Factors Influencing Preference for Certification Courses Delivered Through Technology-Driven Distance Education

Ansuman Sar, Satya Narayan Misra

Abstract: As per the Merriam Webster dictionary, the definition of the distance learning is - “It is a method of study where teachers and students do not meet in a classroom but use the Internet, e-mail, video conference, audio conference mediums of the study. The assessments and doubt clearing also happen online and still there are some planned face to face interaction programs with the students.” In the late 1900s, correspondence courses started coming into the picture. These courses were mainly introduced for the working professionals and for the people who wish to go for competitive examinations as travelling to the university is difficult if it is far off. This is to enhance the access and reach for the learners. Many of the tutorial companies and coaching centers also use distance learning model to cater to the needs of IIT JEE/Civil services aspirants in India. However, distance-learning courses have much better acceptance in the western countries. In Europe and America, they have wider acceptance and several studies done have proven the need of the distance courses and the perception of the people about the distance courses is really good.

Keywords: distance learning, technology-enabled education, online courses, E-learning

I. INTRODUCTION

Initially distance courses involved a lot of mail transactions between the faculty and the student. With the technological disruption/interference, the options for distance education have greatly inflated. Long back, as mentioned in the book of Distance-Learning: Principles for Effective Design/Delivery & Evaluation by C.M. Mehrotra, C. D. Hollister & L. Mc-Gahey, radio( two way communicating) were used for the teaching. After that, gradually different kinds of technological-delivery instruments were involved in online distance learning. The Examples of these are Cable television/Closed circuit/interactive TV/Audio-visual recordings/Telephones/Mobiles/personal computers and desktops, mobile devices and applications etc. Earlier distance learning was very slow and expensive and it was run or conducted for learners who are at a relatively shorter distance. With the satellites and development of scientific electronics, education-programs were accessed all over the world from any university in any continent. Today, live interaction with the counsellor, live doubt clearing classes and online-proctored assessments are possible with the use of technology innovation and high speed internet. These days considering the rapidly moving world and requirement of multiple skills in profession, access to education and increasing employability, distance-learning courses are in huge demand.

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It is also seen that there is a consistent rise in the number of registrations for these distance courses in India. However, in India it is still not considered as a mainstream education. We hope that with the use of technology, we can increase the effectiveness of the distance education and make this a success. In this research paper, the objective is to find out the main reason for choosing the online courses and what are the correlations of these reasons with the gender/age and employment status. The brief history of distance education from eighteenth to twentieth century has been tabled below.

Figure 1.Brief history of distance from 18th to 20th Century (Source: Master Studies, Global trends of Distance learning)

Thereishugeincreaseinthenumberofenrolmentsacrossthesethedinstitutions in the distance learning courses. Overaperiodoftime, ithasgrownlikethings. As per lastyear’s statistics shared by Coursera-(world’s largest openeducationprovider):

I. 13 lakholinlearners were from India
II. Total numberoflearners – 180 Lakh

ThenumberofIndianlearners haveincreasedby70% innumber. Indiangovernmenttries toinsetheregistrationsfor theseonlinecoursesandthisis practically not doable by establishing more regular/conventional universities.
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The response to this is online education system.

Figure 2. Student enrolment data related to distance education (Source – Ministry of Human Resource Development, Government of India)

Today not only graduation or post-graduation degree or required-weneedalotofskill enhancement courses and the courses which can help us at the time of increasing our employability. While traditional degrees like bachelor’s or master’s might be heavily proof of your education and is required during initial screening, still they demand that every important is the need of the hour. Hence the skill gaps filled by these a wider range of online – customized courses. One can choose these courses as per his/her choice. These courses are normally named as the certification course’s name or degree course or skill enhancement course. There are examples of professional certification courses.

i. Awards-certification
ii. Certified Developers
iii. Google gives certificates who prove to be experts in multiple domains

Now considering these trends, it is pretty understood that distance education would be an essential tool in meeting the needs of those people in India and its success and effectiveness of prime importance. However, in India, it is still not the mainstream education, and faculties and students still question the effectiveness. Hence, a research study was carried out to determine what are the perceptions of the people about the distance education and how we enhance the same using technology? There was a limited scope of our study to the students only. These students are from the State Open University of Odisha, an eastern state of India. Survey questionnaire has been used for these and 51 students’ response has been taken who are doing the Basic Computer Knowledge Certification Course through distance mode.

II. LITERATURE REVIEW

Education requires personal contact of highly qualified teachers with the learners at the isosocial activity. The demand for education in India (which is one of the developing nations) has grown up during the education continues to be taken as an important bridge between society, economic conditions, cultural, and political scenarios. In this nation, due to infrastructural and socio-economic issues, quality education is not accessible to all, especially those in remote regions. Information and Communication Technology (ICT) has tremendous potential to discard and remove these barriers that are causing the problem of educational spread and effectiveness of education. ICT can act as a catalyst to overcome the above issues.

i. Cost issues as the education can be spread through technology/costs due to distance would be minimized
ii. Lack of faculties (Teaching to Student ratio is very poor)
iii. Time and distance constraints
iv. Quality of learning / top delivery

As validated by UNESCO (2002), students of 21st century would need latest information and communication technologies in their education and learning (across the world poor/developing or developed). New trends in technology are replacing very important roles in education sector. National Policy on Information and Communication Technology in Schools Education for the year 2012 gives emphasis upon the ICT literate community so that all ICT resources are used in teaching-learning process.
NPIC in School education (National policy on Information and communication technology) stresses upon ICT literate community to use ICT resources in learning /teaching process.

TAM- Technology Acceptance Model developed by Davis (1989) takes into account of social psychology theory of reasoned action, used to model user acceptance of information systems.

TAM is based on two major factors:

- Dependent Variables: Perceived usefulness and ease of use.
- Independent variables: Cognitive instrumental processes and social influence process.

The Social influence process: It highlights the impact of three inter-related social forces in selecting or rejecting a technology system-

i. Subjective norm
ii. Voluntariness
iii. Image

The cognitive instrumental processes talks about the individual’s job relevance and quality of the output. For user acceptance other important fundamental factors are: Results demonstrability and Perceived ease of use. Unified Theory of Acceptance and Use of Technology (UTAUT) was conceived by Venkatesh (2003). UTAUT is relied upon similarities based on abstract across various TAMs. The theory conveys that IT user acceptance & usage are explained by four factors viz. Effort expectancy, Performance expectancy, Facilitating conditions and Social Influence. (Venkatesh, 2003) Effort expectancy is the degree of comfort or easiness associated with the use of the system. Performance expectancy measures the individual’s belief that the use of the system will help the user in increasing the task performance. Social influence is the extent to which an individual perceives that it is important that others should also recommend for using the system. Facilitating conditions measures the belief that necessary infrastructure are in place in order to help use of the system for knowledge gains. Behavioral intention measures the individual’s decision regarding use of the system in the future. Use behavior talks about the actual usage of the system.

Performance expectancy is the most influential predictor of intention and remains substantially prominent in both voluntary and mandatory settings, during all the steps of measurement. Effort expectancy is prominent in both voluntary and mandatory usage contexts (during the beginning stage only). Social influence is important in volunteer-based contexts but not significant in compulsory circumstances. Facilitating conditions impacts linearly to usage in addition that is explicated by behavioral intentions exclusively. Society of Information Technology is primarily a result of continuing development in new technologies and the needs of people who use computer science technologies. In this current era, educational systems seek to prepare teachers and students for the work force and computer literacy becomes so important in all levels of education. ICT reduces time required imparting knowledge. Attitude of students engaged in the class positively influences students’ engagement in the class. This also shows that ICT will increase the student engagement in the class. This study understands ICT is essential in planning and abandoning the class. This is researched and found. (Mahat, Jamsandekar & Nanalade, 2012)

Indeveloping nations, the use potential of distance education lies in expanding across horizons and reaching to people across demographics (Crouch, 1983).

The inclusion of Distance Education in national policy consideration is a widespread approach. Non-students having the option of choosing their course by home tuition and distance learning. Based on the study of various literature, a literature review matrix has been tabulated below.
Factors Influencing Preference for Certification Courses Delivered Through Technology-Driven Distance Education

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Topic</th>
<th>Summary</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volery &amp; Lord, 2000</td>
<td>Critical success factors in online education.</td>
<td>Important components found are: The instructor (attitudes towards students, instructor technical competence and classroom interaction); and the previous use of the technology.</td>
<td>Dependency of Online education towards classical education could have been explored.</td>
</tr>
<tr>
<td>Krishnan, 2012</td>
<td>Study on Top level management education through technology-enabled</td>
<td>User satisfaction is a significant predictor of learning outcomes.</td>
<td>The reasons for undertaking web based executive education programs, the contributors to learning effectiveness of such a program, the individual and organizational expectation for undertaking or supporting such a program are still not well understood in the Indian context.</td>
</tr>
<tr>
<td></td>
<td>distance education in India.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Berking &amp; Gallagher,</td>
<td>Trends of Online Learning in Higher Education: How Online Learning</td>
<td>There is a strong need to choose an appropriate LMS in higher education institutions in order to enhance faculty teaching and student learning. The instructor should be able to add content created. (More Customization required)</td>
<td>There is a scope of study effect of collaborative learning at multiple levels.</td>
</tr>
<tr>
<td>2016</td>
<td>Will Shape Higher Education.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

III. RESEARCH OBJECTIVES

The major objectives of the present study are stated below:

I. To find out the reason for choosing online courses by working and non-working professionals.
II. Gender perceptions and preferences about the E-learning course Basic Computer Knowledge Certification Course and finding out correlations if it exists.
III. To find out the areas where improvement is required in learning in distance mode.

Research Gaps

The research gaps pertaining to factors influencing the preference for technology-driven distance education are summarized. The Contributors of Learning Effectiveness in technology-driven distance learning in India-Not much research has been done to find this out in India. In western countries, the research on thematic is prevalent. Perception of students about current technology intervention in distance learning in India to be studied. It would also reveal why students choose the distance learning courses and what are the main reasons behind it. Gender perceptions towards online or technology-driven distance education.

Hypothesis

The main hypotheses formulated for the present study are given below:

H1: There is a significant relationship between the age of learner and the reason for joining the course
H2: There is a significant relationship between the gender of learner and the reason for joining the course
H3: There is a significant relationship between employability status and the reason for joining the course

IV. METHODOLOGY

In total of 51 Students from Open University of the state of Odisha, a state of India (two distance learning centers namely SAFE and NIAT Computer Education) were the respondents of the survey. They are doing a technology-driven distance education course which is the recognized de-facto standard certification course for IT Literacy certified by the university and delivered through e Learning Mode through its Distance Learning Centers like SAFE and NIAT. Following are the research details pertaining to the study. In this research, Descriptive methodology has been used with convenient sampling as Sampling method. Measuring instrument is Structured Questionnaire with 5-point Likert Scale.

- Research Type: Descriptive
- Sampling method: Convenient Sampling
- Measuring instrument: Structured Questionnaire
- Scale: 5-point Likert scale

Reliability Test

Reliability test was conducted for 32 items and Cronbach’s alphas was found to be 0.85 and necessary factor analysis. The questions with the Likert rating were selected forth and other questions that don’t have quantifiable answers were ignored. (Ordinal questions opened ended questions)

Demographics of Sample

The average age for the group of students comes out to be 23.6 or 24 years. This also includes the assumption that some of the respondents who have not given their age, we have assumed it as zero. This assumption may be correct as we have considered some as outliers and have still included them while calculating. There are respondents who have the age of 30, 35, 37, 47, 60, but mostly people are of the age of 22/23/24 and hence the average age is around 23.6 years. This means most of the students are either Graduates or are going to be the...
Graduates. (Male: 47%, Female: 53%). Out of the total respondents – 3 are working (5.88%), 47 are not working (92.15%) and 1 person is retired (1.9%).

Majority of the students from the sample are not working.

**V. WORK EXPERIENCE**

Out of 51 people, 46 are not working and only 5 people are working. Out of those 5, 2 people have maximum two years of experience, one person has 3 years and the other person has 6 years of experience. In addition, an outlier has 37 years of experience. So, it is evident that most of the respondents are not working and they have the intentions of getting a job and enhancing their skills to become the employable.

**Educational Background**

The majority of the students are graduate students. However, we have almost equal representation from the 12th and post-graduation. Two students have completed their 10th and one student has not completed the 10th class event.

**TABLE 1: Univariate Analysis**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Range</th>
<th>Min.</th>
<th>Max.</th>
<th>M</th>
<th>SE</th>
<th>SD</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student feedback on E-learning(3.1,3.2,4.1,4.2,4.3,4.4,4.5)</td>
<td>1.29</td>
<td>3.43</td>
<td>4.71</td>
<td>4.2409</td>
<td>0.03699</td>
<td>0.26417</td>
<td>0.07</td>
</tr>
<tr>
<td>Student feedback on technology used in evaluation-7.7</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>4.0196</td>
<td>0.15464</td>
<td>1.10436</td>
<td>1.22</td>
</tr>
<tr>
<td>Student feedback on new technology intervention in the course(8.1 to 8.14)</td>
<td>2.14</td>
<td>2.36</td>
<td>4.5</td>
<td>4.084</td>
<td>0.04758</td>
<td>0.33978</td>
<td>0.115</td>
</tr>
</tbody>
</table>

Sample Size(N)= 51, Mean = M, SD= Standard Deviation, SE=Standard Error

Overall student feedback on course structure and content is very good - 4.24. Most of them strongly agree or agree. Feedback on course content and coverage 4.24> feedback on technology intervention 4.0518 (average of 4.0196 & 4.084)- in Basic Computer Knowledge Certification Course technology intervention is required.
People are satisfied with the overall aesthetic aspect of the course content. Most of the learners have also accepted the fact that the technical quality of course material is good. However, if we go by the rating it becomes evident that the availability of technical support can be improved and this demands for more of counselling and doubt clearing classes by the technically strong faculty. Some of the learners have taken the neutral stand may be because they could not get adequate support for this. Voice and quality of narration (mean 3.49) is not convincing, whereas satisfaction levels with the narration is good as most of the learners have agreed-(this is because of the course content). Variable 3.1 is referred here.

From the comparison of Parameters, it is pretty evident that, the Basic Computer Knowledge Certification Course, quality of examples are the highest rated. That also states that the course is interactive and has been accepted well by the students. However, the students just agree or they take a neutral stand regarding the pace of the online learning factor. Probably we need to see that there is appropriate pace in which the course runs so that it will be well interpreted and understood by the students.
The backbone of any course is the faculty base— from the ratings it is evident that, State Open University does not have a good faculty base or set of instructors. 92% of the learners said that they would expect a better faculty set or instructors for the course. Ease of Access parameter has similar trend as that of technology friendliness. However, for Technology Innovation, most of the learners took neutral stand instead of suggesting for improvements.

### Table 2: Bivariate Analysis (Contingency Tables for V3 and V51)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>7.659</td>
<td>3</td>
<td>0.054</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>7.915</td>
<td>3</td>
<td>0.048</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>6.066</td>
<td>1</td>
<td>0.014</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation:** The chi-square value of 7.659 shows that there is hardly any relationship between the gender and the reason for taking the Basic Computer Knowledge Certification Course.

### Table 3: Bivariate Analysis (Contingency Tables for V2 and V51)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>86.107</td>
<td>51</td>
<td>0.002</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>81.506</td>
<td>51</td>
<td>0.004</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>9.472</td>
<td>1</td>
<td>0.002</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In SPSS- Variables are V3(Gender) and V51 (Reason for registering the course)

**Interpretation:** The chi-square value of 86.107 shows that there is a strong relation between the AGE and the reason for taking the Basic Computer Knowledge Certification Course. Bivariate Analysis between employment status (working and not working) and the main reason for taking the distance learning course- V5 and V51.

### Table 4: Correlation Table

<table>
<thead>
<tr>
<th>Particulars</th>
<th>V51</th>
<th>V2</th>
<th>V3</th>
<th>V5</th>
</tr>
</thead>
</table>
Factors Influencing Preference for Certification Courses Delivered Through Technology-Driven Distance Education

<table>
<thead>
<tr>
<th>Pearson Correlation</th>
<th>V51</th>
<th>1.000</th>
<th>0.435</th>
<th>0.348</th>
<th>-0.028</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2</td>
<td>0.435</td>
<td>1.000</td>
<td>0.063</td>
<td>0.031</td>
<td></td>
</tr>
<tr>
<td>V3</td>
<td>0.348</td>
<td>0.063</td>
<td>1.000</td>
<td>0.098</td>
<td></td>
</tr>
<tr>
<td>V5</td>
<td>-0.028</td>
<td>0.031</td>
<td>0.098</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sig. (1-tailed)</th>
<th>V51</th>
<th>0.001</th>
<th>0.006</th>
<th>0.422</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2</td>
<td>0.001</td>
<td>0.329</td>
<td>0.414</td>
<td></td>
</tr>
<tr>
<td>V3</td>
<td>0.006</td>
<td>0.329</td>
<td>0.246</td>
<td></td>
</tr>
<tr>
<td>V5</td>
<td>0.422</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N</th>
<th>V51</th>
<th>V2</th>
<th>V3</th>
<th>V5</th>
</tr>
</thead>
<tbody>
<tr>
<td>V51</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>V2</td>
<td>51</td>
<td>51</td>
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</tr>
<tr>
<td>V3</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>V5</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
</tbody>
</table>

The P-value of 0.157 which is greater than 0.05 means there is not a significant relationship between two variables this thesis also supported by the below chi square value of 9.314.

Figure 10. Graphical representation of Bi-variate analysis

Description of Variables:
- V2-Age, V3-Gender, V5-Working/Not Working, V51- Main reason for joining the Basic Computer Knowledge Certification Course.
- Dependent Variable- V51.
- Independent Variable- V2, V3, V5

Interpretation
- V51 has maximum correlation with V2 (age) which is supported by bivariate analysis too. However, it is negatively correlated to V5.
- Positive correlation between the reason for registering for the Basic Computer Knowledge Certification Course and age - 0.435 positive correlation between age and reason for doing Basic Computer Knowledge Certification Course - .348.
- Zero or little Negative correlation between the employment status and reason for choosing the course.

From the above study, hypothesis H1 is accepted and H0 is rejected which means there is significant relationship between age and reason for joining the course. Hypothesis H2 is rejected and the null hypothesis is accepted. This implies that there is no significant relationship between Gender and reason for joining the course. Hypothesis H3 is rejected and the null hypothesis is accepted connoting that, there is no significant relationship between employment status and reason for joining the course.
SUMMARY OF SUBJECTIVE FEEDBACK

43.14% of the respondents suggested improvement required in evaluation pattern. 13.72% of respondents indicated that, the duration of the Basic Computer Knowledge Certification Course which is 3 months at present needs to be increased to at least 4 months. Rest respondents indicated no improvement required in the course.

SCOPE AND LIMITATIONS OF THE STUDY

Further study can be done on other Open Universities in other Indian states and make a comparison (KSOU, Symbiosis distance University, Sikkim Manipal etc.) with State Open University. Studies also may be done for long term courses as well and try to find out how technology implementation increases their enrolment. The survey for the present study was conducted for 51 students only as the time was limited. We could have gone for more number of students with more number of courses. Personal interaction with the respondents and more of qualitative research can be done.

VI. CONCLUSION

Integration of Technology is University Courses in India is still at very nascent stage. From the study, it is found that, students expect human touch along with technology-driven learning for facilitation. However, overall feedback on course was good but some students indicated for improvement in Evaluation pattern. The findings of the study may be useful to administrators and higher education planners at national level and state level for formulating correct policies and strategies with regard to the modernization and application of Information Technology to meet the rising educational needs.

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