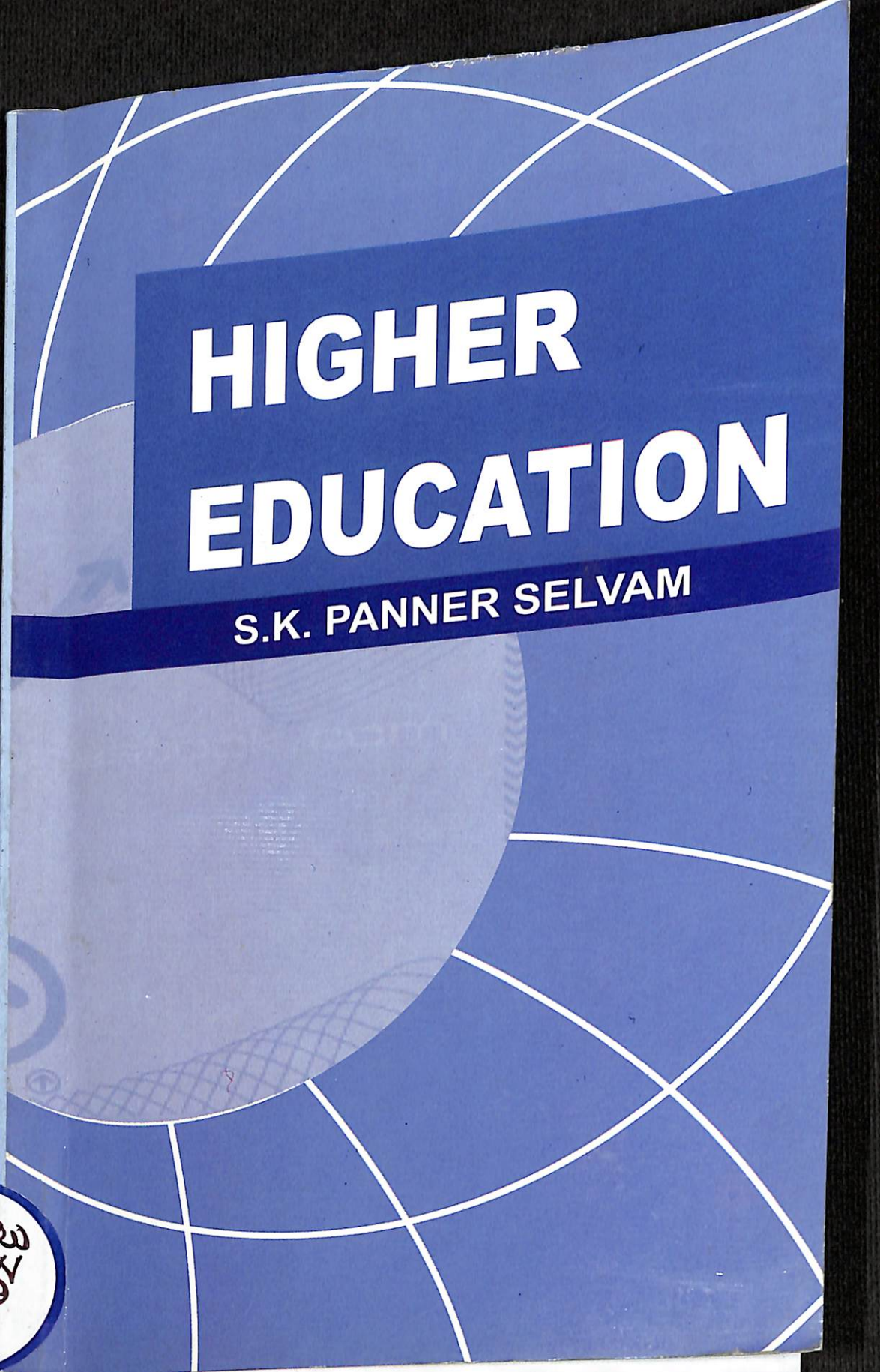




HIGHER EDUCATION

S.K. PANNER SELVAM

35

Higher Education



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Dr. S. K. Panneer Selvam

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CONTENTS

1. A Regulatory Body for Media Education	1
2. Education as a Rural Development Strategy	4
3. Education for National Integration	30
4. Educational Progress and Psychological Charges	34
5. Problem Solving and Decision-Making	38
6. Silent on a Vital Issue	51
7. Sustaining a Vibrant Environment	55
8. Wider Scope of ICT towards Quality Education	60
9. Globalization and Impact on Human Development in the 21st Century	70
10. Globalization of Higher Education: Opportunities and Challenges in India	76
11. Higher Education in India	81
12. Knowledge Contented Higher Education to Meet Future Demands	86
13. Reconstruction of Higher Education in India	102
14. The Characteristics of a Good policy Formulated and Implemented in Indian Education	107
15. The Future of Open Universities	114

vi		
16.	The Role of Education in Modernization	Higher Education 112
17.	Preparing for the 21st Century: An Education Imperative	122
18.	Technological Innovations and Higher Education in 21st Century	132
19.	The 21st Century Education and Challenges	134
20.	The Digital Technology Education for 21st Century	144
21.	The Role of Education in Modernization	152

ABOUT THE AUTHOR

The author Dr.S.K.Panneer selvam was born in 1964 in Valappady village of Salem District, Tamil Nadu. He started his career as secondary Grade Teacher in 1991. He earned his post-Graduate degree in the successive years. He worked as a lecturer in the District Institution of Education and Training (DIET) Pereundurai of Erode District. In the year 2005, he was awarded the Excellence Award for best lecturer by the state Government. He had been a guide for 54 Action Researches to school teachers. He undertook 4 Action Research with the fund provided by the Directorate of Teacher Education and Training. He received training in 26 different plans and projects related to education. So far he has published 164 articles in national journals and 4 books for B.Ed. students and 2 books in Tamil literature. He is the Tenth diploma holder in Tamil Nadu from the National University of Educational Planning and Administration –NUEPA, New Delhi in 2002. At present he is working as Assistant Professor in the department of education, Bharathidasan University, Tiruchirappalli, Tamil Nadu.

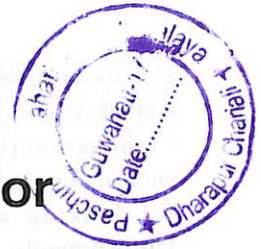
ABOUT THE BOOK

"Survival of the fittest" is an axiom. It is a maxim widely accepted on its intrinsic merit. Since it is a self evident truth, it suits to all domain of activities, including education system.

Indian Education system from primary to higher level have all along been incongruous. Ours is only 'paper-work' education. There is no opportunity at any level for hands-on-education. Only 'hands-on-education' in higher education can have a local regional and national context. Globalisation of any thing or any activity will prove wasteful without any localisation aspect. Localisation along with globalisation only help integration. Integration is a feeling of unity, soliderarity, cohesion, with a socio-psychological mind set.

Economic well being of the people of a nation will be a key factor for integration. Therefore, a healthy tie up between education and economic outcome is very essential. For a healthy 'tie up' a differential higher education system is essential, instead of the present system. There are a number of independent, private, deemed and autonomous higher institutions in India. But the 'out-put' is insignificant. 'Chicago' university has so far produced one hundred Nobel laureates. A land mark achievement!

Our Universities have to strive hard to achieve high levels of literacy in science, mathematic and technology, 'only higher academic achievements' must be the sole objective of our higher learning centers. The whole system needs to be restructured and modified to make higher education, a higher value education.



A Regulatory Body for Media Education

Like any other profession contributing towards the overall development of society, mass communication has been steadily acquiring a higher pride of place every passing day. So, similar to all other fields' formal academic training in this vocation is an important aspect as more and more media organizations today are insisting on the new entrants possessing some formal training. Significantly, the media revolution that the country has been witness in the last about one and a half decades or so has resulted in 53,000 odd newspapers and journals of different types as well as estimated audience of 40 crore and 80 crore for TV and radio respectively. And this trend is projected to continue steadily in the near future.

Too many this huge media expansion, there would be an express requirement of quality manpower in the coming days. This in turn necessitates a good network of efficient professional academic media training institutions in the country which can prepare ready to work finished' human resource for the fields. So, naturally quite a few institutions offering various courses in mass communication have come up all over the country both in the government and the private sector.

WIDE VARIATIONS

One curious fact in this is that the different mass communication courses conducted by various institutes (universities, autonomous institutions as well as private ones) vary widely in course content, duration, nomenclature, specialization area, etc., such as one and two year master's degree in Mass communication, Journalism, Advertising, Public Relations to one year diploma and degree courses. In fact, the specialization courses or the courses of the same nomenclature also differ highly in content

This fact has also been duly taken note of by the Expert Committee on Media Education of the University Grants Commission (UGC). Significantly most of the professional courses such as engineering, medical, law, etc., do have regulatory bodies for looking after every related aspect of these professions. Unfortunately, this is not so in the case of mass communication education. It is time to constitute such a regulatory body preferably on the lines of AICTE, MCI, BCI, etc.

This would ensure uniformity of standards in various media courses ranging from certificate, diploma or degree run by any institution by a provision for formal recognition which should be time bound. As other professional courses are required to be approved by AICTE, BCI, MCI, etc., even if conducted by already recognized institutions like university, similarly, all the mass media courses would be required to be a duly approved by this new regulatory body. Such a uniform would bring about certain standardization in all these courses. The way AICTE and NAAC accreditation boosts the prestige and authenticity of an institution or department's standard the same can be expected to be achieved by this exercise. This would future act as a good advertisement for the organization.

The initiative must include all aspects such as course content, duration, structure, nomenclature, session and qualifying educational standards for admission among other things. Besides, as most of the institutions conducting mass communication education mass invariably hold entrance tests for admission this regulatory body can take upon itself the responsibility of organizing a nationwide common entrance test for all courses.

COMMUNICATIONS RESEARCH

Another important aspects that has been relegated to the background of late is communication research (both applied and theoretical) which needs to be encouraged for taking care of different problems faced by the industry along with the quest for futuristic research. This would enable them to have projections about how many trained personnel would be required by the media at certain periods of time and thereby orient or blend the nature of training required in that direction.

Significantly, an in-depth study by a media expert, Dr Haris Kumar, forecast the requirement to the tune of more than 15 lakh media persons by around 2010, the print media accounting for almost one-third of this number.

Education as a Rural Development Strategy

Dave Reede, AgStock USA Educational attainment in rural America reached a historic high in 2000, with nearly one in six rural adults holding a 4-year college degree, and more than three in four completing high school. As the demand for workers with higher educational qualifications rises, many rural policymakers have come to view local educational levels as a critical determinant of job and income growth in their communities. Attracting employers who provide higher skill jobs and encouraging educational gains are seen as complementary components of a high-skill, high-wage development strategy.

But policymakers are faced with two key questions. First, does a better educated population lead to greater economic growth? According to a recent study, rural counties with high educational levels saw more rapid earnings and income growth over the past two decades than counties with lower educational levels. However, economic returns to education for rural areas continue to lag those for urban areas.

Second, are there ways to improve local educational attainment, particularly through improvements in elementary and high schools that can enhance the economic well-being of rural residents and communities? In fact, preliminary research demonstrates a connection between better schools and positive outcomes in terms of earnings and income growth for rural workers and rural communities.

Ultimately, the strength of the tie between education and economic outcomes is influenced in part by the extent to which small rural counties lose young adults through out migration. The loss of potential workers from rural areas, as young adults leave for

college and work opportunities in urban areas, has concerned rural observers for many decades. This rural "brain drain" not only deprives rural employers of an educated workforce, but also depletes local resources because communities that have invested in these workers' education reap little return on that investment.

RURAL ADULTS POST MAJOR BUT UNEVEN EDUCATIONAL GAINS

The rise in educational attainment since the end of Second World War has been a remarkable success story in rural America. In 1970, 7 per cent of rural adults had graduated from college, while 56 per cent of the rural adult population did not have a high school diploma. By 2000, 16 per cent of rural adults age 25 and older had completed college and more than 75 per cent had finished high school. Though rapid, these gains understate the educational attainment of the younger working population, ages 25-44. Nearly one-fourth of rural younger adults have at least a 4-year college degree, and over 80 per cent have completed high school. Gains in educational attainment in rural areas were particularly pronounced during the 1960s, dividing the generation that viewed college as an option for the relatively few from the generation for whom college attendance became "ordinary."

A similar divide can be seen in the steady increase in job skill requirements of rural firms, as employment shifted over time from farm to factory to services. Between 1980 and 2000, for instance, the share of rural workers in low-skill jobs fell from 47 to 42 per cent. The relationship between high educational levels and high-skill jobs has prompted many communities to pay closer attention to the role of workforce education and training in their economic development plans. But the benefit of raising educational levels will vary widely from place to place because of the sharp disparity in educational attainment across rural America. In non-metro counties where at least one-fourth of the population age 25 and older lacks a high school diploma, job growth has been steady, yet income levels typically fall well below the national average. In other non-metro counties where the great majority of adults have completed high school, the need to improve workforce education levels is likely to be less urgent.

WORKFORCE EDUCATION AFFECTS ECONOMIC GROWTH

Higher educational levels contribute to local economic development in several ways. First, a well-educated workforce facilitates the adoption of new ways of producing goods and providing services among local businesses. Second, employers may view a well-educated local labor force as an asset when choosing among alternative locations for new establishments. Both factors could help improve a community's chances of attracting new businesses, particularly those businesses that require highly skilled employees. Finally, higher educational levels are almost always tied to geographic clusters of certain key industries, which in some cases have generated major economic growth in rural areas.

According to research presented at a 2003 conference on education cosponsored by ERS, the higher the level of educational attainment, the faster the growth rates in both per capita income and employment. Researchers at Clemson University found that counties in the rural South with a 5-percentage-point higher share of adults attending college in 1980 reported, on average, 3.5 per cent faster growth per year in per capita income over the next 20 years and 3 per cent faster growth in employment. For a typical county in 2000, this translates into \$325 more in per capita income and 150 additional workers. Given an average population of 24,700 in the study counties, the average increase in total annual county income would be approximately \$8 million, or about 4 per cent above actual 2000 income levels. In urban areas, annual income growth after 1980 rose 9 per cent for each 5-point gain in college-educated adults, and annual employment grew 7 per cent.

Another study conducted by researchers at Penn State University found that rural counties with a 1-percentage-point higher share of adults with a high school diploma reported \$11 more per capita income, even after adjusting for other characteristics that affect income, such as infrastructure, industry structure, and degree of urbanization. But the same 1-percentage-point increase in urban counties raised per capita income by \$413.

These studies qualify the role of education in rural economic prosperity in two ways. First, urban areas benefit disproportionately

Education as a Rural Development Strategy

from a well-educated workforce. Second, benefits from higher educational levels depend on other local factors, but primarily for urban areas. Within rural areas, population density, access to interstate highways, social capital, and school characteristics have little power to enhance or inhibit the influence of educational levels on income and employment. As a result, there is little evidence that economic development strategies based on raising workforce education levels will be equally successful regardless of a community's other characteristics. Areas with high educational levels also have high-skill employment bases that have adapted to the particular features of the area. Thus, infrastructure and urbanization enhance the effect of education primarily by influencing the kinds of jobs found in the local economy.

BETTER SCHOOLS PROMOTE HIGHER ACHIEVEMENT AND EARNINGS

If higher levels of education boost local economic performance, how might localities pursue a development strategy that incorporates improvements in education? In the past, rural areas seeking to stem the brain drain emphasized strategies to retain well-educated youth and adults and attract new residents by encouraging higher skill employment growth. "Workforce development" most often meant investing in job training programmes, both by States and local jurisdictions. More recently, attention has turned to improving the quality of local schools in order to raise the level of performance and well-being of the local workforce. Rural areas may also view good schools as an amenity for prospective employers and workers who must move families to the area.

Improvement of rural schools, however, faces special challenges, especially in balancing resources and outcomes. As is often the case with service provision in rural areas, costs per pupil may exceed the national average because rural schools often cannot take advantage of economies of scale provided by a large population base. Moreover, rural counties often lose a large portion of their youth to places with better job and educational opportunities. Thus, the future income and tax revenues that rural students could generate—the "social returns" on school investments—may be lost to other, often urban, places, and investments designed to improve schools may not pay off for the local community in the long run.

The financial challenges and geographic isolation facing rural schools often contribute to educational disadvantages. Standardized test data show that rural students tend to score below suburban students in math and reading, but on par with central city students. Rural teachers earn less, on average, than urban teachers and are less likely to hold an advanced degree or be certified in the subject they teach. Rural schools are less likely to offer advanced classes in science and math. But rural schools are also smaller and have teacher-pupil ratios similar to urban schools.

Students in rural schools that offer advanced coursework and have more qualified and better paid teachers score higher on standardized math and reading tests. Once scores are adjusted for characteristics related to school quality, the rural disadvantage disappears. These factors are often closely related to the socioeconomic profile of the students' families. ERS found that characteristics of rural families—race, sex of family head, English as a native language, and family structure—actually gave rural students a slight advantage over both suburban and central city students. While family and personal characteristics contribute to the special challenges of rural school systems, especially those in persistently poor and low-education areas, they do not explain the rural disadvantage as a whole.

The effect of school characteristics on student achievement shows that schools have at least *indirect* influence over workforce quality. Rural schools can also influence the economy *directly* by their effect on workers' earnings. By age 26, workers who graduated from rural high schools earned about 3 per cent less than workers who graduated from suburban high schools, after adjusting for educational attainment, type of job, and current residence. When earnings are further adjusted for rural school disadvantages, the rural-suburban gap disappears. Rural students who graduate from better schools will thus perform better in the labor market whether or not they remain in rural areas. Because students who do better in school are more likely to attend college and leave their home communities, there is a tradeoff between improvements in local workforce quality and the loss of young adults due to out migration.

OUT MIGRATION MAY DIMINISH SCHOOL EFFECTS

Recent research shows that improvements in rural schools boost local economic development prospects. Higher adult educational levels lead to faster income and employment growth, and better schools can produce higher academic achievements and improve long run economic prospects for students. According to a study of rural South Carolina in the 1990s by researchers at Clemson University, a small but significant link occurs between school quality (measured by student-teacher ratios) and employment growth in the local community.

Continued movement of young adults from rural to urban areas for college or higher paying jobs means that much of the potential benefit to earnings from improving schools will be lost to the local community. This effect weakens the rationale for supporting good schools, especially if these improvements are perceived to encourage out migration. Fifty-five percent of rural young adults who attended college no longer resided in their home county. Young adults who had not completed high school were about half as likely to reside in a different county, with high school graduates falling in the middle. Despite rural gains, the rural-urban educational attainment gap remains high, and high-skill jobs in large and medium-size cities continue to attract young adults. Jurisdictions with significant economic or social distress may find it especially difficult to leverage improvements in school quality without concurrent changes in the local economy.

Although rural America continues to lose a disproportionate share of its college-bound youth, the long-term loss is often substantially less than the initial outflow, as many out migrants return to raise children, assist aging relatives, or use social networks to find jobs. Communities may find good schools to be a particularly effective way to capture a larger share of these potential returnees. Better schools, for example, can make a difference to parents who want to raise their children in the home environment they once enjoyed, but who also seek the best possible education for their children.

Current Federal policy supports raising academic standards and workforce educational levels regardless of a community's

economic and social profile. Such an approach holds great potential for helping individuals. The benefit to rural communities, particularly in distressed areas, could be greatest where human capital improvements are but one of several parallel strategies (such as small business development) aimed at building a local economy with greater job opportunities and higher earnings.

About 70 per cent of the poor live in rural areas. In the least developed countries about 70 percent of people make a living from the primary industries, mainly agriculture. Education is an essential prerequisite for reducing poverty, improving agriculture and the living conditions of rural people and building a food-secure world. Education is a basic right in itself. In spite of this, children's access to education in rural areas is still much lower than in urban areas, adult illiteracy is much higher and the quality of education is poorer.

The fight against poverty and hunger is a fight for justice. Expanding access to quality education for rural people is thus of crucial importance in the realization of human rights for all and in achieving the Millennium Development Goals (MDGs). This is why the **Food and Agriculture Organization of the United Nations (FAO)** (Sustainable Development Department) and the **United Nations Educational Scientific and Cultural Organization (UNESCO)** are inviting member countries, international agencies and civil society to join the partnership on **Education for Rural People (ERP)** which is part of the International Alliance Against Hunger and of the Education for All (EFA) initiative.

FAO IS THE UN LEAD AGENCY FOR ERP.

This flagship is a call for a collaborative action to address rural-urban disparities by targeting the educational needs of rural people. The partnership is open to members committed to working separately to achieve the following goals.

OBJECTIVES

- Overcoming the urban/rural gap in education.
- Increasing access to basic *Education for Rural People*

- Improving the quality of basic *Education for Rural People*
- Fostering the national capacity to plan and implement ERP as part of National *Education for All* and Rural Development Plans.
- Building awareness on the importance of ERP as a crucial step to achieve all the Millennium Development Goals, and particularly, eradicating extreme poverty and hunger, achieving universal primary education and promoting gender equity.

ACTIVITIES

At the national level

- Technical support to countries willing to address the basic educational needs of the rural people by formulating specific strategies as part of *National Education for all* and Rural Development plans.

At the international level

- Advocate and mobilize partnerships for ERP by concentrating on strategic global, regional and international events, and encouraging the same within countries. Support the exchange of good practices and knowledge on *Education for rural people*.

INNOVATION IN THE CLASSROOM

Are new teaching methods working? Efforts to make learning more interactive and more fun for students appear promising, but it may be too soon to judge if they are positively impacting children's performance in standard tests and surveys. Meanwhile, teachers complain that these efforts have added to their already heavy burden. The census of 2000-01 showed that the dropout rate from schools in Karnataka stood at 10.5 per cent. One of the main reasons cited for the dropouts was that teaching methods used in the schools are archaic, and do not sufficiently motivate students to remain in class. Educationists say that in addition to outdated

teaching methods, inadequate teaching learning material (TLM) and laboratory equipment are also factors that contribute to dropouts.

Taking heed of these observations the state government decided to revamp the education system in the state-run schools. Educationists and teachers were roped in to devise new teaching methods. An interesting curriculum, along with interactive learning, was the new mantra adopted. "Chaitanya" a special programme to train the teachers in adopting new interactive teaching methods, was designed. Chaitanya was an extension of the "Nali Kali" or 'joyful learning' programme that was tested successfully in some of the schools in Attur taluk in Salem. Nali Kali was a collaborative effort of the state government and UNICEF. Both these programmes stress interactive learning methods. The teachers use colourful charts and stories to explain concepts from the textbooks.

More than 50,000 teachers have undergone training under the Chaitanya programme in the last four years. Both primary and higher secondary students have benefited as a result. Dr. T Padmini, a retired Head of the Department of Education at Salem University, who was part of the Chaitanya's design team, says "The state's intended curriculum is very well designed, so what we needed was a child friendly way of teaching it. Boring teaching methods can cause cumulative deficiencies of interest in children, which may lead to dropouts. The Chaitanya programme teaches teachers to use stories, songs and even drama to teach concepts."

Alongside government action, NGOs too are leading from the front in interactive learning. Pratham, in Salem, is promoting Universal Elementary Education (UEE) by partnering with the Department of Public Instruction. The organisation works with government schools in the slums of the city. They run "Balawadi" and "Balasakhi" programmes in these areas. The Balawadi programme prepares children for formal education using play-way methods, ensuring the children enjoy their school-going experience. Balasakhi is a remedial education programme, in which the NGO appoints a special teacher at the government school who aids the children in learning languages and mathematics.

Mr. Chandrashekar, principal of government higher secondary school in Salem says "Pratham's intervention has been very useful for us. The children have fun learning Tamil and arithmetic and because of that it becomes easier for us to teach them what is in the syllabus". The children too like the new way of learning. Salman, a Class 4 student from Salem, says "addition and subtraction is more fun now. Earlier I was scared of arithmetic problems." The language kit developed by Pratham along with Dr. Padmini is hot favourite among parents too. They say it is especially helpful to students who don't speak Kannada at home but have to learn it in school.

The new method however is not without problems. Teachers say it has increased the burden on teachers. Meera Bai, headmistress of Sri Ramakrishna Education Society, Chennai says "It is true that the new method is good for students but we have to spend a great deal more time on preparing for the lessons and evaluating them. Giving individual attention becomes very difficult when there are more than 40 students in each class."

But the educationists say that the teachers are taking their responsibility lightly. Dr Padmini says "Many a time I have found that the teachers lack the initiative to adopt new methods and also lack competency and knowledge, which is essential in this profession." The teachers however counter this. Geetha, a teacher, says "I have been this profession for more than 30 years and with passing years we have been given more and more clerical work like population census, electoral list reviews and election duties. Plus the new government programmes like Chaitanya and mid-day meals require regular reports. How can we spend more time with the students while we are expected to do paperwork?"

While the new teaching methods are struggling to take root, the need for improved education remains evident. The Annual Status of Education Report 2005 showed that in Tamil Nadu only 50 per cent of the students were able to read a simple story from the text book, compared to a much higher 81 per cent in neighboring Kerala. This was conformed by the second edition of the survey, out recently.

But would the new teaching methods help improve these abysmal numbers? Dr Padmini believes that it may be too soon to

tell; the new learning methods must be given more time to demonstrate their value, and we should not be too hasty in judging efforts that have only been instituted recently. Instead, findings from academic achievement surveys should lead to recognition of the underlying problems. In the result-oriented approach adopted by schools, "students are taught to answer the questions in the exams without really grasping the concepts. But that cannot be avoided as long as we have an examination-oriented approach. There is pressure on the school to maintain its pass percentages." (*Quest Features and Footage*)

RURAL DEVELOPMENT THROUGH EDUCATION

Dr. S Kalbag has devoted 20 years of his life to educating the rural youngster, and found an enriching life for himself too in the process.

January 2003 - He rejects the educational system as we know it. His emphasis is on learning while doing in real life. He believes that working with your hands is what teaches you best. And he has translated his convictions into reality at the Vigyan Ashram in Pabal in Maharashtra.

Dr. S Kalbag has devoted 20 years of his life to educating the rural youngster. His education is of a different kind, eliminating the formal structure of a classroom, blackboard and books, and incorporating the wisdom of life, experience, and hands-on work. He regards science to be sacred and the inculcation of a scientific temperament to be a holy quest. The recipient of the 1996 Jamnalal Bajaj Award for services to the rural community, 74-year-old Kalbag gave up a lucrative career to pursue his vision of education - an education that would enhance the life of a village child and ensure against his migration to the city. In all these years of pursuit of his mission, he has been blessed with the unstinting support of his wife Mira.

Kalbag grew up in an 'engineering environment' and it was back then in his childhood itself that he picked up his yen for tinkering with tools. His father migrated to Mumbai in 1903 and set up his home in near wilderness. He had to install his own water and

power connections and take care of the sanitation works, etc. As Kalbag helped his father with all these chores, he developed a natural liking to do things with his own hands. He even had a laboratory set up at home, where he experimented with all kinds of devices. This passion for engineering continued all through his life, and more than that, it gave him a different perspective of how learning and education should be.

"I benefited from the way I learned things - by actually doing them. This was not something I learned in school. Later on, when I looked back at my childhood, I realised how incongruous our education system was, and I felt I must pass on to others my way of hands-on education," says Kalbag. While this lingered in the back of his mind, he went on to obtain B. Tech and M. Tech degrees in Mumbai, before proceeding to the University of Illinois, Urbana for his doctorate in Food Technology. He returned to India and took up his first job at the Central Food Technological Research Institute, Salem.

"I was 27 then. I decided that for 27 years, I had been a student, and so, another 27 years I would give to be a householder (Grihasthashram). Then I shall enter the phase of Vanaprasthashram and devote the rest of my life to the service of mankind," he says, explaining his philosophy. He married Mira, joined Hindustan Lever Ltd and rose to become the head of the Engineering Division. All along, he was firming up on his plans to work in the field of education. His premise that working with the hand stimulates the intellect received statistical backing by a survey he conducted among the street urchins in Mumbai under the aegis of the Homi Bhabha Centre for Science Education, TIFR. The kids were smart and could manage a range of tasks efficiently, yet they did not do well in the schools they attended, because the syllabus did not match their skills. "I thought the way they learned things - from life itself - was the right way. But of course, the syllabus in the corporation-run schools would not change to accommodate my views. That was when someone suggested I should meet J P Naik and Chitra Naik of the Indian Institute of Education, Pune," he says.

On discussing with the Naiks their philosophy of education, Kalbag realised he had found a partner in thinking. In 1981, he and

Mira visited the night schools run by the IIE in five different areas. They were also on the lookout of a place to set base and begin their work. Eventually they narrowed in on Pabal, off the Pune-Ahmednagar highway. The place was drought-prone, like many parts of India outside the monsoon season. Kalbag wanted a place that was away from any major city and Pabal, ideally, was away from the highway and would not easily become a suburb of Pune. Trekking through the villages around Pabal for seven days, he gauged the response of the local residents to his ideas of education. He finally decided he had found his place and submitted a formal project to the Department of Science and Technology in 1981. Work in Vigyan Ashram commenced in January 1983.

The beginning was simple — imparting multi-skill training, developing a problem-solving attitude, and stimulating the intellect. The education system as we know it today, Kalbag concluded, is inefficient. It teaches very little. For example, a child of two has learned at least one language by herself, effortlessly. In 10 years of schooling, how many more languages does she pick up? He points out that nearly 90 per cent of children enrolling in primary schools do not cross the matriculation level. We may be led to assume that this is the percentage of duds in our systems. Yet, it is these very 'dropouts' who build our houses, repair our cars, run most of the industries and farm the lands. How do they manage to do so much?

"I call this the natural system of learning as 'learning while doing work in real life situations'", elaborates the new-age teacher. The aim of Vigyan Ashram is to identify the core of this system and graft it into our existing educational patterns to make it equally efficient. Consequently, Kalbag and his team of like-minded individuals developed a system called Rural Development through Education System (RDES).

This is mainly education through development work - giving paid services to the community and using this as a means of education that imparts hands-on training in all skills relevant to rural areas. The RDES exists in both a formal mode (8-10th standards in schools) as well as in a non-formal mode as a one year course targeted at school dropouts (post 8th standard). The formal course is recognized by the State Education Board for SSC (Maharashtra)

and there are about 20 schools implementing this in different parts of the state. The course for dropouts (post 8th standard) helps the students learn in real life situations in the areas of Home-Health, Agriculture-Animal Husbandry, Engineering and Energy-Environment. Necessary theoretical briefing is also included. Students also earn by taking jobs on contract. The course is fully residential and awards a diploma from the National Institute of Open Schooling (MHRD, Delhi).

The Ashram's campus, built by staff and students themselves, includes dome houses, a mini tractor, and water-prospecting machines. It encompasses Kalbag's vision of a 21st century school being a group of self-supporting industries that provide hands-on experiences to students, while they are absorbing theoretical information through self study using computers and the Internet. All this happens under the supervision of a 'Guru' who looks after the value system in all the life transaction. "We want our students to start their own enterprises in their villages and thus reduce the migration to cities. There are many who have done that and are running their industries successfully. But these are not my success stories, they are their own. My success story will be when the system runs without me", insists the 74 year-old man.

The Ashram also embodies the basic tenet that Kalbag and Mira follow in their personal lives - high thinking and simple living. Life here is hard; water is scarce, power erratic. But it is rich with the satisfaction of having learned to do things with one's own hands, and armed with the knowledge this education will actually bring in a livelihood as well.

NEW INDICATORS NEEDED TO TRACK SSA

Since the introduction of the central government's Sarva Shiksha Abhiyan (SSA) programme, enrolment numbers in schools have gone up. But how reliable and meaningful are the enrolment figures? Deepa A uncovers major indications of things having gone wrong in SSA's quest for targets. 26 November 2006 - In just over three years, the Sarva Shiksha Abhiyan (SSA) is expected to meet its avowed goal of ensuring that all children are in school. Celebrations aren't underway as yet but the sense of

accomplishment is difficult to miss in the corridors of power. In fact, when the government asked a committee to look into universalising secondary education, it did soon the basis that the demand for secondary education was bound to go up - thanks to SSA and the resultant higher enrolment rates at the primary level.

But a more pertinent question that needs to have been asked at this stage seems to have been ignored: how reliable is the enrolment figure as a measure of success? In their quest to reach SSA's targets, officials seem to have neglected the fact that enrolment and learning do not necessarily go hand in hand. Worse still, enrolling a child in school doesn't even mean that the child is attending classes, passing exams or going on to the next class. As Magsaysay award winner Shanta Sinha, of Andhra Pradesh-based MV Foundation, points out, "The health of a school system is known according to the number of children in school. But the maximum number of children is in Class I. If a school has 4,000 children, 3,000 of them will be in Class I." These skewed statistics, and indeed the stories of the missing children, are indicators of the many things that have gone wrong in SSA's emphasis on numbers.

ONE QUESTION, MANY ANSWERS

That there is nothing sacred about numbers becomes clear if one asks the simple question: how many children in India are out of school today? The answer to that depends on who is answering the query or which survey one is consulting. The recently released Education for All Global Monitoring Report-2007 of the United Nations Educational, Scientific and Cultural Organization (UNESCO) itself mentions this contradiction. While stating that India, with 4.6 million children out of school as of 2004, is one of the four countries (the others being Nigeria, Pakistan and Ethiopia) with the largest number of out-of-school children, it notes that the figure - derived from the UNESCO Institute of Statistics data - is at variance with the results of an Indian government-commissioned household survey done by the Social and Rural Research Institute in 2005. This survey said that 13.5 million children were out of school, a figure that was close to the results of non-government organisation Pratham's national survey, which put the figure at 14 million.

While Shanta Sinha refers to these contradictory surveys as a "data war", Dayaram, an expert on SSA who prefers to be known only by his first name, says that all and any data that is thrown around is likely to be "unreliable". Dayaram worked for long with the SSA programme as the chief consultant on alternative schooling methods, and also did one of the first studies on the impact of para-teachers in primary education. The primary users of the data are at the state or national level, such as officials who use the statistics for planning purposes, and not those at the school level, he points out. "Why would the schools put in any information which will make them look bad?" he says.

R Govinda of the National Institute of Educational Planning and Administration at Delhi points out that both the parents and the teachers are likely to say that the child is enrolled in school. "What need to be checked is how many children there are in a village and whether they are all in school - one has to visit more than once to check this. Find out which schools the children are going to, and check with the schools. Do this twice a year, then it is a scientific method of conducting a survey," says Govinda. However, even with such stringent guidelines, it is not enough to measure SSA's success by numbers alone, he adds.

THE MISSING CHILDREN

Ramesh Sekhar Reddy, programme director of Mahita, a non-government organisation that works in the area of education in Hyderabad, calls the enrolment game a "funny affair". "You will find children working in urban areas and grazing cattle or doing agricultural work in villages, but technically, their names will be in the register of schools," he says. Reddy's organisation has come across several such cases in the slums in Hyderabad as well in villages in Andhra Pradesh. The distribution of funds and food for the mid-day meal scheme is done on the basis of these fraudulent enrolment figures, which is why in many cases school and village-level officials have no qualms in perpetrating the sham.

Reddy points out that one of SSA's major failings is that it doesn't have a strategy to retain children in school. Many schools have unqualified para-teachers hired on contract, and poor

infrastructure with insufficient toilets and drinking water. These are all reasons why children may not want to be in school even if they are enrolled. Pointing out that quality has suffered in SSA's obsession with numbers, activist Bharat Bhushan, who has worked in Andhra Pradesh, says that enrolment figures are often fudged to hide drop-outs and poor attendance rates. For instance, the attendance and enrolment records do not even reflect the changes due to seasonal migration amongst poor households. Even in drought-prone areas where large-scale migrations take place, the attendance is shown as stable, says Bhushan.

One main reason for this is the mid-day meal scheme. Dayaram points out that 80 percent attendance is expected in schools where mid-day meals are served. "So schools show 80 per cent attendance even if the classroom attendance is less," he says. Dayaram remembers visiting six schools in Maharashtra and finding that though the teachers claimed that the attendance rate was 80 per cent, less than half the students were present in class. "There were several students who hadn't been coming to school for months," he adds.

Aditya Natraj, who heads Pratham's operations in Tamil Nadu, says that the enrolment figures don't take chronic absenteeism into account. "A child may not be attending school because he has to take care of siblings, has to work, doesn't like school or because the school is far away," he explains. But, a child's name is removed from the rolls only if he or she has not attended school continuously for three or six months. Even if the child turns up for a day in between, the name continues to be on the records. "That doesn't mean that he is learning or attending school," says Natraj. It is, therefore, important to recognise absenteeism and the problems children face. The children may have disabilities, could be working, or could be migrating with their parents for certain periods of the year - such as during non-harvest season - for work, he adds.

NEW INDICATORS

Natraj says that a number-based approach is inevitable when one is dealing with 20 crore (200 million) children. "Indicators evolve over a period of time," he says. "In 2000-2001, 70-80 million children

were said to be out of school. Now, even the largest estimate will put the number at 35 million." According to the UNESCO report, state governments had estimated that 25 million children in the 6-13 age groups were out of school in 2002, but by 2005, their number had almost halved going by the government figures.

While some experts question even this drastic reduction in numbers, Natraj points out that the indicators have evolved simultaneously. "In the schemes for 2001 to 2004, the emphasis was on teacher appointments and civil works. In the 2004-2007 schedules, the stress is on tribal communities, migration and integrated education. A change in priorities can be seen," he says. The awareness generated in the initial stages of the programme could explain the surge in enrolment figures, though it is clear that a lot more needs to be done in terms of retaining children in school.

However, if SSA has indeed achieved a certain level of success, then it's important to move to a different plane while looking at schools, says Govinda. "Why repeat the same surveys? Monitor school functioning, look at indicators like how many days the school functions, how many hours it is open, whether the teachers are present and whether they teach all the subjects," he adds.

Shanta Sinha suggests that states should start using the results of public exams, usually held at the end of Class V or VII, as indicators. "Look at how many children were there in the school initially, how many of them wrote the exams and how many passed," she says. Other areas that can be considered include the number of times the panchayat meets to discuss school-related issues. "See the number of unresolved issues that went up to the state education department for a solution, like, say, lack of Maths or English teachers, or no bus services. If these complaints are there, it means the community is active," she says.

WATCHDOG FOR SCHOOLS

Dayaram feels that all data related to enrolment has to be verified by people at the village level. "Have household surveys, check attendance, asked the children," he says. However, it's difficult to get results when teachers themselves don't think of attendance figures as a tool. "They only look at it as something to

fill in into the register. They don't think of making use of exam results either," he says, pointing out that many teachers themselves remain absent from schools.

It becomes important, therefore, to look at ways in which a school's function can be monitored. Reddy points out that an effective monitoring system, created by the community, would put pressure on the school for improving teachers' timings and the quality of mid-day meals. Every village does have a committee that is supposed to monitor the school's functioning, but unfortunately, as Dayaram says, most remain only on paper. "The committees merely put tick marks against what is to be done; they do not do any planning. You can't empower the people by issuing a circular," he says, pointing out that hardly any money is spent on training committees.

There are other problems. Says Bhushan, "Monitoring is supposed to be ensured by the school committees comprising representatives and parents, and also by resource persons and some teachers selected for the purpose. But scrutiny is very poor as these appointments are often treated as an acknowledgement of a person's political influence." Natraj adds that in some cases, committee members are themselves corrupt while in others, the members don't know of the various schemes that they can make use of. Pratham, says Natraj, is trying to empower committees by working with them.

It is important to make the school accountable to the community, says Bhushan. Financial matters and academic performances should be discussed in public hearings and teachers made more accountable for the children's learning, he adds. Govinda agrees. "All indicators of learning should be put in the public domain, be it the number of days the school has functioned, the number of hours it was open, who are the teachers and how many hours they spent in school," he says. This progress card will be more meaningful for the people at the village level than national-level data, he adds.

COMPUTER EDUCATION FOR RURAL KIDS RIDDLED WITH OBSTACLES

Conservation efforts are rarely successful in the absence of a general understanding of the need to integrate environmental

consideration into development strategy. It becomes necessary therefore to practically demonstrate the superiority of ecologically sound projects and technologies which can promote such understanding and environmental sensitivity. The vision of the Rural Programmes Group of the Centre is to contribute to the knowledge and practice of sustainable development of ecologically sensitive, stressed, fragile areas through promotion of equitable and sustainable livelihood strategies. CEE develops, adapts and encourages a variety of natural resource management approaches through its programmes as well as facilitates such initiatives by other groups.

Through its field programmes designed especially for communities living in rural areas, CEE has developed programmes for income generation and better utilization of resources. These include activities aimed at creating awareness among the communities about the ecological significance of the areas around which they live. Projects to demonstrate environmentally-sound, practical alternatives to support sustainable resource management in ecologically fragile areas, including areas around National Parks and Sanctuaries are also undertaken.

GRAM-NIDHI - ECO ENTERPRISES FOR SUSTAINABLE LIVELIHOODS

CEE's proposal "GRAMNIDHI-Eco Enterprises for Sustainable Livelihoods" was one of the twenty winners, selected from among 1500 applicants, in the first-ever India Country Level Development Marketplace Competition, sponsored by the World Bank. The proposal aimed towards developing financial and human capital to conserve Natural Resources leading to Sustainable Livelihoods.

A pilot project called Gram Nidhi has been launched in Pollachi Taluka of Coimbatore District in TamilNadu, addressing communities in five project villages. An Eco-enterprise Investment Committee (EIC) channels the funds as small working capital for eco-enterprises on commercially sustainable rates of interest, along with adequate capacity building and information servicing. The EIC includes members of the Paryavaran Vikas Mandals (PVMs) of the

five villages, one member each from the Nilavu (moon) Trust (the local NGO partner) CEE and an ex-officio member from the local bank, government officials and experts.

The eco-enterprise produces goods and services that are economically efficient and viable, ecologically sustainable and socially acceptable, using resources and appropriate technology. They derive maximum leverage from the local cultural and natural environment, by drawing upon existing managerial and technical skills and developing a cadre with social sensitivity and environmental concern. Some of the enterprises have been jointly evolved as eco-packages by the PVMs and CEE.

ENDOGENOUS TOURISM PROJECT IN NORTH EAST

CEE has been selected as an Implementing Partner for the Endogenous Tourism Project of the UNDP and Ministry of Tourism, Government of India in three proposed sites in North East, namely Kamalasagar (Tripura), Durgapur (Assam) and Sualkuchi (Assam). The goal is to promote local culture and craft based eco-tourism for sustainable livelihoods and integrated rural development. CEE will be involved in training and building the capacity of youth in guiding skills, tourist handling skills, interpretation skills etc. Besides, CEE would also be involved in creation of village Kala Kendra (craft museum) and vishram sthals by developing panels, exhibitions, etc.

ANDHRA PRADESH DISTRICT POVERTY ALLEVIATION INITIATIVES

CEE is the Environment Agency (EA) for two World Bank-supported projects, Andhra Pradesh District Poverty Initiatives Project (APDPIP) and Andhra Pradesh Rural Poverty Reduction Project (APRPRP), implemented in 22 districts by the Government of Andhra Pradesh through the Society for Elimination of Rural Poverty (SERP). As EA, CEE is responsible for designing and implementing the Environmental Management Framework (EMP) for APDPIP. This seeks to ensure that neither the livelihoods of the poor nor the environment are compromised.

The EMP framework includes development of tools for environmental assessment of community sub-projects, development

of environmental education material relevant to APDPIP, and undertaking capacity building at local and State level for implementation of EMF.

CEE's Halvad Field Office has been working for the last four years on holistic, participatory rural development programmes, commencing with earthquake rehabilitation in 36 villages of Perundurai Taluka of Erode District, at the fringe of the Little Rann of Kachchh, a Wild Ass Sanctuary. The rehabilitation interventions of shelter and school construction, occupation revival, and drought proofing represented an opportunity for initiating long-term sustainable livelihoods and natural resource management activities, by empowering communities, facilitating partnerships and creating local decision-making structures.

Since 2003, the Halvad Field Office has also been implementing the "Community Managed Development of Water and Sanitation Programme" supported by the Water and Sanitation Management Organization (WASMO) in 24 earthquake-affected villages of Halvad. This activity facilitates implementation/reconstruction of in-village water supply and sanitation systems through Panchayats and local Pani Samitis who will be involved in planning, implementing, operation and management of village water supply systems.

SAMVARDHAN

The project aims at improving the quality of life of the tribal communities of the southern belt of Tamil Nadu especially with regard to safe drinking water, natural resource productivity, animal husbandry practices, income generation opportunities, access and effectiveness of the primary education and empowering village local self governance towards sustainable development regardless of the project's existence. The four year project (2003-2007) is being implemented through a community based approach in 24 villages spread across 4 blocks and three districts of Tamil Nadu.

The project functions in three thrust areas i.e. drinking water, livelihood and primary education and aims to achieve four cross cutting outcomes in all interventions. The cross cutting outcomes

are gender and diversity, participation, influencing opinion and capacity building.

The key stone of the project is the Community Entrepreneur (CE) who is placed in programme villages of the clusters, each comprising 3 CEs having 6 villages. They are selected from the Rural Higher Education Institutes (RHEIs) of TamilNadu who are equipped with knowledge and skills required to implement and facilitate the entire process. The selected CEs are equipped with knowledge about water management and conservation, natural resource management, agriculture and animal husbandry, income-generation alternatives etc. in order to implement similar need-specific micro projects in the villages. The project is a collaborative effort of CEE, Field Study Council (FSC) UK and funded by the Big Lottery Fund UK.

UP FORESTRY PROJECT-ECO-DEVELOPMENT PROGRAMMES

CEE assisted the Forest Department, Uttar Pradesh in providing support for guiding the preparation and implementation of eco-development micro plans by village communities around Panna in Salem sanctuary, Dharmapuri sanctuary, Cuddalore sanctuary, Coimbatore National sanctuary and wetland clusters in Corbett National Park. CEE's role was essentially to assist the Forest Department through the social motivators to reach the communities in an effective manner, to provide support to the programme during training and to facilitate micro plan preparation and implementation.

RANTHAMBORE ECODEVELOPMENT PROGRAMME (REDPRO)

CEE's first eco-development programme for implementation of various educational and developmental programmes was launched around the Ranthambore National Park in Rajasthan in selected villages. The focus of the programme was on environmental improvement by people themselves through environmentally sound technologies. Communication education programmes were developed for areas of animal husbandry, cooperative dairies, soil and water conservation, watershed development, energy efficient devices, alternative fuels, etc. CEE team worked closely with the local NGOs and several government departments.

CEE's Hingolghadh Programme has been in operation in 17 villages around the Hingolghadh Nature Education Sanctuary, Attur Taluka, Salem District, Tamil Nadu for the past 17 years. The programme commenced with a focus on empowering local communities to upgrade and conserve local natural resources. It aimed at creation of an alternative resource base for meeting fuel and fodder needs of the villagers, optimization of existing resource through introduction of new and improved practices and technologies, development of education and communication material, and training programmes to aid effective implementation.

Since 1995, the approach evolved from eco-development around Hingolghadh to Environmental Education (EE) for Natural Resource Management in these 15 villages. CEE plays a catalytic role through village level institutions called Paryavaran Vikas Mandals (PVMs) of village youth and women who undertake sustainable development activities focusing on sustainable natural resource management, improving livelihoods, empowering women, improving school education and strengthening local institutions.

POINT OF VIEW: N. RAMACHANDRAN, VICE-CHANCELLOR OF PERIYAR MANIAMMAI UNIVERSITY

At a recent meeting of vice-chancellors at Anna University, Chennai, former President A.P.J. Abdul Kalam praised Women Engineering College of Periyar Maniammai University at Vallam in Thanjavur district for pioneering and establishing the Periyar PURA (Providing Urban Amenities in Rural Areas).

He urged all universities to follow suit and bring about sustainable development of the surrounding rural areas in order to make a difference to the society. The Periyar PURA catering to a population of one lakh rural population in 65 villages, Mr. Kalam said, has enhanced the employment potential and created knowledge empowerment. PURA involves all aspects of integrated education such as humanity, engineering, management and development, he said, calling upon universities to become the theatre of action for rural development.

Ever since its transformation into Periyar Maniammai University with effect from August 17, 2007, under section 3 of the

UGC Act, 1956, the institution finds itself in a stronger position to make rejuvenated forays into women empowerment and social development in rural areas, vice-chancellor N. Ramachandran told *Education Plus*.

The institution, established in 1988 by the Periyar Maniamma Educational and Charitable Society, Chennai, and named after the great social reformers of the 20th century, Periyar and Maniamma, has been involved in institutionalising Periyar's dream of providing women increased access to higher education in science and technology and encouraging their participation in social, national and global development, he said.

The university has three schools with 16 departments, and five centers. In addition to the undergraduate, postgraduate and doctoral programmes in humanities, science, engineering, architecture and technology, the institution has been accorded prime importance to providing health care, hygiene and technological inputs to rural people for their social and economic well-being through several diploma, certificate and short-term non-formal programmes.

Earlier this month, the university launched a plethora of programmes on skill development in the areas of paramedical, engineering, and rural technologies for the benefit of villagers, particularly women, people below the poverty line and socially challenged persons. Prof. Ramachandran said the institution has signed MoUs with 13 hospitals to offer programmes for 'Health Technicians', and the new PG programmes include MBA in Management and MBA Human Resources. "The status of the university gives us several new opportunities to offer many quality programmes in need-based areas," says chancellor Veeramani. "True to the lofty ideals of Periyar, the university would guide students towards joyful learning and meaningful living," added pro-chancellor Kannappan.

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Education for National Integration

Sociologically nationalism has to be viewed as a historical process given rise to be the scientific industrial revolution resulting in a fundamental transformation of society. The main idea underlying nationalism is the unity of mankind. Although this idea was long postulated by universal religions it could take practical shape only under the forces let loose by the advent of science and industrialization. It was then refashioned by the French philosophers of the 18th century in the period of enlightenment and became the main plank of the French revolution under slogan 'liberate', 'equality', 'fraternity'. The particular process of transformation of society leading to nationalism has come to be regarded as modernization.

The ideas enshrined in the French revolutionary slogan, which have been universally acclaimed as the "rights of man", are the major dimensions of nationalism. These variables of liberty, equality and fraternity are equated with political democracy, egalitarianism and social inclusiveness respectively. Political democracy stands for universal adult franchise and representative system of Government, egalitarianism refers to the equality of opportunity for all members of the society and social inclusiveness represents the scope for unrestricted social interaction free from the barriers of racial, religions and caste or class differences. It may therefore be concluded that national integration stands for the transformation of a society towards the fulfillment of the goals of political democracy, egalitarianism and social inclusiveness.

The term nationalism, however, is sometimes used in a narrow chauvinistic sense in which one's is glorified in opposition to other nations. Such a conception not only ignores the need for the appropriate international transformation of society implicit in

nationalism but also contradicts the main underlying ideas of the unity of mankind.

National integration is a socio-psychological and educational process through which a feeling of unity, solidarity and cohesion develops in the hearts of the people and a sense of common citizenship and the feeling of loyalty to the nation is fostered among them. It is the process of creation of a common bond together with a strong feeling of brotherhood and high sense of patriotism that inspires the nation in all aspects of thought and action and helps it sink and transcend all differences, individual, parochial religious or linguistic whenever confronted with vital national problems.

"National integration is not a house which could be built by mortar and bricks. It is not an industrial plant too which could be discussed and implemented by experts. Integration on the contrary, is a thought which must go into the hearts of all the people. It is the consciousness which must awaken the people at large", (Dr. S. Radhakrishnan). The root of the consciousness is deeply embedded in our social structure. It is a sociological issue and cannot be solved by legislative or executive fiat based on pre-conceived notions.

Political integration is said to be complete when the majority of the people of a country accept its administrative network and abide by its law and constitution. Such integration can be established and maintained by means of coercion under colonialism and does not have to depend on emotional integration an example of such integration is that of the Portuguese colonies in Africa with Portugal.

Emotional integration, on the other hand involves the acceptance of a common and consistent set of values, norms and attitudes by most if not all section of the people. The emergence of this integration depends upon the extent to which value consensus exists. Emotional integration is the only stable condition for the emergence of healthy and lasting nationhood.

In India although political integration has largely been achieved, emotional integration is still a far cry. In a country of the size and diversity of India, it does not automatically flow from

administrative unity and development schemes. It is not a one way process and requires adjustments on the parts of all communities. It grows out of smooth integration. It is therefore necessary to emphasize that there can not be purely political and economic solutions for problems of emotional integration.

It is strange that fourteen years after the achievement of independence and eleven years after the adoption of the constitution of the country, need was felt disintegrative factors such as casteism, communalism, regionalism and linguism. These generate tension and conflict in different parts of the country. All tensions and conflict can not, however, be attributed to a lack of consciousness of nationhood. Some tension and conflicts are inherent in the process of growth itself. It is, therefore, common to find a larger measure of these tensions and conflicts in developing countries than in the advanced countries. People's expectations are rising higher while chances of their realization are getting remote.

The Caste system institutionalizes social inequality. For centuries large masses of humanity, the so called untouchables, have been condemned to degradation and inhuman treatment at the hands of higher castes. This has led to tension between these communities and the caste Hindus. Although untouchability has been abolished by law and the disabilities from which these communities suffer have been done away with, they still persist in most of the countryside as the scheduled caste are weak and depressed and can not protest or resist. This leads to endless tension and conflicts between the scheduled castes and others. The policy adopted by the state giving the scheduled castes reservation in legislatures and service educational and other facilities have been criticized as there is danger of perpetuation of these special favour.

In the rapidly changing socio economic structure different aspects of the caste system are not being affected in the same way. There has been some reduction of the influence of caste in the choice of occupations, selection of spouses and in matters of pollution of food or of persons. But its influence in the political and economic spheres is growing. Its frontiers are even expanding. The extent of influence differs widely from region to region. It may differ at different levels of politics such as at village, state and national

levels. Caste is widely used in the political process. Some castes, due to their higher development are better represented than others in practically every kind of political body. Caste loyalties are invoked at the time of elections in seeking political support. Some times loyalties to caste transcend political parties and legislators of a particular caste even though belonging to different parties may co-ordinate their efforts for a common purpose. They may fuel alike on different questions. Caste is not used only for serving group or community ends but for individual end as seeking a favour, a job or a contract. In certain areas, certain castes combine for organizing themselves for collective action. In many states backward caste has been acting as pressure groups on the government. Caste association like that of Nadar in Tamil Nadu and Izvaha in Kerala has won important civic rights for their members. The Nair service society in Kerala at one time became a strong political factor in that state. Yedavas in UP and Bihar have become a dominating community. It is in these ways that casteism has been strengthened politically. This may not promote national integration.

4

Educational Progress and Psychological Charges

INTRODUCTION

Teaching profession is a bed of roses and a bed of thorns as well. A good teacher is always his/ her students guide, friend and philosopher. Teachers play a very vital role in the intellectual, moral, personal, social and personality development of the students. One great trouble with many teachers is that they stand up vigorously for their rights, but fall down miserably in their duties; Vivekananda and Swami Vedhatri Maharishi list the three gifts of God as the human body, thirst after God and a teacher who shows the light.

PSYCHOLOGY IN EDUCATION

To make teaching profession, to make teaching more and more effective, to build a bridge of love and friendship between the teachers and the taught and to mould the students according to the requirements of the society and the nation – a sound knowledge of educational psychology is essential. Educational psychology is defined as the branch of psychology concerned with psychological researches and findings as applied to all aspects of educational processes and practices.

It is the science of education that helps the teacher to understand the development of the student. It is the study of human characteristics and human behavior as applied to education, and deals with problem like reasoning, teaching and training. Classroom is the laboratory for the educational psychologists. Educational psychology explains how Individuals differ and how to individualize instruction. It deals with all aspects of personality. The Inter-personal relationship between the teacher and the taught plays a vital role in teaching.

THREE AREAS TO BE COVERED IN EDUCATIONAL AND PSYCHOLOGY

The subject-matter of educational psychology revolves around three focal areas; the learner, the learning process and the learning situation.

- The first area includes the study of ability, needs, life goals, or self-concept, of the learner and the differences that exist among individuals. This also includes the study of the developmental influences on his personality and the mental problems.
- The second area includes the learning process and other various factors related to learning.
- The third area deals with issues like class-room management, discipline, techniques for individualizing instruction, or guidance and counseling. Learning situation includes the conditions like physical factors, the tone of the class or attitude and behavior of the teacher.

This is called classroom climate. It is one of the important group variables which influence learning. Students, in a supportive climate, develop a high thirst for achievement that leads to their attaining a high standard of excellence. Teachers should not adopt an authoritarian style of control in classroom management. The study of class room climate, techniques of behavior modification, programmed and well planned teaching, learning and psychological approaches improve the interaction between the teacher and the taught.

Therefore, motivation, confidence, professional growth, effectiveness and the mental health, of the teacher should also be included in the scope of educational psychology. There is a difference between general psychology and educational psychology. General psychology gives a comprehensive view of human behavior, whereas educational psychology highlights the behaviour of the learner.

ROLE OF TEACHERS IN MAKING HUMANS

The teacher should realize the fact that there are differences among the students, gifted, average and show learners in the class. The class is heterogeneous, not homogeneous, some teachers are very much anxious to tell their students what all they know. The intention is good, but the effect is precious. Individualization of instructions is an effective learning process. According to Aristotle, the mind is made up of different independent faculties like reasoning, memory, discrimination and imagination.

The students should pave the way for the development of such varied independent faculties. The student's perception, thinking, reasoning, intelligence, remembering- all come under learning process. Above all, self-confidence is the first requisite to great undertakings. Teachers should promote self-confidence. In the class rooms, opportunities should be provided for a healthy competition. The most important outcome of education is to help students become independent of formal education.

Educational psychology is interested in means rather than ends. A sound knowledge of educational psychology is very much indispensable, because it helps the teacher to understand the developmental characteristics of learners. According to the age and stage of the learners, characteristics vary. The teacher should understand the developmental characteristics of learners and mould them in accordance with the goals of education. Students during adolescence period are like a glass that should be handled with great care. It is a period of emotional instability. During this period, the self assertive instinct and the sex- Instinct reach the maximum development. They crave for recognition and love, when they are not bestowed with proper recognition they feel wounded or insulted. It is a period of hero worship. They do not want to be insulted in the presence of the opposite sex. It is the period of thinking and reasoning development.

During this period, teachers should not distance themselves from their students, but should make them easily approachable. They should not approach the students in a rude and crude manner. To make teaching more effective, the teacher should understand the

principles of learning and situational approaches to the learning process, problems of individual learners and remedial measures. Guidance and counseling play a vital role in bringing out individual differences and problems.

Educational psychology provides teachers with the knowledge of different approaches evolved to tackle the problems of teaching students of different age levels. Above all teachers are expected to have a balanced mind. Mental health of the teacher and the taught is very important for effective learning. Needs of the pupils and those of the society, developmental characteristics of the learners, learning patterns - all these are to be incorporated in the curriculum.

KNOWLEDGE OF GROWTH

The knowledge of educational psychology is essential for diagnostic and remedial teaching and measurement and evaluation. Educational psychology has contributed to our knowledge of heredity and environment. The pattern of growth may be inherent in a seed, but the soil and the other environmental conditions determine the quality of its growth. As the soil however rich it may be, cannot be productive without culture, the mind without cultivation can never produce good fruit.

Teaching should not be an art of imparting knowledge without possessing it. It is a noble profession. Teachers are the most responsible persons of the nation, as the future of the nation is in the hands of students. To be a guide, friend and philosopher, every teacher should have a thorough knowledge of the principles of educational psychology.

Problem Solving and Decision-Making

INTRODUCTION

Much of what Leaders in schools, i.e., Principals do is solves problems and makes decisions. Consequently, when they encounter a new problem or decision they must make, they react with a decision that seemed to work before; it's easy with this approach to get stuck in a circle of solving the same problem over and over again. The abilities and skills that determine the quality of our decisions and problem solutions are stored not only in more than 200 million heads, but also in tools and machines, we call computers. Research gains have been made during the past half-century in understanding how human minds, with and without the help of computers solve problems, and make decisions effectively. However, the following basic guidelines will get you started.

WHAT IS A PROBLEM?

There is a considerable degree of consensus about what is meant by a problem. In all definitions it is emphasized that the individual has a problem when he has a goal, but is uncertain to what series of actions he/she should perform to reach it. Problem

means literally, something throw in front of you that can range from a puzzle, trouble, dilemma, predicament, difficulty, and to matter which requires a decision about appropriate action. There should be no confusion between two term conflict and problem. Conflict is a disagreement/discord between the things or people. Many people thinking and decision-making" and "problem solving" as if they

During this p... decision implies action. After action there will be a solution and the wider environment. Conflict and problem solving like the structure of genes,

subatomic nature of matter and yet hopeless in decision-making. Equally some good decision makes may not be good problem-solves. However the skills of both can be acquired with concerted efforts of an individual. We will begin with a problem and then go on to the decision-making aspect. A problem is a task for which;

- The person or group confronting it wants or need to find a solution
- The person or group has no readily available procedure for finding the solution
- The person or group must make an attempt to find a solution.

PROBLEM SOLVING AN OUTLINE

Perhaps the most common of all thinking activities is problem solving. From the time we wake up in the morning, choosing what to wear or what to eat, and through out the day, deciding which route to take to woke, what needs doing first, second, what can be put off until tomorrow, we spend our whole day solving problems. As a result, as would be expected with such practice, **most problem solving skills become automated, and we rarely think about them.** Reading/Learning styles are tightly intertwined with **problem solving abilities.** Moderating how you solve problems and which strategies you apply, your persistence at various types of problem, or your likelihood to learn from your mistakes depend upon the way you read the problem

Try some of the challenging **arithmetic and logical word problem** and the mathematical story problems. If you are consciously paying attention to your thinking, you should find patterns emerging as you problem solve, Ask yourself: "How are my learning/thinking styles affecting how I solve the problems?", "Which problems are easy or difficult, and why?" "How can I make the difficult ones easier by applying what I know about my thinking?" **Be creative.** Be aware of your thinking.

In the management context, creative thinking is best understood as one general method of problem solving. **The novelty**

and the unexpectedness of the course of action or solution adopted are called creativity. Though it is the individuals who have bright ideas, group can provide a context in which creative thinking flourishes.

FACTORS THAT INFLUENCE THE PROBLEM SOLVING PROCESS

Problem solving is integrating previous experience and knowledge together with natural mental skill in an attempt to resolve a situation whose outcome is not known. Three main factors influence the mental processes in problem solving. **Personality factors, experience factors, and cognitive factors, Understanding the problem helps us find a solution.**

The focus of this chapter would be on the **cognitive factor, the basic mental skills** given by nature, shaped by education and sharpened by training. The following **7 prime steps** in basic mental skills are to be considered by the individual /team for creative problem solving:

1. Define the problem

This is often where people struggle. They react to what they think the problem is: instead, of trying to understand more about why there's a problem,

Ask yourself and others, the following questions:

- (a) What can you see that cases you to think there's a problem?
- (b) Where is it happening?
- (c) How is it happening?
- (d) When is it happening?
- (e) With whom is it happening? (HINT: Don't 'jump to "Who is causing the problem?" when we're stressed, blaming is often one of our first reactions. To be an effective principle, you need to address issues more than people).

(f) Why is it happening?

(g) Write down a five-sentence description of the problem in terms of "The Following should be happening, but isn't" or "The Following is happening and should be:" As much as possible, be specific in your description, including what is happening, where how, with whom and why?

(a) Defining complex problems

If the problem still seems overwhelming, break it down by repeating steps a-f until you have descriptions of several related problems.

(b) Verifying your understanding of the problems

- (i) It helps a great deal to verify your problem analysis for conferring with a peer or someone else.

(c) Prioritize the problems

- (i) If you discover that you are looking at several related problem, then prioritize which ones you should address first.
- (ii) Note the difference between "important" and "urgent" problem. Often, what we consider to be important problem to consider are really just urgent problems. Important problem deserve more attention. For example, if you're continually answering "urgent" phone calls, then you've probably got a more "important" problem and that's to design a system that screens and prioritizes your phone calls.

(d) Understand your role in the problem

- (i) Your role in the problem can greatly influence how you perceive the role of others. For example, if you're very stressed out, it II probably look like others are too, or, you may resort too quickly to blaming and reprimanding others. Or, you feel very guilty about your role in the problem: you may ignore the accountabilities of others.

2. Look at potential causes for the problem

- (a) It's amazing how much you don't know about what you don't know. Therefore in this phase, it's critical to get input from other people who notice the problem and who are affected by it.
- (b) It is often useful to collect input from other individuals one at a time (at least at first). Otherwise, people tend to be inhibited about offering their impressions of the real causes of problems.
- (c) Write down what your opinions and what you've heard from others.
- (d) Regarding what you think might be performance problems associated with an employee, it's often useful to seek advice from a peer or your supervisor in order to verify your impression of the problem.
- (e) Write down a description of the cause of the problem and in terms of what is happening where, when, how, with whom and why.

3. Identify alternatives for approaches to resolve the problem

- (a) At this point, it's useful to keep others involved (unless you're facing a personal and/or employee performance problem) Brainstorming is collecting as many ideas as possible then screening them to find the best idea. It's critical when collecting the ideas to not pass any on the judgment on the ideas just write them down as hear them.

4. Select an approach to resolve the problem

When selecting the best approach, consider:

- (a) Which approach is the most likely to solve the problem for the long term?
- (b) Which approach is the most realistic to accomplish for now? Do you have the resource? Are they affordable?

Do you have enough time to implement the approach?

- (c) What is the extent of risk associated with each alternative?

5. Plan the implementation of the best alternative (this is your action plan)

- (a) Carefully Consider "What will the situation look like when the problem is solved?"
- (b) What steps should be taken to implement the best alternative to solving the problem?
- (c) What systems or processes should be changed in your organization? For example, a new policy or procedure? Don't resort to solution where someone is "just going to try harder"
- (d) How will you know if the steps are being followed or not? (These are your indicators of the success of your plan)
- (e) What resources will you need in terms of people, money and facilities?
- (f) How much time will you need to implement the solution? Write a schedule that includes the start and stop times, and when you expect to see certain indications of success.
- (g) Who will primarily be responsible for ensuring implementation of the plan?
- (h) Write down the answers to the above questions and consider this as your action plan.
- (i) Communicate the plan to those who will be involved in implementing it and, at least, to your immediate supervisor. (An important aspect of this step in the problem-solving process is continually observation and feedback.)

6. Monitor implementation of the plan

Monitor the indicators of success:

- (a) Are you seeing what you would expect from the indications?
- (b) Will the plan be done according to schedule?
- (c) If the plan is not being followed as expected, and then consider. Was the plan realistic? Are there sufficient resources to accomplish the plan on schedule? Should more priority be placed on various aspects of the plan? Should the plan be changed?

7. Verify if the problem has been resolved or not

One of the best ways to verify if a problem has been solved or not is to resume normal operations in the organization. Still, you should consider:

- (a) What changes should be made to avoid this type of problem in the future? Consider changes to policies and procedures, training etc.
- (b) Lastly, consider "What did you learn from this problem solving?" Consider new knowledge, understanding and/or skills.
- (c) Consider writing a brief memo that highlights the success of the problem solving effort, and what you learned as a result. Share it with your supervisor. Peers and subordinates

A problem-solving guide:

According to John Adair (1970) the problem-solving guide is given below

Understanding the problem

- Define the problem in your own words

- **Decide** what you are trying to do

- Identify important facts and factors

Solving the problem

- Check all main assumptions list. Decide the criterion all possible solutions or ways
- Ask questions
- List main obstacles. Narrow down to feasible solutions
- Work backwards. Select optimum one
- Look for a pattern. Agree implementation programmer

Evaluating the decision and implementing it

- Be sure you used all the important information
- Check your proposed decision from all angles
- Ensure that plan is realistic
- Review decision in light of experience.

DECISION-MAKING

List can be viewed as a constant series of decisions. Only by making rational decisions do we "take charge" of our lives. Some decisions seem unimportant but are important. For example, every minute or two we answer, by our behavior, the question: what is the best use of my time right now?

Any one decision about the next couple of minutes of our lives may be trivial but taken altogether the cumulative effect of conscientiously making those millions of decisions determines the outcome of our lives. Like wising, some admittedly important decisions, such as career choice. And values are often impulsively or casually made. And some unimportant decisions (because there aren't significant differences among the choices), such as what car or appliance to buy, are carefully made, based on precise technical data. Some decisions are made alone and others are made under tremendous social pressure. Such as what religion to accept, and what to do socially with peers. Practice trying to generate solutions

to impossible problems, e.g. how to generate world peace. Give yourself time, don't obsess about the problem all the time let your unconscious work on the problem too (such as, during sleep or while showering). Acquiring more knowledge helps create solutions and frequently change your work environment. Finally, build your confidence in your ability to eventually find good solutions and cope well by being creative.

Nevertheless, all good decision-making or problem solving methods follow the same process:

ANCHORING

When considering a decision, the mind gives disproportionate weight to the first information it receives. Initial impressions, estimates, or other data anchor subsequent thoughts and judgments. For example a newspaper report of a particular item may anchor our mind towards it or against it many a time.

THE STATUS QUO TRAP

We instinctively stay with what seems familiar. Thus we look for decisions that involve the least change. Mostly human being resists change and follows the path of least resistance or deviation from the familiar.

THE JUSTIFY-PAST-ACTIONS TRAP

The more actions you have already taken on behalf of a choice or direction, the more difficult you will find it to change direction or make a different choice. There are a number of styles that effective leaders follow. The styles can be termed as Autocratic, Semi-autocratic, Consensus, Democratic, and Group Decisions. Consensus Democratic and group decision styles are more necessary in educational institutions where there are well-trained independent minded professionals and experts who are involved in the tasks at hand.

DECISION-MAKING TIPS

Just as people are different, so are their styles of decision-making. Each person is a result of all of the decisions made in their

life to date. Recognizing this, here are some tips to enhance your decision-making batting average.

- Do not make decisions that are not yours to make.
- When making a decision you are simply choosing from among alternatives. You are not making a choice between right and wrong.
- Avoid snap decisions. Move fast on the reversible ones and slowly on the non-reversible.
- Choosing the right alternative at the wrong time is not any better than the wrong alternative at the right time, so make the decision while you still have time.
- Do your decision making on paper. Make notes and keep your ideas visible so you can consider all the relevant information in making this decision.
- Recognize that you cannot know with 100 per cent certainty that your decision is correct because the actions to implement it are to take place in the future. So make it and don't worry about it.
- Use the O.A.R. Approach in decision - making. Look at O, Objectives you are seeking to attain, A, the Alternatives you sense are available to you and R, the risk of the alternative you are considering.
- **Remember that not making a decision is a decision not to take action.**
- Trust yourself to make a decision and then to be able to field the consequences appropriately.
- Determine alternative courses of action before gathering data. Before implementing what appears to be the best choice, assess the risk by asking, "What can I think of, that might go wrong with this alternative?"
- As part of your decision making process, always consider how the decision is to be implemented.

- As soon as you are aware that decision will have to be made on a specific situation, review the facts at hand then set it aside. Let this incubate in your subconscious mind until it is time to finally make the decision.
- Once the decision has been made, don't look back. Be aware of how it is currently affecting you and focus on your next move. Never regret a decision. It was the right thing to do at the time. Now focus on what is right at this time.
- Mentally rehearse implementation of your choice and reflect in your imagination what outcomes will result.
- Brainstorming alternative solution with your staff or others will gain fresh ideas and commitment.
- Discontinue prolonged deliberation about your decision. Make it and carry it through.
- Once you have made the decision and have started what you are going to do put the "what if it is" aside and do it with commitment.

THE "WHAT IF IT IS" ASIDE AND DO IT WITH COMMITMENT

This is a list of techniques used to simplify decision-making. You will notice that many of them work by reducing the number of alternatives considered. Others work by using remanufactured decision, and still others use miscellaneous methods. Depending on the nature and importance of a given decision, some techniques will be preferable to others. Some techniques, while popularly used for many decisions, are sub-optimal or harmful in many circumstances.

1. **Criteria Filter:** Establish a fixed set of criteria, which all alternatives must meet. Potential alternatives, which fail to meet even a single criterion, are excluded from the pool of alternatives. For example, in buying a car, certain criteria might be established before considering any particular vehicle. Only vehicles meeting all those criteria would be considered in the decision process.

2. **Best of 3:** A more accurate name for this would be "best of few" because it involves limiting the number of alternatives to three or four or five or six. This is a common technique used when the decision is under time pressure and many of the alternatives are somewhat similar. If, for example you must buy a new toaster or popcorn or stereo this week. You might use the best of 3 techniques. Rather than attempt to investigate every possible toaster, popper, or stereo, you choose just three or four and pick from among them.
3. **Cursory Exclusion:** this alternative-reducing technique is often used in conjunction with other decision-making techniques. Here, a potential alternative is rejected on the basis of a single flaw. Rather than looking at potential alternatives with a mind to choosing them, they are looked at with an eye toward rejecting them. Employment officers often use this technique.
4. **Reutilization:** Many decisions are made along the lines of previous decisions "When this happens do that. Standardized policies for handling recurring events or choices help to make life more efficient. Remember, then that new problems may need new solutions. Rubin (1986) describes several unconscious barriers to decision-making.

SUMMARY

This is a general agreement that many people can profit from improved problem solving and effective decision-making skills. Various techniques, tips and instructional aids have been provided to accomplish the goal. The basic methods given here can be applied to a wide variety of problem situations encountered in everyday life of a leader, and make decisions based on dissenting opinions rather than consensus on the facts-Peter. Following some of the examples offered and continued practice of the skills provided can maximize effectiveness in both the addressed areas of today's concern.

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Silent on a Vital Issue



INTRODUCTION

The National Council of Educational Research and training has recently released its National Curriculum Frame work for school Education. It claims that nearly all the sectors and sections of the Indian society have made contributions to this document in a big way. If it were so, one would wonder how water venders, rickshaw pullers, sweepers, maid servants, labourers, artisans and farmers indulge in self-glorification through the glorification of the past, and meekly adjust themselves to globalization, as done in this document. How could they insensitive be silent about their ground realities like total exploitation, unemployment, discrimination and violence? I am afraid the document is an alien exercise meant to provide an ideological cover for globalization, the advanced form of capitalism. It has absolutely no input from – and no Concern for – the masses of the country.

A STARTING FACT

It comes at a time when year book India 2000 reveals a startling fact that the enrolment in primary and junior high schools, as a percentage of school age population, has declined considerably during 1993-98, despite growth in affluence of the country. The document seems to be consciously silent on such a vital issue. There seems to be no thinking on how to bring that 70 per cent of children, who quit education at or before 8th grade, into the main stream of education, how to develop professional skills in them, how to make them understand economic and social problems. Its talk of value education, unconcerned of these issues and those of inequality and exploitation, is embarrassing. So, is the façade of value education being propagated by MHRD in higher education?

EMPHASIS ON NATIONAL IDENTITY AND NATIONAL PRIDE

The document is too indulgent on national identity and national pride, glorifying scripture and heroes. Self-glorification is a trap, it can breed only and it will culminate in stagnation. One must learn the precarious livelihood of the masses, their oppression, exploitation and historical struggles to survive. Since pre-independence days emphasis on dogmatic religion (where scriptures and traditions are glorified to claim only superiority, but their real message is ignored) has been a ploy of the elite classes to suppress forces of freedom and equality.

RELIGION A PERSONAL PURSUIT

The same grab is being advanced in school education. Needless to say, religion in its right spirit has relevance to personal spiritual pursuits by sublimating one's ego through identifying oneself with the poor and resisting oppression and exploitation. Gandhi rose to great spiritual heights through fighting colonialism and laying his life resisting communalism. Such an education can be imparted only through dialogue and personal behaviour by the parents and teachers. For learning religious philosophies, interested ones can go to religious institutions and shrines, in India.

TRUE PICTURE OF TRADITIONAL INDIA

The document lacks a sense for history. In its preamble it says, "As per the British documents, even in the early 19th Century, India had an extensive education system, free from caste and religious discrimination, and almost all the villages had schools". If it were so, India would not have needed great efforts by people, from Jyotita Phule to Gandhi, to gain entry for untouchables into schools. In socio-cultural context it says "traditionally India has been perceived as a source of fulfillment - materials, sensuous and spiritual.... A sizeable segment of the contemporary Indian society seems to have distanced itself from the religio-philosophic ethos, the awareness of the social design, and the understanding of the heritage of the past." This flowery picture of our past can pride only small sections of the people. It can generate no sensitivity among the masses that had been suffered for ages under the caste discrimination, feudal oppression and the economic exploitation.

Gandhi with great concern saw India's past in its totality, its bright side as well as dark side, and mobilised millions to fight these evils, besides the British Raj. He never projected superfluous picture of India, still he could inculcate unprecedented self-confidence and heroism in common people.

REALIZATION OF SELF

The document rightly dwells on the merits of an agrarian society and family values associated with it. However, the dominant factor responsible for their decay has not been the British system of education, as pointed out in the document, but industrialization and capitalism and market forces. Education is merely subservient to the elite classes. It is astonishing that the documents do not say anything on pros and cons of globalization and liberalization but wants education to be subservient to it. Like sugar bitter pill to swallow, it talks of value education. "People must realise who they are and what is the purpose of human life. Self-recognition would come to them through proper value education. It would facilitate their spiritual march from sub-consciousness to that of super consciousness through the different intermediary stages. Value based education would help the nation fight against all kinds of fanaticism, ill will, violence, dishonesty, avarice, corruption, exploitation and drug abuse."

GLORIFICATION NOT A REMEDY

Concerns like "Our children study knows about Newton, but they do not study about Aryabhata, they do know about computers but do not know about the advent of zero or the decimal system" are out of date. In most of the government schools in the outskirts of Delhi, High school result is between 3 to 20 per cent and most of the students fail in mathematics. The understanding of basic laws and scientific concept is extremely poor. We need to put in our entire efforts in developing such an understanding instead of glorifying the discoverers. For them only a passing reference should suffice. Every stream of education is a common endeavour of the entire human race and so are the treasures of religion and philosophies. No one deserves to draw any special pride in him or her. The document mentions the "nothing short of excellence in every aspect of school education is the first imperative for meeting

the multifarious challenges of today and tomorrow" and "special education for the gifted children" but does not examine its implications at large and its impact on the class disparities.

TWO STREAMS

At junior high school and high school levels, the subjects are too many.

There should be two languages, mathematics, science and social science. The third language, work education, art education and health and physical education must be scrapped. Instead, after junior high school, there should be two streams of two years duration. (1) Professional stream, (2) Formal stream. The former would impart professional and technical training to enable a student to stand on his own, if he cannot afford education beyond that.

On completion of the first stream, students are eligible to return to the formal stream at the 11th grade if they like, with one or two make up courses. A minimal level of learning for every child must be recognized as 8 years of formal education and two years of technical training. This would cost 3.5 per cent of GDP; hence the total budget of education must be raised to 6 per cent of GDP. The idea of a mathematic counter in a science lab is interesting; however, it would be better to introduce projects also. The science and technology section lacks depth. It fails to notice even obvious flaws in current science curriculum for. e.g. class X science syllabus is irrelevant to the understanding of science. The document says that science must be open to issues like gender, culture, language, poverty, etc. but it has no work-plan for it.

SUGGESTION TO THE NCERT

The NCERT must reverse its approach and bring the masses into the focus of education, instead of basking in the glory of the past. Every textbook should be written in simple language and every lesson, should be related to people's lives. Teachers to student ratio should be reduced improved from 1: 40 to 1:30. Every class must have a teacher, which is not so in 66 per cent of the schools at present. Teacher's indifference should also be overcome. Efforts should be made to pull more teachers from less privileged sections to bridge class-differences between the teacher and the students.

Sustaining a Vibrant Environment

INTRODUCTION

One of the features of schools is that teachers are expected to do what they are allocated. Any additional initiative is purely by chance or a product of the rhetoric and goading. Creating an atmosphere, where the well being of the teacher is one of the concern, is either too difficult considering the problems faced by the institution or just too difficult to attempt. One way of avoid the question is through the time-honored sentiment that the school is for the child and the teacher must offer them himself to be consumed without an iota of the self. To look for anything beyond human working conditions seems almost a sacrilege. And yet we know that only a growing alive human being can create an environment that is truly nurturing and challenging for the child. J. Krishnamurti in his writings and discussions with teachers has indicated that the schools are for the teacher and the student to learn together. Krishnamurti's schools in India and the two schools in England and America have a good working environment for the teacher. There is a palpable invitation, not to rest with the given set of guidelines, but to move beyond the confines of one's experience. An account of the experience of 'The School' in Chennai, in this regard is documented here in this article.

STAFF MEETING

Staff meetings are held once a fortnight, on alternate Saturdays through out the year. These are four hour meeting with a tea break, where the whole staffs body meets, teachers of kindergarten to higher secondary classes, physical education to music and crafts. The first part of the meeting is a "general discussion" where wide educational questions are taken up for

discussion. These can be initiated by any staff member and not always by the head and may be done in different ways. Some days a Krishnamurti Video may be watched together or a passage read or a question elaborated as a starting point. The second part of the staff meeting has to do with business matters and details. Issues from junior school, middle schools or senior school are raised and spoken about and decided upon. Sometimes certain point, in its treatment may lead to a lot of discussion of a philosophic nature. This is not avoided. Such a discussion helps each one to learn the various views that are possible and also the views that exist.

HONESTY DEBATED SOLUTION

However, it is not enough, like in the previous part of the discussion, to merely discuss. A decision is often needed and decisions impinge on what one is expected to do. Usually when a group of human beings need to decide on a matter that is functional, there are a few options. One person decides and everyone else accepts. Sometimes problems with the decisions will be voiced. Some correction will be made. The process however can be much more dynamic and challenging if an attempt is made not to find easy agreement but to find an honestly debated solution. At school we say, "Easy agreement is dangerous". How does a school move from here? Is it through authority, or voting, or consensus? Or is there an intelligent way of moving ahead, where positions are given up and the best decision for the school emerges out of the combined perceptions, of many minds? There are various formats that are used in the meetings for unfolding a topic.

SPACE TO EXPRESS

One of the features of these meetings is that any staff member may chair meeting. This is decided by volunteering or the chairperson nominating the person to chair the next meeting. Thus different styles of conducting meetings are visible and also the responsibility of conducting meetings is shared. One may feel that the content and the sharpness may not be well held, however, quite to the contrary, we have seen his shared space emerging as widely held and anchored. These meetings are very valuable since a newcomer is introduced to the debates in education and also the

process within the school. There is space in "The School" for a teacher to voice his or her feelings openly, however radical, without "punishment" and to learn about the responsibility of working together.

The underlying concern for these processes has been to somehow ensure that the vision remains strong and bright and does not get foggy due to a crystallization of habit and establishment of ritual.

This has meant creating space for the growth of initiative among teaching staff and for the emergence of a widely distributed confidence. Some times not only the content but the tone of participation needs to be addressed too.

STEPPING OUT OF GROOVES

As a teacher one usually gets lodged in an area of competence and rarely moves from there. At 'The school' we have found it possible to invite teachers to teach subject which they are interested in or have an affinity for. Teaching, it may be argued, is a matter of perspective, acquiring skills and knowledge is easy. A person with a Master's degree in history can teach social studies in the middle school level and move to geography or English. A teacher with a Master's degree in biology can teach chemistry up to class X. Environmental studies in IX, X, XI and XII has forced us to gain competence in an area where certification and qualification has not started in a big way. Teachers with degrees in many specializations including, maths, biology, engineering, medicine and English have had to study and get ready to handle the requirements of these classes. We adopt the Environmental Studies Curriculum for classes XI and XII, which has been approved as a subject by the board.

ADMINISTRATION

The administration-teaching staff divide is quite pronounced in most schools. The ways in which decisions are made by the head or other 'responsible' people in schools often leaves teachers uncomprehending or in doubt. In 'The school' we have taken the difficult step of articulating that every teacher is concerned with all

aspects of school or no teacher can say that he is not responsible for what is going on. Of course we have had the statement from Krishnamurti.

'The School' is like a submarine and the people here are like a submarine crew, and are willing to step in and do whatever is needed. Another crucial area is how designated individuals make decisions. In 'The School' the style of decision-making has been for the person, making the decision to consult two or three people, if not more, for most decisions. A culture of consultation, to unravel the complexities of any situation, reinforces a culture of listening, and understanding deeply that no one person holds the full picture. "What can you do alone, sir?"

'The School' has moved in a direction where reasons behind a decision are widely unknown. Teachers who have been longer than five years meet to discuss the crucial matters such as policies and emerging guidelines. Difficult decisions, such as the resignation of teachers over disagreements are discussed openly and senior teachers are immediately briefed. This does not leave room for rumors and dissipating processes to take root. Transparency is also maintained by inducting newer teachers into the crucial admissions and teacher interview committees. This provides an opportunity for new teachers to ponder over questions like, 'what is the criteria for taking in a new teacher or a senior student?' How do we interview parents?

SCOPE FOR TEACHER GROWTH

The refrain of teacher growth has been stretched a bit further also. The schools under the Krishnamurthy foundation have the opportunity of sending teachers to visit the sister schools in England and America. With care, teachers are nominated from 'The School'. The experience of entering a sister school far away from Chennai, watching the processes at work, has been most enriching.

We have also drawn up other avenues for a schoolteacher to pursue interests that may not have to do directly with academics. We have attempted to define 'The School' as a place of learning and where living responses to life's situations are being found. A

teacher after some years can ask for a one-day-a-week sabbatical. On one-week day, say Monday, the teacher need not attend school but can attend to a certain pursuit of significance to the individual. So far teachers have used this opportunity to write books, study specific course or issues, work towards evolving a course on women's studies etc. There is an advantage in this way of working.

The teacher and the institution understand that the teacher's growth is also the institution's growth. The services of the teacher continue to be available to 'The School' for the whole year, so critical academics can go on. And of course an institutionally coherent solution has been found rather than an ad hoc answer, which invites doubts about privileges and fairness.

By thinking of 'The School' in this manner, all such work that is needed to sustain a new vibrant environment, a wholesome debate, becomes legitimate. 'The School' would continue to have the resources of people, who would otherwise not be available, if they were to go away on sabbatical or leave to address other interests. 'The School' would be simultaneously training teachers into newer roles for refreshing its staff body. The definition of a teacher's role in this manner will permit us to say, for example. "We invest 15 per cent of our teaching staffs time in growth and future needs' of 'The School', and 10 per cent of the salary budget to provide this kind of richness."

To do this, 'The School' has had to review its induction policy also. Teachers are not inducted only against vacancies. On the other hand, 'The School' invites interested individuals to consider it as a possible place to work and grow. A capable individual, who will not fragment academic subjects from deeper questions and who has the capacity of working together with others, may be invited into a threshold position. Once 'The School' feels that this individual is serious about finding out what it means to be teachers, here are many options staring with non-teaching opportunities, which can be explored.

In conclusion, it is thus that we have been able to move in 'The School' towards a culture, an ethos, which permits the operation of many styles and simultaneously makes the demand to move and shift quit legitimate and healthy.

Wider Scope of ICT towards Quality Education

INTRODUCTION

Man is the most ambitious creature and he always wants to achieve better than his present status. His needs are ever changing and his thirst for power is never ending. The technological advancement and the Industrial competitions gear every one to be active on the wheels of revolutions. As results, true to the theory of "the survival of the fittest", the fittest person who is accommodative and adaptive in nature emerges as a successful person in the midst to accelerating changes, rapidly advancing technology and sudden thrust to a global scene.

INTERNATIONAL STATUS OF USE OF ICT IN EDUCATION

Most of the countries in the world have felt the need to incorporate the Computer Education and the use of Information and Communication Technology (ICT) in education. The developed world has a strong network, facility and curricula for computer education in their schools even at primary levels. In United States of America all the public (Government) schools are well equipped with Computers, Teachers, encourage their pupils for computer projects by using e-learning material and also using information available on Internet. This not only makes the learning interesting and joyful but also incorporates innovativeness in thinking and approach of the children and enhances their imagination power.

Now a day's student learns, other than from their teachers, from different sources, i.e., ICT. The new technologies also demand new ways of teaching. For development of quality in the days of information revolution, integration of new technologies is not only important but also essential too. Electronic content software should

Wider Scope of ICT towards

help acquire knowledge, reinforce learning, and go beyond to include conceptual clarity of the knowledge acquired. Content could go beyond the curriculum and allow teachers and children to go beyond. In elementary grades, the electronic content should be in local dialect/language and should be rich in multimedia graphics, animation, video clippings etc. So, that they can enhance the imaginative power, research skills of the children.

FOCUS OF ICT EDUCATION

Electronic content could be presented in a series of Reusable Learning Objects (RLO), which would enable teachers to use the content better. SCORM (Sharable Content Object Reference Model) has been emerging as the unified reference model of interrelated technical specifications and it will be advisable to ensure SCORM compliance for the digital content being developed by the State.

It may be suggested that for the children up to Grade-III, the facility may be used for making them acquainted with the computers through offering them computer games, multi-media material on graphic stories, folk-tale stories, material on value and moral education, health and hygiene education and general etiquette. However, the following issues are involved in providing educational software content to the schools:

1. Content messages deviating drastically from the curriculum.
2. Content significantly conflicting with the principles of education currently in vogue, the culture, values and beliefs espoused in Indian context.
3. Danger of anti-national agencies using content as a vehicle for subtle messages to propagate principles.
4. Content not maintaining the sanity and decorum in terms of illustrations used to transact curricular or non-curricular subjects.

Therefore, especially in the context of Government schools and Government aided schools, it becomes necessary to allow only such education software content that meets certain pre-determined

criteria. The following framework for regulation of content is suggested for the purpose of this note:

1. All education software content used in the Government and Government aided schools will require prior approval of "Content Approval Committee" (CAC).
2. The approval will be a central subject and the centre will set up a CAC which may be an autonomous body under SSA, with the following composition:
 - (a) One representative of the NCERT.
 - (b) One child psychologist.
 - (c) One IT Professional.
 - (d) Three representatives from the class room teachers.
 - (e) Not more than three persons, from educationists, scientists and representatives of NGOs and philanthropic organizations actively involved in Education.

Development and production of e-teaching

There could be three options for having e-TLM as follows:

1. e-TLM already produced by the companies and available in the market may be studied and desired material selected by Content Approval Committee (CAC).
2. CAC may interact with companies producing e-TLM and have tailor made material developed as per their specific needs.
3. The state with common medium of instruction could form a consortium of their CAC and have the tailor made material developed for them.

According to the content-wise as well as coastwise. As an innovative future cost reduction strategy, the States may either consider developing Open Source Linux based e-TLM or may go for

conventional Windows based e-TLM. The Government/ Public Sector agencies and some experienced and enthusiastic NGOs may be involved in the production of e-TLM. Central Institute of Educational Technology (CIET) as well as State Institutes of Educational Technology (SIETs) may be oriented and equipped for production of e-TLM. State Governments should be encouraged to put in place a nodal Portal, preferably under the charge of SCERT or SIET. Based learning in the school education system as a whole.

Relevance of ICT in Education

The long term relevance of Information and Communication Technology (ICT) in education is characterized by the following possibilities:

1. Global access to knowledge
2. Sharing of experiences and best practices
3. Consistent higher Quality education
4. Self-paced and self-based learning
5. Effective learning for solid fundamentals early in learning life cycle,
6. Experimental learning
7. Creative computer based content can facilitate more effective delivery of curricular content and can also be an effective supplement for teachers to improve learning levels in the school
8. Computers also have a potential to deliver standardized training to teachers including distance learning.

The crying need in our elementary schools is to improve basic academic learning outcomes. Computers are useful tools in assisting the process of learning and acquisition of the academic competencies. This is commonly referred to as "Computers in Education" or the "Use of ICT in Education".

ICT in Education is a Powerful Tool

This can be done in several ways. A designated agency could convert the entire learning units and competencies digitally;

teachers could also design their lesson plans to supplement classroom lectures with multi-media presentations either on small computer screens or on large classroom screens. This would help teachers to explain difficult concepts through graphics, live examples and experiments. In addition, content on specific topics and learning units can be developed for centralized delivery through satellite/cable, with audio feedback for two-way interaction. All this would come under the umbrella of ICT in education or Computer Aided Learning (CAL). In India, the applications of CAL in schools till date are quite limited.

ASSOCIATED BENEFITS

In addition to this, there are also other benefits associated with Computer Based Education. At primary level (say classes 1 to 5), we could expect the children to be familiar and friendly with computers and their operations with the use of certain games to enhance their understanding and learning and with the use of some multimedia Compact Disks on topics of interest such as folk-tales, value education, awareness about health, hygiene, environment, etc. Therefore, Computer Based Education would also serve as a means to attract children to schools and help in their retention, thus tackling the challenge of dropouts and achievement of 100 per cent enrollment.

Initiative in India for use of ICT in Elementary Education

The landmark policy on Computer Based Education and use of Information and Communication Technology was laid by the National Task Force on Information Technology and Software Development (IT Task Force) - constituted by the Prime Minister in July, 1998. The IT Task Force recommended that the Government should launch an 'Operational Knowledge' campaign to universalize computer literacy and also to spread the use of computers and Information Technology (IT) in education. It made four major recommendations on IT Education - which were accepted by the Government and are given below:

1. Recom. 58 - The Government shall soon launch three schemes - Vidyarathi Computer Scheme, Shikshak

Computer Scheme and School Computer Scheme to enable students, teachers and schools respectively, desirous of buying computers to do so under attractive packages.

2. Recom. 59 - Computers and Internet shall be made accessible to schools, polytechnics, colleges and public hospitals in the country by the year 2003.
3. Recom. 67 - The concept of SMART schools where the emphasis is not only on Information Technology in Schools, but also on the use of skill and values that will be important in the next millennium shall be started on a pilot demonstrative basis in each state.
4. Recom. 74 - A pilot project shall be launched in some lead districts, which have already attained universal basic literacy with the aim of achieving universal literacy in all the secondary schools in these districts. These pilot projects will be joint initiatives of the local educational institutions, respective State Governments and Centre.

RECOMMENDATIONS OF THE WORKING GROUP

Networking of institutions in the form of school complexes would help in promoting the sharing of infrastructure and expertise. The Group has proposed Rs. 1000 crore for Computer Based Education during the Tenth Plan (2002-2007) - Rs. 2 lakh per cluster or Rs. 15-20 lakh per block or about Rs. 2 crore per district for 5 years. The Working Group has also recommended establishing cells in SCERTs for defining the curriculum for computer education, teacher training and ensuring quality besides up-gradation of computer facilities in DIETs. In the component for "Education of Teacher Educators", computer literacy for teacher educators can also be ensured.

TWO OF THE MAJOR MODELS TRIED OUT

"Headstart" in Madhya Pradesh is aimed at providing computer enabled education to all students in upper primary;

computer familiarization through once a week session in Jan Shiksha Kendras (JSKs) at block level to all primary school children; training of teachers in basic computing skills; and computer access to the community. JSKs, which cater to 8-10 schools, are to serve as computer learning centers. Students of classes 1-5 are to be brought once in every week to JSK for appropriate demos, which would include some computer games. In the case of upper primary students some fundamental techniques using computer are introduced. To begin with, there will be one or two computer in each JSK. In the first phase, the programme is to cover 6500 JSKs in 48 districts, and 13 more districts in the second phase. In the third phase, JSKs will be open to the community after the school hours.

ESTIMATES AND PROJECTIONS FOR COVERAGE UNDER ICT EDUCATION PROGRAMME

The children of grades 3 to 5 may be covered in the second phase. Thus, in phase-I, it could be estimated that approximately 9.6 crore children are required to be covered. If we go by the norm of one computer for 40 children (approximately three times lesser to that of in developed countries), there would be a requirement of approximately 24 lakh computers to achieve the goal of providing Computer Based Education for every child at upper primary level in the first stage. If average cost of a computer is considered as Rs. 40,000 each, this may include furniture, fixtures and peripheral, the total cost for providing the necessary infrastructure for Computer Based Education.

Therefore, a pragmatic view may be taken to provide the facility at cluster level with a set of four computers in each centre. The children of the upper primary schools under the cluster may share this facility. The teachers may also use this facility to develop their lessons and learning material for the students.

CONTRIBUTION OF SSA IN TERMS OF FUND

SSA framework provides for Rs. 15.00 lakh for any innovative activity, which includes Computer Education. If this provision is utilized for setting up of centers as described in above paragraph, only Rs. 90.00 crore would be available under SSA per year and Rs.

360 crore would be available in the remaining period of this plan (90 crore x 4 years). Within estimates, it would take more than 12 years to provide the facility even at Cluster Level and that too, to cover only Upper Primary Education. Therefore, there is a need to mobilize additional resources for the purpose.

Unconfirmed reports suggest that Computer Aided Education helps in enhancing retention rate and decreasing dropouts. The committee believes that the use of multimedia CDs on some hard disk could also be a good tool for Sanitation and Hygiene, Culture and Value Education for children. Use of Computer Aided Project Mode of education using e-libraries and information available on net would enhance imaginative power, innovativeness, zeal for exploration and research attitude among children.

Interventions for Computer Based Education and use of ICT

The following interventions may be required for introduction of Computer Education and making use of ICT in elementary education.

- Training of the Teachers.
- Creation of Infrastructure.
- Development and Production of e- Teaching /Learning Material.
- Networking of the Computers and Web Hosting Facilities and their Operations.
- Sensitization of the State-level Statutory Bodies like Board of Education and SCERT.

The details of these interventions and the strategies to be adopted for their implementation have been suggested below.

Recommended Strategies for Implementation

The Committee recommends a two-tier strategy for Computer Based Education under SSA. The first tier is for training of teachers and necessary sensitization of States and their statutory bodies. The second tier could include creation of infrastructure,

development of e-Teaching Learning Material and formulation of schemes for making available additional resources. Pending formulation and approval of schemes to mobilize additional resources, the available resources may be utilized for Computer based Education and use of ICT in Elementary Education. The recommendations of the Committee are as follows:

TRAINING OF THE TEACHERS

In the years to come, it would be difficult for a teacher to do justice with his/her pupils without adequate knowledge of computers, their operation and applicability in teaching-learning process, internet and the skills for creating e-TLM using simple computer tools. Therefore, the training programme for teachers should include a component for familiarity with computers and their use and to encourage them for creating educational material in digital form, using different media in the classroom. Resources for training of teachers in computers may be mobilized on 100 per cent basis out of the centrally sponsored programme of Teacher Education.

Pre-service Training, NCTE may ensure that all teacher training programmes leading to certificate, diploma or degrees in the country should essentially have a suitable module on computer based education as a separate paper.

In-service Training of Teachers - The immediate challenge of training of in-service teachers in this field may be tackled by offering a compressed module (containing the topics suggested above to the teachers). Here it may be highlighted that training of teacher in computers cannot be imparted through Distance Education Mode as it involves a lot of practical work on computer. Considering the fact that this is a huge exercise involving a large number of teachers, the existing facilities with DIETs and other public sector (Government) training institutes may not be sufficient to meet the challenge. Therefore, it is advisable to involve private computer training institutions in the task. However, these institutions may be instructed through a suitably devised mechanism to strictly follow the module of training suggested/approved by NCTE/State Government or its statutory bodies, who may in turn issue a Certificate to successful trainees.

The first step for the in-service training of teachers may be the training of teacher educators and to develop the faculty of SCERT and DIET as master trainers. Training of All Teachers - It may be recommended to train all teachers in computers and training may not be restricted to only those teachers who are to teach computer because in the near future use of ICT in education on teaching is going to be crucial. As suggested earlier, the training programmes (both pre-service as well as in-service) may be supported financially on 100 per cent basis by the Central Government through the scheme of Teacher Education.

Creation of Infrastructure and Teachers' Training to go simultaneously - It may also be recommended that the creation of infrastructure for computer education and training of teachers may go hand in hand in the zone where the computer education programme is to be introduced from the ensuing academic session.

CONCLUSION

In short, it could be said that technology has tremendous potential to make learning easy and interesting. That's why one educationist asked "If technologies have the potential to significantly improve the teaching/learning process and revolutionize the education enterprise, in the same manner that they revolutionized business and entertainment, how come we have not experienced such drastic efforts in education?"

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Globalization and Impact on Human Development in the 21st Century

The National Policy on Education with modifications undertaken in 1992 states in its introduction, Education has continued to evolve diversity and extend its reach and coverage since the dawn of human history. Every country develops its system of education to express and promote its unique socio-cultural identity and also to meet the challenges of the times. The country has reached a stage in its economic and technical development when a major effort must be made to derive the maximum benefit from the assets already created and to ensure that the fruits of change reach all sections. Education is the highway to that goal. According to the national planners, "Education is a unique investment in the present and future"

In the light of the acceptance of the fact that macro planning in education is the key to success, we must also realize that there is a powerful concept in play in the arena. Education is cutting across barriers, crossing all frontiers and expanding its horizon. No longer is the regional or national participation, the element of all good planning. Globalization is today the trend – not just in economic, commerce and technological fields, but also in education. Globalization refers to a package of economic reforms that include liberalization, privatization, marketization and decentralization. Globalization emphasis market economy and economic efficiency all activities have received a push and an acceleration — national, economic, cultural, technological or institutional — of people, goods, services, news, information, images and values. Gudmund Hernes, Director, international institute of Educational planning, UNESCO asserts. "Globalization is not a choice. It is already here, it

Globalization and Impact on Human Development...

has been around for quite some time, but now more than ever it is a defining world wide force a consequence of the rapid and inexorable movement of technologies markets politics and interlocking destinies.

- Globalization indicates "Interconnectivity" of technologies. These technologies have rapidly made the world a 'global village'. They have shrunk geographical frontiers. Nations, organizations, individuals, business and commercial corporations are integrated by globalization. Even the scientific community is becoming a world community. The scientific community shares concepts, exchanges ideas, collaborates on projects and uses international standards and benchmarks.

The Global era has immense implications for education, with at least the following five important thrusts,

- Demands on students and teachers to develop global consciousness and global concerns;
- Necessity to arrive at the 'frontiers of knowledge' as rapidly as possible by closing existing gaps and thereafter to keep up pace;
- Emphasis on the development of communication skills, with increasing mastery over information technology;
- Development of a global civilization and the necessity to share values that can sustain humanity in the global era; and
- Challenges to equity and opportunities for diversity.

Some ongoing examples and common evidences of globalization in education are web based learning; use of the internet in learning and research; international visit immersion programmes; international exchange programs; international partnership in teaching and learning at the group, class, and individual levels; interactions and sharing through video conferencing across countries, communities, institutions and individuals.

- Gin Cheong Cheng in his keynote address presented at 'Conference on Globalization and challenges for Education, says 'The development of new curriculum content on technological, economic, social political, cultural and learning globalization is also important and necessary in new education.' A key mission of UNESCO is to use education to pleasure and stimulate variety and enrich culture in a way that furthers equity and promotes development, now that global technology is available, development education should be vigorously planned and be given to people.

THE NATIONAL POLICY LIES DOWN

- "Adolescents represent about a fifth of India's population. The needs of adolescents, including protection from unwanted pregnancies and sexually transmitted diseases (STD), have not been specifically addressed in the past. Programmes should encourage delayed marriage and child-bearing and education of adolescents about the risks of unprotected sex. Reproductive health services for adolescent girls and boys are especially significant in rural India, where adolescent marriage and pregnancy, are widely prevalent. Their special requirements comprise information, counseling, population education and making contraceptive services accessible and affordable, providing food supplements and nutritional services through the ICDS.
- Similarly, the "National Curriculum framework for school education - A discussion Document", brought out by the national council of educational research and training, emphasizes the need for developing life skills among pupils to fight the challenges of drug violence, teenage pregnancy, AIDS and many other health related problems. In globalizing education, these issues can be addressed by establishing a global network to inform, counsel and educate the populace.

1. To share the international resources and human resources collectively to create more physical and human resources for sustainability.
2. To develop all the human faculties like the physical, vital, mental, moral and spiritual in a gradual fashion as means and as ends.
3. To ignore, isolate, exclude and even to destroy the divisions of all types and their ideological indoctrination.
4. So treat and understand natural, material and human resources as an indivisible unity and to prepare children to protect his unity.
5. To gradually and systematically emerge from the past history of insignificance into a new era of rational living.
6. To educate about the limitations of human personality and to awaken autonomy or conscience in them.
7. When global unity is at work, while conceiving, designing and implementing global education, it covers quantitatively majority of the people on the globe.
8. The planning for education will be done for all the people and not particularly for the people of a nation, region, religion, and race. Global education is opposed to all divisions of the present day world. Divisions have to gradually disappear to give place to global village and global functioning.
9. The ultimate purpose is to create a global man who will live in peace with the other and in harmony with the planet.

As the education environment is very fast changing and becoming very complicated and full of uncertainties and ambiguities, the boundaries of education become unclear and disappearing

students and teachers often interact frequently and intensively with the 'real world' in learning, teaching and research, continuous educational reforms and developments are inevitable due to various local global challenges emerging from this changing education environment.

By Globalization, students learning is facilitated in such a way that local and global resources, support and net works can be brought in to maximize the opportunities for their developments during learning process. Participation in international learning programs can help them achieve the related global outlook and experiences beyond Education Institution Learning groups and networks will become a major during force to sustain the learning climate and multiply the learning effects through mutual sharing and inspiring students can learn from world class teachers, experts, peers, and learning materials from different parts of the world.

Globalization has its impact on teaching. Through globalization, multiple sources of teaching are available. Teaching can become world-class teaching. Through participation in international development and research programs, teachers can achieve global outlook. Their teaching becomes networked teaching. A new professional culture grows and they share professional practice and research.

Even the curriculum acquires a new sheen in globalization. The curriculum content pools up the world class materials and designs for the learning and teaching processes and maximizing the global relevance and exposure to the future developments of individuals and the society. The curriculum becomes relevant to globalization of technology, economy, social development, political development, culture and learning.

Globalization will definitely make education interactive, self actualizing discovery, enjoyable and self awarding Rabindranath Tagore aptly sums it up, "If education does not enter in the deeper strata of the society and does not attain performance through mingling with the luring stream... then however much it may bubble up and dance like foam on the surface, it can only become an object of temporary beauty but can never become a lasting fountain of

life". He believed that; it is there fore necessary to bring together in every educational organization at the different culture, towards India as far as possible all the culture of the world all the phases religion and art in which the universal mind has expressed itself in different ages and countries, i.e., to co- ordinate these various culture without attempting the euppesrwin of the natural different,"

Meaningful and responsible strategies including flexible and pragmatic education policies would strengthen the basis of global education and promise for man the realization of a dream to bring all learners and teachers under one umbrella.

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Globalization of Higher Education: Opportunities and Challenges in India

During the last century, the world has undergone a change from agricultural society, where manual labour was the critical factor, to an industrial society where the management of technology, capital and labour provided the competitive advantage. Then the information era was born in the last decade, where connectivity and software products are driving the economy of a few nations. In the last 21st century, a new society is emerging where knowledge is the primary production resource instead of capital and labour.

Education is an important index of human development. Along with economic growth and empowerment, it forms the core of every social and human development doctrines. Among various levels of education, higher education has a pervasive and influential impact on development. Higher education empowers the individual with necessary skills and competence for achieving important personal and social goals and thereby contributing to the social development. It is widely believed that the state of higher education in a country is an index of its future well-being.

All fields of human activity, including education, have been influenced by the process of globalization. Within the various sectors of education, higher education has been affected the most. The globalization of economy has led to internationalization of higher education, not merely for economic benefits, but also for increased social interaction and promotion of international understanding. A stage has reached that higher education is not at all different from any other commodity that can be bought and sold at the marketplace.

Globalization means the growing interdependence and interconnectedness of the modern world through increased flow of goods, services, capital and information. In today's world, globalization is rapidly increasing, bringing with it expanded personal mobility; access to knowledge across borders; increased demand for higher education especially in developing countries; growing worldwide investment; and increased needs for adult and continuing education. As a result, the opportunities and capacities to expand the market for higher education have also increased tremendously.

HIGHER EDUCATION UNDER WTO REGIME

The General Agreement on Trade and Tariff (GATT) came into existence in 1947 to manage international trade through multilateral trade agreement. Indian was one of the 23 founder members of GATT. There were eight rounds of negotiations among the member countries between 1947 and 1994. Finally in the last round of negotiation the member countries decided to replace GATT by WTO by signing an agreement on 1st January 1995. India was one of the founder members of WTO also.

GATS: With the increasing importance of service sector in the world economy in 1996 the member countries of WTO agreed to sign a General Agreement on Trade in Services (GATS) and covered services of international trade on par with merchandise trade. Thus an era of international trade in services was inaugurated under GATS in a big way. The GATS is a legally enforceable agreement aimed at deregulating international markets in services, including education. Before this agreement, trade agreements used to be in relation to eliminating tariffs and other barriers for the goods produced in one country and sold in other countries. Some services used to be exchanged but there was no mechanism for trade in services, because they were considered to be place specific and thus non-tradable. The objective of GATS is to liberalize trade in services as quickly as possible.

REASONS FOR INCREASING IMPORTANCE

The WTO perceives education, in the context of GATS, as a huge market. According to an estimate, education has a global

market opportunity worth of 2 trillion US dollar per year. In developed countries the relevant population in the age group of 18-23 is steadily declining due to decline in the birth rates. As a result, the universities of those countries have to depend more upon the enrolment of foreign students for their finances. Moreover, the public funding in the developed countries for higher education is also being gradually reduced. It is therefore, not surprising that the developed countries aggressively market their higher education in the developing countries, to recover the cost of the subsidy provided to their own students and also to generate profit out of it. Education which human society considered so far merely as a service, or a "public good" is now treated as a trade with a potential of making good profit, and, therefore, marketed aggressively for that purpose.

GROWTH OF HIGHER EDUCATION IN INDIA

In 1857 three universities like Bombay, Calcutta and Madras were set up under British rule. There were 20 universities, 500 colleges, 2.28 lakh students and about 25,000 teachers in the country at the time of independence. At present there are around 247 Universities and 98 Deemed Universities, more than 16000 colleges, 97 lakh students and 4.5 lakh teachers in India.

NUMBER OF UNIVERSITIES

Japan for its 12.7 crore people has 684 Universities. USA with 27.6 crore population has 2364 Universities. In UK and Germany there are 104 and 330 Universities whose populations are 5.58 and 8.2 crore respectively. However, for 100 crore Indians, we have 345 Universities. It indicates the acute shortage of Universities in India and need to establish more to provide access to higher education.

STUDENT ENROLMENT IN HIGHER EDUCATION IN SELECTED COUNTRIES

The age group of 17-26 years is expected to be enrolled in higher education. From the existing data, it is a matter of great concern that approximately 94 per cent are out of higher education system and have no access to higher education. Mere 6 per cent of

the said age group is enrolled for higher education. In countries like Canada, USA and Australia the students' enrolment of the same corresponding age group is between 80 per cent and 88 per cent. We are even behind Thailand, Brazil and Indonesia where enrolment in higher education is between 11 per cent and 19 per cent. Since the progress of higher education in India is quite slow and inadequate to cater the need, it could empower very limited people ignoring the interest of the rest.

STUDENT MOBILITY AND TRADE IN EDUCATION

The majority of students are choosing USA, UK, France, Germany, Australia, and Japan as their favorite destination. A huge 75 per cent of students are going in this region. The Non-OECD countries, which mostly consist of developing and underdeveloped countries, are unable to attract a significant number of international students.

The analysis shows that the trade in education service is an important area developing in the world. There are countries like the USA, UK, Canada, Germany, and Australia, which are taking active participation in supplying education services. Mainly the student population, which receives international higher education, is from developing and underdeveloped countries. Developing countries are also trading education services but their target countries are mainly other developing and underdeveloped countries. The data shows that trend of international higher education services is on the rise and it is a potential area for trade. The GATS is playing a crucial role in globalization of economies in service sector.

CONCLUSION

Each country must undertake the very serious challenge of balancing opportunities and commitments to liberalize trade for exporting higher education services, with the possible impact, related to the same commitments, of the import of education services. This is not an easy task. One can tend to be liberal while considering exporting opportunities and more protectionists when analysing the implications of importing.

Higher education is not just an extension of school education. It is an important and major activity in the life span of an individual that will help to mould the destiny of a nation. You may lose your economy, you may also perish as individuals; but if your education is in your hands, you can rebuild all that is lost. This is proved beyond doubt after the World War. Japan Germany and even Soviet Union could rebuild their economies and societies because they have their 'own' education system.

The white paper presented by the Tony Blair government in the UK in January 2003 clearly demonstrates that if a country needs its identity and keeps pace with the progress of others, the state has no other alternative except to invest in education. Of course, all the private investment may also to supplement the state. But, all the programmes must be monitored, regulated and standardized by the state keeping in view its ethos, resources and possibilities.

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Higher Education in India

India is rushing headlong toward economic success and modernization, counting on high-tech industries such as information technology and biotechnology to propel the nation prosperity. India's recent announcement that would no longer produce unlicensed inexpensive generic pharmaceuticals bowed to the realities of the world Trade Organization while at the same time challenging the domestic drug industry to compete with those multinational firms. Unfortunately, its weak higher education sector constitutes the Achilles Heel if this strategy. Its systematic disinvestments in higher education in recent years have yielded neither world-class research nor very many highly trained scholars, scientists, or managers to sustain high-tech development.

India's main competitors- especially China but also Singapore, Taiwan, and South Korea – are investing in large and differentiated higher education systems. They are providing access to large numbers of students at the bottom of the academic system while at the same time building some research-based universities that are able compete with the world's best institutions. The recent London times Higher Education Supplement ranking of the world's top 200 universities included three in China, three in Hongkong three in South Korea, one in Taiwan. And one in India (an Indian Institute of Technology at number 41 – the specific campus was not specified) these countries are positioning themselves for leadership in the knowledge-based economies of the coming era.

There was a time when countries could achieve economic success with cheap labour and low-tech manufacturing. Low wages still help, but contemporary large scale development require sophisticated and at least partly knowledge-based economy. India has chosen that path, but will find a major stumbling block in its university system.

India has significant advantages in the 21st century knowledge race. It has a large higher education sector – the third largest in the world in student numbers, after China and the United States. It uses English as primary languages of higher education and research. It has a long academic tradition. Academic freedom is respected. There are a small number of high quality sector in higher education. The fact that the States, rather than the Central Government, exercise major responsibility for higher education creates a rather cumbersome structure, but the system allows for a variety of policies and approaches.

Yet the weakness four outweighs the strengths. India educates approximately 10 per cent of its young people in higher education compared with more than half in that major in detribalized countries and 15 per cent in China. Almost all of the world's academic systems resemble a pyramid, with a small high quality tier at the top and a massive sector at the bottom. India has a tiny top tier 4. None of its universities occupies a solid position at the top. A few of the best universities have some excellent departments and centers, and there is a small number of outstanding undergraduate colleges. The University Grants Commission's recent major support of the five universities to build on their recognized strength is a step toward recognizing a differentiated academic system and fostering excellence. At present, the world class institutions are mainly limited to the Indian Institutes of Management (IIMs) and perhaps a few others such as the All India Institute of Fundamental Research. These institutions, combined, enroll well under one per cent of the student population.

India's colleges and universities, with just a few exceptions have become large, under funded, ungovernable institutions. At many of them, politics has intruded into campus life, influencing academic appointments and decisions across levels. Under investment in libraries, information technology, laboratories, and classrooms makes it very difficult to provide top quality instruction or engage in cutting edge research. The rise in the number of part time teachers and the freeze on new places have affected morale in the academic profession. The lack of accountability means that teaching and research performance is seldom measured. The system provides few incentives to perform. Bureaucratic inertia hampers change. Student

unrest and occasional faculty agitation disrupt operations. Nevertheless, with a semblance of normality, faculty administrators are able to provide teaching, coordinate examinations and award degrees.

Even the small top tier of higher education faces serious problems. Many IFT graduates well trained in technology, have chosen not to contribute their skills to the burgeoning technology, have chosen not to contribute their skills to the burgeoning technology sector in India. Perhaps half leave the country immediately upon graduation to pursue advanced study abroad – and most do not return. A stunning 86 per cent of students in science and technology fields from India who obtained degrees in the United States do not return home immediately following their study. Another significant group, of about 30 per cent, decides to earn MBAs in India because local salaries are higher – and are lost to science and technology. A corps of dedicated and able teachers work at the IITs and IIMs, but the lure of jobs abroad Indian the private sector make it in creakingly difficult to lure the best and brightest to the academic profession.

Few in India are thinking creatively about higher education. Neither there is nor field of higher education research those in government as well as academic leaders seem content to do the "same old thing". Academic institutions and systems have become large and complex. They need good data, and complex, they need good data careful analysis, and centers, and several government agencies are involved in higher education policy. India has survived with an increasingly mediocre higher education system for decades. Now as India system for decades. Now as India strives to compete in a globalized economy in areas that require highly trained professional the quality of higher education becomes increasingly important. So far, India's large educated population base and its reservoir of at least moderately well trained university graduates have permitted the country to move ahead. But the competition is fierce. China is particular is heavily investing in improving its best universities with the aim of making a large number internationally competitive research universities. Other Asian Countries are also upgrading higher education with the aim of building world-class

universities. Taiwan, which is a major designer and producer of IT hardware, is considering merging several of its top technological universities to create an "Asian MIT".

To complete successfully in the knowledge-based economy of the 21st century, India needs enough universities that not only produce bright graduates for export but can also support sophisticated research in a number of scientific and scholarly fields and technology need the knowledge and technology needed for an expanding economy. How India can build a higher education system that will permit it to join developed economies? The newly emerging private sector in higher education cannot spearhead academic growth; several of the well endowed and effectively managed private Institutions maintain reason private sector in higher education can not spearhead academic growth. Several of the well-endowed and effectively managed private institutions maintain reason ably high standards. Although it is not clear that these institutions will be able to sustain themselves in the long run. They can help produce well-qualified graduates in such fields as management, but they cannot form the basis for comprehensive research universities. This sector lacks the resources to build the facilities required for quality instruction and research in the sciences. Nor can enough money be earned by providing instruction in the mainstream arts and sciences disciplines. Most of the private institutions do not focus on advanced training in the sciences.

Only public universities have the potential to be truly world-class institutions and programmes of national prominence have already been identified by the Government. But these institutions have not been adequately or consistently supported funding from public sources. Academic salaries must be high enough to attract excellent scientist and scholars. Fellowship and other grants should be available for bright students. An academic culture that is based on merit based norms and competition for advancement and research funds is a necessary component, as is a judicious mix of autonomous to do creative research and accountability to ensure productivity. World class universities require world class professors and students and a culture to sustain and stimulate them.

A clearly differentiated academic system has not been created in India a system where there are some clearly identified Institutions that receive significantly greater resources than other universities. One of the main reasons that the University of California at Berkeley is so good is that other universities receive much less support. India's best universities require sustained state support – they require the recognition that they are indeed top institution and deserve commensurate support. But they also require effective management and an ethos of an academic meritocracy. At present the structures are not in place to permit building and sustaining top quality programs even if resource are provided.

A combination of specific conditions and resources are needed to create out standing universities, Sustained financial support, with an appropriate mix of accountability and autonomy. The development of a clearly differentiated academic system – in cladding private institutions- in which academic institutions have different missions, resources, and purposes. Truly merit based hiring and promotion policies for the academic profession, and similarly rigorous and honest recruitment, selection, and instruction of students. India cannot build internationally recognized research orient, but the country has the key elements in place to begin and sustain the process. India will need to create a dozen or more universities that can compete internationally to fully participate internationally it fully participate in the new world economy, without these universities. India is destined to remain a scientific backward.

Knowledge Contented Higher Education to Meet Future Demands

INTRODUCTION

The nature of the global society has changed with the information explosion. The world has entered the information age. Rapid changes in science and technology are taking place in the world. Therefore, what would be the nature of the world of work in future has become unpredictable. The students, those who are going to enter the school now, will remain a part of the learning system for at least for the next 12 years, i.e., till the year 2012 and as adults may have to contribute to the world of work for another 35 years. As changes in science and technology are frequent and unpredictable it is not possible to envisage what the nature of occupations will be in the year 2013 and what to say of 2050. We, therefore, cannot anticipate today skills and abilities that students would need for living effectively for their full span of adult life and vocational skills learnt for present occupations will get out of date before long. Therefore, the vocational situation that prevailed during most of the 20th century will now hold now. It would now be necessary that the young persons be prepared right from the beginning as life long learners. Students of today when they grow up will have to continually update themselves with the new technologies and the changing nature of occupations. It is in such a context the emphasis of learning at the school level will require a shift from teacher-centered to being learner-centered. The principal task of teachers will be to enable students with the ability of learning how to learn with an eye a career planning. For learning how to learn, it would be necessary that teachers recognize the autonomy of learners and reorganize teaching learning around using human brain for developing thinking skills rather than using the brain for storing information.

The changes in school education during the past two decades have not been significant. The movement towards increased accountability and the public reporting of educational outcomes has been widely to be desired. Curricular and assessment practices in all jurisdictions have to be revised, in most cases. The educational use of information and communication technologies is in its infancy. Other initiatives, related to a range of topics but most notably to vocational education and training, have taken their place in school programmes. Educators have also responded to requests for assistance in solving a variety of significant social problems.

EDUCATIONAL, ECONOMICAL AND SOCIAL CHANGE

Education is the key to a vibrant and prosperous India seeking to maximize the contributions of all its citizens and embracing the richness and possibilities that our nation's diversity affords, as the new century begins. To achieve this future, we must set high standards for all students and seek to develop their potential through high expectations, organized effort, caring, commitment, and talented teachers in every classroom. However, as elementary as these goals sound, India faces daunting challenges in trying to achieve them.

India's classrooms are serving more students and more diverse students—racially, culturally, and linguistically—than ever before. Students with learning disabilities, physical impairments, and limited English proficiency are increasingly being served in regular education classrooms. The societal conditions in which students grow up and changing family structures are impacting classrooms. More students are coming to school at risk because of poverty, inadequate nutrition, housing, health and medical care, and other adverse conditions at home.

IMPACT OF ECONOMY ON EDUCATIONAL PLANNING

At the same time, powerful economic changes are placing new demands on students, teachers, and schools. Rote teaching and learning provided what the economy of the age demanded: a

reliable labour force for the industrial era's reutilized assembly lines. In contrast, more than half of the jobs that will be created between today and the 21st century will require some college, and over 70 per cent of all jobs will require technological literacy. Solid basic skills, critical thinking, lifelong learning, and technological literacy have become the new keys to productivity in a knowledge-based society. In the new century, almost every adult will need to attend college or participate in specialized training throughout his or her lifetime in order to navigate rapidly changing economic conditions.

Moreover, just as India's economic well being depends on well-educated young people who can contribute in a modern, technologically complex workforce, the nation's future as a democracy requires adults capable of building more vibrant, caring, and civil communities for all its people in an increasingly diverse society. Indians must be capable of participating in and protecting their democratic institutions. While providing them the knowledge and skills necessary to lead productive and fulfilling lives as individuals and as members of families.

LEARNING SOCIETIES VERSUS SCHOOLS

The age of schooling hardly existed much before the 19th century. Our school system was originally created to respond to the requests of mass education expressed by the emerging Industrial Society and to keep students protected from the reality of the economic system - the factories - where they were forced to provide unending hours of cheap labour.

In the advent of the 21st century none of these assumptions is valid any more. As the various countries switch from industrial to knowledge-based economies, the needs of the economy are much less for mass educated labour than they are for innovative *knowledge workers*. Also, there is no more need to isolate students from society and close them up in aseptic schools - just the contrary: we want them to be able to *establish the construction of their knowledge as a fully integrated social activity*.

The present - computers, communications, and information management - are shaping the education of the present and the

future. All these are platitudes that almost no one would deny any longer. Indeed, everyone seems to agree, today, that we must adapt the schooling and learning of our times to the strengths of the new information technologies. The major challenge results from the very fact that *learning* cannot, anymore, be equated with *schooling*. Learning, as provided in schools, is *just a part* - and an increasingly small part - of the learning we can get in society. An increasing variety of mechanisms for formal and informal social interaction across networks, plus interactive television and video, together with books and magazines integrated in a broad mesh of opportunities for self-education, are becoming powerful sources of learning . . . outside the school.

LEARNING A ROUND-THE CLOCK PROCESS

Learning can now be obtained in varied forms, all throughout the working lifetime of our citizens, and most of this can only take place outside the schooling system. On the other hand, the requirements of economic life are constantly changing, so that the private offer of learning opportunities is becoming widespread. People can now pick up a short course here, another short course there, and, above all, they can learn by themselves, whenever they want, provided they are given the appropriate access to learning contexts and help. The key issue of education has become the much broader one of *supporting the lifelong learners of a society of ever demanding and changing knowledge*. We have entered the age of the *learning societies*.

This challenge leads to a number of other challenges. On one hand, we witness the sudden exposure of the school system to fierce competition from powerful technology based operators. On the other hand, we notice that this competition comes forth in a severely unstructured manner, plunging the learner into a most confusing and unfamiliar market. All those challenges suggest that a new role must be reinvented for schools.

Reinventing a new role for the schools (Human Value VS Technology)

As stated before, people are requiring many channels of learning and a high-choice system. They also require increased interactivity, mobility, convertibility, connectivity, ubiquity, and

globalization. Traditional schools are badly equipped to face those challenges. The shift from the standardization of the schools to the individualization of free choice, namely across computer networks, is removing the emphasis from the schools, and putting it, increasingly, on the home.

Also, consumers are reacting more and more favourably to the output of the cultural industries. The big entertainment industries Hollywood, Disney, Paramount, Viacom, Time Warner, originally exclusively dedicated to the movies. They are addressing the mass market of the individual consumers, incommensurably more attractive than the tiny market of the schools, and they are becoming more and more interested in the education of those individual consumers ... outside the school.

Two basic questions become important, in this respect:

- Can schools compete on the technological ground?
- Should schools attempt to compete on the technological ground?

Our answer to both questions is, categorically, NO! Schools cannot compete on the technological ground, first of all, for economic reasons: they will never be able to afford keeping up with the fast pace of renewal of technology. Also, the massive training of teachers for the use of information technologies in the classroom is proving to be a dead end. In spite of considerable amounts of money put in training teachers for the use of information technologies in education. They are learning to use information technologies just like all the other citizens.

An additional reason why schools cannot compete on the technological ground is that the models of education practiced in schools cannot be adapted to the transverse nature of information technologies. The compartmentalization of knowledge, the presentation of subjects without reference to context, and even the common national curricula are strong obstacles to the natural use of information technologies in schools. A corollary of this fact is that schools will keep representing a rather small and uninteresting market for the cultural industries. As a result, those industries will

keep directing their explosive offer towards the home market, much in detriment of the weight of the schools in shaping the knowledge of the citizens of the future.

In our view, *the school of success in this new environment will not be crammed with high technology*. It will not be overflowing with computers and networks in the spirit of the claims of ten years ago that the school of the future would have a computer for each child. It will certainly need to have permanently updated technology and network access at the level of its resource centers but *the distinctive character of the school of the 21st century will be its eminently human component and its role as a vehicle of culture*. Culture, understood as a unifying force that reconciles people with technology, simplicity with complexity, unity with multiplicity, and the individual with the collective, leading to the balanced development of both the *ego* and the *senses* and the *consensus*. This requires a radical shift from content to context, leading to a major challenge in the arena of curriculum development.

AUROBINDO'S PRINCIPLES OF TEACHING

In this context we can recollect the three principles of true teaching envisaged by Sri Aurobindo in 1909. I recall what you already know. Sri Aurobindo's principles of teaching continue to be missing from the teacher education curricula. "The first principle of true teaching is that nothing can be taught. The teacher is not an instructor or taskmaster; he is a helper and a guide. His business is to suggest and not to impose. He does not actually train the pupil's mind; he only shows him how to perfect his instruments of knowledge and helps and encourages them in the process. He does not impart knowledge to him; he shows him how to acquire knowledge for himself. He does not call forth the knowledge that is within; he only shows him where it lies and how it can be habituated to rise to the surface. The second principle of teaching is that the mind has to be consulted in its own growth. The idea of hammering the child into the shape designed by the parent and teacher is barbarous and ignorant superstition. It is the child who must be induced to expand in accordance in his own nature".

We may have to remold teacher education for preparing such teachers as can prepare life long learners. I remind you that now each person has to adjust to the changing nature of the world of work, which takes place because of new developments in science and technology that cannot be anticipated today. The teacher education programmes that are followed throughout the length and breathe of the country have remained static both in form and content for over 100 years. The pedagogy which was introduced in the later part of the 19th century, relevant to the society then, has continued in its unchanged form not only throughout the 20th century but even today.

Our student teachers themselves have to be helped in becoming life long learners, and are to be enabled with the ability of learning how to learn. Only such teachers who know how to learn when they will enter teaching profession will be able to recognize diversity of learning needs of students and provide them an environment for their own growth as autonomous learners.

RESPONSE TO INFORMATION MATTERS

We have the opportunity to enhance the capacity of students to do their work, to study, which is a much more complex activity than simply learning what their teachers teach. Students learn, but they also criticize, think, probe, scrutinize, judge, question, hypothesize, and disagree. Students inquire, observe, theorize, map, reason, assume, examine, invent, seek, challenge, dispute, hope, quote, speculate, infer, conjecture, suppose, list, investigate, notice, recognize, contest, and tinker. They converse, create, wonder, reflect, travel, doubt, solve, understand, and write. Students also predict, perceive, inspect, comment, read, conform, honor, refute, debate, compose, oppose, discuss, invent, copy, search, picture, measure, compare, record, estimate, and consult. And finally they analyze, deduce, guess, memorize, listen, evaluate, formulate, simulate, meditate, admire, muse, emulate, aspire, waver, synthesize, weigh, contrast, associate, catalog, compute, assert, and so on through all the verbs that describe the human capacities for cultural activity. Advanced technologies are tools to make study, the work of students, more efficient and effective. They enable students to do all these activities with greater power and self-direction. Tools of

study can vastly amplify the range of educational possibility. Sri Aurobindo in his article Human Mind had envisaged that teacher's role would be more subtle and challenging than that of an artist or a sculptor. A teacher, unlike an artist or a sculptor who gives shape only to dead materials like wood or stone, works with an infinitely subtle and sensitive person of a child.

THE CORE ISSUE OF CURRICULUM DEVELOPMENT

The major concern of present day schools has been to compartmentalize knowledge rather than to provide context to a world of diversity of offer where people are flooded in information but starving for knowledge. The reconciliation between content and context requires *curriculum development to become the key-mobilizing project for both teachers and educational authorities*. The major concern is not, anymore, the one of preparing teachers and the school system for the use of information technologies in the various subject-matters. It becomes that of maintaining a permanent - and cross-disciplinary - reflection about the ways in which education can meet the challenges of the Information Age. This imposes the dynamic identification of the fundamental subjects and the creation of contexts where students can learn how to make sense and give structure to the complexity of the world that surrounds them.

Curriculum development becomes, in this way, the central issue of schooling in the 21st century. It certainly includes an effort to find out how to integrate information technologies in education, but this becomes just one aspect in a gigantic agenda for action that touches deeply the changing aims and ends of education in its relationship with society and technology. In this complex agenda, the affective dimension of schooling must be carefully stressed, to provide the compensatory human response imposed by survival in a highly technological society. On the other hand, the cultural function of contesting must be closely studied, so as to help teachers develop in students the knowledge, attitudes and values that let them make sense out of unprecedented complexity and enable them to create the frameworks where knowledge from external sources can be built and structured.

The shape of *teacher training* will have to be significantly influenced by this approach. It must not be, as it often is, the "delivery" of speeches to relatively passive audiences. It must take the form of project work that fully engages the activity and creativity of the teachers. Also, it should not be given to teachers that are not deeply interested in receiving it. For this reason, it should be offered *within the motivational impulse of large mobilizing projects*.

VERY CHOOSY PRIVATE SECTOR

Higher Education in India, since its inception in 1857 when universities were started in the three Presidency towns, have been following the same road and is now at crossroads. The road has reached a dead-end from several perspectives. Students no longer have confidence in their ability to prepare them for entering the world of work as the nature of occupations have been constantly changing with rapid developments in science and technology, but curricula have practically remained unchanged. The state is no longer the principal employer of the educated youth in the country. The hard reality is that majority of employment opportunities now are in the private sector and this sector is very choosy, to say the least. The private sector employs only those who possess skills and competencies required by it. Its requirements are continually changing because this sector has to keep pace with its global competitors. Education now has to be tailor-made to the requirements of the private sector. Also, under the World Trade Organisation (WTO) Agreement foreign institutions will make inroads in the higher education sector by providing alternative learning opportunities leading to award of degrees of their universities. They claim that their certification will be preferred by multinationals to the degrees awarded by our universities. In such a scenario there is an urgent need to re-engineer the road of higher education from its dead-end. The need of the hour is to give a fresh look to higher education and introduce such changes as will restore confidence in the ability of the state universities and colleges for providing education relevant to the present context and that too cost effectively.

What is the required paradigm shift? Perhaps, the answer may be found from the experience of the manufacturing sector. It is also struggling to remain competitive when the foreign countries have flooded the domestic market with goods and services. The key to meeting this challenge is to ensure quality assurance that too cost effectively and remain globally competitive. Therefore, we have to learn from management experts how to ensure quality in the education sector, its sustenance and enhancement.

Student satisfaction may have to be used as an effective instrument for raising the quality of programmes of study. This will require acceptance of the sovereignty of learners by the higher education system. New courses and course combinations may have to be offered for meeting varying learning needs of students. The other driving force for raising quality will be the commitment of teachers to their students and to the pursuit of excellence. The main task of teachers will be bringing out the inner potential of their students and chiseling of their mental faculties.

CALIBER TEACHER - THE KING PIN

Therefore, the kingpins of an institution are its teachers. If in an institution good teachers have joined teaching profession, it is because they value academic freedom, enjoy teaching learning and have made pursuit of excellence their mission. The quality automatically follows. It is generally believed that a just and fair system in rewarding good performance is crucial for teacher motivation. But, if one were to ask teachers of institutions that are highly rated, it would be found that they set their own goals and drive them with self-discipline for performing at the peak of their capability. The source of their motivation may be self-determined goals, peer appreciation, publishing articles in journals of repute, invitations for sharing their research work in conferences and seminars etc. and not the desire for obtaining worldly gains such as rapid promotion in service or positions of authority. Rewards and recognition follow them because of their hard work.

Recruitment of high caliber teachers is necessary but may not be sufficient for ensuring quality in their performance. They would require support of infrastructure such as a good library,

laboratories equipped with modern facilities essential for carrying out teaching and research at international standards and more than these a sympathetic understanding of their academic needs by the administration. Only then they may be able to work at the frontiers of knowledge by keeping themselves updated with the latest developments in their field.

In our country there are outstanding examples of persons who made world-class contributions to knowledge without the support of advanced laboratories or research facilities that were available to their peers. Contributions of Ramanujam, Tagore, C.V. Raman, J.C. Bose, S.N. Bose, Meghnad Saha, S. Chandrasekhar, Homi Bhabha and many others, that too in the pre-independence period, are outstanding examples of the best creative work that could be done by dint of power of thinking and belief in their abilities. Lord Rutherford, the great pioneer of nuclear physics, when he was told that America was going ahead in nuclear physics because they had a lot of money, once said, "Americans have money. We do not have hard work it, and so we have got to think." There is no substitute for hard and serious thinking; and with sustained and serious effort we should be able to go a long way even with our meager resources and capital. It will, therefore, be an anachronism to continue to use the human brain for memorizing information when it should be used for solving problems, creative thinking – the skill attributes of knowledge workers. Therefore, any system of education unless it is learner – centered, is flexible, is around developing thinking skills and is able to help learners in acquiring the ability of learning how to learn will gradually lose its relevance. Therefore, there is now an urgent need to reorient teaching learning in the universities to meet the requirements of the youth for living and contributing effectively in the 21st century.

TO EXPLORE RESOURCES

Time has perhaps come for the universities to redesign curricular concerns in higher education and bring in innovations in developing interdisciplinary programmes of study appropriate to the concerns of the 21st century. This may necessitate exploring generation of resources both physical and financial. Almost all universities are struggling to find funds as the State funding is

shrinking to alarmingly low levels because of financial stringency and increasing cost of quality higher education. There are universities that have remained financially self-reliant from their inception and have the potential for playing a trailblazing role on how a university can continue to offer world-class education through its innovative new programmes and efforts of its teachers. For raising their resources what universities should do is to make their courses attractive to students both from within the country and abroad by making them of world-class standards and by taking up consultancy assignments.

The department of ship technology in a university in UK had only eight teachers, yet the Department had employed 30 professionals for supporting its teachers in execution of their consultancy tasks. The 30 engineers who worked with the eight faculty members were on the payroll of the Department and not of the university. This was an eye-opener. The teachers of that University contributed to the standards of knowledge in their discipline and at the same time by making their activities relevant to the end users had helped their University in becoming financially self-reliant. In addition to the two teachers in the Department, it had adjunct faculty drawn from the other Departments such as Biotechnology, biology chemistry, chemical Engineering, Economics, etc. Different courses of study to match the requirements of students were arranged under the broad discipline of environmental science. This was an inspiring programme, and has relevance in evolving directions of new thinking for the future of our higher education as well as technical and professional education.

TRANSFORMER: TEACHER OR TECHNOLOGY?

Each person can trace contribution of some teacher who helped to transform into a good human being with a more positive self-image, more self-confidence, more commitment and motivation to pursue excellence. This role of a teacher is universally acknowledged. A tribute paid by R.K. Laxman, world famous cartoonist, to the primary school teacher who had transformed him when he was in perhaps in class 1, is worth mentioning. One day, while leaving the class he (teacher) set up a task: we were ordered

to draw a leaf, any leaf. This was something new and exciting and all the boys at once set about it enthusiastically.

He gave me ten marks out of ten. He was very impressed by the perfect shape of my peepal leaf and the details of the veins branching out along the midrib. I had seen these leaves countless times strewn on the road under the peepal tree, and I could draw them effortlessly. I was inspired by this unexpected encouragement. I began to think of myself as an artist in the making, never doubting that this was my destiny. His teacher and he did not know any recent technologies. Even now a teacher reigns supreme.

WHY A TRANSVERSE ANALYSIS

A number of challenges facing Indian education in the 21st century have been identified and some proposals for action have been advanced. Although, for facility of analysis, those challenges have been analysed under a few different headings, it is clearly impossible to isolate them from one another. The emergence of learning societies, to pick just one example, has been discussed in the context of their opposition to schools, but, they do complement each other, and the existence of the former does, in reality, impose the strengthening of a few dimensions of the latter. The challenge of virtual communities, as presented, may sound as an issue that concerns mainly the schools, but this is certainly not true. In fact, we may notice that virtual communities do integrate both the schools and the learning societies, gathering them into a collective intelligence that presents no noticeable fractures. Finally, the issue of accreditation, although not directly linked with the learning societies, is an obvious consequence of their existence. This kind of transverse analysis carried out here from the point of view of the learning societies, should be understood with an appropriate altitude and aptitude to evolve still better.

SUM UP

Fires of talent are simmering in the length and breadth of our country and as they occasionally become visible in the form of creative performances of our students and teachers they need to be stoked by the vast pool of talent in our teachers. The glow of

knowledge will show the direction for using the resources of our planet in providing a better quality of life to each person and at the same time leaving the world in a better condition than ever before.

India is the second most populated nation in the world. Recently, its population crossed the one billion mark. Every sixth person in the world is an Indian. There are about 300 million students in the school age group. The challenge is to enable them to go through education for living effectively in a world, which is getting increasingly fragmented between developing and developed by advances in science and technology. Recent developments in communication and information technologies have shrunk the planet Earth both in space and time. The world is now a global village. In principal, each person can contact in real time any other person in the world through the Internet. Through satellite communication important events that are taking place on this planet are reaching our homes each day. Therefore, education has to be contextual and at the same time has to have a global perspective as the students would grow up not only into citizens of this country but at the same time will belong to a global society.

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Reconstruction of Higher Education in India

In the modern world with a high obsolescence rate, every system must periodically undergo mini revolutions. If that does not happen, the system must necessarily experience a major revolution. Higher education in India has successfully resisted all attempts in India has successfully resisted all attempts for reform that was contemplated in Two National Policies (1968 and 1986), recommended by the Higher Education Commission 1948 headed by Dr. S. Radhakrishnan; and numerous Committees and Commissions thereafter. If it is to remain competent, meet emerging challenges, and serve the needs of the nation, it has necessarily to undergo a major revolution. Higher education needs a far reaching structural reconstruction.

The present structure of higher education is not only outdated but is also inherently weak and unequal to the task. Any effort at improvement, keeping the structures as it is, will certainly not yield the desired results. The reason briefly is as follows. All over the world, higher education is in university institutions; they are big campuses with a critical mass of student and strength and can sustain large libraries, modern laboratories, and advanced centers with adequate infrastructure. An institution like MIT has 3000 faculty members and 30,000 students. Higher education in India is fragmented, scattered, and takes place in nearly 16,000 institutions called affiliated colleges, many of which are tiny and a trace better than higher secondary schools. They do not have libraries worth the name. Most of them a faculty strength varying from 100 to 200 and the number of faculty with doctoral qualification is pitifully low or nil in many cases. These institutions of higher learning perform only classroom teaching, preparing students for examinations like tutorial colleges. The affiliating system, which

dominates the Indian scene, has long been given up even in the country of its origin. It does not exist anywhere in the world barring India, Pakistan, and Bangladesh. Unfortunately, the entire higher education in India takes place only in the ill equipped, under staffed, affiliated colleges as can be seen from the fact that 89 per cent of undergraduate students, 66 per cent of post graduate students, and 82 per cent of faculty are in the affiliate's colleges.

We have the peculiar and unhappy situation of substantial Post-graduate education (66 per cent) in colleges that have no research whatsoever. Only nine percent of research scholars, less than anyone knowledgeable in higher education understand, much less accept, Post-graduate education leading to M.Sc., M.A., M.Phil, and even P.D degrees in institutions that have no sanction for professorial positions (affiliated colleges are entitled to have only different grades of lectures), no research scholars, and no semblance of any research. Much less basic research. But this academic wonder is happening in India-growing strong, multiplying, unchecked and unrepeated. Consequent, it is not only our under graduate education but also a substantial part of our post graduate education that is poor in quality.

TOO FEW UNIVERSITIES

India has a broad base of higher education with a few, verifies, sporadic peaks. We do have a few professional institutions and unitary universities that border on centers of excellence, but they are too few for a country of excellence, but they are too few for a country of this size, India has, as of 2001-2002 (according to a University Grants Commission report) 213 universities and 52 deemed universities. This numbers very small for the size of India and for meeting the emerging needs of advanced research, as can be seen from the following comparison. Japan, a relatively small country, has 684 universities, 512 of the private. The United States have 2364 universities, 1752 of them private, offering four year degree programmes and above. The United Kingdom has 104 universities and 231 autonomous institutions that can award degrees. Germany has 330 universities.

What is worse, in India the major universities are burdened with the academic administration of affiliated colleges. For instance, Andhra University has 405 affiliated colleges, Osmania University 390; and Anna University 232. the position is nearly the same in the case of most the major affiliating university involve enormous administrative responsibilities, unproductive in academic terms. Besides the acute paucity of funds, a lack of autonomy, and the burden of affiliation, the general universities suffer from the obsolete composition, powers, and functions of the university authorities like the Board of Management, the academic terms.

Besides the acute paucity of funds, lack of autonomy, and burden of affiliation, the general universities suffer from the obsolete composition, powers, and functions of the university authorities like the Board of Management, the Academic Council, and the Senate. In all the advanced countries, universities and university-level institutions constitute the strong centers of research. It is a universal phenomenon because university alone has a continuous flow of young and fresh minds and an atmosphere highly conducive to talent and creative effort. Unfortunately, the share of higher education in research in India is pitifully low. This is reflected in the following allocation of funds (as of 1998 - 99) for laboratories and research institutions; the Central sector 62.5 per cent; the State sector 8.0 per cent, the public sector 5 percent, the private sector 21.6 per cent; and higher educational institutions a mere 2.9 per cent. The share of higher education must be at least 10.0 percent. The higher education sector, which should make a substantial contribution to the promotion of innovation and the development of new technologies, is not yet an important partner in this national effort.

The situation calls for serious remedial action and the creation of a new era of university research. The national laboratories may be doing a commendable job but they are no substitutes for university research. We have to consider the quantum of manpower with higher education needed of achieving a developed nation status by 2020. The advanced countries are moving towards mass higher education. The following information about the proportion of the relevant age group (18-23) entering higher education in some of the advanced countries may prove the point (2000); U.S. 80 per cent;

Canada 88 per cent; Australia 80 per cent. Finland 74 per cent; and the U.K. 2 per cent. In general, the advanced countries have more than 50 per cent of the relevant age group in university level education.

India with nearly 300 universities and 16,000 colleges has only seven percent of the relevant age group entering the portals of universities. This number has to be augmented if we are to become a developed nation; it may have to be at themselves, will not be able to meet this need, it is necessary to welcome and encourage the participation of the private sector, but on a selective basis and with safeguards to ensure quality.

STEPS IN RESTRICTING HIGHER EDUCATION

Urgent reforms: the reconstruction may be effected in three steps. The higher education system in India is characterized by extreme rigidity and a total lack of flexibility. As the first step, introduce semester system in all the educational institutions, bring major examination reform by adorning continuous internal evaluation and well defined academic auditing; and adopt the credit system.

Medium term reforms. The outdated affiliating system is a curse on our higher education system. It has converted colleges into coaching centers and teachers into mere tutors. Steps must be taken to liberate the higher education system from the emaciating efforts of this curse. Autonomy must be granted to as many deserving colleges as possible. Colleges marginally falling short of autonomy requirements must be helped to fulfill the requirements and gain autonomy. For each major university having a number of affiliated under the full charges of a Pro-Vice Chancellor must be established. The Vice Chancellor and the Board of Management of the university must be concerned only with the university department and autonomous colleges.

Long-term reforms: the real weakness of the higher education systems is in the structure itself. Higher education system is in universities and the outdated, anachronistic affiliating system must vanish from Indian soil. We must have a much larger number of university level institutions. We must set a target of about 2500

university 15 years. We must pass the pending Private Universities Act, especially to prevent the haphazard development of private universities, which has already stated. We have currently a scheme of funding five universities identified as institutions with potential for excellence. This number must be increased to 20 or more.

We may adopt the following steps to augment the number of university level institutions mentioned earlier. The central and State Government must set up, on a planned basis, more universities. There must be encouragement to establish private universities with adequate safeguards to ensure quality and healthy management. Many deserving colleges must be granted deemed university status, many good colleges must be given autonomy. In the case of colleges that do not qualify to become deemed universities or autonomous colleges by 2015, a five into junior colleges offering job oriented diploma programmes after +2. The affiliating system must cease to exist after 2020. The government must, in all seriousness, draw up a plan and programmed of action, allot the necessary funds under the mission "Reconstruction of Higher Education" and implement it in three successive five year plans.

The Characteristics of a Good policy Formulated and Implemented in Indian Education



CHARACTERISTICS OF A GOOD POLICY

Policy does not emerge within a vacuum. It is developed within sets of values, pressures and constraints. It is a response to particular problems, needs and aspirations. Sir Michael Sadler wrote: 'a national system of education is a living thing, the outcome of forgotten struggles and difficulties and of battles long ago. It has in it some of the secret workings of national life. It reflects, whilst seeking to remedy, the failings of national character.'

A good policy should have desired goals to be achieved, specified means for achieving goals, authorized means, laws or regulations, strategies and details of procedure for achieving goals, specific actions, plans, implementation and evaluation of programmes. An ideal policy is one that is clear with unambiguous, realistic goals. A policy will not succeed if it is passed on a defective theoretical conception.

Sadler wrote: 'We should not forget that the things outside the schools matter even more than the things inside the schools and govern and interpret the things inside.' A good policy should also have the following characteristics- people's involvement, women's participation, decentralization, autonomy, accountability, long-term planning, time-frame, a target group, budget, resources, capacity building, field try-out, data base, publicity and monitoring. There is no better way to ensure accountability than an awakened and demanding community.

For an awakened and demanding community, UEE alone is not sufficient. It is a leaking tap all the time. So we must have a dual approach, with the inclusion of adult education programmes with post literacy and continuing education. In the human development index 1999, India is in the 115th rank with HDI value of 0.571 and education index of 0.56. Richest countries are rich in knowledge. Poorest countries are poor in knowledge. Also unless a man is educated he cannot be healthy. The four pillars of education are learning to know, learning to be, learning to do and learning to live together. So we have to prepare a knowledge-based society, a learning society. For securing equity and social justice in education there should be concern for the educational of SCs /STs, minorities and the physically and mentally handicapped.

Education for women's equality is a vital component of the overall strategy of securing equity and social justice in education. Education plays the role of empowering women. Gender sensitivity should be reflected in all educational programmes. National integration, secular, scientific, moral values, protection of environment, observation of small family norms should be given importance. Another important challenge is establishing linkage between education and other related services like child-care, nutrition and health.

POLICY FORMULATION

Policy formulation involves exploration of various alternatives, formulation of preferred course of action, efforts to achieve consensus or compromise and legislation. Evolution of policy is dependent on the interplay of pressure from two groups, the official and the non-official. The official groups have legally based responsibilities. The Ministry of education, educational agencies, and senior officials belong to the official group. Political parties, media, teachers' unions, parents, teachers, students, religious leaders, public belong to the non-official group. *Conflict often is necessary before a problem can get detailed attention but conflict should not be allowed to develop into prolonged confrontation. The problem gains a place in the official agenda of the government. The policies should be designed, formulated in words and suitable slogans.*

All new policies needing a legislature base are subject to debate in Parliament and require the successful passage of bills to become Acts. It is not an easy task. University Education Commission 1948-49 and Secondary Education Commission 1952-53 looked specifically at the issues in the University and Secondary education. The Education Commission was appointed by the Government to advice on the National Pattern of education for the development of education at all stages in all aspects.

The National Policy on Education 1968 was a direct outcome of the discussions held on the Kothari Education Commission. Since the adoption of the National Policy of 1968, more than 90 per cent of the country's rural habitations have schooling facilities within a radius of one kilometer. It introduced the 10+2+3 system in many states.

The general formulations incorporated in the 1968 policy did not get translated into a detailed strategy of implementation. As a result, problems of access, quality, equality and financial outlay accumulated over the years assumed massive proportions. They had to be tackled with the utmost urgency. The goals of secularism, socialism, democracy and professional ethos were coming under increasing strain. A comprehensive appraisal of the existing educational scheme was made, followed by a countrywide debate. The views and suggestions received from different quarters were carefully studied. NIEPA Policy Unit received nearly 10,000 letters. There are a number of goals, which look contradictory to one another.

If we follow quantity, quality suffers. If we follow modernization, tradition suffers. Similarly unity and diversity, centralization and decentralization, creativity, autonomy and accountability seem opposite to each other. But to say so is a microscopic view. In the long run both the factors will be achieved. Disparities are externally imposed. They are not God-made. Education was the in equalizing force previously.

Equality is a legal concept. But equity is a social concept. It is abstract. The deprived sections have suffered for centuries. According to 1981 census, SCs form 15.75 per cent and STs 7.8 per

cent of the country's human resource. They cannot be ignored. Women should have self-esteem, confidence, identity, and positive self-image. They should think critically, take decisions. They should have informed choices in education, employment, marriage and childbirth. They should engage in developmental work and act through collective process. According to 1981 census, the religious minorities constitute about 17.4 per cent of the population of which Muslims are 11.4 per cent. Article 29 protects the interests of the minorities. Article 30 gives them right to establish and administer educational institutions. Points No. 11 and 12 of the 15 Point Programme for the welfare of Minorities by Smt. Indira Gandhi concern education of minorities.

There are two new schemes by MHRD in 1993-94 for the minorities. They are,

1. Area Intensive Scheme for educationally backward minorities.
2. Scheme for introduction of Madarasa education. Centralization is a technical administration. Decentralization is a socio-political approach. In July 1991, a CABE committee on policy (JRC) under the chairmanship of the Chief Minister of Andhra Pradesh was constituted to review the implementation of the various parameters of the NPE 1986. The JRC in its report submitted in January 92 came to the conclusion that while very little of the NPE 1986 required reformulation, the Programme of Action (POA) needed to be revised considerably.

In May 1992, the CABE considered the JRC report and formulated the revised policy Formulations (RPF). They were placed in both Houses of Parliament in May 92. The Minister of Human Resource Development gave an assurance to present a revised POA (POA 1992) in the Monsoon session. Twenty-two task forces were constituted on different subject areas comprising educationists and officials of the Union and State Governments. NPE 1986 gave an operational meaning to concurrency. POA requires a cooperative effort of the Union, States, the educated community and the

The Characteristics of a Good policy Formulated and... 111
community at large. India's rich diversity allows each State to formulate a State POA, which is in line with the POA 1992. Each district and educational institution should formulate a POA of its own.

POLICY IMPLEMENTATION

It is hard to translate policies successfully into good actions. High-sounding education policies do not always work well when converted into particular programmes. Outcomes may be very different from those intended. Often implementation produces the classic symptoms of under performance, delay and escalating costs. Simple straightforward programmes that require minimal management effort have the best chance of success. At the National level CABE, Planning commissions are advisory bodies. Central agencies like NIEPA, NCERT, CBSE, UGC, and IGNOU give technical support. At the State level SCERT; planning departments of education, Secretariat, Directorates implement the policies. Successful implementation also depends on the degree of the support of the community, the commitment and capacity of the bureaucratic system.

The many tasks which the NPE 1986 and POA 1992 envisage cannot be performed in a state where even routine tasks like supply of textbooks, conduct of exams, and operation of academic calendar leave much to be desired. Education is for community. So community should be involved. They know the local conditions and needs. If they are involved there will be acceptability and demand. It is also a means to increase mobilization. The school should adapt to the needs and aspirations of the community.

After the World Conference on Education for all held in March 1990 in Jomtien, Thailand, the idea of partnership came. Individual parents, PTAs, Community organizations, NGOs and Private Enterprisers are the partners in Basic education. They can collaborate potentially by diagnosing educational conditions and needs, setting school goals, policies and programmes, setting and managing school budgets, determining content and designing materials. They should be given training. They cannot provide any suggestion about how to teach.

Resources are an important consideration for policy implementation. Resources need to be allocated and utilized. If resources are inadequate then they need to be generated. In education resources are important not only in terms of infrastructure but also the inputs in the teaching learning process. Implementation strategies are also likely to be different for different areas. Strategies include school mapping, micro-planning and local community involvement. An ethos of cost-effectiveness and accountability should permeate every part of the educational system.

The country has placed boundless trust in the educational system. The first task is to make it work. All teachers should teach and all students study. The strategy should consist of,

1. Provision of better facilities to institutions.
2. A better deal to teachers with greater accountability.
3. Creation of a system of performance appraisals of institutions according to standards and norms set at the Nation or State levels.

Education needs to be managed in an atmosphere of utmost intellectual vigour, seriousness of purpose and at the same time, of freedom essential for innovation and creativity.

POLICY EVALUATION

Evaluation may show that the problems have been solved: the policy was unsuccessful: the outcomes were undesirable: major change in direction resulting from feedback. Policies are adjusted, modified, refined or replaced with other policies. The implementation of the various parameters of the Policy must be reviewed every five years. Appraisals at short intervals should also be made to ascertain the progress of implementation and the trends emerging from time to time. SSA will be implemented next year. DPEP covered selected districts up to Std.V. SSA will cover the entire country; up to Std.VIII. DPEP covered only rural areas. SSA will cover urban deprived children also with liberal appointment of teachers.

1. Lecture on Indian Education, National Institute of Education and Training, 2001, New Delhi
2. National Policy on Education, Govt. of India, 1986
3. Educational Policy - An International Survey,
4. Programme of Action, Govt. of India, 1992

The Future of Open Universities

OVERALL ASSESSMENT OF HIGHER EDUCATION

As part of the preparation for the Tenth Five Year plan, an exercise was under-taken about a year ago in the Human Resource Development ministry and the Planning Commission about the likely growth in numbers at the university and college level in the next five years. It was also to ascertain how many students would opt for the formal and the non-formal system respectively. Currently, a little less than 20 per cent of students are enrolled in the non-formal system. So as not to overburden the formal system, it was calculated (how?) that, by the end of the Tenth Plan, about 40 per cent of the new enrolment should be in the non formal sector.

Even then, the enrolment in the formal system was likely to go beyond the existing figures of 9 million plus which would rise to 11 million plus at the end of the Plan period. But will that option for the non formal sector really come to 40 per cent of the relevant student's population? Will the enrolment of students in the non-formal sector jump so much from the existing 7-8 per cent? The earlier experience and the current trends do not point to such a conclusion. There are three obvious reasons for this.

Out of the half a dozen open universities in the country, the biggest is IGOU with an enrolment of over 8 lakh. Besides, none of the other open universities has so far got projected as a university which can be talked about. Whether it is in terms of resources, staffing, infrastructure, qualities of leadership or such other relevant considerations, hardly any of them comes up as a university with the potential to either attract or retain such a large number of students.

Two, in terms of the prevalent trends, the general perception is that the students who are unable to enter the formal system of education opt for the non-formal stream. The standard of performance in the open universities is not always satisfactory and is viewed patronizingly by others.

QUALITATIVE ASPECT

Unless the non-formal universities function at a level where they, on their own steam, come up as being at least as good as the regular colleges, the situation would continue to be more or less what it is today. By themselves, the half a dozen open universities do not involve more than 5-6 per cent of the total student population in this sector. The rest of them are enrolled in other mainstream universities which also run several distance mode courses. Some of the universities, particularly in Tamil Nadu, generate about Rs. 50 crore a year from these unorganized students. Of the revenue earned, only a small proportion is spent on those who pay; the rest is utilized as revenue income for the parent university to meet its other commitments.

This whole procedure is sanctified, so to speak, by the existing Tamil Nadu practice whereby non-technical universities in the State are given limited funding. The greater part of the university expenditure is met from the income generated from the large enrolment of non-formal students. Hence, the level of instruction imparted to the non-formal sector cannot but be substandard. The motive of these universities which run multiple courses and provide education in those particular sectors where the payoff is handsome is unabashedly commercial.

SOURCE OF REVENUE

There is nothing secret about what has been stated above. Everyone knows about it and most people accept it uncomplainingly. These universities treat distance education as a kind of milk cow for the formal system of education. This brings us to the third point; how is the non-formal education sector organized and funded? Despite the systematic division of funds from the non-formal to the formal sector, the IGOU, statutorily charged with the responsibility

for non-formal education, has not intervened as decisively as it should have and indeed could have. Over the years, it has been worked out between the IGNOU and the UGC that the responsibility for non-formal education, even in respect of the mainstream universities, is that of the former and the UGC would abide by the recommendations made by it. Why is the IGNOU not discharging this role properly?

The answer to this question is utterly unflattering to the HRD Ministry which oversees both these bodies. In the Mid-1980s when the IGNOU was being established what governed decision-making was the fact that the then UGC Chairperson and the HRD Secretary were allergic to each other. The IGNOU bill projected this university as an independent agency which was in no way a part of the UGC. More specifically, it was also given the responsibilities of coordinating, promoting and funding distance education institutions. This scheme had the sanction of the precedent in U.K. which had established an open university more than a decade earlier. This university in Britain deals with the Government directly. The HRD Ministry was able to invoke this precedent and the proposal went through.

STATUTORY STATUS OF IGNOU AND ITS ROLE

Future placing the IGNOU under the UGC would not be preferable. An independent organization looking after a relatively independent sector of education with its unmistakable technical orientation and a separate identity of its own was a perfectly feasible proposition.

The real problem lies in the fact that the provision asking the IGNOU to look after and fund the other open universities seemed to have been put in as an after thought. The IGNOU Vice-Chancellor appears to function on the basis that as long as the university campus is running well, there is nothing much to worry about the other dimensions of the mandate. Some funds are distributed to the rest of the open universities in an ad-hoc manner. Often, the IGNOU Vice Chancellor takes decisions on his own and without any close scrutiny of what is happening and, no less important, not happening.

The body dealing with other open universities is the Distance Education Council (DEC). It functions under the auspices of IGNOU which seems to treat this responsibility as an additional, perhaps not all that important, part of its mandate. This may be putting it strongly but the fact is that no aspect of the IGNOU's working has received such a niggardly share of its attention as the DEC has. The Vice-chancellor devotes something like 10 per cent of his time and attention to the DEC, whereas it should be 50 per cent or so. Hardly anyone talks about his matter, much less grumbles about the other open universities not receiving their due share of attention and funding. In other words, except the IGNOU, other open universities are treated as the stepchildren of the system.

The original intention of attention and funding by IGNOU as provided in the act should be evident from one single fact. The Act provides for up to six Pro-vice-chancellors (PVCs) so that work could be well delegated. Currently, this provision is being ignored. At present, almost everything is sought to be done by the Vice-Chancellor and two of his PVCs. Good performance implies delegation of power, not its over-centralization.

It would be too much to assume that 40 per cent of the total enrolment at the university and college level would be in the non-formal sector. This would be an instance of the triumph of hope over experience. The matter has to be scrutinized much more rigorously by the HRD Ministry and the Planning Commission. To take away the powers from the IGNOU and vest it in the UGC, as mooted by some people, would not be a solution, indeed, it can create a fresh set of problem.

The IGNOU should be reorganized to assume full and ungrudging responsibility for the functioning of all open universities and other non-formal programmes run by the mainstream universities. To create a healthy and functioning system of open learning is the need. With 88 per cent of the total enrolment at the undergraduate level being at the Non-formal sector level, an acute imbalance has already arisen. Is it advisable to create a further imbalance?

The Role of Education in Modernization

INTRODUCTION

Modernization is a term widely used now a days in connection with social and educational changes. It is sometimes used as opposed to 'traditional' norms prevalent in the society. But many people do not have a correct and specific idea contained in the term. The term Modernization can be used in the context where a traditional society changes, taking new patterns of life. Some times, the words 'Westernisation' and 'Industrialisation' are also taken to mean the same thing. "Modernisation is essentially a process, a movement from traditional or quasi-traditional order to certain desired types of technology and associated form of social structure, value orientations, Motivations and norms".

TEACHING - LEARNING

In education, Modernisation implies many things. To one educationist, modernization means to spread education, to produce educated and skilled citizens and train an adequate and competent intelligentsia. To another educationist, it implied more teaching aids to make teaching - learning effective. It was considered in terms of western educational system and so on and so forth. It is a new approach not only to the aims and processes of education but also to the totality of its entire programmes so as to relate it to national development, national needs and national aspirations. Since the goal of the developing countries is to catch up with the advanced nations, they often try to invite the modern developed nations. This may not produce the healthy result as modernization is not a process of mere imitation. It involves a change in values and sometimes significant institutional modifications are also essential.

The Role of Education in Modernization

Modernity denotes the common 'behavioural system' usually associated with the urban industrial societies of Europe. Hence, we can say that Modernization is a process by which the level of achievement of these countries is to a large extent attained by the less developed counties.

MODERN BEHAVIOURAL SYSTEM

Introduction of western science and technology and with it certain amount of western civilization, the people identified modernization with westernization. But modernization is more than that. The selection and acceptance of these ideas should be done as an integral part of the life pattern of the society. The trend today is to imitate the developed counties and feel that they are also marching towards modernization.

'Modernity denotes the common behavioural system' historically associated with the urban, industrial, literate and participant societies of western Europe and North America as well as of Soviet Union and Japan. Modernisation is the process through which their standards of performance and achievements can be accomplished by the less developed societies.

EDUCATION IN MODERNIZATION

The structure of the Indian society is very old. Five decades back it has emerged as an independent nation. It has been striving hard to achieve economic development. In the may of modernization there are many hurdles. The Indian society, its structure and form is traditional; therefore it can't proceed without looking back. The past and the present go together and their fusion will given Modernisation its true essence, failing which the process of modernization will be slow paced following the traditional culture, social and philosophical values. The secondary Education Commission has stated, "Through a proper orientation and presentation of the curriculum, it can make the students appreciative and proud of what their country has achieved in literature and science, art and architecture, religious and philosophy". Traditional values do not easily permit the nation to achieve modernization.

Modernisation in the educational sphere can be achieved through:

- Universal free and compulsory educational or universal schooling and making every individual literate.
- Providing equal opportunities for education to every one.
- A common school system.
- Admissions on the basis of merit.
- Multi-faceted curriculum.
- Relating education to economic development.
- Education and training in democracy.
- Providing training for various professions.
- Giving maximum importance to science and technology.

TEACHER'S ROLE IN THE PROCESS

Modernity is a comprehensive term which lays stress upon the new and the present, scientific temperament, as well as equality and the quality of life also. Education is an instrument for the development of attitudes, aptitudes and values and the teacher is its master. Consequently, education and the teacher and the end result of this combination – a bunch of well educated and trained professionals occupy very important places in the process of modernization. Teacher should possess certain behavioural patterns ensure the development of these professionals,

- He should have scientific attitude.
- He should have rational thought.
- He should have empathy.
- He should encourage mobility.
- Have faith in change and transformation.

- Respect individual personality of others.
- Have democratic ideals in his actions and outlook.

At present, for this noble purpose, education is to be reorganized to meet the two ends. The great educationist, Saiyidain pointed out, "We are today at one of the great cross-roads of our history, when the pattern, both of our culture and of social order is being refashioned. While it is true that education should always be essentially a forward-looking activity, in normal times when changes take place rather slowly and decorously, its function is mainly conservation, adjusting the child to a relatively stable environment. But in periods of crisis like the present, when the older is dying out and the new one is not quite born, when the older forms of culture have lost their grip on the loyalty, at least, of the youth and the new 'shape of things' is far from being clear, education has a special difficult and critical role to play".

Inspire of retaining old values in the field of education, our students should be taught scientific knowledge, which is the true base of modernization. Standards of attainment in education of our youth should be raised to keep pace with the process of modernization. For this, the curriculum at primary, secondary and university stages should be strategically enriched. At present it falls behind the corresponding levels in western countries. Regarding this, professor Humayun kabir had stated, "The standard of attainment of most boys and girls who seek to enter the university in the United Kingdom or Europe at the age of seventeen is considerably higher than the standard of our intermediate examination. There is no reason to think that our pupils are less intelligent than with better organisation of the syllabus and better teaching, our young men and women will attain the same standard at 17 plus as in how reached by pupils of the same age in western countries". So elite people, educationists should take proper steps to reorganize the curriculum to suit the needs of the present only then modernity can be achieved.

Preparing for the 21st Century: An Education Imperative

INTRODUCTION

The education that many students receive in science, mathematics, and technology is not adequate for a world that is being transformed by scientific and technological advances. People have to be familiar with the basic concepts of science, mathematics, engineering, and technology to think critically about the world and to make informed decisions about personal and societal issues. Literacy in these fields is essential also for an appreciation of the rapid expansion of human knowledge—surely one of the great adventures of the 20th century.

Another motivation increases the sense of urgency: today, an understanding of science, mathematics, and technology is very important in the workplace. As routine mechanical and clerical tasks become computerized, more and more jobs require high-level skills that involve critical thinking, problem-solving, communicating ideas to others, and collaborating effectively. Many of these jobs build on skills developed through high-quality science, mathematics, and technology education. Our nation is unlikely to remain the world leader without a better-educated workforce. Several key objectives set forth in Academy complex reports can help guide the actions of all those involved in developing and implementing public and institutional policies regarding education. Among these objectives are the following:

- Encourage teachers, curriculum-developers, school administrators, government officials, and college faculty to build on the national standards in science and mathematics in seeking higher levels of performance from all students in grades K to 12.

Preparing for the 21st Century: An Education Imperative

123

- For all undergraduates, provide access to excellent programmes in science, mathematics, and technology that provide direct experience with the methods and processes of inquiry.
- Evaluate undergraduate departments and programmes against explicit educational goals with assessments that are as rigorous as those applied to research.
- Balance the rewards accorded teaching, research, service, and professional activities so that teaching is enlivened by investigation and faculty are rewarded for the full range of scholarly activity.
- Foster change through leadership that builds a consensus concerning educational improvements and provides the support needed for improvements to take root and spread.
- Require that students seeking admission into universities and colleges take tests that include evaluation of their ability to conduct scientific inquiry, rather than relying on current standardized tests of their knowledge of science and mathematics.
- Expand the use of education and training grants to provide financial support to graduate students.
- For graduate schools, set institutional standards for time to degree, enforce them, and inform students of time-to-degree and other career-related information before they enter a programme.
- Emphasize the importance of building a true system of postsecondary training to replace the piecemeal approach characteristic of past efforts.

K-12 EDUCATION SHOULD BE BASED ON NATIONAL STANDARDS

The education in science and mathematics that students receive from kindergarten through 12th grade forms the foundation of this nation's scientific, mathematical, and technological literacy.

Some outstanding things happen in science classrooms today because extraordinary teachers do what needs to be done despite conventional practice. Many generous teachers spend their own money on science supplies, knowing that students learn best by investigation. These teachers ignore vocabulary-dense textbooks and encourage student inquiry. They also make their science courses relevant to students' lives, instead of trying to prepare the students simply for another school science course. But that situation is not found in many schools. The implementation of the National Science Education Standards will highlight and promote the best practices of extraordinary teachers and give them the recognition and support that they deserve. School principals who find money in their budgets for field trips, parents whose bake-sale proceeds purchase science equipment, and publishers who are pioneering authentic assessments despite the market for multiple-choice tests will also be recognized and encouraged.

Over the last decade, the National Research Council and the National Council of Teachers of Mathematics, responding to calls for higher levels of science and mathematics achievement, developed national standards for what all students should know and be able to do in these subjects. The standards reflect a broad consensus that has emerged through the extensive efforts of thousands of teachers, scientists, mathematicians, engineers, and educational experts across the nation. In addition to containing content standards that describe the subject-matter that all students should master, the standards outline what teachers of science and mathematics at all grade levels should know and be able to do and the new kinds of assessments that are needed to test what all students should know and understand.

A curriculum is the way content is organized and presented in the classroom. The standards do not mandate a specific curriculum: the content embodied in the standards can be organized and presented with many different emphases in many different curricula. Nor do the standards imply that all teachers should pursue a single approach to teaching; different teachers can use many different strategies to develop the understandings and abilities described in the standards.

The standards point toward a kind of teaching different from that common in many K-12 classrooms today. The teacher serves as a coach for the development of skills, such as the ability to engage in problem-solving and inquiry. The students engage in collaborative learning that includes the synthesis and integration of different types of data and analysis, and communicating the results. The benefit of learning *skills* as opposed to only learning *knowledge-learning how* as opposed to only learning exemplified in sports and music. It is difficult to imagine teaching basketball or piano-playing by lecture alone, and it should be just as difficult in the case of science and mathematics.

How can student's best learn these skills? Students can conduct an *investigation*. For example, a teacher wants students to develop an understanding of variables and how and why to change one variable at a time. This inquiry-process skill might be imparted in the context of physical science subject-matter. The teacher asks students to build a pendulum that swings at six swings per second. She does not tell students that the number of swings depends on the length of the pendulum, but creates an activity that awakens their interest and encourages them to ask questions and seek answers. She then encourages them to look for applications of this science knowledge beyond the classroom. Students keep written records of their science activities, and the teacher helps them to develop the skills needed to communicate effectively.

All students, not just high-achieving ones, should be exposed to much more science than the minimum that most students are exposed to today. High-achieving students should be able to pursue science and mathematics as fully and rapidly as their talents permit. The standards underscore the need for teacher professionalism in science and mathematics education. Better preparation in science and mathematics, recognition and support of effective teaching, continuing education in science and mathematics, and permanent links of teachers to universities, professional organizations, and other science-rich institutions can all help to create the necessary level of professionalism.

Assessments of learning (the tests that students take) have a powerful influence on education policies and practices. Appropriate

assessments do more than measure factual knowledge. They assess what is important to learn, not just what is easy to measure. They enhance learning and good instructional practice. And they support every student's opportunity to learn. These principles should guide efforts to construct assessments that measure whether the standards are being achieved.

The national standards in science and mathematics are an essential resource for improving the education received by the 40 million students enrolled in America's elementary and secondary schools. *Policymakers should encourage teachers, curriculum-developers, school administrators, government officials, and college faculty to build on the national standards in science and mathematics in seeking higher levels of performance from all students.* Undergraduate Education Should Include Scientific Inquiry weaknesses of science and mathematics education at the K-12 level have counterparts at the undergraduate level. Although undergraduate education continues to produce the highly motivated and capable students who will become the scientists, engineers, and mathematicians on whom our society so heavily depends, many undergraduates take little or no science, mathematics, or engineering courses in college. In many institutions, science and mathematics do not contribute to the core of a liberal education. And unrewarding experiences in first-year undergraduate science or mathematics courses often dissuade students from taking more.

Given the importance of science, mathematics, engineering, and technology in our society, an undergraduate education that does not include exposure to those subjects is incomplete. *All undergraduates should achieve high levels of literacy in science, mathematics, and technology by having access to excellent programs that provide direct experience with the methods and processes of inquiry.*

Achieving that objective requires that departments and institutions be much more explicit in defining their missions. New instructional models-monitored by self-assessment and feedback from alumni and employers who hire college graduates as well as from students-can improve the educational experiences of all

undergraduates. Unlike the situation in research, there is no tradition of evaluating undergraduate teaching or learning other than through student course evaluations. *Departments and programmes should be evaluated against explicit educational goals with assessments that are as rigorous as those applied to research.* Most important, departments and institutions must align faculty rewards more closely with their total missions. *The rewards accorded teaching, research, service, and professional activities must be balanced so that teaching is enlivened by investigation and faculty are rewarded for the full range of scholarly activity.* There is room for a greatly revised and expanded view of teaching - one that brings it closer to scholarship and demonstrates the real (if often neglected) linkages between teaching and research.

Change in undergraduate education will require energetic leadership. *The leaders in our colleges and universities should foster change by helping to build a consensus concerning educational improvements and by providing the support needed for improvements to take root and spread.* Government agencies that support research should also develop explicit policies concerning these educational issues. Our colleges and universities have important roles in supporting the profound changes in K-12 science and mathematics education called for by the national standards. For example, learning science through hands-on inquiry not only is the best way for students to gain an understanding of science throughout their K-12 years, but also should be an important focus for introductory college courses. Colleges and universities should have as part of their admission policies a requirement that students take tests that include evaluation of their ability to conduct scientific inquiry, rather than relying on current standardized tests of their knowledge of science and mathematics. If we do not reward what we value, high-school teachers will continue to be pressured to teach to the present national examinations, which inhibit inquiry and are a very poor match for the national standards. Finally, future teachers of science must experience inquiry in college to be able to use these techniques to maximal advantage in the classroom. These students deserve special attention and encouragement as we work as a nation to increase the talent and diversity of our K-12 teachers.

The guidance from the National Research Council studies mentioned here are just the preliminary activities of a continuing effort by the NRC to evaluate the quality of the country's undergraduate science and engineering education and recommend the changes needed to improve that education.

GRADUATE EDUCATION SHOULD FOCUS ON STUDENT NEEDS

Science, engineering, and society are all changing in ways that have important implications for the graduate education of scientists and engineers. For example, graduate education traditionally has focused on preparing students for jobs in academe. But today well over half of all doctoral recipients go to work in nonacademic settings, where they often need to call on a wide array of skills. Graduate students therefore require exposure to the broad range of experiences desired by both academic and nonacademic employers.

Policymakers and institutions can take several steps to improve graduate education. First, there should be a better balance in the various grants that are used to support graduate students (fellowships, research and teaching assistantships, and training grants). The heavy reliance on research assistantships for graduate student support has tended to make the needs of research projects, rather than students' education, paramount. *Education and training grants should be used more often to provide financial support to graduate students than is the case today.* These grants could be awarded competitively to institutions and departments that work to enhance the versatility of students, both through curricular innovation and through more-effective faculty mentoring to acquaint students with the full array of employment options. It is recognized that a heightened emphasis on education and training grants could reduce the funds available for research assistantships.

Second, time to degree should be controlled. The median period between receipt of a bachelor's degree and a PhD in science and engineering has risen to more than eight years, an increase of two years since 1960. The reasons for this increase are largely unknown, but some of it might be a result of students' working as highly specialized research assistants in ways that do not directly

Preparing for the 21st Century: An Education Imperative
contribute to their education. Each institution should set its own standards for time to degree and enforce them. It should also inform its students of the average time to degree and other career-related information before they enter graduate school.

Third, the lack of accurate, timely, and accessible data on employment trends, careers, and sources of student support is a serious flaw in the graduate-education system. A national database that covers such issues as financial aid, time to degree, and placement rates—including information gathered and disseminated through the Internet—could help students and their advisers to make informed decisions about professional careers. Such a database, which should be designed and managed by the research community, could be used both by students and by their advisers to learn more about graduate programs and possible career tracks.

The ultimate measure of success in graduate education is the extent to which all students are well prepared for their careers. Graduate education needs to be designed with a focus on student needs, and it should prepare students for an increasingly interdisciplinary, collaborative, and global job market. Successful programs have a focused, realistic mission and a positive learning environment that supports a wide array of career options. Adapting to new realities will require substantial change on the part of faculty, but it can have many benefits for departments, students, and society.

CONTINUING EDUCATION REQUIRES MORE COHERENCE

With a workplace that is rapidly changing, education can no longer be seen as occupying just the first portion of a person's life. Formal education must prepare people for a lifetime of learning. The need for postsecondary training is particularly acute among the 75 per cent of American adults who do not hold college degrees. Today, they receive postsecondary training through an uncoordinated assemblage of two-year colleges, trade schools, vocational-technical schools, on-the-job training, and other institutions. The quality of training provided by these institutions is mixed. Processes for quality assurance are undeveloped. And linkages to employers are often weak (with the exception of on-the-job training). Rather than a

post-secondary training system, the United States has a piecemeal collection of training opportunities that sometimes work well for some people. The federal government, with its proliferation of programs and lack of a coherent approach, bears part of the blame for this situation. Some states have begun to restructure their programs to address workforce development systematically and effectively. These efforts are not universal, however, and are hampered by continued fragmentation at the federal level.

In an ideal postsecondary training system, people who want to obtain or advance in specific jobs would know what kind of training is valued by employers and where to find it. They would have the information necessary to select occupations that match their skills and interests. They also would have information about the likely demand for workers in various fields. For their part, employers would know about and value the skills that workers have acquired through a training programme. Employers would have ready access to information about the existing and future supply of trained workers and would be able to let training institutions know what their needs are.

Government at all levels can focus attention on linking the various partners in postsecondary training in ways that provide coherent and high-quality training opportunities for people at various stages in their working lives. *Policymakers need to emphasize the importance of building a true system of post-secondary training, rather than continuing the piecemeal approach that has characterized past efforts.* Information is another important consideration. There is an absence in this country of readily available and integrated information systems that would help both potential trainees and employers to obtain needed training services. Putting good information in the hands of these consumers so that they can make informed choices can improve the efficiency of the training marketplace and serve as an indirect means of ensuring accountability and oversight.

CONCLUSIONS

The American educational system has responded to great challenges in the past. It has navigated the transition from an

agricultural to an industrial society, it has greatly increased access at the K-12 and college level, and it has built a system of graduate education in the sciences and engineering that is widely viewed as a world model. Education in the United States is largely decentralized. Authority and accountability are largely approved and recognized as such, this country already has national examinations for college entry and a national curriculum for K-12 science and mathematics education that is determined largely by these tests and by the books produced by major textbook publishers. The science curriculum demands a superficial knowledge of such a wide variety of topics that the understanding and excitement of science are lost. And most of our high-school graduates fail to acquire the analytic, problem-solving skills that they need to succeed in the modern workplace. Coordinated efforts by all those involved in the educational system are needed to help move science and mathematics education toward world-class goals.

For the last decade, experts have been describing and defining the essential elements of science, mathematics, engineering, and technology education. The challenge now is to ensure that policymakers and educational leaders across the nation are aware of the needs and possibilities and are encouraged to begin the next phase of work-implementation-in school districts and universities around the nation.

The challenge facing education today is more varied than past challenges. It encompasses the rapidly increasing diversity of the nation's population, the growing internationalization of commerce and culture, the explosive development of information technologies, and other great technical and social transformations. There is no simple, universal prescription for success. But a focus on high standards for all, coupled with recognition of the need for versatility in the face of change, can help to prepare all students for the demands of the 21st century.

Technological Innovations and Higher Education in 21st Century

INTRODUCTION

On the eve of a new century, there is an unprecedented demand for and a great diversification in higher education, as well as a increased awareness of its vital importance for socio-cultural and economic development, and for building the future, for which the younger generations, will need to be equipped with new skills, knowledge and ideals. Higher education includes all types of studies, training or training for research at the post-secondary level provided by universities or other educational establishments that are approved as institutions of higher education by the competent state authorities. Students who do not opt for technology studies in high school miss an essential part of the programme. There is a considerable gap between the prestigious images of technology education as an elective subject in high school. Outstanding students seek challenging tasks, open-ended assignments, freedom to experiment, to err and learn from mistakes and to reach their own capability.

GOALS TO THE STUDENTS IN HIGHER EDUCATION

The goals of the student in the new era of educational technologies are as follow:

- Improve their technological thinking ability and attitude by understanding and experiencing the character of technology.
- Improve competence that shapes their career in vocation in relation to the technological process.

Technological Innovations and Higher Education...

Universities are perceived as failing to prepare students to live and work in a global world, as engaging in studies that are out of harmony with contemporary society, and as failing to empower students through involving them in a dynamic, relevant learning process. Some critics argue that there is an opportunity for universities to restructure themselves through the use of digital technology into vital organizations which will enhance student learning and meet the challenges of the 21st century.

Imagine a revolution in the way members of the university, community teach and learn, in the way they access, transfer, and communicate information that will profoundly alter the world of higher education. More importantly, through the use of technology expanding global student population. Its overarching goal is to motivate teaching faculty members to investigate diverse and alternative instructional strategies. Students receive computer technology to maximize its usefulness and network - based training. At a time when the public purse for higher education institutions is shrinking, the market for the profitable high end of higher education is becoming more competitive.

Technology Mediated Higher Education: From A Learner Perspective Some of the features of the Technology Mediated Learning (TML) from the learner perspective are given below:

- One of the most common observations about TML is its role in distance learning.
- Learning experience for both face to face and distance students can be enriched and enhanced through TML tools.
- Working adults and advanced learners are key beneficiaries of the process of extending advanced training beyond the walls of the colleges and universities.
- TML also provides opportunities to involve teachers and students in entirely new ways of teaching and learning. The excitement about the potential of TML

comes not just from the implementation of new technology but from the combination of the networking capabilities of the new tele-learning technologies with an approach to teaching and learning that is learner-centered, distributed and collaborative.

DISTANCE LEARNING

Distance Learning is becoming a major issue in education and in strategic planning for regional development. Learning programmes use all the technologies that are normally associated with Distance Learning Correspondence Courses, radio television, telephone, internet, tele-centers, CD Rom and satellite broadcasting.

TECHNOLOGY EDUCATION FOR BOTH TEACHERS AND STUDENTS

Students are learning when technology is a tool and when it is a distraction. As a teacher, it is readily accessible to see how learning is taking place. Teachers can work closely with students and other educators to reach educational goals and standards. Teachers will then be inclined and encouraged to incorporate online projects in the curriculum. A technology aware teacher can be paired with another teacher to complete collaborative project together. For teachers and students in technology education, the traditional norms or expectations associated with teaching and learning are now changing. Students are expected to become more autonomous toward their learning and teachers are expected to facilitate this type of student learning activity.

For both teachers and students of technology education, the prescribed need to continue with teaching strategies that are associated with the norms of industrial arts-type subjects, creates tensions. These tensions occur as a result of changes in technology syllabus focus and the subsequent pressures these changes impose upon teachers and students with regard to the redistribution of learner and teacher pedagogic control. It is the balance teachers create between teacher-centered and student-centered pedagogies within their technology classrooms that influences how students perceive the learning situation, and ultimately how and what they

learn in technology education. Learning is a dynamic process and the location of the balance between teacher directed and student managed activities can likewise be expected to be always dynamic.

THE POTENTIAL AND THE CHALLENGE OF TECHNOLOGY

The rapid breakthroughs in new information and communication technologies will further change the way knowledge is developed, acquired and delivered. It is also important to note that the new technologies offer opportunities to innovate on course content and teaching methods and to widen access to higher learning. However, it should be borne in mind that new information technology does not reduce the need for teachers but changes their role in relation of the learning process and that the continuous dialogue that converts information into knowledge and understanding becomes fundamental. Higher education institutions should lead, in drawing on the advantages and potential of new information and communication technologies, ensuring quality and maintaining high standard for education practices and outcomes in a spirit of openness, equity and international co-operation by:

- (a) Engaging in networks, technology transfer, capacity building, developing teaching materials and sharing experience of their application in teaching, training and research, making knowledge accessible to all.
- (b) Creating new learning environments, ranging from distance education facilities to complete virtual higher education institutions and systems, capable of bridging distances and developing high-quality systems of education thus serving social and economic advancement and democratization as well as other relevant priorities of society, while ensuring that these virtual education facilities, based on regional, continental or global networks, function in a way that respects cultural and social identities.
- (c) Noting that, in making full use of information and communication technology (ICT) for educational purposes, particular attention should be paid to

removing the grave inequalities which exist among and also within the countries of the world with regard to access to new information and communication technologies and to the production of the corresponding resources.

- (d) Adopting ICT to national, regional and local needs and securing technical, educational, management and institutional systems to sustain it.
- (e) Closely following the evolution of the knowledge society in order to ensure high quality and equitable regulations for access to prevail.
- (f) Taking the new possibilities created by the use of ICTs into account, while realizing that it is, above all, institutions of higher education that are using ICTs in order to modernize their work, and not ICTs transforming institutions of higher education from real to virtual institutions.

CONCLUSION

Everywhere higher education is faced with great challenge and difficulties related to financing, equity of conditions at access into and during the course of studies, improved staff development, skills-based training, enhancement and preservation of quality in teaching, research and services, relevance of programmes, employability of graduates, establishment of efficient co-operation agreements and equitable access to the benefits of international co-operation. At the same time, higher education is being challenged by new opportunities relation to technologies that are improving the ways in which knowledge can be produced, manages, disseminated, accessed and controlled. Equitable access to these technologies should be ensured at all levels of education systems.

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The 21st Century Education and Challenges

INTRODUCTION

The technology push of the last decade should give way to a strong movement towards permanently renewed, and openly discussed, curriculum development. Although more human centered than technology driven, the school of the 21st century obviously needs to embrace the progress of technology, and is faced, in this domain, with the challenge of virtual communities. A final challenge is identified in the need of accreditation systems capable of attaching the right social value to the increasing population of citizens of all ages whose professional profile results from competencies acquired in the most varied ways.

LEARNING SOCIETIES VERSUS SCHOOLS

In the advent of the 21st century none of these assumptions is valid any more. As the various countries switch from industrial to knowledge-based economies, the needs of the economy are much less for mass educated labour than they are for innovative knowledge workers. Also, there is no more need to isolate children from society and close them up in aseptic schools - just the contrary: we want them to be able to establish the construction of their knowledge as a fully integrated social activity. The dominant information technology in the schools of the past industrial societies was the printed book. As the textbooks of two centuries ago shaped the education of their time, the information technologies of the present - computers, communications, and information management - are shaping the education of the present and the future.

The 21st Century Education and Challenges

Learning can now be obtained in varied forms, all throughout the working lifetime of our citizens, and most of this can only take place outside the schooling system. On the other hand, the requirements of economic life are constantly changing, so that the private offer of learning opportunities is becoming widespread. People can now pick up a short course here, another short course there, and, above all, they can learn by themselves, whenever they want, provided they are given the appropriate access to learning contexts and help. This is why learning cannot, any more, be equated with just schooling, and why the key issue of education has become the much broader one of supporting the lifelong learners of a society of ever changing knowledge. We have entered the age of the learning societies.

This challenge leads to a number of other challenges. On one hand, we witness the sudden exposure of the school system to fierce competition from powerful technology based operators. On the other hand, we notice that this competition comes forth in a severely unstructured manner, plunging the learner into a most confusing and unfamiliar market. Additionally, we notice that the coldness of high tech societies desperately calls for human warmth and for the reinforcement of human values, pointing to the school as the right place to find them. All those challenges suggest that a new role must be reinvented for schools.

REINVENTING A NEW ROLE FOR THE SCHOOLS

As stated before, people are requiring many channels of learning and a high-choice system. They also require increased interactivity, mobility, convertibility, connectivity, ubiquity, and globalization. Traditional schools are badly equipped to face those challenges. The shift from the standardization of the schools to the individualization of free choice, namely across computer networks, is removing the emphasis from the schools, and putting it, increasingly, on the home.

Also, consumers are reacting more and more favourably to the output of the cultural industries. The big entertainment industries (Hollywood, Disney, Paramount, Viacom, Time Warner), originally exclusively dedicated to the movies, and later reconverted

to cover the video and video games markets as well, are now establishing partnerships with communications operators and pouring more and more money into interactivity across the information highways. They are addressing the mass market of the individual consumers, incommensurably more attractive than the tiny market of the schools, and they are becoming more and more interested in the education of those individual consumers ... outside the school. Two basic questions become important, in this respect:

- Can schools compete on the technological ground?
- Should schools attempt to compete on the technological ground?

Our answer to both questions is, categorically, NO! Schools cannot compete on the technological ground, first of all, for economic reasons: they will never be able to afford keeping up with the fast pace of renewal of technology. In fact, the home market is already incomparably more active than the school market, and it is not uncommon to have children complaining because the computer or software package they are using in school is outdated compared with the one they have at home. Also, the massive training of teachers for the use of information technologies in the classroom is proving to be a dead end. In spite of considerable amounts of money put in training teachers for the use of information technologies in education, the fast pace of renewal of technology has quickly made most of those efforts obsolete. Teachers are learning to use information technologies just like all the other citizens, and in this respect they will never be able to stay ahead of most of their students.

An additional reason why schools cannot compete on the technological ground is that the models of education practiced in schools cannot be adapted to the transverse nature of information technologies. We believe that *the school systems are becoming even more essential than before for the progress and well being of societies, and that they may be facing, in this respect, their biggest challenge ever!* John Naisbitt pointed out that one of the major trends of our age is that "high tech calls for high touch". In other words, the more a society becomes technology based, the more it

requires a compensatory human response. In support of this view, we claim that *the school should become the key place of society for the professional provision of compensatory human responses.* 141

In our view, *the school of success in this new environment will not be crammed with high technology. It will not be overflowing with computers and networks in the spirit of the claims of ten years ago that the school of the future would have a computer for each child. It will certainly need to have permanently updated technology and network access at the level of its resource centers but the distinctive character of the school of the 21st century will be its eminently human component and its role as a vehicle of culture.* Culture, understood as a unifying force that reconciles people with technology, simplicity with complexity, unity with multiplicity, and the individual with the collective, leading to the balanced development of both the *ego* and the *alter*, the *senses* and the *consensus*. This requires a radical shift from content to context, leading to a major challenge in the arena of curriculum development.

THE CORE ISSUE OF CURRICULUM DEVELOPMENT

As learning becomes more and more a process of exposure to an unstructured multitude of learning opportunities, this multiple exposure tends to become the source of cognitive overload and anxiety, if not of serious loss of references or total confusion. As stated by Edward Hall, one of the functions of culture is to provide a highly selective screen between man and the outside world. It is this screening function that provides structure to the world and protects people from information overload.

The major concern of present day schools has been to compartmentalize knowledge rather than to provide context to a world of diversity of offer where people are flooded in information but starving for knowledge. The reconciliation between content and context requires *curriculum development to become the key mobilizing project for both teachers and educational authorities.* The major concern is not, anymore, the one of preparing teachers and the school system for the use of information technologies in the various subject matters. It becomes that of maintaining a permanent - and cross-disciplinary - reflection about the ways in

which education can meet the challenges of the Information Age. This imposes the dynamic identification of the fundamental subjects and the creation of contexts where students can learn how to make sense and give structure to the complexity of the world that surrounds them.

Curriculum development becomes, in this way, the central issue of schooling in the 21st century. On the other hand, the cultural function of contesting must be closely studied, so as to help teachers develop in children the knowledge, attitudes and values that let them make sense out of unprecedented complexity and enable them to create the frameworks where knowledge from external sources can be built and structured.

The shape of *teacher training* will have to be significantly influenced by this approach. It must not be, as it often is, the "delivery" of speeches to relatively passive audiences. It must take the form of *project work* that fully engages the activity and creativity of the teachers. Also, it should not be given to teachers that are not deeply interested in receiving it. For this reason, it should be *offered within the motivational impulse of large mobilizing projects*. A possible sequence of steps to attract teachers to deep engagement in curriculum development projects might be: first, to make known to them the existence of new problems and solutions; second, to prepare and make available materials that create further awareness of those problems and solutions; third, to engage interested teachers in action/research projects concerning those problems and solutions; fourth, to professionally reward their efforts and achievements.

THE CHALLENGE OF VIRTUAL COMMUNITIES

We may interpret cyberspace as the virtual space of interaction, the network of networks where all people can meet and interact with each other and where they can have access to all sorts of information repositories. But the distinctive feature of this virtual space is not its incredible power as a virtual storage media. It is its nature as a platform where people can really DO things: they can discuss and collaborate with other people, they can exchange all sorts of files, and, above all, they can build up

By offering varied forms of social interaction, communications networks make possible the discourse of conjectures and refutations that leads to genuine knowledge building and ownership. In many cases, they can bring into the classroom the dimension of multicultural social interaction that it misses, including the linking between academic reality and the world of work, as well as the exchange of experience between people in different regions and in different countries. On the other hand, by letting children explore - in various learning contexts, as well as in their leisure time - the multiple facets of network access and navigation, they offer an excellent workbench for children to become familiar with the current transfer of professional activities from physical space to cyberspace.

Not only children will gain by interacting in cyberspace. Teachers will also have much to gain from the ability, afforded by networks, to let them interact very easily with their peers and with the world of work. This will let them share and build together lesson ideas and examples of good practice and will enable them to import from the world of work meaningful case studies to be explored in their classes and projects. It will also offer them, very easily, a wide range of contacts, projects, partners, addresses, resources, pilot demonstrations, and database access points, plus the exposure to the international dimension. Besides, the interaction across networks provides an excellent platform for the permanent debate on curriculum.

Apart from children and teachers, the schools, themselves, have much to gain from their full access to communications networks. Each school can create its private virtual environment (the so called "pages" in World Wide Web jargon), and make it accessible both internally and externally. Within this private environment, teachers and pupils can also create their own virtual environments (or "pages"), where they share with others their intellectual interests and their affections. Public spaces can be "visited" by students, teachers, parents, enterprises, old students,

prospective students, the media, and the community at large, thus reinforcing the integration of the school in its surrounding community.

THE CHALLENGE OF ACCREDITATION

The qualifications currently offered by Institutions are recognized by the State according to criteria that employers still tend to trust. The same applies to qualifications obtained through many private providers of education, including some distance learning operators. However, as the variety of sources of learning offered outside the school / college system increases, each person becomes a mosaic of "knowledge's" and abilities acquired in different ways, including self exposure to informal learning opportunities across computer networks. How can this person prove to employers that he/she reliably holds the right mix of "knowledge's" and abilities? How can employers, and society at large, take full advantage of this diversity of offer?

In this context, a radically different official accreditation system is needed. In fact, it may make the whole difference between a society of frustration and a society of success. The existing rigid forms of accreditation, almost exclusively based on school performance, are, above all, insufficient, because they only cover (an increasingly smaller) part of the competencies of an individual. Yet, they may also be coarse, insensitive, unprofessional and inhuman. Coarse, because they label an individual as a whole, while being unable to highlight any of his/her partial competencies. Insensitive, because they cannot be used easily to evaluate the adequacy of an individual to a job. Unprofessional, because teachers are often unable to overcome the contradictions between teaching and evaluating. Inhuman, because the evaluation is often based on mass criteria that do not respect the individual differences.

A finer, more sensitive, more professional, and more human official accreditation system are needed. This may lead to the creation of a new profession - the profession of certificatory - together with the identification of a dynamic mesh of competencies and abilities in a broad range of professional areas.

The 21st Century Education and Challenges

CONCLUSIONS

A number of challenges facing Indian education in the 21st century have been identified and some proposals for action have been advanced. Although, for facility of analysis, those challenges have been discriminated under a few different headings, it is clearly impossible to isolate them from one another. The emergence of learning societies, to pick just one example, has been discussed in the context of their opposition to schools, but, they do complement each other, and the existence of the former does, in reality, impose the strengthening of a few dimensions of the latter. Although not so clear, the challenge of curriculum development and the recommended shift from content to context are also closely related - by reasons of both cause and consequence - with the emergence of learning societies. The challenge of virtual communities, as presented, may sound as an issue that concerns mainly the schools, but this is certainly not true. In fact, we may notice that virtual communities do integrate both the schools and the learning societies, gathering them into a collective intelligence that presents no noticeable fractures. Finally, the issue of accreditation, although not directly linked with the learning societies, is an obvious consequence of their existence. This kind of transverse analysis carried out here from the point of view of the learning societies, should be understood as a way of stressing that the challenges identified are so closely related that facing one may mean facing some of the others simultaneously.

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The Digital Technology Education for 21st Century

INTRODUCTION

Once an infrastructure is in place, everyone needs to work creatively on three large tasks — developing new curricula and content for use with the digital technologies, providing effective professional development, and adapting practices of student assessment to the new structures of education. Explain *one concluding imperative* that educators and the general public should follow in developing the educational uses of the Internet. First, we need to observe that people engage themselves with the Internet and the Web for a variety of motives. I think three are of substantial importance, both in general and in the discussions we are here having — the commercial, the personal, and the intellectual. Let us reflect briefly on these three motives, in order to see why we should expect the intellectual drive to be the sustaining force for the further development of the Internet.

The Web is fast becoming a major locus of commerce, both as a marketplace and as a medium of entertainment. Major media companies are investing large sums of capital in developing ways to do business on the Web. There is no doubt that the Internet will thrive as a marketplace and numerous companies will profit handsomely by developing these commercial possibilities. There is a fear, however, that major media companies may take the Internet over and reconstruct it to suit their interests. Indeed, many have alerted us to the potential distortion of cultural and political characteristics that may arise should the influence of the big media on the ethos of the Web become too great. The commercial motivations are powerful, but a doubt lingers whether they will really dominate the future of the Internet. History endlessly provides opportunities for Hegelian ironies to take hold. Radio was not a

Major medium of intellectual work. It did not change the practice of medicine, chemistry, astronomy, literary criticism, classical studies, or any other substantial domain of academic research. None of the great nineteenth or early twentieth century innovations in communications, excepting photography for certain specialized purposes, changed the character of intellectual work or shifted the boundaries of possible knowledge. Digital technologies, particularly the Internet, are different. They have had deep intellectual effects. This difference sets their historical trajectory radically apart from these earlier innovations. The Internet, first and foremost, is an intellectual medium. And the place of intellect in life at the dawn of the 21st century is sufficiently central to guarantee that the Internet will continue to develop continuously and indefinitely to realize its potential for the advancement of learning in our world.

FOUR DEVELOPMENTS

In everyday physics, such latency phenomena are commonplace, for instance, whenever a variety of substances undergo a change of phase, as when ice melts or water boils. As the experimenter adds heat to cold water, its temperature increases, and its volume expands minutely but distinctly, increment by increment, until the water reaches the temperature of 100° centigrade. Then it continues at fixed temperature to absorb a significant quantity of further heat before boiling off as steam. With digital technologies in education, we are not simply adding inputs that will make incremental improvements in the performance of the existing system.

We are adding inputs that will force a change of phase in that system — in due course. Unfortunately, we are now in the midst of that period of latency in which much added input will have at the systemic level no discernable effect. First, the children of the well educated have much better information about how the system works than do the children of the poorly educated. Schools have difficulty delivering a good sense of what the options for higher education might be for their students. Only relatively well-financed schools, schools for the children of the well-educated, can afford extensive information on opportunities in higher education and counselors advising students on how to prepare for the transition.

8 OPENING CLASSROOMS AS COMMUNICATIONS CENTERS

Classroom Traditional classrooms are closed societies. The bell rings, the door shuts, and the class comes to order. The resources in that closed society are relatively sparse — the textbook, a few supplementary materials and possibly an encyclopedia, and the teacher's stock of knowledge. It is hard, on-demand, to amplify a given day's discourse. The school library is limited. Access to it during class time is inconvenient. These communications constraints have conditioned the educational possibilities within classrooms for centuries. Consider whether the Internet may change them.

CHANGING THE POLITICS OF THE CURRICULUM

Consider the character of the political tensions that accompany decisions about school curricula. For the past 100 years, the curriculum has consisted of compressed surveys of selected subjects scaled to fit within usable textbooks. The scale of the curriculum has not been a function of what is worthwhile in the culture, but rather what a limited set of books can encompass. Children could not carry a great encyclopedia around with them in their backpacks. Consequently, the politics of the curriculum involved a competition to exclude materials judged pernicious and to include those deemed essential. This competition is at the heart of the conflict between multiculturalists and defenders of the cannon. This competition is rapidly becoming meaningless and unnecessary.

An astounding curricular variety is increasingly possible. Educators will need to decide whether or not to embrace it. What is likely to be the issue troubling the public as it engages this variety? What are the wellsprings of cultural vitality and depth? Is it important that everyone within a community should have mastered a least common denominator identical, or nearly so, for all? The least common denominator is of little use. I find myself able to function at a higher level of intelligence in interacting with people who have had an education of some depth and rigor, regardless of whether or not it included a single set of common cultural resources. One could entertain the possibility that a curriculum that maximizes quality and diversity will have human consequences far more

The Digital Technology Education for 21st Century
preferable than those that result from a curriculum that achieves
commonality at the cost of quality.

A CONCLUDING IMPERATIVE

During the twentieth century in the United States, and I suspect elsewhere as well, people have been paying more and more attention to teaching, and the official didactic programme of the school, as the one, significant causal factor determining the outcome of educational activity. According to the conventional wisdom, education is what happens when teachers teach something effectively and students learn it well, absorbing precisely what has been taught. Continued acceptance of this habit of thought will lead us to ignore the most significant opportunities of change presented by the Internet and related technologies.

We have the opportunity to enhance the capacity of students to do their work, to study, which is a much more complex activity than simply learning what their teachers teach. Students learn, but they also criticize, think, probe, scrutinize, judge, question, hypothesize, and disagree. Students inquire, observe, theorize, map, reason, assume, examine, inventory, seek, challenge, dispute, hope, quote, speculate, infer, conjecture, suppose, list, investigate, notice, recognize, contest, and tinker. They converse, create, wonder, reflect, travel, doubt, solve, understand, and write. Students also predict, perceive, inspect, comment, read, conform, honor, refute, debate, compose, oppose, discuss, invent, copy, search, picture, measure, compare, record, estimate, listen, evaluate, formulate, analyze, deduce, guess, memorize, and consult. And finally they simulate, meditate, admire, muse, emulate, aspire, waver, synthesize, weigh, contrast, associate, catalog, compute, assert, and so on through all the verbs that describe the human capacities for cultural activity. Advanced technologies are tools to make study, the work of students, more efficient and effective. They enable students to do all these activities with greater power and self-direction. Tools of study can vastly amplify the range of educational possibility.

Look at the tools with which school children work. They are essentially the same as they became in the sixteenth century. Textbooks, notepads, pens and pencils, book bags, desks, slates

and chalk, various visual aids — all these were invented centuries ago. They condition what pedagogies will be successful. They require, after the elementary matters have been introduced, that the day be divided into periods devoted to distinct subjects. Across diverse subjects and ages, groups recite in unison lessons duly learned. Over and over, innovations in pedagogy have been tried, and over and over practice has gravitated back to long standing norms, for those norms accord with what most students can accomplish given their traditional tools. By providing students with new, powerful information tools, we change what students can accomplish, and as we change what students can accomplish, we change what pedagogies can usefully prevail.

By investing in the power of students to work with effect, we open the classroom and make it an appropriate setting for an intellectually rigorous progressive education accessible to all. Technological innovations do not originate the aspirations of progressive education — those go back to Jean-Jacques Rousseau, to Goethe, Pestalozzi, and Froebel. They lead through the great educational thinkers of this century — Dewey, Montessori, Freire. Technological innovations do not create ideas, or hopes and aspirations, but they do change the ecology of feasibility. Consider how in the sixteenth century, the spread of printing helped turn medieval heresies, which had a century earlier been easily suppressed, into major reforms of Christendom. The ideas of the Reform and the Counter Reform were not new, but owing to print, in the sixteenth century their feasibility was markedly greater than in the fourteenth. In the same way, the Internet changes what is possible in education. The Internet challenges educators to make the best of those possibilities actual by providing students the most powerful tools of telecommunications in our culture — that is the imperative we face. Let us grasp it.

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The Role of Education in Modernization

INTRODUCTION

Modernization is a term widely used now-a-days in connection with social and educational changes. It is sometimes used as opposed to 'traditional' norms prevalent in the society. But many people do not have a correct and specific idea contained in the term. The term Modernization can be used in the context where a traditional society changes, taking new patterns of life. Some times, the words 'Westernisation' and 'Industrialisation' are also taken to mean the same thing. "Modernisation is essentially a process, a movement from traditional or quasi-traditional order to certain desired types of technology and associated form of social structure, value orientations, Motivations and norms".

TEACHING - LEARNING

In education, Modernisation implies many things. To one educationist, modernization means to spread education, to produce educated and skilled citizens and train an adequate and competent intelligentsia. To another educationist, it implied more teaching aids to make teaching - learning effective. It was considered in terms of western educational system and so on and so forth. It is a new approach not only to the aims and processes of education but also to the totality of its entire programmes so as to relate it to national development, national needs and national aspirations. Since the goal of the developing countries is to catch up with the advanced nations, they often try to invite the modern developed nations. This may not produce the healthy result as modernization is not a process of mere imitation. It involves a change in values and sometimes significant institutional modifications are also essential. Modernity denotes the common 'behavioural system' usually

associated with the urban industrial societies of Europe. Hence, we can say that Modernization is a process by which the level of achievement of these countries is to a large extent attained by the less developed countries.

MODERN BEHAVIOURAL SYSTEM

Introduction of western science and technology and with it certain amount of western civilization, the people identified modernization with westernization. But modernization is more than that. The selection and acceptance of these ideas should be done as an integral part of the life pattern of the society. The trend today is to imitate the developed countries and feel that they are also marching towards modernization.

'Modernity denotes the common behavioural system' historically associated with the urban, industrial, literate and participant societies of western Europe and North America as well as of Soviet Union and Japan. Modernisation is the process through which their standards of performance and achievements can be accomplished by the less developed societies.

EDUCATION IN MODERNIZATION

The structure of the Indian society is very old. Five decades back it has emerged as an independent nation. It has been striving hard to achieve economic development. In the may of modernization there are many hurdles. The Indian society, its structure and form is traditional; therefore it can't proceed without looking back. The past and the present go together and their fusion will given Modernisation its true essence, failing which the process of modernization will be slow paced following the traditional culture, social and philosophical values. The Secondary Education Commission has stated, "Through a proper orientation and presentation of the curriculum, it can make the students appreciative and proud of what their country has achieved in literature and science, art and architecture, religious and philosophy". Traditional values do not easily permit the nation to achieve modernization.

Modernisation in the educational sphere can be achieved through:

- Universal free and compulsory educational or universal schooling and making every individual literate.
- Providing equal opportunities for education to every one.
- A common school system.
- Admissions on the basis of merit.
- Multi-faceted curriculum.
- Relating education to economic development.
- Education and training in democracy.
- Providing training for various professions.
- Giving maximum importance to science and technology.

Teacher's Role in the Process

Modernity is a comprehensive term which lays stress upon the new and the present, scientific temperament, as well as equality and the quality of life also. Education is an instrument for the development of attitudes, aptitudes and values and the teacher is its master. Consequently, education and the teacher and the end result of this combination – a bunch of well educated and trained professionals occupy very important places in the process of modernization. Teacher should possess certain behavioural patterns ensure the development of these professionals,

- He should have scientific attitude.
- He should have rational thought.
- He should have empathy.
- He should encourage mobility.
- Have faith in change and transformation.
- Respect individual personality of others.
- Have democratic ideals in his actions and outlook.

At present, for this noble purpose, education is to be reorganized to meet the two ends. The great educationist, Saiyidain pointed out, "We are today at one of the great cross-roads of our history, when the pattern, both of our culture and of social order is being refashioned. While it is true that education should always be essentially a forward-looking activity, in normal times when changes take place rather slowly and decorously, its function is mainly conservation, adjusting the child to a relatively stable environment. But in periods of crisis like the present, when the older is dying out and the new one is not quite born, when the older forms of culture have lost their grip on the loyalty, at least, of the youth and the new 'shape of things' is far from being clear, education has a special difficult and critical role to play".

In spite of retaining old values in the field of education, our students should be taught scientific knowledge, which is the true base of modernization. Standards of attainment in education of our youth should be raised to keep pace with the process of modernization. For this, the curriculum at primary, secondary and university stages should be strategically enriched. At present it falls behind the corresponding levels in western countries. Regarding this, Professor Humayun Kabir had stated, "The standard of attainment of most boys and girls who seek to enter the university in the United Kingdom or Europe at the age of seventeen is considerably higher than the standard of our intermediate examination. There is no reason to think that our pupils are less intelligent than with better organisation of the syllabus and better teaching, our young men and women will attain the same standard at 17 plus as in how reached by pupils of the same age in western countries". So elite people, educationists should take proper steps to reorganize the curriculum to suit the needs of the present only then modernity can be achieved.



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HIGHER EDUCATION

S.K. PANNEER SELVAM

Indian Education system from primary to higher level have all along been incongruous. Ours is only 'paper-work' education. There is no opportunity at any level for hands-on-education. Only 'hands-on-education' in higher education can have a local regional and national context. Globalisation of any thing or any activity will prove wasteful without any localisation aspect. Localisation along with globalisation only help integration. Integration is a feeling of unity, solidarity, cohesion, with a socio-psychological mind set. Economic well being of the people of a nation will be a key factor for integration. Therefore, a healthy tie up between education and economic outcome is very essential. For a healthy 'tie up' a differential higher education system is essential, instead of the present system. There are a number of independent, private, deemed and autonomous higher institutions in India. But the 'out-put' is insignificant. 'Chicago' university has so far produced one hundred Nobel laureates. A land mark achievement! Our Universities have to strive hard to achieve high levels of literacy in science, mathematic and technology, 'only higher academic achievements' must be the sole objective of our higher learning centers. The whole system needs to be restructured and modified to make higher education, a higher value education.

CONTENTS

1. A Regulatory Body for Media Education
2. Education as a Rural Development Strategy
3. Education for National Integration
4. Educational Progress and Psychological Charges
5. Problem Solving and Decision-Making
6. Silent on a Vital Issue
7. Sustaining a Vibrant Environment
8. Wider Scope of ICT towards Quality Education
9. Globalization and Impact on Human Development in the 21st Century
10. Globalization of Higher Education: Opportunities and Challenges in India
11. Higher Education in India
12. Knowledge Contented Higher Education to Meet Future Demands
13. Reconstruction of Higher Education in India
14. The Characteristics of a Good policy Formulated and Implemented in Indian Education
15. The Future of Open Universities
16. The Role of Education in Modernization
17. Preparing for the 21st Century: An Education Imperative
18. Technological Innovations and Higher Education in 21st Century
19. The 21st Century Education and Challenges
20. The Digital Technology Education for 21st Century
21. The Role of Education in Modernization

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