The sample consists of 130 respondents. In this 84 male respondents and 46 female respondents are those who registered for both the under graduate and post graduate program in Colleges/University in Vellore district with special focus on the students from Business Administration and Master in Business Administration. Convenience sampling technique has been used for this research study.

5.2. Instrument
Historical leaflets are used to frame the questionnaires based on the e-learning readiness among students towards their higher education and the dimensions of e-learning. (Secondary data's - review of literature, respondent's feedback, etc…). The instrument consists of 5 factor namely 1) Comfort level with technology, 2) Learning by using technologies, 3) Group learning, 4) Meticulous, 5) Disciplined explorer with 33 statements where, initial 9 statements are about awareness of e-learning technologies, next 14 statements include 5 reversed statements which are adopted from the research article (Deepak ChawlaHimanshu Joshi, (2012)), and another 5 questions consist of Demographic variables like Age, Gender, Qualification, Educational

background, and how many hours people spending on internet and the final 5 statements are about the respondents awareness on e-learning. Five point Likert scale has been used for each statement which is pointing from "Strongly Agree" to "Strongly Disagree". An ordinal and nominal scale has been used among students in this survey to know the degree of familiarity on e-learning.

5.3. Procedure

The final data collection was done among the students through Google Docs and hard copy format which contains clear objectives of the research and its purpose. These questionnaires are distributed among students pursuing under graduate and post graduate programs in management education. Initially 157 filled questionnaires are collected in the form of Google docs (47) and hardcopy questionnaires (110). After removing the unoccupied questionnaire finally 130 questionnaires are used as sample for research and data analysis.

SPSS v20.0 is used for data analysis. Simple percentage analysis is used for initial 9 statements to identify the respondents' awareness level on e-learning technologies. For next 14 statements which consists of 5 factors, One-way Anova has been used regarding demographical variables like, gender, age, qualification, education background, and the number of hours spent by the students on internet to find e-learning readiness among them.

5.4. Hypotheses

H1 - There is a significant difference based on comfort with technology, learning by using technology, group learning, Meticulous and Disciplined explorer based on Gender.

H2 - There is a significant difference based on comfort with technology, learning by using technology, group learning, Meticulous and Disciplined explorer based on Age.

H3 - There is a significant difference based on comfort with technology, learning by using technology, group learning, Meticulous and Disciplined explorer based on Qualification.

H4 - There is a significant difference based on comfort with technology, learning by using technology, group learning, Meticulous and Disciplined explorer based on Education Background.

H5 - There is a significant difference based on comfort with technology, learning by using technology, group learning, Meticulous and Disciplined explorer based on Internet usage.

6. Data Analysis

The respondent details are given in Table-1. The frequency table shows that 64.6% respondents are male and remaining 35.4% are female and 60% of respondent are from the age group of 21-23, those who are currently pursuing their graduation with different education background whereas more than 49% of people are from Engineering background. On an average the respondents are spending more than 15+ hours in using the internet and it shows that internet penetration IP level is high and the respondents are good in using internet.

Demographic Variable	Options	Frequency	Percentage %
Gender	Male	84	64.6%
	Female	46	35.4%
Age	18-20	35	26.9%
	21-23	77	59.2%
	24-26	14	10.8%
	27 Above	4	3.1%
Qualification	Bachelors Degree	56	43.1%
	Post Graduation Degree	74	56.9%

Education background	Arts	17	13.1%
	Science	7	5.4%
	Engineering	64	49.2%
	Commerce	42	32.3%
Internet Usage	less than 5 hr	6	4.6%
	6hr -10hr	30	23.1%
	11hr-15hr	50	38.5%
	16hr-20hr	12	9.2%
	more than 21 hours	32	24.6%

Table 1

6.1. E-Learning Awareness

From the last 5 statement the respondent awareness level has been assessed. Table-2 represents the frequency distribution of the statements from the questionnaire. Based on the responses most of the students view e-learning as a computer based learning provided via digital medium with the percentage of 78.4% and 71.5%. At the same time more than 58.4% of respondent view elearning as a kind of hybrid learning which is conducted through both direct and virtual classroom mode. 49.2% of the respondents view e-learning as the class that is provided via satellites. 44.6% respondents consider that e-learning is form of distance learning.

S.No	Statements	No. Of Response	Percentage *
1	E-learning is computer-based learning	102/130	78.4%
2	E-learning is distance learning via any medium	58/130	44.6%
3	E-learning is combination of classroom- and web-based	76/130	58.4%
4	E-learning is distance learning via satellite	64/130	49.2%
5	E-learning is delivered via digital technologies	93/130	71.5%

Table 2

6.2. E-learning Technologies - Familiarity

Figure -1 represents the familiarity frequency distribution of the initial 9 statements from the questionnaire based on e-learning technologies. The result indicate that respondent are more familiar and experienced E-learning tools like E-book, E-gaming or simulations, computer based assessment, and streaming video/audios. In other hand respondent not much familiar and experience with importance tools like e-discussion boards, electronic white boards, and web online courses. When respondent got experience in this technologies so that they can easily get adapted to e-learning modules.
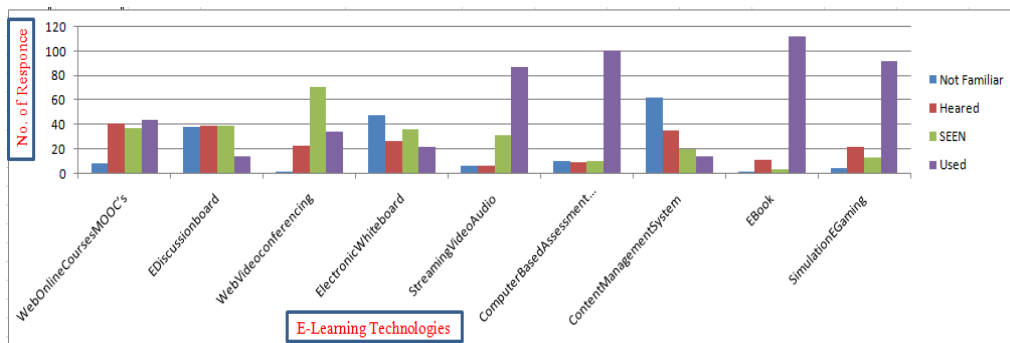

Figure 1

6.3. E-Learning Readiness

Table-3 Shows the significant level (p-value) of each factor with regard to demographic variable like gender, age, qualification, education background, and number of hours spent by the students on internet is 95% confident level. And the result shows that there is a significant difference between the male and female with regard to the comfort level with technology, learning using technology and group learning. In this research male are more comfortable (μ=2.31) with technology and prefer technology more for learning (μ=2.51) when compared to female, whereas female prefer more of group learning (μ=1.97) when compared to male. But there is no significant difference between male and female with regard to meticulous and discipline explorer.

There is a significant difference between the age group with regard to group learning. Whereas there is no significant different between age group based on comfort level with technology, Learning using technology, meticulous and discipline explorer.

Gender		P value	Sig.
H1a	Comfort level with technology	0.036	Accepted
H1b	Learning using technology	0.051	Accepted
H1c	Group learning	0.028	Accepted
H1d	Meticulous	0.26	Not Accepted
H1e	Disciplined explorer	0.902	Not Accepted
Age			
H2a	Comfort level with technology	0.644	Not Accepted
H2b	Learning using technology	0.14	Not Accepted
H2c	Group learning	0.016	Accepted
H2d	Meticulous	0.675	Not Accepted
H2e	Disciplined explorer	0.269	Not Accepted
Qualification			
H3a	Comfort level with technology	0.383	Not Accepted
H3b	Learning using technology	0.571	Not Accepted
H3c	Group learning	0.701	Not Accepted
H3d	Meticulous	0.649	Not Accepted
H3e	Disciplined explorer	0.027	Accepted
Education background			
H4a	Comfort level with technology	0.034	Accepted
H4b	Learning using technology	0.021	Accepted
H4c	Group learning	0.009	Accepted
H4d	Meticulous	0.64	Not Accepted
H4e	Disciplined explorer	0.439	Not Accepted
Internet Usage			
H5a			
H5b	Comfort level with technology	0.000	Accepted
H5c	Learning using technology	0.268	Not Accepted
H5d	Group learning	0.000	Accepted
H5e	Meticulous	0.050	Accepted
	Disciplined explorer	0.002	Accepted

Table 3

There is no significant difference based on qualification with regard to the comfort level with technology, learning using technology, Group learning, and meticulous. But there is a significant difference based on qualification with regard to discipline explorer.

There is a significant difference based on education background regarding the comfort level with technology, learning using technology and group learning. This study states that science background students are more comfortable with technology (μ=2.28) and Arts students prefer technology more for learning (μ=2.06) and mean value shows that they are comfortable with group learning environment. But there is no significant difference based on education background with regard to meticulous and discipline explorer.

There is a significant difference based on how much time does the respondent spend on internet regarding the comfort level with technology, group learning, meticulous, and discipline explorer. The study states that when respondents spend more time on internet (more than 21hr/week) then they are at more comfort level using technology(μ =1.98), meticulous (μ =1.83) and more discipline explorer(μ=2.23), whereas students who spend less hours on internet look more for group learning activity (μ =1.58). But there is no significant difference based on the amount of time respondents spend on internet regarding the learning using technology.

7. Discussion

The respondents are aware of what is e-learning and how it is delivered to the students. At the same time students are more familiar with some the e-learning technologies like e-book and e-gaming because they used it once in a while, but they have to improve familiarity with interactive and content related technologies like digital boards, and video conferencing tools etc.

One-way Anova shows that there is a significant difference based on demographic variable towards e-learning readiness. So, when institution is implementing e-learning they have to consider students' awareness level and knowledge about e-learning technologies. At the same time students demographic variables like gender, educational background, and internet usage do have high influence on e-learning readiness. This helps Institutions to avoid the delaying process of implementing or adopting e-learning.

8. Conclusion

Adaptation to e-learning is not easy as its implementation process. Implementing virtual education infrastructure does not mean that it will be used and benefit to all. The adaptation and readiness purely depend on the level of awareness, degree of familiarity about the technology and readiness to accept and adopt the e-learning environment. Identifying these factors is one of most challenging issue to the educational institutions. The results explain that students pursuing higher studies are clear about the meaning of e-learning and the use of learning tools and technology that they use. The awareness of e-learning demonstrates the students' success rate in implementation and acceptance. Few bottlenecks of e-learning are the implementation cost, lack of knowledge regarding the usage of computers and technology and the improper technical infrastructure. Even though India is expert in IT domain, it has to work on developing technological infrastructure and to minimize the gap at various levels starting from individual to national level. Factors like behaviour, attitude, social and technology readiness should be experienced by the students before they undergo e-learning courses. Students who have a clear idea about the e-learning concepts are able to use various tools and have more readiness than the students who do not use. The success of e-learning adaption and readiness lies in the collaboration and ability to work in groups by the students.

9. Limitation and Scope for Future Research

This study has some limitations. Primarily this study concentrated only on management stream but not on other science and technology streams. Secondly information is collected from the respondents who are only from the private university, not considering the government colleges for the readiness and awareness based on internet usage in view of differences in infrastructure facilities. Further research on e-learning readiness could include the following factors like behaviour, attitude, and social dimension which may lead to a successful implementation of elearning. At the same time research can be done on identifying both the faculty and institutional readiness on e-learning.

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