

Perception and Preference of Students towards E-Learning with regard to Web-based Supplemental Courses



P. Kalyanasundaram, C. Madhavi

Abstract: *Online Courses have become the new normal in the higher education landscape. With rapid developments in information and communication technology, higher education institutions are turning their focus towards course offerings in the online mode. It is imperative for institutions to understand the perspective of the learners so that they can offer better service. This paper endeavors to highlight the factors that influence the learners who take up online supplemental courses that are offered along with the conventional degree programs. Learners who took up value added courses were contacted for the purpose of understanding their perception with regard to usability, user friendliness, navigation, assessment, feedback, course content, test friendliness etc. An exploratory factor analysis was carried out. Results show that user friendliness and learner engagement were the focal points to promote online learning. Learner satisfaction with regard to CDROM that was given as supplemental learning tool was measured and learners were found to be satisfied with this. Suggestions for offering user friendly and engaging online programs are given. Students who completed the course felt very optimistic about the program compared to those who did not complete.*

Keywords: *E-learning, online mode, perception, usability*

I. INTRODUCTION

Each and every dimension of our lives is pervaded by ICT, according to Drucker [1]. Education domain is no different. By harnessing the potential of ICT we can positively impact the knowledge levels of students, which can result in elevation of their knowledge levels by imbuing them with skills and techniques to solve problems that require analytical and logical thinking that are required by the fierce corporate world. Among the many beneficial impacts of ICT is the ability of it to hone critical reasoning among learners. In many developed nations university education is offered even on a mobile phone and India too is not far behind and the impact is there to be witnessed. The opening up of the economy and the access to the World Wide Web has thrown open a plethora of opportunities to learners.

Manuscript received on March 15, 2020.

Revised Manuscript received on March 24, 2020.

Manuscript published on March 30, 2020.

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The web has had an intense effect on the present day instruction situation and has changed the manner in which how innovation is utilized for instructive purposes. The higher education sector is undergoing a metamorphosis in terms of knowledge transfer and assessments. Though Online offerings have not found their way into the mainstream education in India,

there had been a phenomenal change in the way Colleges and Universities are adopting online platforms and resources. Changes will continue into the future and the use of online technology is here to stay. India is in the midst of a technological revolution with ICT permeating every walk of life. It is a fact that Information and Communication Technologies (ICT) can ensure and expand the reach and quality of education in India. Currently available online learning opportunities in India have their own challenges that are faced by higher education institutions that offer these opportunities and there is a need to understand learner perception on e-learning and the researcher discusses these in this paper. This study is an attempt by the researcher to study the perception of students about online learning who underwent an online certificate course during their undergraduate study as a value-added program along with their regular course.

II. REVIEW OF LITERATURE

The definition of e-learning as per Organization for Economic Cooperation and Development is the dynamic moving from non or trifle online presence to blended methods and lastly ending with totally on-line instruction embraced as a replacement to expert learning. E-learning as it is currently called was first referenced by Jay Cross, CEO of e-learning Forum, a 1200 member research organization and support gathering, in 1998. Urdan and Weggen [2] have stated that e-learning is the transaction, obviously, by means of electronic media, for example, web, intranets, extranets, satellite communicate, sound/video tape, intuitive TV and CD-ROM was viewed as e-learning. It is their inference that led to the thought that terms like Web-based, technology based and electronic learning are characterized and utilized distinctively by various associations and client groups.

E-learning offers competitive advantages in many ways. Whereas the traditional learning works on the premises that the instructor owns the knowledge that is passed on to the students, E-learning authenticates and facilitates the spread of knowledge.

Traditional learning suffers from “narration sickness”, but interactive web-based learning offers scope for the learner to learn in a participative learning environment where the focus is on ‘learning by doing’. While educating in a conventional set-up has its own confinements and a customary instructor can never give 24 x 7 guidance to learners, an e-learning set-up can offer support round the clock throughout the year. Fry [3] is of the opinion that embracement of technology, for example e-learning, is basic so as to contend in advanced education industry all around and such vital approaches are useful in business and instructional practice advancements. E-learning has its very own advantages, for example, it gives numerous possibilities to exchange ideas and information among the learners and the staff in many forms, including talks, discussion forums, and messages, which results in an inspired learning environment. Ansong et al. [4] in their study on determinants of e-learning adoption in Universities found factors like IT infrastructure, perceived ease of use, expected benefits, organizational compatibility, competitive pressure, educated partners, content of the course, E-learning curriculum and these were statistically significant. Any online program should be evaluated on the basis of its learning outcomes by comparing it with a similar onsite program states Consolacion Fajardo [5]. Offerings like Massive Open Online Courses (MOOC) will be successful if proper technical infrastructure and financial support is given, says Devgun Puja [6]. Kim Blackmore [7] says Indian MOOC completion rates are better at 28% way better than the global rates that are at 7% but we need to study the intention of enrolments.

III. METHODOLOGY OF STUDY

Sampling method was used to select respondents. A sample of 120 students was considered for the study. The objective of the study was to find out their perceptions towards online learning versus class room learning. A structured questionnaire was used for the purpose of the study. A 25 item instrument was used for this purpose. 16 questions gathered data about perception statements favoring online learning and 9 questions collected data about perception statements expressing concern over online learning. Jamovi software was used for the purpose of analyzing the data collected. Exploratory Factor Analysis, Chi-Square Test and independent sample t-test was performed. Students enrolled in the following programs were contacted for the purpose of this study: 1. Bio-Informatics; 2. Medical Genetics; 3. Food and Wine Preparation; 4. Fashion Art and Accessories; 5. Operations Research and Media Management; 6. Animation and Multimedia; 7. Medical Law and Ethics; 8. Forex, Immigration and Tour Operations Management. For offering the program the institution had tied-up with a private vendor for offering one year certificate program on the above mentioned subject areas. The content was developed by the college and the online hosting and test administration was done by the vendor. The assessment was done in three stages in the form of Initial Assessment Test a mid-term

assessment called Module Test (MT) at the end of first year of graduation and a final assessment called Final Evaluation (FE) at the end of second year. The students had the choice of opting or not opting for the course.

IV. RESULTS AND DISCUSSION

Data gathered was tabulated. Out of 120 students surveyed 56 were female (46.7%) and 64 were male (53.3%). Jamovi Software was used for the purpose of analysis. Responses were collected based on a 5-point Likert Scale. A 25 item instrument using Likert Scale was designed. A widely used measure to ascertain the internal consistency of the scale is the Cronbach’s Alpha [8]. The reliability of the instrument was measured using Cronbach’s alpha which was 0.764. Nunnally [9] suggests a minimum level of .7 and Cronbach alpha values are dependent on the number of items in the scale. The calculated Cronbach alpha thus falls in the acceptable range. With regard to the awareness about the online courses 71 students were completely aware about the online courses (59.2%). 40 (33.3%) students were somewhat aware and 9 students (7.5%) were not aware about the online courses. Therefore we can say that awareness level about the online courses is good. 101 (84.2%) out of 120 of students had enrolled for the online courses.

Table I: Students Enrolment for In-house Online Programs

CATEGORY	RESPONDENTS	%
COURSE TAKEN	101	84.2
NOT TAKEN	19	15.8
TOTAL	120	100

Out of the enrolled students, 16 (15.8%) students have not completed the course by taking the test. The course completion rates are pretty good at 85%.

Table II: Online Test Taken

	TEST TAKEN	TEST NOT TAKEN	TOTAL
COURSE TAKEN	85	16	101
NOT TAKEN	0	19	19
TOTAL	85	35	120

A t-test was conducted to find out if there is any difference in the mean scores of students perception toward e-learning between the students (101) who underwent the online courses and the group of students (19) who did not pursue the online courses. The mean score of students who took the course was 84.7525, SD=7.63205, SEM= .75942. The mean score of students who did not take the course was 74.2105, SD=4.82561, SEM=1.10707. An independent sample t-test yielded results that showed students in the Opted out group (M = 74.2105, SD = 4.82561) had significantly lower perception scores than students in the online study group (M = 84.7525, SD = 7.63205), $t(118) = 5.795, p < .05$.

Learner responses to five key items that relate to the online advantage along with six items that was related to learner engagement and ease of use in the data collection instrument were analyzed and the analysis is presented below in Table 3.



Table III: Item-wise Students Perception regarding Online Learning with reference to students’ preference of online over class room engagement and ease of use /learner engagement

Item	Strongly Agree	%	Agree	%	No Opinion	%	Disagree	%	Strongly Disagree	%	Total
Prefer Online over offline	14	13.9	52	51.5	19	18.8	16	15.8	0	0.0	101
Online is modern	30	29.7	56	55.4	11	10.9	3	3.0	1	1.0	101
Need in other areas	15	14.9	65	64.4	18	17.8	2	2.0	1	1.0	101
Time spent is less	12	11.9	64	63.4	14	13.9	10	9.9	1	1.0	101
Immediate feedback	31	30.7	59	58.4	10	9.9	1	1.0	0	0.0	101
Progress is easily monitored	18	17.8	64	63.4	16	15.8	2	2.0	1	1.0	101
Comfortable to use	10	9.9	41	40.6	29	28.7	20	19.8	1	1.0	101
Convenient for test taking	20	19.8	53	52.5	22	21.8	5	5.0	1	1.0	101
Gives positive experience	15	14.9	56	55.4	24	23.8	6	5.9	0	0.0	101
Easy assessment	17	16.8	65	64.4	15	14.9	3	3.0	1	1.0	101
Course is engaging due to multimedia	20	19.8	51	50.5	25	24.8	4	4.0	1	1.0	101

As seen from the above Table-III , the overall perception of the course takers is positive towards e-learning. With less than 10% opinions highlighting the drawbacks of e-learning, a majority of the students who take online courses have a positive opinion about the benefits of e-learning. The areas of improvement would be comfort in terms of use and time consumed where respondents opined that better multimedia content needs to be there in place and time spent online is no different than the off line mode.

Table-III also presents the opinion regarding learner engagement and motivation. With regard to preference of online over off line, 16 respondents (15.8%) disagreed that online is better than offline offerings. With regard to the learnability of the course covering multimedia content, feedback, navigation, course map, repeatability respondents recorded favorable opinions. About 71 (70.3%) students agreed that the course was engaging due to multimedia content. 71(70.3%) of respondents opined that the course gave positive experience. 73 (72.3%) learners said online option was easy to taking tests. 72(71.2%) of students said it was easy to monitor their learning progress. Almost 90 (89.1%) liked the immediate feedback. All the above findings vouch for the usability of the online courses. The course takers were given a CD ROM for reference as a supplemental learning material in addition to the online access. The satisfaction score for CD ROM content with

regard to interactivity, multimedia, learning experience, feedback, and learning expectations was computed. The mean score was 18.97 with SD = 2.65. A Chi-Square test of independence was performed to examine the relationship between test takers and their usage/satisfaction with CD ROM. The relationship was significant. $\chi^2(1,N=101) = 4.1279, p = 0.042183$. Test takers are better satisfied than those who do did take the test. It shows that engagement is the key to satisfaction.

A. Exploratory Factor Analysis

An exploratory factor analysis was performed. It is undertaken in the absence of a pre-defined idea of the structure or how many dimensions are in a set of variables. An attempt was made to group the variables considered under different factors. The analysis groups variables with similar characteristics together. We can use this for further analysis.

As a first step, KMO and Bartlett’s tests were conducted. The KMO measures the adequacy of sampling that verifies if the responses given with the sample are adequate or not. A value of 0.5 is considered satisfactory for the factor analysis to proceed.

Values between 0.7-0.8 are acceptable, and values above 0.9 are exceptional. For the sample that was considered for the purpose of this research the KMO measure of sampling adequacy was 0.766, and this is acceptable. Bartlett's test indicates the strength of relationship among the variables considered for the study. From the table we can

infer that the Bartlett's test of Sphericity is significant (<0.001). That is, significance is less than 0.05. Questions in the item scale that were related to perception about the online courses were considered for exploratory factor analysis. Two factors were specified for extraction and 16 items of the scale loaded as follows.

Table IV: Exploratory Factor Analysis: Factor Loadings

S.No.	Item	Factor 1	Factor 2	Uniqueness
1	A. I Prefer online course compared to an offline option	0.385		0.848
2	B. Doing coursework online is a modern approach than traditional class work	0.546		0.696
3	C. Online courses have to be widespread to other disciplines too		0.329	0.816
4	F. I spend less time when doing coursework online		0.302	0.908
5	J. Getting immediate results and feedback in online assessment motivates me	0.433		0.734
6	K. Students' progress and results can be easily achieved through online assessment system		0.392	0.788
7	N. I am more comfortable doing online coursework than conventional coursework	0.480		0.770
8	P. The online test environment is appropriate for test taking and convenient	0.804		0.352
9	Q. Online study is a positive experience and I prefer taking some other courses online	0.613		0.548
10	S. The online assessment had directions and was easy to use and testing was user friendly	0.375	0.468	0.640
11	T. Interactive multimedia content is a must for making online courses engaging	0.439		0.754
12	U. The course that I pursued was rich with multimedia content		0.358	0.871
13	V. The courseware provides immediate feedback		0.444	0.725
14	W. The courseware enables learners to freely choose subtopics		0.606	0.567
15	X. A Clear Course Map is presented at the beginning of the course		0.691	0.520
16	Y. Learners can repeat any lessons as they want		0.653	0.545

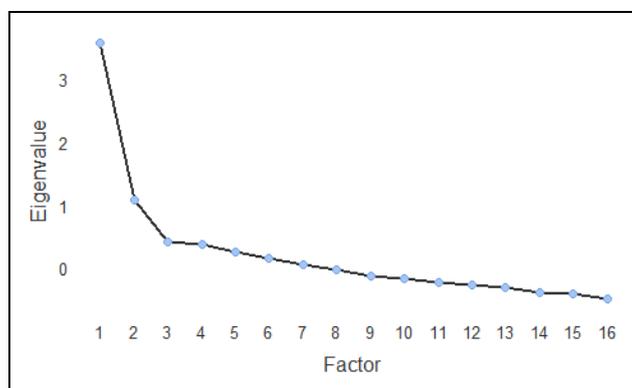


Fig. 1. Scree Plot

From Table IV it can be seen that items A, B, J, N, P, Q, and T have higher loading that define factor 1. Items C, F, K, S, U, V, W, X and Y have loadings that define factor 2. Factor 1 is more concerned with aspects like user preference, comfort and experience as the items compare online course work vis-à-vis the traditional class work. Factor 2 is related to learner engagement and motivation. Therefore we conclude that the extracted factors may be termed as ‘User

Friendliness’ for Factor 1 and ‘Learner Engagement’ for Factor 2. The scree plot presented in Fig. 1 identifies the factors to retain. Further research may be conducted in this direction in order to throw more light on reasons leading to learner satisfaction.

V. SUGGESTIONS AND CONCLUSION

A small segment of students were considered for the purpose of this study. Despite the good completion rates (85%), 15% do not complete the course. The reasons for not completing the course should be investigated. It is a fact the world over the completion rates for massive open online course is a dismal 7%. In the present study good completion rates are there because these are paid courses and are limited to only one module. In this context, it suggested that we study the compelling reasons to join, pursue, and complete an online program. This is essential too in today's context of divided attention among college students. The factors that were identified in the course of analysis, namely, 'user friendliness' and 'learner engagement', needs to be further studied and validated. One should also note the need for rich multimedia content as required by the students. Better content in the form of CD ROM etc. should be provided. Those respondents who opted out of the online courses do not have a favorable opinion about online programs. To make them understand the benefits of online learning one may give them free access to some modules to give them a feel of online learning and its benefits. Practical courses like food and wine preparation, fashion arts and accessories, etc., are currently been offered online and it is common across various online platforms But the level of mastery of skills and learning outcomes needs to be studied. These courses need blended learning as practical instructions are required along with theory. Discussion forums and group assignments should be incorporated in the course offering and encouraged to ensure peer learning.

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