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AIMS AND OBJECTIVES

The COMOSA Journal of Open Schooling is a peer reviewed international journal committed to school education through open learning methodologies. The journal is inter nationally contributed, abstracted and subscribed. The affairs of the COMOSA Journal of Open Schooling are being managed with the help of an Editorial Advisory Board, and an Editorial Board, placed at NIOS, India .

The aims and objectives of the Journal are:

to provide a forum across the Commonwealth Countries for scholarly discussion on concerns and issues in Open Schooling/Open Learning.

to disseminate research, theory and practices including inter-disciplinary studies.

The COMOSA Journal includes research papers, articles, review of research, review of Books on Open and Distance Education and highlights programmes and activities in Open Schooling in Commonwealth Countries.

The research papers may inter alia reflect need of the study, objectives, research methodology including sample and results of the study. The researches may be empirical, archival, historical etc.

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Chief Editor's Note

Commonwealth Open Schooling Association (COMOSA) , is a non-profit, democratic, collaborative and futuristic organization based on mutual respect and committed to support the efforts of open schooling institutions. The basic objective of the association is to cooperate and collaborate in development, promotion and introduction of innovative, high quality, relevant, equitable, gender-sensitive and cost-effective programmes of school education for sustainable development in commonwealth countries through Open and Distance Learning Mode, and thereby targeting to achieve the Millennium Development Goals (MDG) of the United Nations.

The Association aims at achieving a number of outcomes. One of these is sharing of resources by compiling, publishing and distributing research and other materials. The Journal provides a forum to the member countries to mutually benefit by sharing views, activities, research and innovations, etc. I am happy to share the news that the COMOSA Journal of Open Schooling has been registered and assigned **Number ISSN 0976-0407**.

The present issue of the COMOSA Journal has five articles/papers on varied themes which cover different aspects of Open and Distance Learning across the commonwealth countries and a Book Review.

The article titled **Inclusive Growth of Higher Education: The Role of an Open University** elaborates how blending of conventional and ODL system may help to reach the targeted rate of GER(**Gross Enrolment Ratio**) in a stipulated period.

The paper on **Measures to Sensitise About Measurement And Calculation What Measurements Reveal, Mere Observations Cannot** , discusses why people should pay more attention towards measurements. The article titled **Possible CALL Material for Distance Language Learners of English at Dr. BRAOU** elaborates how the CALL(Computer assisted language learning) material is necessary for the better interactivity of the learner with the study material and for giving a sense of being a part of a learning group, for learner support, to give wider scope to sustain motivation of a learner resulting in better language learning through the open distance mode.

The paper on **Integrating Academic and Vocational Education: Making the link Through National Vocational Education Qualifications Framework** precisely explain reviews the steps taken in India to integrate academic education and vocational education and training through NVEQF(National Vocational Education Qualifications Framework).

The paper on **A Feedback Study on Personal Contact Programmes in Open and Distance Learning System - A Case of NIOS** presents the find-

ings of the study and suggestions for improving the overall effectiveness of the PCPs at the NIOS.

The contributors of this issue of the Journal deserve special thanks for their valuable contribution on varied themes. I appreciate the hard work of the Editorial Board of COMOSA and Printing Unit of NIOS for bringing out this issue of the Journal. We look forward to receive articles for the forthcoming issues of COMOSA. We invite comments and suggestions for quality improvement of this Journal.

Best Wishes !



(Dr. Sitanshu S. Jena)
Chairman, NIOS
&
Chairperson, COMOSA

Inclusive Growth of Higher Education: The Role of an Open University

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Abstract

Accomplishing inclusive growth in all sectors of the economy is the prerequisite of a democratic nation. This has become a prominent phenomenon especially in the case of higher education sector from 11th five year plan onwards. In the light of the limited resources, their optimum utilisation is need of hour to ensure the provision of educational opportunities for all. Expansion of higher education institutions to offer quality education with a view to accommodating all sections of people for the purpose of providing relevant education is the requirement of the time. To enhance the GER from 12 percent to 30 percent by 2020, it is estimated that the country requires 27,000 additional institutions. In order to attain much urged GER to the projected level, as only through conventional institutions prove to be highly expansive, the ODL system may be encouraged to meet the targeted enrolment as it is cost effective. An endeavour in this direction made by Dr.BRAOU is laudable in terms of providing opportunities to various socio-economic groups by setting up its study centres across the States of Andhra Pradesh considering the demand and availability of infrastructure. Such type of institutions may be started in all the States of the country to achieve the inclusive growth in higher education. Blending conventional and ODL system may help to reach the targeted rate of GER in a stipulated period

Keywords: GER(Gross Enrolment Ratio);ODL

Introduction

Inclusiveness is a concept that has received priority attention of policy makers in education during the past decade and particularly during Eleventh Plan Period. However, in several discussions of the issue held, inclusive education through the Open Distance Learning (ODL) mode has not been emphasised. The article relates the experience of an ODL Institution in promoting the inclusive growth of higher education in the region.

Inclusiveness in higher education has been buzz word of Eleventh Plan Period.

Inclusiveness is defined as “increased access to education for groups that currently have only limited access”.¹ The National Sample survey data of 2000 illustrated how ‘exclusion from access to higher education occurs in multiple ways and is reflected in the disparities observed not only between the poor and the non-poor, but also across social groups classified according to caste, religion, ethnicity and gender’. This article carries on in the same wave but puts forward the argument that true inclusiveness is possible through all modes of education and in particular ODL mode. As a case in point, the example of Dr. BRAOU is given though data reveals that disparities continue and progressive steps need to be taken to bring further change.

During the last six decades, higher education in India has grown in leaps and bounds. Not only has the number of Universities in the country increased, there has been a corresponding increase in the number of colleges, teaching staff and of course students. The number of University level institutions, Degree Colleges, teachers and students were in the order of 25; 700; 15,000 and 0.1 million during 1950 increased to 467; 25,951; 5,88,000 and 13.6 million respectively by the year 2009.² As on 31st March, 2010, there were 42 Central Universities established by the Acts of Parliament, 256 State Universities established by the Acts of State Legislatures and 60 Private Universities established under the Acts passed by the State Legislatures. The Central Government has conferred the status of Deemed to be University to 130 Institutions established by the Central Government and the Private Institutions including those established by the philanthropists. There were 5 Institutions of National Importance established under the Acts passed by the State Legislatures

Further, there were 39 Institutions of National Importance established by the Acts passed by the Parliament. The total number of Colleges set up by the Central Government, the State Governments and the Private Institutions including the philanthropists were 31,324.³ However, these numericals are not static and they keep changing from time to time. These Universities are spread over different States and Union Territories to increase access to higher education for the public at large thereby facilitating the accomplishment of inclusive growth in the country. For instance, from the year 1984-85 to 2008-09, there has been continuous increase in enrolment in higher education in preceding years. Out of 25 years, the growth rate registered was below 3 per cent in 1984-85, between 4 per cent and 6 per cent in 11 years and between 6 per cent and 8 per cent in the remaining years.⁴ In terms of enrolment in higher education all over the country for the year 2009, Uttar Pradesh stands first, followed by Maharashtra, Andhra Pradesh and Tamil Nadu.⁵ However, the Universities and colleges are not evenly spread over the country. Among the States, in terms of number of universities (including Central, State and Deemed and others), Tamil Nadu with 50, Maharashtra with 41, Uttar Pradesh with 38 and Andhra Pradesh with 33 occupied first, second, third and fourth positions in the country. In terms of colleges, Uttar Pradesh with 1055, Maharashtra with 946, Karnataka with 596 and Andhra Pradesh with 457 stood

first, second, third and fourth positions in the country by 2009. Further, the number of colleges available per lakh population varies from State to State.⁶

The 11th Plan has pointed out many issues of higher education, but mainly focused on four of them, i.e., Expansion in higher education through higher enrolment, equal access to all i.e., inclusiveness in higher education, promotion of quality and excellence and offering relevant education. These are the real challenges of higher education in the country today which may be dealt with by paying immediate attention, if India wants to rise to a respectable height in the sphere of higher education in the global context. A brief account of these challenges or issues is given below to draw the attention of the policy makers of higher education.

Expansion of Enrolment (Gross Enrolment Ratio)

Economists say that no country has been able to become an economically advanced country if its enrolment ratio in higher education is less than 20%. The current Gross Enrolment Ratio (GER) in India is 12%. The 11th Five Year Plan has set a target GER of 15 per cent before the UGC. The target has also been fixed to accomplish 20 per cent GER by the end of the 12th Five Year Plan. The Ministry of Human Resource Development of the Government of India seems to have fixed a target of 30 per cent GER by 2020. It was estimated that the country would require 27000 additional institutions of higher learning to increase the GER from 12 per cent to the projected 30% by 2020. The steps proposed include the establishment of new Central Universities, new IITs and IIMs and increasing the capacity in existing Universities and colleges and starting of new courses. In order to achieve this targeted GER, both the Central and State Governments should increase their public expenditure on higher education.

Inclusiveness in Higher Education

In a world of competition, it is imperative for every country to emerge as a knowledge society. This would be possible only when the policies of higher education are directed at providing access to equality of opportunities for all the people in the country. Whether expansion of the higher education system by itself ensures equity and inclusiveness is a question which requires closer examination. In a country like India, where inequalities are enormous, creating greater access opportunities and expanding the intake would not mitigate inequality rather it would conceal it. The major inequalities/disparities which need to be corrected include: rural-urban disparities, inter-state disparities, inter-religious group differences, inter-caste variations, gender differences, disparities among various occupational groups, poor-non-poor disparities etc., as mentioned in the UGC report (2011). Both public and private institutions, no doubt, need to be encouraged to work together to achieve the inclusiveness in higher education - yet the quality of the private institutions, which operate merely for profit, need to be under close scrutiny. In other words, achieving inclusiveness in higher education only with public in-

vestment is a formidable task for a developing country like India.

Quality

Though India has made rapid growth in the field of higher education, yet we have not been able to develop it to provide quality education. As pointed out in the report of UGC (2011) only 36 per cent of the colleges which come under its purview are qualified to receive the development grant from it. The rest are unable to meet the minimum eligibility criteria laid down by the UGC - a minimum level of quality in terms of physical and academic infrastructure. Similarly, during 10th Plan period, out of 417 universities, 317 universities were under the jurisdiction of UGC and of them only 164 universities received development grants from UGC. Among 164 universities, 111 were accredited by National Assessment and Accreditation Council (NAAC) and of them only 32 per cent were rated as 'A' grade or above. In the case of 4870 colleges, as many as 2780 were accredited by NAAC and of them only 9 per cent were rated as 'A' or above. It means that 68 per cent of universities and 91 per cent of colleges were rated as average or below average by NAAC. This indicates that there is ample scope for improvement in quality of higher education to make the institutions of higher learning into 'institutions of excellence or world class institutions'. The UGC regulations on minimum qualifications for appointment of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in higher education, 2010 has recommended the establishment of Internal Quality Assurance Cell (IQAC) as per UGC/NAAC guidelines.

Relevant Education

Offering relevant education is also a serious problem. Relevant education involves three aspects as pointed in the UGC Report (2011). It involves imparting of scientific knowledge to the students on the subject so that it facilitates creation of a knowledge society with a scientific approach and a rational bent of mind. Besides knowledge, it also involves imparting skills and working knowledge, which in turn develop human resources necessary for economic development. Relevant education finally involves providing value education so that it serves as an instrument for creating a society - the members of which cherish the values of democracy, secularism, fraternity and equality. These three aspects are to be borne in mind while developing the curricula for universities and colleges.

However, it is astonishing to note that the UGC in its report has not made any mention of open distance learning which alone has the capacity to scale up the enrolment without causing a heavy dent in resources.

Role of an ODL Institution

Before analyzing the role of an ODL institution in providing inclusive educa-

tion, it is now appropriate to look at the scenario of Conventional and ODL systems in India over the years.

During the year 1975-76, the share of conventional and ODL systems in terms of enrolment was in the order of 97.42 per cent and 2.58 per cent. The figures have changed to 94.30 per cent and 5.70 per cent by the year 1980-81. The share of enrolment of conventional system in the years 1985-86, 1990-91, 1995-96, 2000-01 and 2006-07 was 90.40 per cent, 88.53 per cent, 88.23 per cent, 83.26 per cent and 72.00 per cent respectively and that of the ODL system during the same years was 9.60 per cent, 11.47 per cent, 11.77 per cent, 16.27 per cent and 28.00 per cent.⁷ By the year 2009, the share of ODL system in the total enrolment of higher education stood at 30.19 per cent.⁸ Thus, the ODL system is picking up its share in the enrolment over the years.

When we look at the picture of ODL system with reference to UG enrolment in Andhra Pradesh, it was 21.39 per cent during 1997-98 increased marginally to 27.88 per cent by the year 2000-01 and further increased to 39.19 per cent by the year 2003-04. However, its share had become 37.62 per cent by the year 2006-07.⁹

Open Universities are institutions of Distance Learning, established to provide equality of opportunities to all the sections of the people who could not pursue their higher studies for one reason or other. Across the barriers of time and space instruction is imparted through various media. These universities offer their programmes to a major extent with the help of technologies to the public at large and as such they are known as the institutions of mass learning.

The ODL system has inbuilt access features such as open entry, greater flexibility for pacing study, the option to learn while one earns and most important of all, the course fee is lower than that in the conventional system.

The era of open universities in India, began with the establishment of Dr. B. R. Ambedkar Open University (formerly known as Andhra Pradesh Open University) in 1982 by the Government of Andhra Pradesh. Though there are, at present, 14 Open Universities operating all over the country, it is proposed to study the role played by the first Open University i.e., Dr. B. R. Ambedkar Open University (Dr. BRAOU) in providing inclusive education in the State.

For the purpose of studying the inclusive role of Dr. BRAOU, an analysis is conducted of the terms of various social groups i.e., SC, ST, BC and others. In order to observe the spread of study centres, the district-wise population is compared with the increase in the number of study centres in each district and also the enrolment of students during a particular year to explore whether study centres were set up with the principle of equity. Further, an analysis of study centres in areas of Municipal Corporations, Municipalities and others is made to study the concentration of study centres.

Since the undergraduate programme of Dr. BRAOU accounts for almost 90%

of its total enrolment, it would be of interest to analyse the admission of students to UG first year in various years to find out the representation of various social groups and the extent to which inclusiveness is evident.

Table 1 : SOCIAL CATEGORYWISE ENROLMENT OF STUDENTS IN FIRST YEAR UNDERGRADUATE PROGRAMME IN BRAOU (1983-84 TO 2010-11)

Year	ST	SC	BC	OC	Total	ST%	SC%	BC%	OC%
1983-84	65	498	1868	3800	6231	1.04	7.99	29.98	60.99
1984-85	189	1263	3092	6700	11244	1.68	11.23	27.50	59.59
1985-86	190	1580	4603	9329	15702	1.21	10.06	29.33	59.41
1986-87	234	1869	6019	11151	19273	1.21	9.70	31.23	57.86
1987-88	189	1653	3659	10770	16271	1.16	10.16	22.49	66.19
1988-89	235	1551	5297	9614	16697	1.41	9.29	31.72	57.58
1989-90	208	1445	5414	9239	16306	1.28	8.86	33.20	56.66
1990-91	582	3048	9864	14010	27504	2.12	11.08	35.86	50.94
1991-92	643	3899	12068	15840	32450	1.98	12.02	37.19	48.81
1992-93	676	4363	13738	16770	35547	1.90	12.27	38.65	47.18
1993-94	674	4196	11206	13265	29341	2.30	14.30	38.19	45.21
1994-95	814	4973	11976	14342	32105	2.54	15.49	37.30	44.67
1995-96	1340	8660	17349	19136	46485	2.88	18.63	37.32	41.17
1996-97	1522	9011	14862	14985	40380	3.77	22.32	36.81	37.11
1997-98	1887	9489	15388	16560	43324	4.36	21.90	35.52	38.22
1998-99	3129	13240	19000	19838	55207	5.67	23.98	34.42	35.93
1999-00	3051	11720	19735	19199	53705	5.68	21.82	36.75	35.75
2000-01	3134	9582	18813	16591	48120	6.51	19.91	39.10	34.48
2001-02	2375	5322	18367	17206	43270	5.49	12.30	42.45	39.76
2002-03	4120	12304	20956	18566	55946	7.36	21.99	37.46	33.19
2003-04	5116	14673	25894	23399	69082	7.41	21.24	37.48	33.87
2004-05	4428	12985	27430	27761	72604	6.10	17.88	37.78	38.24
2005-06	5104	16078	29986	25290	76458	6.68	21.03	39.22	33.07
2006-07	3990	12589	25891	20124	62594	6.38	20.11	41.36	32.15
2007-08	3640	14014	29351	20955	67960	5.36	20.62	43.19	30.83
2008-09	3503	16819	36402	23924	81648	5.52	20.60	44.58	29.30
2009-10	5059	16392	36319	19891	77661	6.51	22.11	46.77	25.61
2010-11	6287	17410	36894	18233	78824	7.98	22.09	46.80	23.13
Total	63384	230626	481441	456488	1231939	5.15	18.72	39.08	37.05

Source: collected from the University Records

It may be observed from the table that the share of ST students against the total enrolment ranges from 1.04 per cent (1983-84) to 7.98 per cent (2010-11). Further, in 15 out of 28 years, the enrolment of ST students accounted for less than 5 per cent i.e., from 1983-84 to 1997-98 and for the remaining years the percentage of it was above 5 per cent. On the whole, for the entire period of study, the enrolment of ST students stood at 5.15 per cent. In this regard, the University may provide free education as against the present form of concessional education to encourage a larger number of ST students to join the University at least to maintain 6 per cent as provided by the Government.

In respect of SC students, its share was between 7.99 per cent (1983-84) and 23.98 per cent (1998-99). Out of 28 years, the share of SC students was less than 10 per cent in 4 years, between 10 per cent and 20 per cent in 12 years and above 20 per cent in the remaining years. The reason for the sudden fall in its share during 2001-02 (i.e., 12.30 per cent) over 2000-01 (i.e. 19.91) is due to the change of policy by the University in collecting fee from SC and ST students on par with other students. Prior to 2001-02, the University never collected any fee from the SC and ST students. However, from the year 2002-03, the University started charging to them a nominal fee of Rs.100 per annum and from 2006-07 Rs.150 per annum. The average rate of SC students for the entire period of 28 years stood at 18.72 per cent.

The share of SC and ST students together in the overall enrolment was 23.87 per cent which itself stands testimony to the fact that the University is providing inclusive education.

As far as BC students are concerned, their share in the enrolment was least in 1987-88 (i.e., 22.49 per cent) and highest in 2010-11 (i.e., 46.80 per cent). Its share was below 30 per cent in 4 years, between 30 per cent and 40 per cent in 18 years and above 40 per cent in the remaining years. It may be noted that BC students had never been given any concession. On the whole, their share in the overall enrolment registered at 39.08 per cent and this itself is a great achievement by the University in providing inclusive education by its flexible educational systems.

From the above analysis, it can be concluded that Dr. BRAOU is successful in providing educational opportunities to the backward and marginalized sections of the society to the extent of 63 per cent and for others 37 per cent. With respect to access, the University has extended opportunities to several aspirants in remote places by a network of Study Centers. Hence, it is necessary to study the spread of study centers over the districts in relation to their population in the State so as to judge whether there is any relationship between the share of population of the district and the number of study centers that were there in that district. The population of the State as per 2011 census (8,46,65,533) has been considered for the purpose of analysis.

**Table 2: DISPERSAL OF DR.BRAOU STUDY CENTERS
IN ANDHRA PRADESH**

Sl.No.	District	% of Population	No. of Study centers
01	Adilabad	3.23	8
02	Anantapur	4.82	10
03	Chittoor	4.93	10
04	Kadapa	3.41	12
05	East Godavari	6.08	9
06	Guntur	5.77	5
07	Hyderabad	4.74	26
08	Karimnagar	4.50	13
09	Khamam	3.30	12
10	Krishna	5.35	9
11	Kurnool	4.78	6
12	Mahaboobnagar	4.78	12
13	Medak	3.58	8
14	Nalgonda	4.11	13
15	Nellore	3.50	8
16	Nizamabad	3.02	10
17	Prakasam	4.01	10
18.	Ranga Reddy	6.26	10
19.	Srikakulam	3.19	5
20	Visakhapatnam	5.06	3
21	Vizianagaram	2.77	2
22	Warangal	4.16	12
23	West Godavari	4.65	6
	Total	100.00	219

Table -2 presents the dispersal of Dr. BRAOU Study Centers in Andhra Pradesh. It can be seen from the table that in all 219 study centers have been set up by the end of 2010 by the University. These centers are located in Government Degree and Junior and Government-aided Colleges. Of the 219 study centers, 4 centers are located in prisons to provide educational opportunities free of cost for the benefit of prisoners. The University is also offering B.Ed. (Special Education) for the Physically Challenged. The new draft policy in higher education states that open distance learning institutions shall be encouraged to take care of the educational needs of learners with disabilities and senior citizens.¹⁰ The data presented in the table indicates that Ranga Reddy district has the largest population i.e., 6.26 per cent and has 10 study centers, whereas Hyderabad district with a population of 4.74 per cent has the largest number of study centers i.e., 26 as a result of urban agglomeration, the availability of

facilities to open more study centers and demand from the public. Further, Vizianagaram district with the lowest share of population of 2.77 per cent has only 2 study centers. This indicates that the location of study centers is not purely dependent on the share of population but on other factors like availability of infrastructure facilities, qualified teaching staff and demand from the public.

As a sequel to the above, it is now proposed to study the location of study centers to have an idea about their direction of gravitation.

Table 3: Location of Study Centers in Andhra Pradesh

Municipal Corporations	Municipalities	Tribal	Rural	Total
53 (24.20)	70 (31.96)	29 (13.24)	67 (30.60)	219 (100.00)

Note: Figures in parentheses are percentages to total.

The above data reveals that there is concentration of study centers in the urban areas i.e. in Municipal Corporations and Municipalities which together account for 56.16 per cent of total study centers of the state. Further, the share of rural and tribal study centers together accounts for 44.84 per cent of the total study centers. As more than 60 per cent of total population of the state lives in rural areas, there is a need to set up more study centers in such areas so as to provide access to a larger number of people to transform the state into a knowledge society. A similar kind of exercise needs to be done by other states in the country to accomplish the real objective of inclusiveness in higher education.

Conclusion

Both conventional and open universities must work together to achieve the targeted GER in higher education. No doubt it is costly affair to promote more conventional institutions of higher learning to provide universal access to higher education on a large scale. The alternative available to the country to achieve inclusiveness in higher education is to encourage Open Universities in the light of the resources crunch in general and disadvantaged sections of society in particular. For this purpose, all the state governments of the country must establish an open university in their respective states to bring about an overall development of human resources, considering the factors of cost and quality in higher education.

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Measures to Sensitise About Measurement And Calculation What Measurements Reveal, Mere Observations Cannot

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Abstract

Measurements and calculations are integral part of our life. Yet we are not always conscious about this and do not take a closer look at the things that the measurements and calculations reveal. Reader's attention is being drawn towards these aspects through some suitable examples.

Keywords: Measurements, calculations, unit

Introduction

All of us do some arithmetic in our everyday chores and it continues, so to speak, lifelong. At the different shops in the market, in the buses and trains or while making mental estimation of time to be given for a particular work or so at many almost other places we need to do some calculations involving mostly mass, length and time. Measurements are indeed made almost at every step of our existence. Once again this may be a measurement of mass, length, time or any other suitable parameter like volume or area. We also do a lot of counting, which however differ from measurements. We do not need any instrument or unit for counting, whereas measurements do demand the use of standard or some instruments however rudimentary that may be. Interestingly, we do make a lot of qualitative statements about so many things that can otherwise be quantified by way of measurements. Here we shall try to take a look at the process of measurement mostly from very basic level to see how things which are quite fascinating get revealed thereby. We expect the teachers at the school level to take such initiatives and in the process sensitize their students.

Are we sensitive towards the measurements of length or time?

One of the authors happened to visit a school and interact with the teachers and students of fourth standard. The teacher was taking a lesson on "Measurement of Length by the Metric System" [1]. On asking the teacher about the status of the knowledge acquired by the students he replied that he was taking a revision class as according to him the pupils have learnt everything

and were due for a class test on the next day. So he asked the students, “Do you know the relation between a kilometre and a metre? All hands got raised up and they came out with the perfect reply, $1\text{km}=1000\text{m}$. “What about the relation between a metre and a centimetre?” Again, all hands got raised up and everybody answered correctly, $1\text{m}=100\text{ cm}$.

The school was situated on the outskirts of a town and the author was curious to know how they commute to the school from their homes. In that connection, he asked the students, “How far is your home from the school?” Now, no hands were getting raised up. Let us think of it. The question was about a distance, which they tread day in and day out. He got similar reactions when he asked the students to give an estimate of the length and breadth of the classroom, or to tell how many centimetres is his pen. Finally, he asked the students, “Do you know how much is a metre? Can you show me your estimate of a metre?” The students were extremely hesitant and generally not at all forthcoming with their replies. However, with some persuasion some of them tried to provide their estimate of a *metre* using body language by spreading out their arms which was far from accurate. When the teacher was asked that how it had been like that they know the conversion factors with exactitude but they do not know how much is a *metre*, his excuse was that he was not provided with a metre scale by the headmaster. The whole episode brings out our insensitivity towards measurement.

Taking a closer look at the measurement of time

More than the distance there is insensitivity towards measurement of time. And for the measurement most of us carry some device or other with us virtually all along. Earlier it used to be a watch alone, digital or analog, but now we are having mobile phones with us most of which may even be used as a stopwatch when needed. Interestingly, the issue of measurement of time is situation dependent. And it not only demands a device but some application of mind as well since it quite often involves some calculations. For example if we say that the time required to cover a particular distance is five or six minutes we are essentially allowing a margin of 20%.

We may realise the gravity of the matter if we compare with the time difference which cost our sprint queen P.T.Usha the bronze medal at the 1984 Los Angeles Olympics. She missed it by 1 millisecond where the total time taken for the 400 m hurdles race was about 50 seconds. So if the time difference which cost her the bronze medal is treated as an error, then it is $0.001/50 \times 100 = 0.02\%$. Now if 0.02% can matter it is no wonder that 20% will. It sensitises us about the importance of correct measurement of time. We fail to meet the deadlines or maintain vital schedules because we do not make proper assessment of time.

Measurement of mass: An everyday exercise

Interestingly we have a notion that we are very careful about the measurement

of mass or weight that we possibly encounter most in our daily life. In the market place as a buyer we always insist on tilting the scale however small that may be, in our favour. The sellers are very much aware of this psychology and handle the situations accordingly. With no intention of stamping the sellers as dishonest the fact remains that we do not bother to check the zero of the balance before it is used for the measurement. The idea of checking the calibration of the weights used or the equality of the two arms of the balance is neither fair nor possible for an ordinary buyer but the fact remains that these are all sources of error and the seller may quite unintentionally be selling lesser amount or may be occasionally larger amount in the process of conducting his business.

So the proper assessment of mass is also quite essential. One of the authors while interacting with students in a classroom had asked them to tell which is the single-most heaviest object in the classroom? Someone said it was the blackboard, while someone else pointed towards the table. Now, the approximate dimension of the room was 10m x 8m x 3m so the volume was 240 m³. The density of air at room temperature may be taken as 1.25 kgm⁻³ and so the total mass of air in the room is about 300 kg which means that air is the single heaviest object in the room.

The question should not be considered deceptive because normally it does not occur to us that air is also an object, but the matter of concern is that in spite of knowing very well that volume of a rectangular parallelepiped is the product of its length, breadth and height we seldom apply it to measure a volume. Nor do we use the formula, 'mass = volume x density' very often to estimate the mass of a body.

Temperature: Another interesting parameter for measurement

How many of us use a common mercury thermometer for the measurement of surrounding temperature or the temperature of a cup of warm water? We use a clinical thermometer when we are compelled to do so if somebody has fever. We may monitor the variation of temperature of atmosphere over a day using an ordinary mercury thermometer. Suppose there is a thunder squall on a hot summer day and the temperature drops. The variation can be read using a thermometer. Thereby we can make a comparison of our reading with that provided by the metrological office through the television news. We can have a fairly good quantitative idea about what we commonly refer to as a hot or as a cold day. And one will find that this perception of hot and cold day is not connected with temperature alone but the relative humidity also has a role to play. Moreover, the issue of human perception is quite crucial. A day may appear to be reasonably cold for the inhabitants of the plains while a resident of, say, Ranikhet in the hills may find it quite comfortable or even slightly hot.

All these necessitate measurement. A mercury thermometer can also be effectively utilized to monitor the temperature of water heated by a geyser.

Thereby one can make an assessment about the temperature which a body can bear. For preparation of tea of different varieties an estimate of the temperature of water used for its preparation becomes helpful. Likewise several biochemical medicines are supposed to be taken with lukewarm water. In such cases too a measurement of temperature of water being used would be quite helpful.

Why people should pay more attention towards measurements

Now that we have highlighted the issues, let us think of strategies to sensitise people in general and students in particular about measurement. In our school days we had to perform an experiment on determination of the value of the constant π (ρ). It is the ratio between the circumference and diameter of a circle. Whatever may be the size of the circle (Fig.1), the ratio between its circumference and diameter is an invariant.

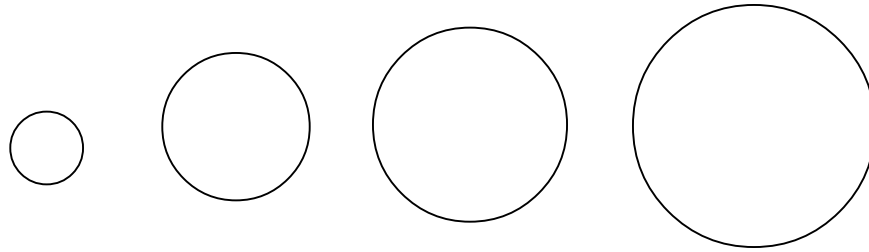


Fig 1: Circles of different sizes. We can pick up different types cylindrical pieces like glass tumblers, bottles, etc. and use their cross sections to obtain the circles.

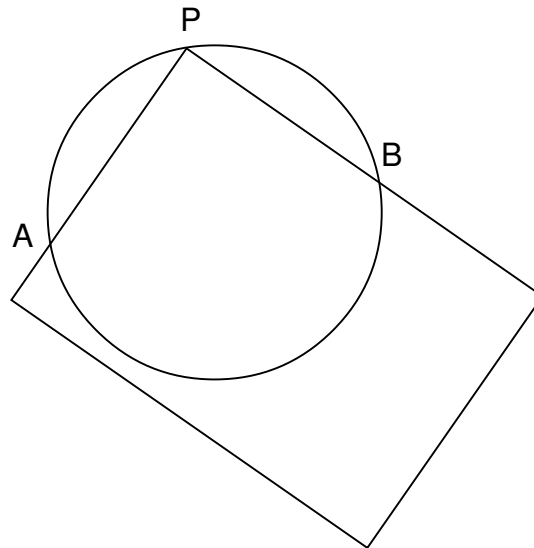


Fig. 2 : Place one vertex of your visiting card or any easily available perfect rectangle on the circumference say at P. The angle created at P is a right angle and let the card intersect the circle at A and B. Angle $APB = 90^\circ$. So A and B must be the extremities of a diameter as the angle in a semi circle is always a right angle.

By marking a point on the circumference of the circle we give it a complete turn carefully maintaining its path over a straight line and measure the distance advanced by the mark. This gives the value of the circumference. Then by measuring the diameter, the required ratio can be calculated. Since the circles mentioned above have been obtained by using objects such as coins, cylindrical pieces, etc., the method explained at Fig. 2 may be used to determine the diameter.

In this connection it is worth mentioning that it has been experienced by us that by and large if we ask students, even with good track record in mathematics, what is meant by δ , more often than not the reply is $22/7$. Now $22/7$ is indeed an approximate value of δ but it should not be treated either as the meaning or as the definition of δ . It is a *transcendental number** and it should not get borne in the mind of the learners that it is the ratio of two integers, which is the property of a rational number.

The volume of a rectangular parallelepiped is the product of its length, breadth and height. We may take such a piece and by measuring its three dimensions we can calculate the volume. Now the same can be verified using a measuring cylinder. The same piece has to be dipped inside water taken in a measuring cylinder and the measure of the rise in the level of water in the cylinder gives the volume. This value should match with the value calculated geometrically.

How measurements reveal real life situations in a clearer way

Now let us take an example from the real life situation. The Australian fast bowler Brett Lee bowls at an average speed of 140 km per hour. Assuming that the speed of the ball does not change much when it reaches the batsman, let us estimate the average linear momentum generated by a delivery from Brett Lee. The mass of a cricket ball is quite often quoted in ounce (oz). Since this is a game of British origin some of the British system of measurements still persists here and we do not bother much to change them. So the length of the cricket pitch is quoted as 22 yards (and not as about 20.12 metre!) and the mass of the cricket ball as 5.5 oz or about 160 gram or 0.16 kg. Hence the linear momentum = $(0.16 \text{ kg})(140 \text{ km/hr}) = 6.2 \text{ kg.m/s}$ (approx). Please note that the conversion of the speed of the ball in suitable unit of metre per second has been done from kilometer per hour.

If the batsman is not wearing an armguard and the ball hits the elbow joint for which the impact time is very small, say 0.01 sec, then the force exerted = 620 N, which is close to be equal to the weight of a body of mass 63 kg and is good enough to break the bone. It is no wonder that Lee is a dreaded fast bowler and it is not advisable to face him without wearing an armguard. If the same

* A number which can not be expressed as the ratio of two integers prime to each other, i.e. a non-terminating, non-recurring decimal, and is not obtainable as a root of an equation with rational coefficients is called a *transcendental number*.

ball strikes the gloves, the softness of which creates the desired cushion providing an impact time of about a second, the force exerted is 6.2 N which is equivalent to the weight of a body of mass about 6.3 kg. It is still not very less, but not high enough to cause fractures in bones of an average fit person. However, there are instances of finger injury even after being hit on the gloves. With the advancement of technology it is even possible to measure the reaction time for a wicketkeeper or a slip fielder to hold a sharp chance.

A scientifically oriented coach has necessary provision today to impress upon the Physiotherapist of the team to take care of the reflexes of the close-in fielders in accordance with the reaction times pertaining to the sharpest possible chances they come across during a match. The key factor behind these is the issue of measurement. Science can only provide guidance using measurement as a tool, but the players have to perform in tune with such inputs.

Concluding remarks

We have cited several examples to sensitise the reader about the importance of measurements and calculations. In order to practice these one does not need very sophisticated devices, but one only needs the attitude. With simple and inexpensive tools like a metre scale, a mercury thermometer (with a range of 0°C to 100°C with a minimum division of 0.5°C) and with a hand made balance with a metal or wooden metre scale type of beam of length one can do a lot of measurements. In this type of balance one can actually do away with the scale pans and can suspend the bodies from the ends of the 'beam'. Moreover with a few inexpensive plastic measuring cylinders and a spring balance one can really expand the horizon of measurements. Younger children, if asked to undergo this sort of exercise right from the upper primary classes, will surely develop the sensitivity that we are talking about.

In order to practice these acts of measurement and to be sensitised about them we need not expect the things to be included in the curriculum. These are something that children should learn from the society, family; may be from the surroundings. Unfortunately nowadays we expect too much to come from the curriculum and possibly in the process miss out even those that are very much parts of the curriculum, directly or indirectly. We need to overhaul or change our attitude. Let us not wait for things like direction from the Education Department of the government or change in curriculum, pattern of questions asked in the examinations and so on for the desired change in attitude. It has to be developed by us. And by us we mean the crucial combination of the parents and the teachers and society at large.

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Possible CALL Material for Distance Language Learners of English at Dr. BRAOU

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Abstract

The main aim of this study is to suggest a possible CALL material for degree first year students of Dr. BRAOU. The intervention of new technologies in the process of learning is one of the main reasons for witnessing an amazing revolution in teaching and training around the world. Some of the gaps in the present printed study material of degree first year (English: Foundation course) can be rectified through the CALL material. The CALL material is necessary for the better interactivity of the learner with the study material and for giving a sense of being a part of a learning group, for learner support, to give wider scope to sustain motivation of a learner resulting in better language learning through the open distance mode, and to provide an integrated communicative language learning experience *including* reading and writing, listening and speaking. A thorough literature review, observation and detailed analysis of several CD-ROMs, followed by discussions with learners and academic Counsellors, have resulted in the suggestions for the introduction of CDs along with the study material at BRAOU.

Key words: CALL, Dr. BRAOU, language learning, teaching material, distance education.

Introduction

Print is a foundational element of DE programmes and the basis from which all other delivery systems have evolved (Madhukar, 2005). Print occupies its own unique place for all learners and especially for distance learners. A lot of research has been done on the print media. It is the basic medium from which different other media are evolved.

Even though the print medium is the basis for any course through distance, it is not the only medium which satisfies all the needs of distance learners. The major problems of distance learners are isolation of learners, lack of motivation and teacher-student gap. To overcome this, we need additional media, apart from the print media.

The past 30 years have witnessed an amazing revolution in teaching and

training around the world (Lockwood, 2001). The possible reasons are competition in the job market which leads learners to opt for higher qualifications, continuing education for personal satisfaction etc. The intervention of new technologies in the process of learning is one of the main reasons for witnessing an amazing revolution in teaching and training around the world.

IT in teaching and learning started out as CAL (Computer-assisted learning) during the 1960s. However, the creation and use of Computer-based materials in learning and teaching was still restricted to a small specialist group of enthusiastic academics (Madhukar, 2005). The reasons are too many ? lack of enough awareness, technological support, confidence, popularity, financial support, knowledge, enough momentum for acting etc. To overcome this, proper initiation is necessary for the use of computers in distance language learning.

Objectives of the study

The objectives of the study are:

- To make learning material more accessible to a learner by reducing the teacher-student gap
- For the better interactivity of the learner with the study material for giving a sense of being a part of a learning group
- To enable the learner to make use of the computers for better learner support
- To give wider scope to sustain motivation of a learner resulting in better language learning in distance education
- To provide a complete picture of the language learning experience with sounds, images etc.
- To distinguish between print material and multi-media material
- To build in the features of language learning CDs and
- To provide an integrated communicative language learning experience **with** reading and writing, listening and speaking.

Methodology

The study centres of Dr. BRAOU are spread throughout the state of Andhra Pradesh. In this university, the Foundation Course in English is a compulsory subject for all the degree courses irrespective of their medium of study. But the entrants into this course are from varying language backgrounds.

A thorough literature review, observation and detailed analysis of several CD-ROMs, followed by discussions with learners and Academic Counsellors, have resulted in the suggestions for the introduction of CDs along with the study material. The ideas were collected and enhanced through the analysis and

observation of different CD-ROMs. Unit-22, which pertains to writing skills (and covers, in a sense, an integration of all the language skills of the study material) and a market available CD-ROM were analysed and discussed as examples.

Randomly selected parts of writing sections of the first year degree study material in English have been analysed systematically according to the checklist, to find out any gaps. Two CD-ROMS have been analysed to systematically find out its suitability for degree first year students of Dr. BRAOU. Analysis of one CD-ROM has been included in the present paper.

Study material analysis and interpretation

The study material of degree (BA/ B.Com/ B.Sc.) first year, “English: Foundation course”, 2006, Dr. BRAOU, Hyderabad, is focussed on reading and writing skills in its four blocks. Reading and writing are the two language skills which are given equal importance for the degree first year students, since distance learners need to develop these two language skills more than the other skills.

As per the accepted practice in self-instructional learning materials every unit should provide the unit structure to show the learners the contents of the unit and give them a clear idea about what to expect in a unit. This would also give an idea of the main points of a unit. The unit structure should also create an interest and enthusiasm in a learner to proceed further into the unit. To achieve this, the structure of unit should highlight some new points. For example, as in unit-22, the ‘objectives’, ‘introduction’ and ‘check your progress’ are common sub-sections in all the units. The remaining are newly introduced contents. These sub-headings would catch the attention of the learners.

Though the introduction should provide a link between the earlier and present units, in every unit if the same format is followed, it would be monotonous and would lead to a lower degree of interest in the learners. A brief explanation about the unit should be provided in the introduction, so that a student would become enthusiastic about what comes next.

It is necessary to have appropriate division of the content for better readability with suitable headings and sub-headings. The content of a particular theme can be managed and understood easily. The sequential and logical organization of the themes can lead to deeper understanding of subject matter, which gives more insight into the concerned topic and the inter-relatedness of concepts. Apart from having sequential organisation, proper numbering for the contents is essential to show the order of the contents. When the learner gets involved actively in the learning process, his / her involvement would be complete, with enough motivation and enthusiasm to proceed further in the learning process. The presentation techniques are also important to catch the attention of the learner. The teacher would communicate indirectly through the presentation. It would fill-up the communication gap between the learner and the teacher. There is interaction between the learner and teacher indirectly

through the well-managed the presentation techniques that can be introduced through visuals and sounds in a CD ROM.

The unit objectives should be stated clearly, so that the learners can test by themselves if they have been achieved. Logical arrangement of the unit is a must to have deep insight into the concerned topic. For the distance learners having self-explanatory study material is a commonly followed method. So, the teacher should appear to be present indirectly within the study material and give explanations. But the student should have a feeling that s/he is not separated from the teacher, but closely involved with him or her. When a student would get such a feeling with the study material, there would be more interaction and active involvement, leading to better performance.

References to the given content are a must for the progress of the learner. References would lead to further clarification of the content and sometimes the referred literature may help to revise the learned content from a different perspective. If the examples given are from daily life, the learner is able to follow the explained content. Since the study material is a foundation course, providing meanings of the difficult words is essential.

The context of the Self-check questions should be understood by the student in terms of familiarity of the content, otherwise a student may feel more isolated. At least, when s/he enquires about the content matter, or asks for help other people near-by would be able to clarify it. Model questions from each unit should be provided to instil confidence in the learner for facing the examinations.

CD analysis and interpretation

A CD named "Essential Grammar in Use" (Naylor and Murphy, 2007) Cambridge University Press, has been analysed.

The purpose of this analysis is:

- (a) to find out or understand the strategies used,
- (b) to identify its strengths and weaknesses and
- (c) to make suggestions for designing a possible CALL material for distance English language learners of Dr. BRAOU

The level of learners for whom the CD is suitable is not mentioned, since it is a market CD, and may be used for different levels of learners. For example, if it mentioned that it is for a certain group of learners, only those learners would buy it. Instead, the title of the CD attracts learners from different backgrounds, thus, a large number of buyers are expected. There are about one hundred fifty activities to practices the grammar in 'Essential Grammar in Use'. The exercises are based on different grammar concepts.

Before starting this part there are instructions for learners. There are twenty one sections in the 'tests' part. One can choose any number of units for testing

purpose. One needs to 'click' on the units for testing. There are about six hundred questions to test learner's grammar in the CD-ROM. The tests are based on different grammar concepts. There are two units of interactive grammar games with cartoon films. The games part has a slogan "Exciting games make learning grammar fun! While the film is running, the learner is expected to fill in the gaps.

The content involves the learner actively because there are many varieties of exercises. For example, organising the words in the correct column, depending on the grammatical point, match the sentences, fill-in the blanks with the correct word, writing the text to complete the letter, true/ false – type, listening to the description and clicking on the answer etc. Help is provided for doing every exercise, which is interactive and makes the learner's job easy. There are visuals, which are either in the form of cartoons or photos. It would have been more visually attractive and interactive, if there were content-related motion pictures or u tube links. Since many are exercises and tests, these kinds of motion pictures are not possible, at some places it is possible for example, in 'Unit 70' when there is a conversation, and in 'Unit 72', which covers listening and answering.

For some of the exercises after finishing a unit in the 'exercises', listening to the audio is possible through which the learner can listen to the native speaker's pronunciation and also record his or her own pronunciation to compare it with the native speaker's pronunciation. The fifth unit has 'letter writing'. The basic format of the letter and two lines of the body of the letter are already present. The learner is expected to complete the remaining text by looking at the cartoon film. The learner is expected to complete the gaps by using articles, *a/an* and *the*. It is the only exercise for practising writing to improve their writing skill. This exercise is unique and holds the attention of the learner easily. Through this exercise the learned concepts on articles would be reinforced apart from giving practice in the writing skill. The last unit of the section is a 'conversation' between two people. To see or hear this unit, one needs to complete all units in 'exercises' and 'additional exercises' with a score of 80% or more.

One can listen to the entire conversation. One can also listen to it line by line and record the learner's conversation. One can replay the recorded voice of the learner. For example, the instructions are as follows: "Listen to the conversation. Record yourself in the part of Alex or Charlotte. Click 'listen' to hear the complete conversation. There are three buttons before every one-line conversation. Click 'play' button to listen to the one line conversation. Then click the 'record' button, to record the learner's voice". No glossary is provided. But, the meanings of all of the words in this CD-ROM, are in the CD-ROM dictionary. By click of the mouse on the word by holding the control key, a window with information about the word will appear. All words in the CD are in the reference 'dictionary', all of them are with both UK and US pronunciation. Out of the ten units, eight are with audio.

The CD is programmed. For some of the exercise units, the learner could listen to the sentences only after finishing the exercise. It is possible to listen to the last unit of the section “conversation” and see the images only after finishing all of the units and scoring 80% or more. Every learner has to complete all the exercises. He or she cannot leave any of the exercises. All the learners attain a certain level of competency. The desired level is attained by the learner. The voice of the speaker is audible and clear to follow. However, since the speaker’s language is a native speaker’s pronunciation, learners need to have some exposure to listen and understand it. Learners who do not have exposure to native speaker’s pronunciation, can listen again (repeat the audio) until they understand clearly. For those who have exposure to native speaker’s pronunciation, it is easy to follow. Whenever there are dialogues, the two persons speak with natural expressions. This makes the learning more interactive and less monotonous. At the end of the unit of exercises some of the units have listening exercises, which are interesting and well recorded.

Wherever there is conversation, two or more speakers’ voices are used. To avoid monotony in ‘games’ part, some sounds such as “flowing water, birds’ sounds” have been introduced. This makes the content more natural. In the speaking section, one can test his / her pronunciation by recording his / her way of pronunciation. The accuracy of learner’s pronunciation is displayed in percentages on the screen. ‘Score’ displays are available on the screen for every unit. There are different kinds of exercises to grip the interest of the learners.

What else is necessary in the present study material?

Logical arrangement of the unit makes the learner grasp the content without deviation. Examples are necessary for the clarification of the content. Even though the unit is self-explanatory including examples for the better understanding of a distance learner is essential. Giving references in the study material of a distance learner is also important. A distance learner cannot easily grasp the concepts. By giving references one can help the learner to find an elaborate explanation of the given content, if necessary. This makes him or her have more interest and sustained motivation in the concerned topic.

When the unit relates to the learner’s daily life experiences, a student can have a better understanding of a topic and feel interested in having more interaction with the content. Providing appropriate examples makes the content clear to the reader. It would give elaboration of the topic by going deep into the content. Where ever necessary the content should be in a more presentable form such as graphs, tables, tree diagrams for the clarification of the content matter. For example, one can present the data in tabular format, when one has to state the differences between two topics. Apart from having more presentable format, it would avoid monotony of the format of the study material. It would readily catch the attention of a learner to make the learner move

towards and go deep into the concerned topic. If the unit is too lengthy, a learner may feel bored, isolated and lost. If the unit is too short, without sufficient explanation, the distance learner may face innumerable problems and the main aim of the study material may not be fulfilled.

As far as possible, the meaning of the content should be clear to the reader, since the same study material is provided for both English and regional medium students. All the difficult words should be glossed. If they are not, students may not understand the content and there is less possibility for them to refer to a dictionary and proceed further in the study material.

For the reinforcement of the content, self-check questions are essential. But these questions should be of various kinds to hold the attention of a learner, to avoid monotony and to create interest and motivation. Having self-check questions is a great advantage for a student in several ways like reinforcement of the content, motivation, interaction, self-assessment to check the amount of learning and giving practice for the final exams. The summary should be brief but comprehensive to reflect the entire content. If the summary is too long, it is a repetition of the unit content itself, thus it is not necessary.

What can be adopted from the CALL material?

When one looks at the content of the CD (Essential Grammar in Use), as per the requirement and convenience of the learner one can choose any part, out of four parts. The learner is not forced to start at a particular topic. Though it appears that learners have freedom, they should know what is suitable or interesting to them. So, this CD is not for beginners. The contents do not start in a sequence and they are not numbered. This means every part of the CD is modular or independent of the other parts of the CD. But without having knowledge of grammar one cannot proceed. To use this CD, one should have enough competence in grammar. There is only grammar reference in this CD – which means there is no detailed explanation of grammatical concepts. Thus, this CD will act as a reference CD and also give practice in grammar. A self-assessment tool is essential for a distance learner for several reasons to develop interaction, to estimate, to judge oneself where s/he can see his / her progress continuously, develop motivation, to overcome isolation of the learner and monotony of using the content. There are enough activities for practice. Different varieties of exercises have advantages over others.

The instructions given before starting the CD give a clue about how a learner should work through the tests. Since the games part starts with an interactive slogan, students may feel excited before starting the games. This would motivate them and give a feeling of closeness towards the learning material. Grammar games are fun to work with. Learners do not feel like learning but enjoy playing. This internal joy of learners would lead to their steady progress. Learners' participation would be active. They would involve themselves actively, since one has to move with the cartoon to fill up the blanks. These kinds of

games have several advantages. The text display is simultaneous, while the cartoon runs. This is the real advantage of the computer for language learning. In a programmed study material, one can go through the series of steps leading to the final goal. One drawback is that for market available CDs, if they do not mention the level and assumptions about the learner, it would be difficult for learners at different levels to follow the CD.

Having enough exercises is good to practices, especially for self-learners. When the same kind of theme is given a lot of practice, content would be reinforced and the learner may not forget it easily. Mention of scope and limitations of the CD / study material is necessary. It can be possibly used as supplementary material to the main course material. In that case, one possibility is the main course material should have an introduction with objectives and scope and reference to the supplementary material. The introduction should possibly provide background information about the topic to create the learning atmosphere.

A new variety of exercises makes the learners avoid monotony and passivity of the exercises and involves them completely in the learning process. Whenever any new variety of activity or exercise is introduced, providing enough instructions or 'help' is necessary for the learner to proceed. In the present CD, the 'help' provided is necessary for the learner to proceed. This 'help', enables the learner to move forward easily, since the instructions are clear. Having visuals makes the learner get readily attracted towards the content. Suitable visuals make the content highly interactive. Having motion pictures or cartoon films would be better than photos but it is not always easy and necessary to have films.

Giving listening exposure to students, with the content related to the concerned topic is essential. These kinds of activities, apart from focusing on the grammar topic, also give some exposure to the listening of the target language. The learner can also compare his voice with the speaker's voice. This exercise is highly interactive. The learner is involved actively by participating or speaking and assessing his own speaking skills.

One can reach the last unit of the section, 'conversation', only after completing and scoring 80% or more in all of the units. In case, a learner does not score the required 80%, s/he cannot move to this unit; if the score is less than 80%, s/he has to repeat the exercises. In this way, s/he will become competent enough to face even the last unit which requires comprehension of different language skills. Since the explanatory meanings of all of the words are available at a click of the mouse, learners can follow the content easily.

Programmed material has some advantages. The aim of programmed material is that a learner should reach the desired goal in a series of steps. Learner's motivation and interest are maintained with certain amount of force in completing the learning material and for learning the grammatical concepts

which are internalized through exercises. Score display gives the learner an opportunity to estimate his / her skills and gives personal satisfaction to move forward, since it is interactive. By listening to the teacher's voice the students feel a sense of being near to the teacher, giving the learner a kind of psychological satisfaction. Numbering of the contents would help in locating the specific topic easily. Though each topic covers same the language skills, exercises of different kinds provide a variety to enable the learner to know their progress in language usage. The score display on the screen provides interaction as the score increases. It also helps in maintaining the learner's initial motivation with much enthusiasm.

Suggestions for preparing the material

In the Indian context after conducting a study with a group of distance language learning students, Devi (2005) has some important suggestions for preparing the study material for distance language learning. "The learners want the text and explanatory summary together so that comprehension will be easy. They also want the text to be accompanied with voice in certain important areas of links so that they will not feel the absence of a teacher. They feel possible visuals attached to the text and model questions and answers will be of use for comprehension and to give comprehensible output". Devi's (2005) research is worthwhile, since her research is with the distance language learners of L2 and in Indian conditions. The students of Dr. BRAOU are from diverse backgrounds, rural, urban, regional and English media etc. The students may want to listen to the voice of a teacher, to see supporting visuals and explanatory summary together with the text. The present gap between the student and the teacher can be filled through the CALL material and the students may feel the presence of a teacher.

To take remedial measures, changes in the input are to be implemented as per the suggestion of the learners. In order to eliminate the difficulties in understanding the context certain context cues are given. Unfamiliar words are made familiar by asking the learners to provide a list of words associated with particular contexts (Devi, 2005). After the feedback from the students, Aruna Devi implemented remedial measures. As a result, students were provided with the necessary changed materials.

Distance second language course designers should plan for interaction that results in the use of targeted language objectives, allowing learners to practice new forms, functions, and structures (**Ariza and Hancock, 2003**). The planning of course material should take into consideration the interaction in targeting the learning objectives and the other considerations like new functions and structures of language.

Course developers may incorporate a range of delivery media into distance learning packages, which include varying forms of print-based texts, audio cassettes, video cassettes, CD-ROMS, and online communications, which

may be supplemented by opportunities for face-to-face instruction. In practice many institutions may use only two or three of these (White, 2003). Depending on practical usage, students' feedback and distance language teachers' opinions suitable technology has to be implemented for better sustainability.

One of the major challenges in designing a distance course is to provide high-quality, pre-prepared materials using delivery options that are available to all learners, while at the same time providing possibilities for interactive learning opportunities and two-way communication between learners and teachers. This challenge encompasses the important issues of feedback, interaction, and the need for flexible course design which enable learners to develop TL (teaching-learning) skills by various means (White, 2003). Material development is a complex process which involves the 'trial and rewrite' method. It is never a single time process. To maintain the quality of the study material, up-gradation of the material is necessary from time to time. The quality is measured in terms of learners' feedback, learners' satisfaction, measurable output of the learners, meeting learner's demands with latest technological support etc.

The dynamic nature of materials development reveals how materials, whether they be for publication or tomorrow's lesson, need to be constantly evaluated and revised (Tomlinson, 2004). Usually, before the preparation of the study material, evaluation is done. But one time evaluation is not sufficient, since the students' needs constantly change and the technological advancements also give way for the up-gradation of the material. The life span of the material cannot be decided at the time of preparation of materials, but it is a dynamic process which needs continuous attention.

Materials development is often a continuing open-ended process of refinement and adaptation to different groups of learners (Donovan, 2004). Depending on the learners' profile and changing requirements, the materials need to be constantly refined. The research in this area is a continuous process and needs proper attention. Suppose a group of learners in Dr. BRAOU are from regional backgrounds, some are from English medium, and the others are from rural background; the study material should cater to the needs of all the distance learners. Thus, it requires constant refinement.

Materials should not rely too much on controlled practice. Materials should provide opportunities for outcome feedback (Tomlinson, 2004). Monitoring of the study material is necessary but, too much control may affect the quality of the study material. Learner's feedback is essential to evaluate the quality of the material. Learner's feedback may also come in the form of their language learning skills, apart from their problems and necessities.

The use of ICT and computers in distance education

Access to learning for people living and working in rural and remote locations

and those unable to attend a campus-based institution is greatly enhanced through information and communications technologies. This fact has been widely recognized by both learning institutions and rural and remote communities for many years (Gooley *et. al.*, 2001). Though distance learning had started through the print media, it certainly has some gaps which can be filled through information and communications technologies. The role of technology in distance learning can be academic and non-academic. The academic role of information and communications technologies is well-recognized in the distance learning.

The storage of multimedia materials both as text and exercises which can be rapidly and flexibly accessed, offers enormous potential for the freeing of learners and texts alike from the constraints of the course book. It is certain however that we now stand on the threshold of a new generation of materials based on CD-ROM technology and its successors (Masuhara, 2004). Since the storage capacity of computers is huge, a learner can have a vast data of reference materials which enables him / her to follow the content including the required skills easily. One can have a large amount of data stored in a CD-ROM, which is portable and readily accessible.

Having and manipulating language data in multiple media provides learners with the raw material they can use to re-create the language for themselves, using their own organising schemes. While both teachers and learners see some utility in basic language drills, such as use of irregular verb forms, repetitive practice only fits into a small part of language learning when the goal is communication in the target language (Warschauer and Healey, 1998).

Expertise in language learning comes through exposure to that particular language. To make it happen, there are different tools. Study material is one of the tools which possibly helps in giving exposure to a distance language learner. But using only this tool is not sufficient for the effective language learning. The other possible tools are the media other than print, that is, the technological tools. Using the appropriate tool for a specific theme is the skill of the user. The material should be designed in such a way that a particular tool can be used effectively for a particular purpose. For example, using the multi-media technology is the specific advantage of computers for language learning. One can use this specific technology to explain some grammar concept, where a student needs to have more focus.

Taking initiative from India's success in software development, Brazilian university, Federal University of Santa Catarina, has developed new information and communication technologies for distance education purposes (**Moraes *et. al.*, 2003**). Multimedia is even more costly to develop. But once the material has been assembled, it is again becoming cheaper to produce small quantities of CD-ROMs with samples of part of the programme (Donovan, 2004). Though the initial cost of the multimedia technology is high since the material is distributed to a large group of learners, the cost per head in the

form of a CD-ROM is cheaper. It is expected that Dr. BRAOU may take initiative in using CALL material. The expected model for CALL material can be seen in Srijittra's (2010) doctoral thesis.

Conclusion

One of the greatest advantages of the new learning spaces is that the way learners respond, contribute and raise questions is suddenly centre stage. As more aspects of the learners come into view, we can see the process as more challenging, more interesting, and with more inherent limitations than has perhaps been envisaged or acknowledged up to now (White, 2003). The new learning spaces are more learner-centred, that is, the positive and negative responses of the learner, the output of their interaction with the study material in the form of feedback and learning. This output can be from learners of different backgrounds, abilities, motivation and knowledge. Other open distance teaching institutions like open schools may also want to design their learning materials in this way.

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Integrating Academic and Vocational Education: Making the link Through National Vocational Education Qualifications Framework

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Abstract

In the globalized and knowledge based economy, both general academic education and vocational education and training in India are being criticized for not serving the purpose of providing necessary competencies to the people. On one hand, the academic education is criticised for providing curriculum that lacks participatory forms of learning and opportunities for students to connect learning to “*real world*” events, on the other hand vocational education and training is criticised for preparing workers who lack problem-solving abilities, higher-order thinking skills, and employability skills. The employers’ complain that they do not get people with employable skills. People have become “overeducated” for the jobs which require skills, as a result there are more educated unemployed than the uneducated employed. Students in both schools and higher education institutions have very limited choice of choosing the courses from different subject areas and to decide their career pathway.

Keywords: **NVEQF, knowledge workers, CBET**

Introduction

The challenge today is to make both academic education and vocational education and training relevant and flexible to meet the needs of the learner and employers so that relevant competencies could be acquired by the students at every stage of learning. There is a need to make academic education more ‘*relevant*’ to the ‘*world of work*’, which includes economic, social, political and educational spheres. Introduction of National Vocational Education Qualifications Framework (NVEQF) has been identified as an instrument which could integrate academic education and vocational education and training. The two key components of NVEQF are (i) Recognition of Prior Learning, and (ii) Promotion of Lifelong Learning. NVEQF will seemingly provide a common

“It is also referred to as a ‘drive’ to adjust the structure of education so as to create opportunities for pre-vocational options or for more extensive vocational courses with a view to improve the overall ‘*employability*’ of school leavers (Hoppers, 1996). Closely related terms to vocationalisation of secondary education are diversified curriculum (Psacharopoulos and Loxley, 1985), work orientation (Hoppers, 1996), practical subjects in secondary schools (Lauglo, 1985), work experience (GOI, 1966; NCERT, 1987), work education (NCERT, 2000), socially useful productive work (GOI, 1977) and pre-vocational education (GOI, 1993).”

reference framework for linking various vocational qualifications and setting common principles and guidelines for a nationally recognized qualification system. This paper reviews the steps taken in India to integrate academic education and vocational education and training through NVEQF. It also examines the potential effects of the implementation of NVEQF in schools and offers directions for future work. The National System of Education in India has a common educational structure i.e., 10+2+3 adopted by almost all the States and Union Territories. At the school level, there is a 5 years of primary education, 3 years of upper primary education, followed by 2 years of secondary education and 2 years of higher secondary education. Vocationalisation of education was introduced in India to make provisions for the development of productive skills alongside general academic education throughout the school system of ten years, and to offer Vocational Education Programme (VEP) of two years as an alternative to general academic education at the higher secondary stage. The higher secondary education was labeled as 'general academic and vocational education stream'. Vocationalisation of education refers to efforts by schools to include in their curriculum those practical subjects or courses likely to generate among the students some basic knowledge, skills and disposition that might prepare them to think of becoming skilled workers or take up other manual occupations (Lauglo and Lillis, 1988). It refers to a curriculum which remains overwhelmingly general or academic in nature, but which includes vocational or practical subjects as a minor portion of the students' timetable during the secondary school course (Lauglo, 2005).

In 1976-77, the State sponsored VEP was introduced at +2 level by a few States. Initiatives by other States were taken after 1976 to implement and promote VEP. In 1978, a Committee under the chairmanship of Shri Malcolm S. Adiseshiah suggested that the '*National curriculum design*' for vocational stream at +2 level should comprise (i) Language (15% of the total time), (ii) General Foundation Course (15% of the total time), and (iii) Vocational Elective Subjects (70% of the total time). In 1988, a Centrally Sponsored Scheme of Vocationalisation of Secondary Education was introduced to provide central funding to the VEP at +2 level. Most of the States/UTs adopted the national curriculum design, except the Maharashtra State, where besides the general education stream, two other following streams are available for a student: (i) A '*bifocal vocational stream*', which offers a blend of general and vocational education in the form of "*bifocal courses*". A student is permitted to take vocational subjects in lieu of one language and one optional general academic subject (biology, geography, etc). Bi-focal courses are part of the science and commerce stream. The vocational subjects for science stream include computer science, electronics, mechanical and electrical maintenance, scooter and motorcycle repair and civil engineering and for commerce the vocational subjects include office management, banking, insurance, etc., and (ii) VEP under the CSS of Vocationalisation of Secondary Education, termed as Minimum Competency Based Vocational Courses (MCVC), which follows the

National curriculum design. Usually, students aiming for engineering degree opt for bi-focal courses as it give them better scoring and career opportunities.

Broad V/S narrow (occupation based) Vocational Education: The Debate

For several years now, there has been a debate on whether in schools an individual should be prepared for a range of broad based competencies related to an occupation or only for a narrowly-defined competencies required for entry level occupations. In India, the VEP at 10+2 level aims at preparing students for a variety of jobs with a '*broad*' didactic base i.e., it is subject-specific and not occupation or job-specific. For example, a vocational course in Horticulture aims to prepare a person for a variety of occupations in the field such as a gardener, a nursery assistant, a plant propagator, a florist, etc. On the other hand, vocational training with a '*narrow*' didactic base offered under the Craftsman Training Scheme (CTS) or Modular Employable Skills (MES) scheme in Industrial Training Institutes (ITIs) prepare students for immediate employment in a specific job in the Industry or labour market. Today, employer's mostly want young '*knowledge workers*' with strong academic skills, and not necessarily specialized vocational skills, which they feel could also be imparted at the workplace. In the present context, vocational education in schools should focus on development of '*generic skills*' (including employability skills), broad based '*technical skills*' (capability to apply technical skills under different work environments) and '*life skills*' (to live a healthy and stress free life) against a set of skill standards identified by the Industry sector.

Linking Vocational Education with individual's professional growth and employment

The introduction of VEP in general education schools is considered as an attempt to economize on the resources for infrastructure, utilization of common resources and building a connection with the elite group for changing the life situation of ordinary people, but it resulted in a substantial divide between academic and vocational education and low esteem granted to vocational education. Similar situation exists in Colleges and Universities where '*vocational subjects*' were introduced with a view to provide vocational skills in addition to the academic education. The separation of education and training has contributed significantly to the situation where most of the people in the unorganized sector, comprising 90% of the workforce, are under-educated, under-skilled, and under-prepared for full participation in social, economic and civic life. According to the report of the National Focus Group on Work Education "the issue of the relationship between the '*world of work*' and the '*world of knowledge*' in the emerging discourse stands either marginalized or trivialized as one of merely training students in vocational skills and preparation of workforce for the market (footnote; pp.7; NCERT, 2007).

The CSS on Vocationalisation of Secondary Education created an intake capacity of about 10.3 lakh students in about 9619 schools. There are about 6800 higher secondary schools in different States/UTs enrolling about 400,000 students in the VEP, utilizing just 40 percent of the available enrolment capacity.

These schools offer more than 100 courses in areas such as agriculture, business and commerce, humanities, engineering and technology, home science and health and paramedical. In addition, more than 80 vocational courses are offered through the open and distance learning mode in broad areas by the National Institute of Open Schooling (NIOS) under the MHRD. These courses are offered by more than 3000 NIOS Accredited Vocational Institutes (AVIs) and some Special Accredited Centers known as SAIED (Special Accredited Institute for Education of Disabled). One of the factors responsible for the low impact of VEP in schools is the lack of opportunities for the vocational students for professional growth and career advancement. The VEP at +2 level acted as a 'dead end', as a majority of the vocational courses are terminal in nature. Lack of opportunities for 'vertical mobility' has been seen as a major impediment for attracting students' to skill training in schools. The students have very limited choice of choosing the courses from different subject areas and to decide their career pathway. Although the National Policy on Education 1986 (GOI, 1986) envisaged that the vocational courses at the tertiary level would facilitate vertical mobility of students at +2 level, provision for vertical mobility of the +2 level students is still not available for a majority of vocational courses introduced by the Central and State Boards. The report of National Focus Group on Work Education has reasonably noted that "vocational education was planned in isolation of the rapidly changing economic and technological scenario, lacking in-built design for responding appropriately to the emerging challenges with 'flexibility and creativity' (pp.22).....The challenge before our education system is precisely this: to create epistemic, cultural and pedagogic conditions such that the present gulf between knowledge and work will be bridged during school and thereafter (NCERT, 2007, pp. 13).

The Technical and Higher Education, with a rigid and straight jacket education system does not provide a seamless pathway for those who wish to pursue a career in an occupation. In most Universities, options are restricted to pre-defined group of subjects and the syllabus often reflects what teachers can teach rather than what is required (Bansal, 2009). There are no clearly agreed 'admission criteria' for students wishing to progress from VEP of a school to a programme offered by Polytechnics or Higher Education Institutions. Vertical mobility need to be provided to the vocational passouts at +2 level through specially designed industry driven diploma, degree and professional degree courses. Allowing academically good students in the vocational education track to proceed onto higher education will ensure that the vocational stream is not seen as a last resort by prospective students.

India has a younger population as compared to other countries and its median age in 2000 was less than 24, compared to 38 for Europe, 30 for China and 41 for Japan. The total number of young working age (15-24) people who continued in educational institutions doubled from about 30 million in 2004-05 to over 60 million in 2009-10. The labour force in India is expected to increase by 32 per cent over the next twenty years, while it will decline by 4 per cent in

industrialized countries and by nearly 5 per cent in China (Planning Commission, 2011). While there are 12.8 million new entrants into the workforce every year, the existing training capacity is only 3.1 million per year. The challenge is to expand the skill development infrastructure to provide skills to an additional 9.7 million persons per year. The Indian Government has set the target to skill 500 million people by 2022 through a mix of public, private, and Public-Private Partnership (PPP) interventions.

The phenomenal increase in the role of technology and computerization in a majority of tasks has not only increased the productivity and quality, but also generated demand for a highly skilled 'human resource'. Skills have to be developed for a range of levels and occupational structure in Industry, including micro, small, medium and large enterprises. Schools have not been able to meet the needs of 'highly skilled workers', even in advanced countries as opportunities for specialized and hi-tech training are very few due to lack of Industries around the schools and the syllabi are too broad to meet the requirements for handling advanced and new technologies. In India schools which could foster linkages with Industry were able to develop skilled human resource suited to the needs of the Industry, mainly the service sector and also had a competitive edge over those schools which could not develop linkages with Industry.

Linking Academic and Vocational Education: The Emerging Perspective

On one hand, the academic education is criticised for providing curriculum that lacks participatory forms of learning and opportunities for students to connect learning to "*real world*" events, on the other hand vocational education and training is criticised for preparing workers who lack problem-solving abilities, higher-order thinking skills, and employability skills. The teaching of general academic subjects in classroom provides basic knowledge and understanding, but does not serve the purpose of providing experiential learning or activity based learning for application of knowledge at workplace. There is a need to make general education more '*relevant*' to the '*world of work*', which includes economic, social, political and educational spheres. Vocational education should, therefore, be made accessible in some form or the other to '*all students*', both at school and higher education institutions to make general education more relevant for the world of work. Thus, the challenge is to make education and training flexible, relevant and contextual to the needs of the learner.

Compartmentalization of education has alienated the teachers and students from thinking beyond the boundaries of disciplines or subjects. In the age of globalization and consumerism, disciplines like history, humanities, anthropology, political science, philosophy, etc. needed for personal and social development are seen to have fairly limited scope in terms of career and employment opportunities. The need today is to introduce a '*new vocationalism*' which links academic and vocational courses in such a way that the relevant

generic and employability skills could be acquired by all students for a smooth '*transition from school to work*'. Vocationalism is defined as the practice of organizing curriculum in such a way as to provide students with the opportunity to develop skills, both vocational and academic, that will give them the strategic labour market advantages needed to compete for good jobs (Gray, 1996). A major recommendation of the Kothari Commission (1964-66), which did not receive due attention is that "a sharp distinction must not be drawn between general and technical education. General education school should introduce children to the world of work and to an understanding of science and technology. Technology itself is evolving so rapidly that a student who receives only a narrow and specialised training, to the exclusion of general education in the general sciences and humanities, will quickly find his skills obsolescent and lacking an adequate base for rapid retraining and ill-fitted for the complexity of the demands of the modern world. Therefore, while all general education should contain some technical education of a pre-vocational nature, all technical education should also contain an appropriate element of general education" (GOI, 1966). Thus, there is a need to reconceptualise the concept of vocational education to bring about necessary '*convergence*' between general and vocational education and to build '*generic*' and '*technical*' competencies of people, to prepare them as '*knowledge workers*'.

Whilst academic standards describe the knowledge and skills that students should acquire through academic subjects such as language, arts, science, mathematics, social studies, etc., workplace skill standards describes the knowledge and skills that an individual should acquire for performing tasks in a particular field or occupation. Combining academic standards and workplace skill standards to support a unified approach to education and training in the current education systems will, however, be a challenging task. Bridging the differences between the general academic education and VET would require bringing all general academic and vocational courses within a coherent curriculum framework under broad industry or social sector groupings. According to Raffe (2002) the three approaches that could be adopted to achieve this are (i) *Additive approach*, which involves increasing the number of academic or general courses within the vocational education programme, as in Hungary, Japan, Norway, Sweden, etc., (ii) *Menu approach*, which involves offering students with a menu of options drawn from both academic and vocational education programme. The students can then select units from vocational and academic subjects, based on their liking, to achieve the required number of credits for the programme, as in countries like Australia, England and Finland. In these countries, general and vocational schools collaborate to offer a curriculum in which general students can take modules in vocational schools and vocational students can take modules in general schools. (iii) *Integrative approach*, which aims to create a new kind of curriculum, rather than simply mix academic and vocational elements. Examples include the career clusters and career academies in some American high schools, and projects in the German and Austrian dual systems which aim to exploit the

potential of vocational training for general learning. Organisational unification will, however, involve bringing academic and vocational study under a single national Ministry or create common arrangements for funding, administration, regulation and quality assurance. It may involve qualification frameworks, designed to make it easier to carry credit from one learning episode to another and to move between general and vocational programmes.

Major interventions that would be needed at the secondary and higher secondary stage in terms of integrating academic and vocational education would include modularization of academic and vocational courses, identification of new skill based courses, removal of obsolete courses, development of courses based on demands of the industry and social sectors, integration of academic and vocational curriculums, competency based education and training of teachers and students, improvements in classroom processes, flexibility in teaching and training, use of measurable and observable indicators for assessment of learning, greater involvement of industry as partners in teaching, training and assessment, efficient monitoring mechanisms for quality assurance, greater use of ICT for sharing of information and enhanced funding.

Modularisation: A major shift in Paradigm

The National Curriculum Framework (NCF) 2000 and 2005 recommended that the VEP should provide multiple entry and exit points with built in credit accumulation facility. It should offer flexible and modular certificate and diploma courses of varying durations (including short durations) emerging from the contextual socio-economic scenario. Each course should also have an academic component (or a provision for a bridge course or both) in order to ensure lateral and vertical linkages with academic and professional programmes. All modular VET courses should be brought within a coherent qualifications framework under broad industry groupings. The modular curriculum provides continuity and fits in the concept of lifelong learning. It also helps to develop a seamless pathway between elementary, secondary and tertiary education and training (NCERT, 2000; 2005).

Vocational curriculums were developed with traditional theoretical and methodological framework using an objective based approach. There is a need to introduce modular curriculum for an integrated and comprehensive form of learning. Modules can be individually assessed and be combined in a way to form a '*partial*' or a '*full qualification*'. It can also help in promoting interdisciplinary studies. The modular curriculum could be delineated into four major areas: general academic knowledge, technical/domain specific knowledge, and work integrated learning. Students can select and combine the modules according to the specified training goals. Specialized subjects could be added according to the needs of specific study fields in the latter part of the schooling i.e. at the higher secondary stage. Provisions have to be made for 'supplementary' or 'bridging' courses through open and distance learning mode. These bridge courses can be used to supplement general academic studies for those who wish to enter skill development programmes

or prepare for higher education. Modularization of general and vocational education will be a major shift in the paradigm and therefore, should be seen as a long term strategy. It would require major policy changes and modifications in the education and employment structure.

Outcome based Education and Training

Competency Based Education and Training (CBET), which is about assisting individuals to acquire skills, knowledge and abilities so that they are able to perform a task to a specified standard (competency or occupation standard) under certain conditions is a structured approach to education, training and assessment that is directed towards achieving specific '*learning outcomes*'. It involves '*off-the-job learning*' in institution and '*on-the-job learning*' in workplace. Today, the classroom instruction is characterized by conventional teaching-learning and is mainly lecture-oriented, with major emphasis on blackboard writing and notes taking. Resource based learning, wherever existing, is mainly confined to the use of textbooks and practical manuals. Student-centered, project-oriented instruction, problem-based learning, and contextual teaching and learning are to be promoted as strategies for implementing constructivism and vocational pedagogy. There is a need to shift the teaching-learning process from a '*content-based input*' approach to a '*competence-based output*' approach where certification validates the achieved competences. Competence is defined as the knowledge, skills, traits, attitudes, self-concepts, values or motives directly related to job performance or important life outcomes and shown to differentiate between superior and average performers (McClelland, 1973). The emphasis is on 'performing' rather than just 'knowing'.

Competency based education and training is not a new approach but has gained popularity in many developed and developing countries in the last two decades as an approach to effectively promote multi-skilling through a National VET system. Competency-based and process oriented materials to facilitate self-learning and self-directed learning experiences in both the formal and the alternative education modes will have to be developed for CBET.

Continuous and Comprehensive Assessment of Competencies

In the traditional assessment system, prevalent in schools, absolute marks or grades are awarded. On completion of the studies, students are awarded a certificate inherently implying that they have attained certain competencies whereas in fact they have not. Instead of absolute marks used to qualify or disqualify a person, the competency based assessment reflects on individual's performance and capabilities to move towards the identified learning objectives. Learners advance through the system when they are able to demonstrate attainment of the desired '*learning outcomes*'. Written tests, designed to assess knowledge, are to be integrated with the '*performance tests*' based on a set of performance criteria/indicator for core and ancillary skills. For example, when teaching '*word processing*', the teacher should also assess the ability of the students to type the words at 40 or 80 words per minute. A teacher can calculate

the typing speed by setting time manually or by using a software. The teacher can assess the '*performance gap*' and take remedial measures for filling the gap and help the student to achieve mastery level of skill. The focus should, therefore, be on achieving outcomes and development of ability. The assessment should encourage the learner to learn and improve his/her competency.

Competent Teacher's and Trainers'

Teaching in majority of schools is teacher-centred, instead of student-centred. The learning process is focused on simply telling children what they should '*know*' rather than what they should '*know and do*'. This is being done due to lack of adequate infrastructural facilities, tools, equipment, raw materials and competent teachers for imparting a variety of core and ancillary skills. Teachers have to be lifelong learners and they should strive for upgrading their competencies continuously so that they can transfer skills to the students and continuously upgrade their skills. Induction training programmes in the Industry will have to be conducted regularly for the newly recruited teachers and trainers, besides in-service training programmes for developing competent teachers and professionals in VET. The present pre-service and in-service teacher training programmes continue to be prototype, with little emphasis on outcome based teaching and competency development. Teachers need to be trained in pedagogy that support activity-based learning, including problem-solving, cooperative or team-based projects, lessons requiring multiple forms of expression, and project work that draws on knowledge and skills. Academic teachers should cooperate with vocational teachers in teaching academic content in courses. Similarly, vocational teachers must cooperate with academic teachers in imparting vocational skills to the students of courses for connecting academic learning with vocational skills.

National Vocational Education Qualifications Framework: Building a Coherent System of Skill Development

A National Skill Development Mission launched in the Eleventh Five Year Plan (2007-2012) has brought about a paradigm shift in handling skill development programmes. It has clearly defined core principles and put in place a coordinated action plan on skill development. The "Coordinated Action on Skill Development" is being promoted through a three-tier institutional structure consisting of (i) Prime Minister's National Council on Skill Development, (ii) National Skill Development Coordination Board (NSDCB), and (iii) National Skill Development Corporation (NSDC) set up in early 2008. The Prime Minister's National Council on Skill Development has spelled out policy advice, and direction in the form of "Core Principles". The National Policy on Skill Development 2009 identifies National Vocational Qualification Framework as the main instrument for linking various education and training pathways (GOI,

2009). The NSDC has been assigned to fund skill development programmes under PPP model and to set up Sector Skills Councils (SSCs) in various economic sectors. The SSCs will identify skill gaps, provide benchmarks or National Occupation Standards (NOS), arrange training of students in the industry or workplace, arrange apprenticeship training, and collaborate in assessment and certification of competencies in the respective sector.

The National Vocational Education Qualifications Framework (NVEQF) developed by the Ministry of Human Resource Development (MHRD), Government of India is a descriptive framework that provides a common reference for linking various qualifications (AICTE, 2011). It will be used for setting common principles and guidelines for a nationally recognized qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, and Universities/Colleges. It is a clear, coherent and comprehensive national system of vocational qualifications, which is relevant to the needs of employment and the individual. The coherent system would require all programmes from the school to higher education be linked to create a series of sequential education and training programmes that individuals can use to progress from relatively low levels of skill to higher levels of skill. Creating vertical career ladders would require suitable articulation mechanisms between the existing education systems. The process of developing a comprehensive system would require agreements among different stakeholders including VET providers and Industry in the design and delivery of education and training. The proposed NVEQF is organized as a series of levels of learning achievements, arranged in ascending order from 1 to 10 levels. Levels depend on the complexity of learning; 1 is the least complex and 10 the most complex. A broad framework beginning from Class 9 (NVEQ level 1) through to Diploma (NVEQ level 5) in Polytechnics and advanced diploma and degrees (NVEQ levels 6-10) in Colleges and Universities has been developed. Each level on the NVEQF is described by a statement of learning known as a '*level descriptor*'. The parameters that are considered for description of levels include the following: (i) Process that a qualification holder is required to carry out, (ii) Competencies (knowledge, skills and ability) that a person should possess, and (iii) Responsibility that a person should own at that level. There will be two routes to obtain NVEQ certificate:

- (i) **Recognition of Prior Learning:** Recognition of Prior Learning (RPL) is a process whereby individuals' learning, wherever and however it has taken place, is assessed and recognised. If the candidate could prove his/her ability with adequate evidence of his/her competencies pertaining to qualifications stipulated in the National Occupation Standard (NOS), then the candidate is eligible to receive NVEQ certificate through RPL.
- (ii) **Lifelong Learning:** The integrated and coherent framework of courses offered at various level, relevant to the needs of the individual's and

employers, will provide opportunity to a learner to become a lifelong learner.

The key approaches to the implementation of the framework are to (1) recognize workplace skills, (2) include more occupationally relevant competencies and entrepreneurship development in learning, (3) emphasize applied learning in academic courses, (4) contextualize learning, and (5) develop linkages between qualifications for seamless career pathway.

Way Forward

Schools will have to play a critical role in closing the potential competency gaps and preparing competent individuals for the world of work under the NVEQF. A systematic identification of competency gaps and competency needs would be needed to develop NOS by the SSCs. Based on the NOS, competency based curriculum and training packages are to be developed for organizing competency based education and training and assessment. The NOS becomes significant in the context of recognition or accreditation of prior learning, development of competency based curriculums, transparency in training and assessment, selection of employees, setting wages for individuals and encouraging self-directed learning. Development of separate road map may be required for each industry sector to streamline the implementation of various aspects of NVEQF in the sector (Mehrotra, 2011).

Till the academic education system is restructured to suit the concept of modularization and semesterisation, it is proposed that a Vocational Qualification Package comprising of Units of about 200 teaching hours at NVEQ level 1 & 2 and 300 teaching hours at NVEQ level 3 & 4 may be offered as an add on course along with the general education subjects. At NVEQ level 1 & 2, competencies for work preparation should be imparted for building a strong foundation for specialized vocational competencies to be developed at NVEQ level 3 & 4 (table 1-5). At NVEQ level 3 & 4 lower order occupational competencies comprising technical skill, human relation skills and employability skills may be developed for entry level occupations in a sector. Steps need to be taken for developing and introducing '*Qualification Packages*' comprising '*Units*'. Learners would be required to complete a prescribed number of units for a '*full qualification*'. Academic units (competencies related to communication, mathematics, science, social science, humanities, etc.), generic skill units (life skills & employability skills) and vocational skill units (skills related to an occupation) should be a part of the course. Exposing students to various skills related job-settings or workplace situations through an '*internship programme*' will aid in their understanding of the importance of job-related skills. At the university and post-degree levels, *vocational* education should become *professional* education and provide opportunities for higher order occupational competencies through appropriate diplom and degree programmes.

Table 1: Proposed Modifications in the Scheme of Studies of Class IX & X for Academic and Vocational Integration

Group A	Group A	
1. English	English	100
Group B (any one)	Group B (any one)	
2. Hindi, Sanskrit, Regional Language	Hindi, Sanskrit, Regional Language	100
Group C	Group C	
3. Mathematics	Mathematics	100
4. General Science	General Science	100
5. Social Studies	Social Studies	100
Additional Subjects	Group D (any one VQP)	
6. Physical and Health Education Computer Literacy Program Work Experience	Vocational Qualifications Package (comprising Units) – Broad based competencies (generic) related to Information Technology, Organized Retail, Automobile Technology, Security Services, Agriculture, Handicrafts, Hospitality and Tourism, Construction, Banking and Financial Service, etc. for Work Preparation. plus <u>Internship programme</u> (to expose students to workplace & work practices). Bridge courses on Literacy, Numeracy and IT skills.	100

Table 2: Proposed Modifications in the Scheme of Studies of Class XI & XII (Science Stream) for Academic and Vocational Integration

S.No.	Subjects in the Existing General Education System	Proposed System under NVEQF – NVEQ level 3 & 4	Marks
1.	<p>Group A</p> <p>English</p> <p>Group B</p>	<p>Group A</p> <p>English</p> <p>Group B</p>	100
2.	Physics	Physics	100
3.	Chemistry	Chemistry	100
4.	Mathematics/Biology	Mathematics/Biology	100
	Additional Subjects	Group D (any one VQP)	
5.	Physical and Health Education Accounts Hindi Sanskrit Computer Science	<p>Vocational Qualifications Package (comprising Units) – Occupational competencies related to Information Technology, Organized Retail, Automobile Technology, Security Services, Agriculture, Handicrafts, Hospitality and Tourism, Construction, Banking and Financial Service, etc.</p> <p>plus</p> <p><u>Internship Programme</u> (to provide opportunity to receive mentoring and instructions on Industry recognized skills as specified in NOS, with focus on organizational structure and culture).</p> <p><u>Internship programme</u> (to expose students to workplace & work practices).</p> <p>Bridge courses on Literacy, Numeracy and IT skills.</p>	100

Table 3: Proposed Modifications in the Scheme of Studies of Class XI & XII (Commerce Stream) for Academic and Vocational Integration

S.No.	Subjects in the Existing General Education System	Proposed under NVEQF – NVEQ level 3 & 4	Marks
1.	<p>Group A</p> <p>English</p> <p>Group B</p>	<p>Group A</p> <p>English</p> <p>Group B</p>	100
2.	Accountancy	Accountancy	100
3.	Business Studies	Business Studies	100
4.	Economics	Economics	100
	Additional Subjects	Group D (any one VQP)	
5.	Physical and Health Education Accounts Hindi Sanskrit Computer Science	<p>i) Vocational Qualifications Package (comprising Units) – Occupational competencies related to Information Technology, Organized Retail, Automobile Technology, Security Services, Agriculture etc.</p> <p>plus</p> <p>ii) Internship Programme (to provide opportunity to receive mentoring and instructions on Industry recognized skills as specified in NOS, with focus on organizational structure and culture).</p> <p>iii) Bridge courses on Literacy, Numeracy and IT skills.</p>	100

Table 4: Proposed Modifications in the Scheme of Studies of Class XI & XII (Humanities Stream) for Academic and Vocational Integration

S.No.	Subjects in the Existing General Education System	Proposed under NVEQF – NVEQ level 3 & 4	Marks
1.	<p>Group A</p> <p>English</p> <p>Group B</p>	<p>Group A</p> <p>English</p> <p>Group B</p>	100
2.	Geography	Geography	100
3.	History	History	100
4.	Economics	Economics	100
	Additional Subjects	Group D (any one VQP)	
5.	Physical and Health Education Accounts Hindi Sanskrit Computer Science	<p>i) Vocational Qualifications Package (comprising Units) – Occupational competencies related to Information Technology, Organized Retail, Automobile Technology, Security Services, Agriculture etc. for occupation in the sector.</p> <p>plus</p> <p>ii) <u>Internship Programme</u> (to provide opportunity to receive mentoring and instructions on Industry recognized skills as specified in NOS, with focus on organizational structure and culture).</p> <p>iii) Bridge courses on Literacy, Numeracy and IT skills.</p>	100

Table 5: Proposed Modifications in the Scheme of Studies of Class XI & XII (Vocational Stream) for Academic and Vocational Integration

S.No.	Subjects in the Existing General Education System	Proposed under NVEQF – NVEQ level 3 & 4	Marks
1.	<p>Group A</p> <p>English</p> <p>Group B</p>	<p>Group A</p> <p>English</p> <p>Group B</p>	100
2.	<p>General Foundation Course</p> <p>Group C</p> <p>Vocational Elective (6 papers - 3 papers in Class XI and 3 papers in Class XII)</p> <p>Additional Subjects</p>	<p>Vocational Qualifications Package on Generic Vocational Course (knowledge and skills that cut across various specific occupations or occupational grouping - comprising Units on Workplace Communication, Accounting, Entrepreneurship Development, Job Seeking Skills, Environment Education, Life Skills, Personality Development).</p> <p>Group C</p> <p>i) Vocational Qualifications Package (comprising Units) – Occupational competencies related to Information Technology, Organized Retail, Automobile Technology, Agriculture, Security Services, etc.</p> <p>plus</p> <p>ii) <u>Internship Programme</u> (to provide opportunity to receive mentoring and instructions on Industry recognized skills as specified in NOS, with focus on organizational structure and culture).</p> <p>Additional Subjects/Bridging Programme</p>	

The NVEQF is being advocated, piloted and adopted. It will bring about necessary fusion between the general academic and vocational education. It is propounded that the NVEQF will also promote parity of esteem between vocational and general education. A clear division of roles and responsibilities will have to be worked out and the stakeholders have to be orientated and trained in shouldering the responsibility of implementing the changes. Greater involvement of industry and enterprises in financing and training would be required to achieve the objective of providing relevant and quality education and training. They will have to play a critical role in internship programmes, on-the-job training and organized apprenticeship training. The existing administrative set up at the National and State level will have to be reorganized and made responsible for policy, norms and standards, planning, provision of budgetary resources and the management for implementing the guidelines of the NVEQF. Several new structures have to be set up by the State Governments for a coordinated action between the stakeholders from government, industry and employers in the implementation of NVEQ system. Education and Training Providers (ETP) will have a vital role to play in the envisaged educational reform. Each ETP will have to identify the qualification packages that they would like to offer, identify industry or organizations with which linkages would be established, arrange training packages to be used, ensure linkages with the higher level NVEQs for the qualification package to be offered by them, ensure availability of assessors for the assessment of competencies, report results, maintain records including student portfolio, and adopt feedback procedures for quality assurance. A Guidance and Counselling Cell will have to be established in each Education and Training Providers for providing effective guidance services to the students by a qualified counsellor. State Boards of Education will have to set up a separate Vocational Cell in the Board to implement various elements of the NVEQF. They will have to adopt or adapt the competency based curriculum and training packages developed at the National level in consultation with the Sector Skills Councils. They will have to organize teachers' orientation and training programme in collaboration with National level agencies such as National Council of Education Research and Training and PSS Central Institute of Vocational Education.

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A Feedback Study on Personal Contact Programmes in Open and Distance Learning System - A Case of NIOS

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Abstract

Personal Contact Programmes(PCPs) are a very essential and important component of instructional system in the open and Distance Learning system. Likewise the National Institute of Open Schooling (NIOS) has a provision for limited number of personal contact programmes to be held at the study centres. The PCPs have specific purpose in ODL in general and NIOS in particular. But are the objectives of PCP being fulfilled? What do the students and teachers think about the PCPs? Is there any scope for improvement of the conduct of PCPs from the students' point of view? With these types of questions, a research study was conducted. The present paper, presents the findings of the study and suggestions for improving the overall effectiveness of the PCPs at the NIOS.

Key Words: ODL,PCPs

Introduction

Open and Distance learning (ODL) System is seen as an alternative and viable mode to cater to educational needs of the individuals, who, because of one or the other reason could not continue their education in the formal set up of education. For the last three decades, the National Institute of Open Schooling (NIOS) has been providing school education through Open and Distance mode. For quality and timely delivery of education, the NIOS follows a multi-channel system of instructions which includes self-instructional print and non-print (audio/video) material, supported by the multimedia inputs and Personal Contact Programmes (PCPs).

Normally, the PCPs are organized at the study centres for a specific period of time. The PCPs have a very important role in Open and Distance Learning system. However, the role of PCPs in distance education at school level is quite different from that at higher level, because the students of these two levels have altogether different educational background. At school level, the main purpose of PCPs is two fold - tutoring and problem solving, (Sharma, 1997). Whereas at higher education level the face-to-face contact and

academic counseling focuses on guidance and counseling, creating an opportunity for academic dialogue, clarifying doubts and difficulties in comprehension of course materials or solve tutor marked assignments and overcome barriers to progress in studies (Sahoo, 1985; Rathore, 1995; Koul, 2005 and Mishra et. al 2010). Most of the school level students do not have adequate self study skills and, also, they are not academically as mature as that of higher level students. At school level more than 70% students are below 22 years of age (NIOS, 2010). They are not fully motivated to do self study. In such a situation it is clear that the school level distant learners need more personal help, and therefore, the PCPs need be more effective and suitable to the learners.

But there are some basic questions in this regard, such as: Are the PCPs actually organized at the study centres ? If yes, are they as effective as they should be ? How different are the PCPs from the formal class room teaching ? What are the problems faced by the students and teachers regarding PCPs ? How can the PCPs be made more effective ? There are many more such questions. With these questions in mind the present study was taken up.

Meaning and Purpose of PCPs in ODL

It is important to emphasize here that the meaning of PCPs in Open Distance Education System is quite different from the formal classroom teaching. The PCPs are specially meant for supporting or facilitating the learning and to solve the problems of the learners which they face during their self study. Through PCPs the learners get an opportunity to interact with the tutors as well as with the peer group. The use of the word 'contact' rather than 'teaching' itself makes a categorical distinction between the traditional class room teaching and the PCPs. In fact the PCPs have very specific purposes (Sharma, 1997) They help the learners:

- to get an opportunity to interact with the tutors and other students and thus to avoid the feeling of loneliness;
- to solve their academic problems and to clarify their doubts;
- to prepare them for performing well in the examination;
- to develop confidence and to motivate towards self study;
- to get inspiration for further studies;
- to get additional learning inputs in terms of audio and video programmes to enhance their self learnings and
- to get hands on practice in practical components of various courses.

Review of Literature

PCPs and counselling sessions are significant academic inputs in the ODL system, where the students learn at their own pace and time. Several research studies (Dutta, 1976; Biwal, 1979; Anand, 1979; Sahoo, 1985; Rathore, 1995;

Singh et. al. 1995; Sharma, 2008; and Ogunsola, 2010;) also support this view. According to Wynne (1973), Mathur (1979), Sahoo (1985), Holmberg (1985), Balasubramaniam (1989); Keegan (1986; Sharma, 1997; Koul, 2005; and Mishra, 2010), the PCPs in open learning system serve a variety of aims and purposes. Distance learners have multiple roles and responsibilities at their homes and families. They face a variety of problems also such as inadequate study skills, time management, learning difficulties, different learning styles, career indecisiveness and confusion about goal (Linande, 1995). The face to face contact Programmes and academic counselling contribute significantly and positively to cope with such problems and also help in increasing receptivity and success rate of distance learners (Sharma 1997; Koul, 2005). These are arranged with a view to providing opportunities to the students to have interaction with their tutors and peers. Besides offering academic benefits, the PCPs establish a useful rapport between the distant teaching institute and the distant learners. (Sharma, 1997). Obviously, the PCPs and counseling sessions help the students shun away their feeling of loneliness and isolation, which otherwise they may suffer from.

In the PCPs and counselling sessions, normally, major issues like difficulties, doubts, problems of students and other important points are taken up and discussed. PCPs and counseling facilitates learners' progress in self instructional materials. Therefore, the focus of counselling and face-to face contact programmes should be less on content coverage and more on engaging learners in a way that involve them in actively learning (Koul, 2005). A study conducted by Nigam et al (2007) also says that attending counselling regularly is necessary and it is quite helpful for studies. In this study the students have suggested that the counselling should be held only on Sundays and Saturdays. Academic counselling provides for human mediation, guided instructions and peer group interaction. These interventions help in breaking isolation, developing self study skills, sustaining and enhancing motivation considering students' world-view' and perception (Mishra et.al, 2010). Face-to-face tutoring demonstrates understanding for students' particular problems due to the distance education mode and it provides guidelines on how to use study material effectively and optimally (Ogunsola, 2010). In fact, it is often assumed that the students would have thoroughly gone through the material sent to them before coming to attend the PCPs with specific doubts for clarification. As the duration of such programmes is very limited, it is impossible, and also impractical, to have a sentence by sentence discussion as could be possible in the formal system of face-to-face education. Moreover, it has been observed that most of the study centres do not emphasize on academic functions like conduct of PCPs and TMAs (Sharma, 2008). According to Ojo (2010) distance learners need various counseling services that will help them to be successful. Technically approached counseling will not only eliminate socio-psychological encumbrances, they will also foster personal development and the accomplishment of learning goals.

Objectives of the Study

Though PCPs are an integral part of an instructional system in ODL particularly in NIOS, there are some basic questions that need to be addressed. For example, how effective are the PCPs and what is the perception of students and teachers about the PCPs? Is there any scope of improvement in the conduct of PCPs? With these questions in mind the author, while working in NIOS, had conducted a research study on PCP related problems. The basic objectives of the study were as follows :

- to know whether the PCPs are being conducted properly at the study centers
- to identify the factors influencing the effectiveness of the PCPs
- to identify the strengths and weaknesses of the PCPs
- to find out the extent of use of Audio-video and other technologies during PCPs, and
- to identify the areas of innovative interventions for improving quality and effectiveness to the PCPs

Research Design

Tools

For the present study a descriptive sample survey method was followed. For data collection, two structured questionnaires were developed - one for the NIOS learners and other for the teachers associated with the conduct of PCPs at the study centres. The questionnaires had both fixed response and open response types of questions. In some of the questions, a range of possible responses was given whereas in others the response was expected in yes or no only. Specific suggestions were also sought from students and teachers to make PCPs more effective.

Methodology

After designing the questionnaires, they were discussed with the staff of NIOS. Based on their feedback and suggestions, the questionnaires were modified and finalized. The finalized questionnaires were sent by post to all the study centres of three Regional Centres of NIOS (Pune, Kolkata and Hyderabad). The coordinators of the study centres were requested to get the questionnaires completed by the teachers and students of their study centres and send the completed questionnaires back to the NIOS. The information and data received through questionnaires were analyzed and a research report was prepared.

Sample

Though the questionnaires were sent to all the study centres of the Regional

Centres Pune, Kolkata and Hyderabad, only 1009 students and 201 teachers responded and sent back the completed questionnaires to NIOS. They formed the sample group. These regional centres were selected purposefully to represent the East, West and South zones of the country. It was planned to conduct a separate study for northern zone, as it has a very large number of study centres. The details of the respondents is given in the following table :

Table – 1 : Regional Centre wise number of respondents

Regional Center	Teachers	Students
Kolkata	52	77
Pune	93	572
Hyderabad	56	360
Total	201	1009

Analysis of Data and Findings

A. Students' Perception of PCPs in NIOS

1. Regarding Attendance in PCPs

In response to the questions related to attendance in the PCPs at the study centres, the response of the students is given in table-2

Table 2: Response to the questions related to attendance in PCPs

S.No.	Question Item	Kolkata		Pune		Hyderabad		Total	
		Y	N	Y	N	Y	N	Y	N
(i)	Have you ever attended PCPs at your study centre?	77	0	534	30	286	74	897	104
(ii)	Was your attendance taken during PCPs?	77	0	461	81	343	07	881	88
(iii)	Should the attendance in PCPs be made compulsory?	75	2	522	37	324	34	921	73
(iv)	Were other students interested in attending PCPs?	76	1	457	91	286	74	819	166

NIOS offers maximum 30 PCPs to be conducted at each study centre for each subject. As the PCPs are not compulsory, the students are free to attend PCPs as per their need and convenience. Analysis of the responses given in

table-2 reveals that 89.61% students had attended the PCPs at their study centres. According to 90.91% students, attendance was taken during the PCPs. Though the PCPs are not compulsory, 92.65% students are in favour of making the attendance compulsory. Around 83.14% students say that other students were also interested in attending the PCPs.

Regional Centre wise number of PCPs attended by the students is given in table-3 :

Table – 3 :Regional center-wise attendance of students in PCPs

Regional Centres	PCP Attended or not			No. of PCPs attended			
	Yes	No	0-10	10-15	15-20	20-25	25-30
Kolkata	77	0	01	02	01	01	72
Puna	534	30	19	69	21	57	303
Hyderabad	286	74	03	33	82	95	144
Total	897	104	23	104	104	143	519

In response to the question related to the attendance in PCP, 89.61% students attended PCPs at their study centers out of which around 51.84% had attended PCPs for 25-30 days, 14.28% attended between 20-25 PCPs, 20.38% attended between 10-20 PCPs and only 2.29% attended less than 10 PCPs. However, around 14.28% of respondents did not attend any PCP. While mentioning the reasons of not attending PCPs. 6 students say that they did not have any idea about such PCPs, 3 students say that the study center was far away from their home, according to 6 students the PCPs were not useful for them, and 7 students say that the days and timings were not suitable for them. These All respondents who did not attend any PCP belong to the study centres of Pune Region. Surprisingly there is no student from Kolkata and Hyderabad region who did not attend the PCP for one or more days.

2. Regarding Dates and timings of PCPs

Interestingly, the analysis of the response of the student reveals that about 98.46% students knew well about the dates and timings of the PCPs. There were only 1.64% students who did not know about the schedule of PCPs at their study centres. More than half of the students (55.03%) got information about PCPs through letters from the study centers, whereas 32.15% students came to know about the conduct of PCP personally from study centers. Around 11.67% students got the information about schedule of PCPs from their friends or through other sources.

3. Regarding Number of PCPs

Majority of students (98.56%) say that the PCPs were held as per the time schedule at their study center. According to 77.76% students the number of PCPs was sufficient. Only 15-32% students find the PCPs less to cover their course. However, around 7.0% students say that the existing number of PCPs is more.

From these two slightly contradictory opinions, it seems that there is a need of some more indepth study to workout the minimum number of PCPs per subject. An academic exercise may be carried out to prepare a suggestive schedule of PCPs and the topics to be taken care in different PCPs for different subjects.

4. Regarding Conduct of PCPs

The response of the students on the questions regarding the interactivity during the PCPs, the way PCPs are conducted at the study centres and the utility of the PCPs are given in table-4.

Table 4: Response to the questions related to conduct of PCPs

S.No	Question Item	Kolkata		Pune		Hyderabad		Total	
		Y	N	Y	N	Y	N	Y	N
(i)	Did Teachers ask questions during PCPs?	77	0	438	109	347	11	862	120
(ii)	If yes, do you agree that such questions should be asked during PCPs?	54	5	259	01	100	0	413	06
(iii)	Did the teacher teach each and every thing from the books?	51	26	430	118	297	63	778	207
(iv)	Did the teachers tell you in advance about the topics to be taught in the next class ?	72	05	434	113	235	70	741	118
(v)	Could your cover the whole syllabus in the PCPs ?	57	20	445	99	89	271	581	390
(vi)	Were the teachers able to clear your doubts ?	77	0	526	19	347	13	950	32
(vii)	Did you find the PCPs useful for you ?	77	0	451	35	357	02	885	37
(viii)	Was the behavior of teachers and Coordinators good ?	77	0	518	27	350	10	945	37

The analysis of the data given in the table reveals that according to 87.70% of the respondent students, teachers asked questions while taking PCPs and almost all the students (98.55%) also agree that such questions should be asked during the PCPs. It indicates that some interactivity is there in the PCPs conducted at the study centres of NIOS. According to 86.26% of the respondents, teachers informed them in advance about the topics to be covered in the next class which is a positive indicator. But majority of students (78.98%) say that the teachers taught each and every thing from the study material, which is not in tune with the concept of conducting PCPs. If the PCPs are conducted in this way, it is a type of spoon feeding. Whereas in ODL system, effort should be to encourage learners for self study and during PCPs focus should be more on problem solving and tutoring rather than teaching like classroom teaching. Another adverse effect of this type of teaching would be that the syllabus can not be completed. In fact this is confirmed by the response of the learners, as 59.77% students have said that the whole syllabus could not be covered during the PCPs. However, majority (95.98%) of them find the PCPs useful for them.

Majority of the respondents (96.74%) have revealed that the teachers were able to clarify their doubts and about 96.23% students have said that the behaviour of the teachers and the coordinators of the study centres was good towards them. It shows that the teachers take the PCPs seriously and try to solve the problems of the learners.

5. Regarding Use of Audio-Video Programmes during PCPs

Audio-video programmes are considered to be very important components of PCPs in NIOS. But surprisingly majority of students (72.31%) have never listened to the audio-video programmes at the study centers. Only 27.68% students have been exposed to this important media of instruction. In order to promote the use of audio-video programmes during PCPs, the NIOS may take special measures to develop need based curricular audio-video programmes and ensure that they are used by the students and teachers.

6. Regarding Science Practical at the Study Centres

According to 88.22% of respondent students, science practicals were conducted at the study centers. Only 11.78% say that no science practical was held at their study centers. Regional center wise response and the number of practical sessions conducted during PCPs is given in the table :

Table 5: Regional centre-wise number of practical sessions conducted during PCPs

Regional Centre	Whether practical conducted	Number of Practical Sessions Conducted				
		No	< 05	< 10	< 20	> 20
Kolkata	76	01	0	30	47	0
Pune	392	90	13	82	18	99
Hyderabad	333	16	20	84	12	43
Total	801	107	33	196	77	142

While responding to the questions related to the reasons of not conducting practical classes, 5 students say that there was no practical lab at the study centers; 34 students say that the number of students was less, and 26 students have given other reasons.

7. Regarding Guidance about the Examination

According to majority of the students (93.29%), they were given guidance about the type and pattern of question papers and examination of NIOS. Around 68.04% students say that practice tests and exams were also conducted during the PCPs, whereas 31.97% were not given exposure to any type of practice tests during the PCPs.

8. Regarding Extra fee for PCPs

Though majority of respondents (86.60%) say that no tuition fee was charged from them for the PCPs, but about 13.40% had to pay tuition fee for PCPs which is against the norms of the NIOS.

9. Students' Suggestions to Improve the Quality of PCPs

Total 120 suggestions have been received from the students which includes 72 from Pune, 42 from Hyderabad and 6 from Kolkata region. Some of the suggestions are similar in nature. Most of the students have appreciated the way PCPs are conducted at the study centers, and have said that the PCPs are highly useful for them in clarifying their doubts. Some of the students have given their views and suggestions for making the PCPs more effective. Summary of the views and suggestions are as given below :

- the number of PCPs as compared to the syllabus is less, therefore there should be more PCPs for covering the whole course,

- in addition to study classes some extra activities should also be organized during PCPs,
- question banks in different subjects should be provided to the students for practice,
- audio-video lessons should also be used during PCPs,
- attendance in the PCPs should be made compulsory for all students,
- there should be regular classes for every subject,
- the PCPs should be started immediately after taking admission in NIOS. Books should also be made available at the time of admission,
- science practical should be held compulsorily at the study centers,
- some sample papers should be solved during PCPs and test should be conducted after completing every book,
- worksheets should be given after each chapter for practice to the students,

In addition to the above mentioned suggestions, some of the students have suggested to provide proper infrastructural facilities such as chairs, tables, electricity, water and toilets etc. at the study centers. This aspect need to be studied further.

B. Teachers' Perception of PCPs in NIOS

Total 201 teachers from different study centre have responded to the questionnaire, out of which 59.75% have been taking PCPs for NIOS students for more that three years and 40.25% have been associated with PCPs of NIOS for the last two years only. Perception of these teachers on different aspects of PCPs is reported below

1. Understanding about PCPs and need of Orientation :

The conduct of PCPs and counselling sessions in ODL system is different from the formal classroom teaching. Different aspects related to the PCPs have been studied in the present study and the responses are reported in table-6.

Table-6: Response to the questions related to the understanding of PCPs

Question	Kolkata		Pune		Hyderabad		Total	
	Y	N	Y	N	Y	N	Y	N
i) Do you understand the difference between PCPs and the class teaching in formal system ?	52	0	91	02	55	01	198	03
ii) Have you got any kind of orientation for conducting PCPs for NIOS students?	08	44	33	56	37	17	78	117
iii) If, no, do you think that the teachers taking PCPs should be oriented ?	30	19	56	21	39	05	125	45

Almost all the teachers (98.50%) have said that they understand the difference between PCPs and the formal class room teaching. But majority of them (60.00%) have not got any kind of orientation about how to conduct PCPs for NIOS students, and about 73.53% of them have desired that the teachers taking PCPs should be given proper orientation about the PCPs and their difference from the formal class room teaching.

2. Regarding Attendance of Students in PCPs

Majority of the teachers (89.39%) say that they maintain an attendance register for PCPs. Analysis of the data regarding percentage of students attending PCPs regularly shows that around 48.18% of students attend 50-75 percentages of PCPs followed by 21.76% students who attend 75-100 percentage of PCPs and around 18.13% students attend 25-50 percent of PCPs.

Regarding regularity and seriousness in PCPs, around 44.89% teachers reveal that the female students attend PCPs regularly and are serious during PCPs, according to 61.49% teachers both male and female students are regular and serious in attending PCPs. Interestingly, only 14.24% teachers say that male students are regular and serious in the PCPs. Whereas according to the profile of students of NIOS, around 67% are male students.

3. Regarding Number of PCPs

According to majority of the teachers (51.46%), the existing number of PCPs per subject is not sufficient, whereas 48.45% teachers agree with the existing number of PCPs. Majority of the teachers (46.49%) suggest that minimum number of PCPs should be 45, whereas around 25.43% teachers are in favour of 35 PCPs per subject. Around 21.05% of teachers want the PCPs to be more than 45.

4. Regarding Schedule of PCPs and Intimation to the Student

According to majority of teachers (44.79%) the PCPs are organized on Saturday and Sunday and according to 17.18% teachers the PCPs are held on holidays as suggested by the NIOS. But around 19.29% teachers say that the PCPs are held daily in the day time and around 7.29% teachers say that the PCPs are held daily in the evening. Almost all teachers prepare time schedule for PCPs well in advance and according to almost all the teachers, the students are informed well in advance about the day and time of PCPs. For intimating the students, about 48.40% teachers use the notice bound to the students.

5. Regarding Conduct of PCPs

The response of the teachers regarding two important aspects of PCPs i.e. interactivity and motivation is given in the table.

Table-7: Response to the questions related to conduct of PCPs

Question	Kolkata		Pune		Hyderabad		Total	
	Y	N	Y	N	Y	N	Y	N
i) Is there any group interaction during PCPs ?	39	13	75	16	48	06	162	35
ii) Do you motivate learners to come prepared for PCPs ?	19	32	37	54	07	44	63	130

Majority of the teachers (82.23%) follow group interaction during PCPs, but 67.35% of teachers do not motivate students to come prepared for PCPs.

Analysis of the response regarding the method being followed during PCPs, the teachers have given various preferences. 85.61% teachers prefer to use problem solving method with interactive discussion in the PCPs, whereas 29.41% teachers are in favour of highlighting and explaining difficult areas during PCPs. However, around 14.57% teachers prefer to follow teaching as in the formal classes.

6. Regarding Science Practical during PCPs

Particularly for science subjects, the practical are a very important and essential component. Response of the teachers regarding science practicals during PCPs is reported in table-8.

Table-8: Response to the questions related to science practicals

	Question	Kolkata		Pune		Hyderabad		Total	
		Y	N	Y	N	Y	N	Y	N
i)	Do you conduct practical classes for science subjects ?	28	11	56	25	28	05	112 (73.20%)	41 (26.80%)
ii)	Do students come for practical classes for science subjects ?	28	04	56	07	28	01	112 (90.32%)	12 (9.68%)
iii)	Are the practical classes held separately or included with PCPs ?	20	03	20	12	15	03	55 (75.34%)	18 (24.66%)

According to 73.20% teachers, the practical are conducted at the study centres and majority of teachers (90.32%) have mentioned that students also come to attend the practical classes for science subjects. Around 75.34% teachers have said that the practical classes are held separately where as 24.66% have said that the practical are held along with the PCPs.

7. Regarding Use of Audio-Video during PCPs

Around 67.35% teachers do not use audio – video programmes during the conduct of PCPs. Only 32.64% teachers have used audio-video programmes during PCPs that too for a few times only. Out of these who have used audio-video during PCP, 63.79% teachers say that they used audio-video once in a month only, 24.63% teachers say that they used audio-video every week. Around 11.59% teachers used these media only twice a month.

While responding about the reasons of not using the audio – video programmes during PCPs, the majority of teachers (35.29%) say that the cassettes were not available for use, where according to 26.05% teachers there was lack of time for using audio – video programmes during PCPs. Around 22.69% teachers point out that paucity of infrastructure such as non – availability of television and VCR etc. Only few (1.68%) say that the programmes are of no use and 5.04% report that the students are interested in listening to the audio – video programmes during PCPs.

8. Regarding Extra Curricular Activities along with PCPs

According to 53.85% teachers, other academic and extra curricular activities should be organized along with the PCPs at the study centres. However, 47.11 teachers are not in favour of organizing such activities along with the PCPs. Teachers have suggested a number of such academic and extra curricular activities during PCPs. Some of them are listed below;

- Cultural activities including music, dance, study and excursion tours and celebration of school day picnics field trips etc.
- Organization of different types of quiz and debates essay writing, letter writing competition etc.
- Academic activities related to the subjects offered for involvement of students in the PCPs
- Sports, games quiz and other talent search competition
- Project work, tests, seminar etc.
- Maximum use of audio – video cassettes and other visual aids
- Career guidance, personality tales, get-together, group discussion etc.
- Activities related to moral value development, caring guidance
- Mid term examination or monthly tests to assess students progress and motivate them
- Inter study centre competitions on various topics including sports.

9. Problems and Suggestions related to PCPs

According to 52.48% teachers the major problem is the poor attendance of

students in PCPs. A few teachers (7.80%) say that the students are not disciplined in the PCPs. About 3.54% teachers have expressed that the teachers are not properly oriented about the conduct of PCPs. Several other problems have also been reported by the teachers. However, very concrete and useful suggestions have also been given by the teachers so as to make the PCPs more effective. Some of them are listed below:

- Number of PCPs per subject should be increased,
- The students should be encouraged to be regular in the PCPs
- Method of teaching for slow learners and handicapped children should be different and PCP be taken separately.
- The curriculum load should be reduced and study material be made more simple
- A suggestive guidelines and a chart showing distribution of chapters for thirty PCPs should be provided,
- Question banks for different courses in different medium including regional medium be provided
- Teachers manual should be provided for better and effective conduct of PCPs.
- Remuneration for taking PCP by the teachers should be enhanced,
- Special orientation programmes should be organized for the teachers
- Sufficient audio – video programmes and other equipments should be provided to all the study centers.
- PCPs may be organized on regular basis for a duration of two - three weeks continually during vacations
- Co-curricular activities like short term tests, seminars, groups discussion, excursion tours should be organized for effective PCPs.
- There should be maximum interaction with the students during PCPs.
- A minimum number of PCPs, say 75% should be made compulsory
- Use of CDs, charts, models, projects etc. should be encouraged during PCPs.
- There should be proper and regular monitoring of the PCPs at the study centres.
- There should be parent – teacher meetings at least once in a year.
- The meritorious and poor students should be provided incentives like scholarship, awards etc. for good performance.
- The study material should be provided immediately after the admission
- Special workbooks may be prepared for different subjects and be provided to all the students.

Conclusion

On the basis of the findings of the present study, it can be concluded that the PCPs are very important for the distance learners. Both students and teachers have responded in favour of effective and timely conduct of PCPs. In view of the suggestions given by the students and teachers, it is imperative to take all possible measures to make the PCPs more effective and useful for the learners. The findings of the study reveals that during the PCPs, the major issues should be taken up and discussed by involving the learners. The learners should be encouraged to read the study material thoroughly before they come to attend the PCPs. They should be encouraged to come with specific doubts to be clarified. As the duration of the PCPs is very limited, it would be impossible and impractical to have a sentence by sentence discussion during the PCPs as in the formal classroom teaching. However, on the basis of the findings, it is suggested that the following measures may be taken to make the PCPs more effective and useful for the distance learners:

- the number of PCPs should be increased for different subjects and the schedule of PCP sessions may be prepared and be communicated to the students well in advance. For effective implementation of the PCP schedule, all the study centres may be asked to adhere to it so that it could be monitored by the NIOS from time to time;
- Certain percentage of attendance, may be 75%, in the PCPs may be made compulsory so that the students as well as the teachers take them seriously;
- Special training programmes need be organized for all the teachers associated with the conduct of PCPs. They may be given orientation about the distance learning system in general and PCPs in particular;
- The teachers may be encouraged to emphasize on tutorials and problem solving sessions in the PCPs, and the PCPs may be made more interactive by involving the students. During counselling sessions, the students should be encouraged to do self-study and they should be told about the basic concepts and the utility of the subject in daily life so as to create interest to in the subject;
- Co-curricular activities like short term tests, seminars, groups discussion, excision tours etc. along with the PCPs may be helpful in bringing the students and teachers closers and thus may reduce the isolation among the students. It may also enhance the effectiveness of PCPs;
- Enhanced remuneration may help in attracting the qualified and experienced teachers for the PCPs, which in turn may help in improving the quality of PCPs;
- In order to assess the effectiveness and quality of the PCPs, an effective mechanism should be made to monitor the conduct of PCPs regularly from time to time.

One of the most important problems of distance education is the difficulty of having face to face education with many students who are away. The ICT and other emerging technologies have helped in overcoming this difficulty. Moreover, various research studies reveal that with the increasing use of new technologies like interactive radio, television, teleconferencing, video-conference, e-learning, web-casting, lecture capture, and mobile learning etc., the instructional system and learner support services have become more effective and useful for the distance learners. It is, therefore right time to find out the means and ways of integrating the ICT and other technologies with the PCPs and students support services for improving their effectiveness.

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BOOK REVIEW

Integrated Learning

By

Ken Gnanakan

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Integrated learning by Ken Gnanakan is the original work written particularly on the system of education and the curriculum. The whole idea of the book is to propose integrated learning to give an all-round education at basic level which connects to the real life environment. In this book a very fundamental questions being asked “what is education?” and for that what kind of curriculum need to be developed to ensure integrated learning. To be very precise education means a tool for social development, democratic empowerment and advancing of the general well being and economic development of the society. This book has mainly brought together the ideas of various scholars and philosophers who have contributed a lot in the field of education. It starts with Plato and Confucius and ends with Howard Earl Gardner. Other philosophers are Pestalozzi and Montessori, John Dewey, Alfred North Whitehead, Paulo Freire. Two Indian thinkers, Rabindra Nath Tagore and Mahatma Gandhi have also been included with a view to in understanding the meaning of education in a holistic perspective.

Plato in the Greek City State during 385 B.C. was in favour of building a better society through education. His vision of an academic institution is the place where thinkers could freely work towards building a better society. He was also clear that to improve the political leadership of Greek in order, the ideas could build a better society. In his book “The Republic”, and ideas on the theme of education he talks of training formation and discipline. For Plato the goal of education was ordering a civil society. Plato pointed that the good education could only bring a just society. He sees education on holistic perspectives which includes knowledge, facts, skills, physical discipline, music and arts. He considered this approach as the highest form of education.

Confucius on the other hand like Plato advocated an ultimate ethical ideal that was to impact society. Confucius as a Chinese national, renaissance humanist gave foundations for social, political and religious thought and left a legacy of education that aimed at total transformation, starting from the individual and the family and to the whole country and the world. Confucius aimed to produce learned people of the civilized intellectuals for a new society based

on justice and wisdom. Both Plato and Confucius established the strong connection between good education and a good society.

Johann Heinrich Pestalozzi from Switzerland mostly stressed that education should develop the powers of "head, heart and hands". He says that the teachers should use the senses of children for true learning. Pestalozzi thinks that the education is the strong tools for change or any kind of transformations. He emphasises more on learning from the natural environment. In the natural environment children learn number and the language naturally. They traced objects from the count object and named them. They progressed from the lessons to exercises in drawing, writing, adding, subtracting, multiplying, dividing and reading. Overall Pestalozzi opines that the family is without doubt and the best learning environment for the child.

Maria, Montessori from Italy believed that the children should be independent and they should be free to do things by themselves. She says that no one can be free unless he is independent. She worked with mentally challenged children and found that the mental deficiency presented chiefly a pedagogical, rather than a medical problem. These children may not be treated in the hospitals rather needed schools to be trained. Montessori extended her application methods to all the children as well as children of the middle and affluent classes. Montessori developed a very strong curriculum which was very rigorous and harsh for the youth. The approach was to tie the separate disciplines together into studies of physical universe, the world of nature and the human experience. Latter Montessori experiments were implemented all over the world particularly in America and England with a great deal of success. In Montessori conception the purpose of education is to help and develop a free child in which one who knows what it wants to be and do and act accordingly.

John Dewey an American educator developed the theory of "experience" which continues to be read and discussed not only by the educators but also by the physiologist and philosophers. Dewey strongly believed that the classroom work should be designed in such a way that it was not different from the work at the child's home. He was in favour of establishment of laboratory schools where students worked in groups on practical projects and gradually progressed from smaller to larger lessons or units. Students should be taken on frequent trips outside the school to visit the places such as farms where they learnt about the orchards and the harvest. Dewey was very much critical about the authoritarian, strict, pre-set knowledge approach of traditional education. He believed that the actual experiences should be given importance. For Dewey the society was an important factor for learning and the schools had to fit in it. He strongly protests and says that the educators have been guilty of making the schools sanctuary outside of society and inside and controlled by the strong management or the boards. Dewey believed that a teacher plays a very important role in the society for its progress and that is the reason it is a noble profession. The classroom should be an ideal place for individual and

community values to be cultivated rather than a place where competition has isolated a few first class achievers. The life changing values can be learnt in the classroom and then experienced and demonstrated in the classroom of life itself.

Alfred North Whitehead a renowned philosopher and educator emerged and viewed as the static nature of education. Education becomes a dynamic adventure in real life. For him education is the acquisition of the art of utilization of knowledge. Whitehead talked about the “inner ideas” the ideas that are mainly received into the mind without being utilized or tested into fresh combinations. The process of education can get away from lifeless concept to concrete experience which from a part of life and produce truly educated people. For him the curricula should not be highly loaded by educational institutions. Whitehead approached to education is consistent with his process philosophy which presents a dynamic view of a world. In this he emphasized with a process and engagement within a real but changing world. Whitehead recommends that optimum learning would be seen to take place only when two human beings emotionally interact within the learning environment.

Ken Gnanakan has included two thinker philosophers from India to understand the real meaning of education. Rabindra Nath Tagore and Mahatma Gandhi are the two names we all are very familiar with. Rabindra Nath Tagore from Bengal, India earned diverse experience within his own home. Tagore grew up to become a prominent personality in British India. For him the aesthetic development of the senses was as important as intellectual growth and the integration is the key foundation of the school learning environment. Education should not be limited to the intellect and academic ability rather it must be something that has to influence the whole body, mind and soul. For Tagore education is not only to integrate western thinking and Indian tradition but also to include all that would integrate the individual with the truths that influence the whole person. He applies a holistic approach for total development of personality which includes spiritual, social, and individual beings whose education must be set in the right environment. Tagore exposed a glaring problem in the Indian school education. In which he refers that children ‘mug’ updates and same cold facts in history or mathematical theorem. There is no real life integration. Tagore was very much in favour of integrating culture in the curriculum. The curriculum should revolve organically around nature. Linking Rousseau in his “Social Contract” he believed that the learning should be through direct experience as well as physical activity which are very important in the education of a child. So far education for Tagore is concerned it is far more than static structure and restrictive practices that obstruct all round progress in all its dimensions.

Mahatma Gandhi from Gujarat, should not only be recognised just as a freedom fighter but also could be seen as a philosopher. The form of education Gandhi was looking was to restore a kind of self- reliant society to Indians within their own cultural moorings. Gandhi emphasises own self- reliance in

rural India, which he consider a key to understand his whole approach to education. When Gandhi proposed his education policy in 1937 he strongly emphasised the concept of “new education”. He believed that the system of education should be Indian in its approach to progress and development and more away from western form. Thought the idea of Gandhi in totality is not applicable in present day world, but it was an idea to promote education of its land consisting of culture and tradition. For Gandhi education was the total liberation of the individual. It should teach moral and noble values. For basic education he was concerned with an even broader integrated development of the mind, body and the soul. Connecting the Gandhi’s idea of education the people like Mahatma Jyotirao Phule and Bhim Rao Ambedkar also thought on the same line. They believed that the education should be about the understanding of the society which used as the development of resources of their nation as a whole without any social barriers. Ambedkar strongly developed a message “educate, unite and agitate” which means education is the most important tools for any kind of revolution for change or transformation. What ever the case may be for Gandhi education should touch the whole person because true education is not merely about educating the intellect but required training of the bodily organs e.g. hands, eyes, feet, ears and nose. These is the reason Gandhi envisaged a seven year course in primary education for a child for over all development of knowledge, skills and attitudes.

Paulo Freire the Brazilian educator developed the pedagogy of the oppressed. He approached to adult education in oppressed context and principles he developed have been applied to all environments. Freire strongly believed in the inclusive model of education system, where all should be included in a common curriculum. He has exposed the restrictions of the majority of education system around the world, allowing breaking new ground in education pursuit. Teachers must be empowered to think for themselves so that they can set their students free shape and become part of their own liberated future. Freire like Bhim Rao Ambedkar over all see education a method or an instrument for social change. Freire with his revolutionary approach was absolutely committed to moving away from the authoritarian teacher model and proposed a critical pedagogy particularly the changing traditional student-teacher relationship. A thoroughly integrated approach to education helps to evolve effective programmes that will bring in the much needed transformation in the society.

Howard Earl Gardner an American has made a major paradigm shift for educators who are transforming schooling throughout the world. He developed a theory in which he argued that there is multiple-intelligence for e.g. linguistic, logical-mathematical, bodily-kinaesthetic, spatial, musical, interpersonal and intrapersonal. Gardner strongly believed that each child is different and has gifted ability. He traces the dominant role of intelligence in a person right from childhood. Gardner has been heavily involved in school reforms in America. Traditionally schools have focused on the development of logical and linguistic intelligences which focused on standardized tests. Gardner believed that

these standardized tests do not test the multiple intelligences which vary from person to person. Gardner in his theory argues that the student will be better served by a broader vision of education, wherein teachers use different methodologies, exercises and activities to reach all students, not just those who excel at linguistic and logical intelligences.

Ken Gnanakan in his book argued about the fundamental question about integrated learning. Mostly he is in favour of integrated learning, integrated curriculum, paradigm shifts from teacher-centred to child-centred, schools should be like a community and moral intelligences should be promoted and given importance. Over all through integrated learning he talked about the development of various skills and intelligences so that in future the generation become a real member of the global community. This book seeks to give a practical guide to managing a work integrated learning programme in the education sector. It is the compiled work of various minds worked rigorously over a period of time and there is no doubt about it. The only critique one could point is that there is no challenge and critique about the ideas of the people whom author refers to. To my mind this need to have a critical understanding about the need of education and curriculum which author is referring through the various thinkers. Over all this is a good work and would be helpful for those who believe that there is a need of change in the education system and the curriculum. I strongly believe that this book would help the policy makers to frame better policy to bring new kind of education which Mahatma Gandhi talked of New Talim. This book would also helps to the researchers and teachers of all level to work more and do effective research in the field of education. What ever the case may be this book truly justifies the idea of integrated learning through comparative theoretical analysis and draws out all the essence of good education and its impact on the social order for a better society.

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7. Special Features/Innovative Initiatives/Success Points
8. Conclusion – Implication and needed follow up, replicability,
9. Acknowledgements (if any)
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