

## Effective usage of ICT in promoting livelihood programmes: the Tamil Nadu Open University experience

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### Introduction

The Tamil Nadu Open University (TNOU) caters to a cumulative student strength of above 100,000 under 400 Courses in 80 Programmes. This includes more than 30,000 students who have graduated during the last four years in 14 Vocational Education Programmes (VEP).. Earlier studies indicate that these learners could command respect within the family circle and in the community as well as at the workplaces after obtaining Vocational Diploma from the TNOU. The University could achieve the credibility within a short span of time, due to the uncompromising academic rigour of its Programmes. The instructional system of the University comprises print supplemented by interactive CDs.

An experimental study was conducted to measure the impact of the interactive CD-ROMs on the Vocational Education Programme of TNOU with particular reference to those enrolled for Diploma in Health Assistance, and Diploma in Desk Top Publishing. These students were given interactive CD ROMs, and the level of knowledge before and after using them were measured using a pre-constructed questionnaire. The study indicates a significant increase in their level of knowledge after they used the interactive CD-ROMs.

### Background

India has been consistently showing steady growth rate of economy in the last decade and strives hard to emerge a super power in the next two or three decades. The Indian economy is currently one of the fastest growing in the world. At the same time, this growth has not been inclusive because it has bypassed large sections of the population. The human development index also shows that India needs to go a long way in strengthening its social development goals. For instance, India is yet to achieve the Universalisation of Elementary Education (UEE) among all the states. *Sarva Shiksha Abhiyan* (SSA) - Government of India's flagship programme for achievement of UEE in a time bound manner - is being implemented in partnership with State Governments to cover the entire country and address the needs of 192 million children in 1.1 million habitations. Though there has been significant increase in enrollments across all levels of education, as depicted in Table 1 below, so are the drop out rates:

<b>Table 1 : Drop Out Rates (2002-2005)</b>									
	PRIMARY SCHOOL			SECONDARY SCHOOL			HIGHER SECONDARY SCHOOL		
	<i>[figures in percent]</i>								
<b>Year</b>	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL
<b>2002-03</b>	35.85	33.72	34.89	52.28	53.45	52.79	60.72	64.97	62.58
<b>2003-04</b>	33.74	28.57	31.47	51.85	52.92	52.32	60.98	64.92	62.69
<b>2004-05</b>	31.81	25.42	29.00	50.49	51.28	50.84	60.41	63.88	61.92

SOURCE: GOVERNMENT OF INDIA – MHRD REPORTS

The data in Table 1 shows that there has been a constant rise in the drop out rates, as the level of education goes up. Studies indicate that there also remain persistent gaps in enrollment across gender, caste, income and the geographical location. This reiterates the need for alternate modes of higher education. The need was felt by the government of Tamil Nadu and the Tamil Nadu Open University was established by an Act of Tamil Nadu Legislative Assembly in the year 2002.

The open universities in India have generally developed their Programmes and Courses in tune with socio-economic and employment needs. Most of their Programmes are very different from those offered by the traditional universities. They are designed and developed in several modules to assist the potential students to choose such modules as they perceive are relevant to their needs. On their part, the universities have also sought to diversify their Course provisions and developed high quality multi-media curricula designed to meet the academic, technical and vocational needs of diverse student groups. In fact, the programmes offered by the Indira Gandhi National Open University (IGNOU) have received international attention and recognition (Government of India website, 2007).

In this backdrop, the Union and Provincial governments have started allocating increased budget for education in the year 2008-2009. The allocation for education in Indian Union Government Budget 2008-2009, amounts to 0.8% of the Gross Domestic Product (GDP) and by the end of the eleventh five-year Plan (2007-2012), it is expected to increase to 6% of the GDP. Meanwhile, the gross enrolment ratio (GER) in higher education is also expected to increase to 15% by the end of the XI Plan, from the current GER of 10%.

### Profile of the Students

<b>Table 2: Profile of Students enrolled for TNOU Courses (2007)</b>		
Description	Number	Percentage
Vocational Courses	8,525	21.10
Non-Vocational Courses	31,881	78.90
<b>Total</b>	<b>40,406</b>	<b>100.00</b>
Men	19,425	48.07
Women	20,981	51.93
<b>Total</b>	<b>40,406</b>	<b>100.00</b>
Rural	22,016	54.49
Urban	18,390	45.51
<b>Total</b>	<b>40,406</b>	<b>100.00</b>
Backward Community	21,556	53.35
Most Backward Community	7,355	18.51
Scheduled Caste	6240	15.44
Scheduled Tribe	187	0.46
<b>Total</b>	<b>40,406</b>	<b>100.00</b>
Employed	12,060	29.85
Unemployed	24,728	61.20
Employment not revealed	3,618	8.95
<b>Total</b>	<b>40,406</b>	<b>100.00</b>

Table 2 indicates that the TNOU serves primarily to the rural students and many of them belong to either backward community or the most backward community. Women constitute the primary group for the university. It is against this backdrop that the presentation has to be seen.

## Interactive CD ROMs

The University believes that ICT applications and tools overcome the barrier of literacy as the digital media being oral and audio visual are effective. It is believed that in nature technology is no more an issue and many have crossed the barrier in terms of understanding technology and using it. A 10-point e-Content Roadmap for Education and Learning has been put forward by the e-content proponents is given below:

1. An “inclusive” approach with “convergence” of available practices and repository approach is required
2. Technology models must be devised to fit the “context and the environment”
3. State level “partnership” is essential for successful service delivery
4. Support of radio, video and other “community tools” need to be built in to create critical mass support and backup for e-education and e-learning efforts. Make learning “easier” through multimedia content feeding the needs of India’s oral society
5. “Group learning” is better facilitated with “e”
6. “Integrated approach” on a particular issue is key to deliver desired results
7. The “differently able” community needs to be included in various e-education and e-learning solutions and practices.
8. Content must be “standardized and sharable”
9. Programmed simulations can make better teaching aids in “most” conditions
10. “Cost” of education needs to progressively come down.

The TNOU considers all the ten points significant and has taken it a guideline for creating e-content in the form of interactive CD ROMs. It has converted many of its self-instructional-material in print into e-content and the CDs are circulated among the learners. The University has also adopted the SCORM standards and the formats given by the University Grants Commission (UGC) of India, which states that for an effective and optimum development of both textual and visual e-content material, the following are essential:

- Objectives
- Module
- Assignment
- References
- Download
- Glossary
- Summary
- Quiz
- Frequently Asked Questions (FAQs)
- Discussion
- Case Study
- Feedback

The CD ROMs produced by the TNOU on various Programmes incorporated all the components put forth by the UGC.

### CD ROMs for VEP students

As mentioned earlier, this experimental study was conducted among the group of students enrolled for Diploma in Health Assistance (DHA), and Diploma in Desk Top Publishing (DDTP). 15 students enrolled for DHA and 17 students enrolled for DDTP were given CD- ROMs, which had a complete set of lessons given in multi media format. These CD ROMs are hoped to enable the students in the following manner :

- ✓ Self-paced learning
- ✓ Fosters interaction with students and faculty
- ✓ Convenience

- ✓ Anytime, anyplace
- ✓ Travel time and costs reduced
- ✓ Access to a wide repository of knowledge
- ✓ Accommodates different learning styles

The CD ROM helped students to gain basic orientation in introductory parts of their respective Courses. The main contribution of the CD ROM is that it enabled them to exercise through multiple-choice tests, tasks with the instructions, and interactive animations for better understanding of subject, the student could gain information about missing knowledge and skills, which were normally not availed in their counseling sessions.

### Findings of the Study

**Experiment 1:** The DHA students were given a CD ROM on 'Community Health Nursing' [Course Code: DHA 3] and they were asked to use the CD ROM at their convenience for thirty calendar days. The medium of instruction was English and CD-ROM content was in FLASH Macromedia format. Using a pre-constructed questionnaire, the knowledge level of the students on the 'Community Health Nursing', was tested and the scores were recorded.

A demonstration was arranged and all the 15 students were given a hands-on-training, to familiarize themselves with the art of learning with the help of a CD-ROM. However, the students insisted that the CD-ROMs given to them should run on 'auto-run' mode. In effect, they made it clear to the researchers that they never studied the basics of computing and most of them started using computers only during the hands-on-training session offered to them as part of this experiment.

When they were asked to use the CD-ROM for 30 days, they made it again clear that they have no access to computers either at home or at the learning centres where they have been attached with for the study of DHA Programme. The researchers facilitated access to lap top computers for the 30 days of the experiment.

After the end of the 30 days of learning, their knowledge level was measured using the same questionnaire which was used at the time of pre-test. They study found that there was a significant level of increase in their knowledge after their experiment with the interactive CD-ROM. Here are a few significant points raised by the students after the post-test:

1. Interactive CD ROM be given in the mother tongue, i.e., Tamil, though the medium of instruction happened to be English.
2. They were able to do the exercises repeatedly, until they found it understandable.
3. They asked for a help menu in the e-content, so that they can get the clarifications immediately. [At the moment, there has been no provision for a help menu in the CD-ROM]. On the other hand, some of the students insisted online counselling from the teachers who prepared the CD ROM.

**Experiment 2:** 17 students enrolled for the Diploma in Desk Top Publishing were given a CD-ROM and were asked to learn the 'Corel Draw' (Course Code: DDTP 3), using the given CD-ROM. The contents were in Tamil language. A hands-on-training was arranged to familiarize the contents of the CD ROM. Since they study Desk Top Publishing, all the students were familiar with the basics of computing. After 30 days of self-training with the CD ROM, their knowledge level was measured using a pre-devised questionnaire. This study also confirmed a significant level of increase in their knowledge on Corel Draw, the subject they studied with the help of the CD-ROM. A few significant points raised by the students after the post-test are listed below:

1. Interactive CD ROMs be given to all the subjects they study in the DDTP Programme.
2. When the class teacher asked to do some exercises, they had many doubts and found it hard also. But, when the instruction was through the CD ROM, they were able to repeat many things again and again. So, the learning the subject prove to be a fun.
3. They have asked their learning centre Coordinator, to provide with multi-media speakers for all their computers, so as to learn the e-content effectively. During the experiment period, they were able to manage it with headphones.

## Conclusion

These two experiments have shown that there has been a significant level of knowledge gain among the students when they were given access to e-content in the form of CD-ROMs. When they master the vocational skills they would be able to excel in the art they learnt, which would fetch them a livelihood. It was felt that a Course on Basics of Computing be introduced at all levels, before popularizing the e-content. The study also emphasizes the need for providing vocational education in the mother tongue of the students.

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APPNEDIX 1

**PROFILE OF THE STUDENTS WHO PARTICIPATED IN THE EXPERIMENTAL STUDY**

<b>AGE PROFILE OF THE RESPONDENTS [N=32]</b>			
SL NO.	AGE	NUMBER	PERCENTAGE
1	17 YEARS	5	15.62
2	18 YEARS	8	25.00
3	19 YEARS	6	18.75
4	20 YEARS	5	15.62
5	21 YEARS	2	06.25
6	22 YEARS	1	03.12
7	23 YEARS	3	09.37
8	24 YEARS	1	03.12
9	33 YEARS	1	03.12

<b>KNOWLEDGE GAINED* BY THE STUDENTS [N=32]</b>			
SL NO.	KNOWLEDGE GAINED	NUMBER	PERCENTAGE
1	0	4	12.50
2	1	8	25.00
3	2	2	06.25
4	3	3	09.37
5	4	9	28.21
6	5	3	09.37
7	6	1	03.12
8	7	2	06.25

*\* Knowledge gained was measured by the difference of marks scored in the pre-test and post-test*

<b>STUDENTS WHO HAVE ACCESS TO MOBILE PHONES [N=32]</b>			
SL NO.	ACCESS TO MOBILE PHONES	NUMBER	PERCENTAGE
1	HAVES	5	15.62
	HAVE NOTS	27	84.37

<b>STUDENTS WHOSE FAMILY LIVE BELOW POVERTY LINE [N=32]</b>			
SL NO.	ECONOMICAL STATUS OF THE STUDENT'S FAMILY	NUMBER	PERCENTAGE
1	LIVING BELOW THE POVERTY LINE	29	90.62
2	LIVING ABOVE THE POVERTY LINE	3	09.37

<b>STUDENTS WHO HAS ACCESS TO PERSONAL COMPUTERS AT HOME [N=32]</b>			
<b>SL NO.</b>	<b>ACCESS TO PERSONAL COMPUTERS AT HOME</b>	<b>NUM BER</b>	<b>PERC ENTA GE</b>
1	HAVES	5	15.62
2	HAVE NOTS	27	84.37

<b>STUDENTS LIVING AREA N=32]</b>			
<b>SL NO.</b>	<b>STUDENTS LIVING AREA</b>	<b>NUM BER</b>	<b>PERC ENTA GE</b>
1	RURAL	15	46.87
2	URBAN	17	53.12

<b>HOW BIG IS THE STUDENT'S FAMILY [N=32]</b>			
<b>SL NO.</b>	<b>FAMILY SIZE</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
1	2 MEMBERS FAMILY	2	06.25
2	3 MEMBERS FAMILY	3	09.37
3	4 MEMBERS FAMILY	10	31.25
4	5 MEMBERS FAMILY	7	21.87
5	6 MEMBERS FAMILY	5	15.62
6	7 MEMBERS FAMILY	3	09.37
7	8 MEMBERS FAMILY	1	03.12
8	9 MEMBERS FAMILY	1	03.12