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Economic Growth with Skill up Gradation- Vocational and Technical Education

Abstract

In the context of the rapidly growing Indian economy and the expected shortfall of trained or skilled manpower required to sustain growth, initiatives for skill-development have gained importance from the national point of view. Moreover, only limited financial resources may be available for educational purposes. Hence, there is considerable interest in skill up-gradation of people, especially at vocational and technical level, where a large number of workers are required. This paper focuses on learning effectiveness of students coming from weaker sections of society in the context of skill up-gradation, particularly in vocational or technical subjects. They may be living in rural, distant or remote locations. It explains the blended model of learning adopted by a particular university, which is suited for reaching disadvantaged sections of society.

Keywords: Skill Up-Gradation, Weaker Sections of Society, Vocational and Technical Education, Blended Model of Learning, Distance Education.

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Introduction

Economic growth with equity is one of the tenets enshrined in the Indian Constitution. For a country of more than one billion people and facing a relative dearth of capital, it is indeed a very challenging job to empower students from weaker sections of society to enable them to grow individually and thus contribute to the national economic growth; yet its success is of crucial importance to fulfill the social objectives.

In recent years the Indian economy has been growing rapidly in the wake of reforms that have been introduced and developmental steps taken in various sectors. The higher economic growth rate was not accompanied with a proportionate increase in supply of skilled manpower and that threatens to become a bottleneck retarding future growth. In this context, the emerging role of vocational and technical education is gaining significance.

Supply of available work force (through unemployment, or under-employment) may exist in rural areas more than in urban areas, but rural labour needs skill up-gradation to become employable in the emerging modern economy. This imperative has taken expression in the overall goal of making 500 million employable in ten years, and the training responsibility is being shared by National Skill Development Corporation (NSDC), the Labour Ministry, and various private and public enterprises. Hence the challenge lies in reaching the weaker sections of society and facilitating skill development for sharing the fruits of growth, making economic growth more inclusive. This developmental project is likely to prove transformational for the economy, if it is largely successful in coping with the scale-related issues, which are unprecedented.

Majority (nearly 70%) of people (i.e. nearly 75 crores)live in nearly 600,000 villages, and many cannot afford to attend certain schools or colleges, or are otherwise disadvantaged or marginalized, or physically handicapped or living on far-flung hilly areas etc. The all-India literacy rate was 65% in 2001, and it is much lower in certain sections. Nearly one-third of rural households derive their income from services or manufacturing--not from farming.

Nearly 60% of the population is presently 'engaged' in agriculture, which is producing only about 20% of the national output. Hence one of the strategies that should be pursued is of making skill-development, basic education and training accessible in rural areas with a view to weaning away the rural population into industrial clusters.

An institutional framework already exists for students in higher and technical education (in traditional mode). It is a serious question,

however, whether there are enough resources (investments, infrastructure, funding to meet running costs, capable teachers etc.) available for imparting education through the face-to-face method. In other words, the "economics of education" is a significant constraining factor on the one hand, and overcoming difficulties of learning of rural learners, on the other. Except "mass-ification" and focus on vocational and technical training and education, with its attendant benefits of 'scale economies', there does not seem to be any feasible way to approach the objective of providing education for all.

Reaching the Unreached

Satellite-based communication technology offers the potential for 'universalisation of education' and 'equal opportunities for all' to a certain extent, which makes it a socially attractive channel of education, particularly since it may be cost-effective. The tacit challenge here is in understanding the capabilities of each technology and employing it with appropriate pedagogic techniques and economies of scale to reach the un-reached, and launch huge variety of programmes so that there is skill diversification of developed manpower according to requirements of the future. But on the other hand, marriage of pedagogy with technology generally appears to be an uneasy relationship; with the shortfall more in pedagogy, than in technology.

It is also an issue whether learning ability of students from rural areas can be assumed to be as good as of those living in urban areas, owing to differences in income, nutrition and access or learning opportunities, and the learning model which may be successful for weaker sections of society.

The Institute

Dayalbagh Educational Institute is a reputed deemed university, approved for delivering programmes in distance mode. Its outreach plan, which reaches out to weaker sections of society, embodies the following broad-based

Objectives

1. To provide need based education: enhancing the employability of persons who are educated but not finding employment or who have lost employment; and also enhancing the employability of uneducated/undereducated youth.
2. To target geographically remote and backward areas with vocational training programmes.
3. To offer education on a no-profit basis.
4. To remain aligned with the National Programme for up-liftment of underprivileged and backward societies and the empowerment of women.

A well-conceived and pragmatic plan which is technically, educationally, and economically sound has been developed to design, develop and deliver distance educational programmes. Concept of blended education has been adopted, which is particularly suited for providing additional support through classroom interaction etc.

The Institute has launched inter alia the following 1-Year Certificate Courses both in face-to-face mode and also in distance mode: -

1. Dress Designing & Tailoring
2. Electrician / Wireman
3. Modern Office Management and Secretarial Practice
4. Motor Vehicle Mechanic
5. Textile Designing & Printing

Blended Model of Learning in Distance Education

Quality is accorded very high priority in preparation of instructional materials. The Institute prepares the academic print and non print materials (Video-based lessons on DVD/CD media) ensuring fulfillment of academic requirements and also does student evaluation. The Institute ensures that adequate floor space, a Mentor who is fluent in the regional language and has knowledge in some of the concerned subject, and necessary equipment such as DVD player, personal computer etc. are available before any course is launched at a particular location.

Fees are kept low to enable disadvantaged sections of society to join in this learning opportunity.

Blended learning (BL) integrates seemingly opposite approaches, such as formal and informal learning, face-to-face and online experiences, directed paths and reliance on self-direction, and digital references and collegial connections, in order to achieve individual and organizational goals Regular classroom interaction is there with the students.

Hypothesis Testing Methodology

1. Statement of Topic: There is no difference in learning ability between students from weaker sections of society and other students.
2. Statement of Objectives: It is intended to establish that learning is equally good in students from weaker sections of society as in others (or otherwise, as the case may be). In other words, it will be determined whether the two groups, learning in distance education mode using blended model of learning, actually differ in learning ability as evidenced by marks awarded. (Marks awarded are taken to be a measure of learning).
3. Null Hypothesis: The difference between population means of weaker sections group and other group is zero, and that, except for sampling errors, mean differences from sample to sample is also zero.
4. Methodology: Data has been collected about family income (in Rupees per annum) and marks awarded (Cumulative Grade Point Average) of 333 students for five 1-Year Certificate Programmes which have been running in distance education mode with blended learning model at the Study Centers, for those of weaker sections of society, and for others, to have basic comparability.
5. Hypothesis Testing is done at 99% level of confidence using SPSS software, and also at 95% level of confidence.
6. Population size and sample size: The entire population is 1475 students, and the sample size is 333 students, i.e. 22.5% of the population.

Population profile of the students in 1-Year Certificate courses is tabulated in Table 1: -

Asian Resonance

Table1.
Programme-wise Categorization of Students (2009-10)

Sl. No.	Program Name	Total	Area		Social Status		Marital Status		Sex		Category			
		No. of students	Rural	Urban	Employed	Unemplo-yed	Married	Unmarried	M	F	Gen	SC	ST	OBC/BC
1	DD&T	428	109	319	12	416	203	225	0	428	233	43	18	134
2	MOM&SP	318	121	197	47	271	52	266	193	125	152	37	3	126
3	MVM	231	138	93	14	217	19	212	231	0	77	45	3	106
4	TD&P	121	32	89	10	111	28	93	48	73	65	11	0	45
5	WM	377	203	174	52	325	43	334	377	0	101	65	16	195
	Total	1475	603	872	135	1340	345	1130	849	626	628	201	40	606
	Percentage		40.9	59.1	9.2	90.8	23.4	76.6	57.6	42.4	42.6	13.6	2.7	41.1

Salient data attributes are stated below:

Out of the sample, 57% of the students are from reserved category (SC/ST/OBC), 41% are from rural area, 42% are female, and 91% are unemployed.

As for the Family Income per annum, 44% of the sample have income up to Rs.48,000/= per annum and 56% have income more than Rs.48,000/= per annum.

Fig. 1
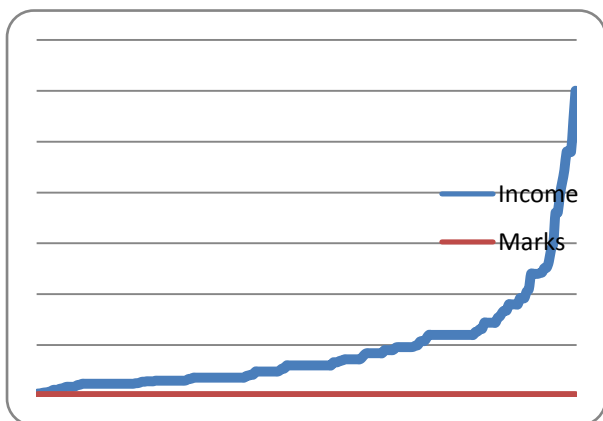
The distribution of marks is displayed in Fig.1 above along with family income per annum. It is observed that marks awarded are confined to a narrow range compared to the income range which is considerably wider.

Cumulative-grade Point-average (C.P.) is the overall score achieved by a student over 2-semesters for a large number of component tests having certain weight-ages. Multiplication of the score by 10 yields the equivalent % marks gained by a student. For example, a score of 8.5 implies an overall performance of 85% marks).

Underpinnings

Concept of income-based poverty line has been in vogue, based on calorific requirements of people living in rural and urban India. There is no single nationally accepted criterion to identify families below poverty line (BPL) (www.wikipedia.com). It could be argued that with current level of inflation for a family of four or more members, a family income of Rs.4000/= per month is the 'starvation line', which does not cover

essential items like health and education. However, in this study, family income below Rs.48,000/- p.a. has been taken as the cut-off for weaker sections of society, regardless of the size of the family and rural or urban area, as the BPL line.

It must be accepted that learning facilities are not equal for students from well-off and BPL families, and differences in terms of access to physical resources and to human capital, as well as for time available for study, lead on to differences in terms of efforts and outcomes in terms of marks.

Moreover, family income alone is inadequate to measure poverty, a complex socio-economic phenomenon (Bourguignoni, F. 2003). It is well established that parental income is positively associated with virtually every dimension of child well-being that social scientists measure (Ora, W. 2002).

Statistical Results and Analysis

(A) Comparison of Means of Marks for Two Different Income Groups

A1) The 333 students were split into 2 groups having Family Income up to Rs.48,000/= p.a., and those above Rs.48,000/= p.a. Then a 2-tailed test for testing the null hypothesis was carried out using SPSS software, by comparing the means of the two above mentioned groups, at 99% confidence level, tabulated in Table 2.

Group Statistics				
Income	N	Mean	Std. Deviation	Std. Error Mean
C.P. >= 48000	188	7.3568	.97131	.07084
< 48000	145	7.3961	.98112	.08148

As the t-significant value 'Sig. (2-tailed)(lower)' is 0.108, which is bigger than 0.05, it leads to the null hypothesis being accepted (i.e. it is not being rejected).

In other words, the difference between population means of weaker sections group and other group is zero, and that, except for sampling errors, mean differences from sample to sample is also zero. Hence the null hypothesis is accepted implying that there is no difference in the learning ability of those from weaker sections of society and others in the context of blended learning.

Asian Resonance

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference	F
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
C.P.	Equal variances assumed	.326	.568	-.365	331	.716	-.03931	.10783	-.31867	.24004
	Equal variances not assumed			-.364	308.323	.716	-.03931	.10797	-.31915	.24052

TABLE 2:   INDEPENDENT SAMPLE TEST

A2) Similarly, the statistical testing was done at 95% confidence level and the inference from the output data remained unchanged.

Comparison of Means of Marks for Two Different Learning Groups in Face-To-Face (F2F) Mode and n Distance (DE) Mode

B1) Students in F2F mode and DE mode were placed in two different groups and difference in their means of marks scored was studied using z statistic. It was observed that the group in DE mode was having significantly more means marks at 95% confidence level. However, the same group had considerably higher mean income level (and also variability in income level) than the F2F group.

Conclusions & Policy Implications

A1 & A2) The learning effectiveness of students of the two groups (family income up to Rs.48,000/= p.a. and those above it) is having similar significance at 95% confidence level and 99% confidence level in the given sample. On the one hand, there is a need for poverty-reduction strategies at national level, such as those of the World Bank which are being implemented in several countries (Nepal, Vietnam, Uganda, etc), and for imparting free (i.e. Government-subsidized) education, or experimental consideration for use of 'schooling-vouchers' which parents may use at a school of their choice. On the other hand, at micro level, it points out a particular successful implementation of blended learning model for imparting quality education to students of weaker

sections of society, being done in Study Centers in various States at national level (displayed in a map of India), which may have scope for wider experimentation owing to cost-effectiveness and seems to be better adapted to meet the needs of the weaker sections of society.

B1) While a significantly higher mean-marks obtained in DE mode at 95% confidence level seems to indicate well for the blended model of learning, however other factors such as higher income may be at work. There is scope for further work in this area.

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