

BASIC PRINCIPLES OF EDUCATION

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Preface

Basic principles of education serve as foundational concepts that guide teaching, learning, and educational practice. These principles encompass a range of fundamental ideas that shape educational systems and inform the approaches used by educators, policymakers, and stakeholders. One core principle involves recognizing the diversity of learners, acknowledging that students come from various backgrounds, possess unique abilities, and learn in different ways. This principle underscores the importance of creating inclusive learning environments that cater to the needs of all students, ensuring equitable access to education and fostering a sense of belonging for every learner.

Furthermore, basic principles of education emphasize the importance of learner-centered approaches, where the interests, experiences, and needs of students are central to the design and implementation of instruction. By engaging students actively in the learning process and catering to their individual interests and strengths, educators can promote intrinsic motivation, critical thinking, and deeper understanding. Learner-centered approaches prioritize student agency and autonomy, empowering learners to take ownership of their learning journey and pursue their educational goals effectively.

Moreover, principles of education highlight the significance of collaboration and communication in educational settings. Effective education involves partnerships between educators, students, families, and communities, with each stakeholder playing a vital role in supporting student success and well-being. Collaborative relationships foster a sense of shared responsibility for education, enabling stakeholders to work together to address challenges, leverage resources, and create positive learning environments that promote academic achievement and personal growth.

Additionally, principles of education emphasize the importance of holistic development, recognizing that education should encompass not only academic learning but also social, emotional, and physical development. Educators strive to nurture the whole child, providing opportunities for students to develop essential life skills, social competencies, and emotional resilience alongside academic knowledge. By fostering holistic development, education prepares students to navigate the complexities of the modern world, build healthy relationships, and contribute positively to society.

Furthermore, principles of education underscore the value of continuous improvement and lifelong learning. Education is an ongoing process that extends beyond the confines of formal schooling, encompassing opportunities for personal and professional growth throughout life. Educators and learners alike are encouraged to embrace a growth mindset, viewing challenges as opportunities for learning and development. By promoting a culture of continuous improvement and lifelong learning, education equips individuals with the skills, knowledge, and resilience needed to thrive in an ever-changing world.

The book on Basic Principles of Education offers a comprehensive exploration of foundational concepts and theoretical frameworks essential for understanding the dynamics of teaching, learning, and educational practice.

—Author

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Introduction

The choice of a familiar craft is important for another reason. Succeeding generations show signs of mental and spiritual distance in all countries. Novelists and dramatists have often brought out vividly the conflict between fathers and sons. The risk of distance and conflict is greater in a country where the older generations is unlettered and the younger literate.

The danger becomes still greater if the country is undergoing a process of rapid modernization. In such a situation, the children may develop an attitude of superiority to their elders. The elders on their part may develop an ambivalent attitude which on the one hand is suspicious of the new ways and on the other full of admiration for things they do not understand.

They may also expect too much from literacy. The basic idea of Basic education—to build up the educative process round a familiar craft—can go a long way in obviating the danger and ensuring that the hiatus between fathers and sons does not become too great. It is necessary to consider further the question of the selection of a craft for a Basic school. Since the education is essentially craft centred, the choice of the craft may make all the difference between success and failure.

We have already pointed out that the educational significance of a craft would depend largely on the place it occupies in the life of the community. Now we have to go a step further and indicate limitations which follow from overemphasis of any one craft. Basic education seeks not only to train the future citizen but to do so under conditions which are as close to life as possible. It is therefore essential that the Basic school must reflect the life of the community. No community can survive, let alone flourish on any single craft. If therefore a Basic school is

engrossed in only one craft, it would to that extent fail to reflect the many-steadiness of life. Spinning and weaving have often been regarded as the only crafts suitable for Basic schools. While the importance of spinning and weaving cannot be ignored, it has to be remembered that concentration on them to the exclusion of other crafts would violate a fundamental principle of Basic education.

HISTORY OF EDUCATION

The history of education is the history of teaching and learning. Each generation, since the beginning of human evolution and writing, has sought to pass on cultural and social values, traditions, morality, religion and skills to the next generation. The passing on of culture is also known as enculturation and the learning of social values and behaviours is socialization. The history of the curricula of such education reflects human history itself, the history of knowledge, beliefs, skills and cultures of humanity. In pre-literate societies, education was achieved orally and through observation and imitation. The young learned informally from their parents, extended family and grand parents.

At later stages of their lives, they received instruction of a more structured and formal nature, imparted by people not necessarily related, in the context of initiation, religion or ritual.

As the customs and knowledge of ancient civilizations became more complex, many skills would have been learned from an experienced person on the job, in animal husbandry, agriculture, fishing, preparation and preservation of food, construction, stone work, metal work, boat building, the making of weapons and defenses, the military skills and many other occupations. With the development of writing, it became possible for stories, poetry, knowledge, beliefs, and customs to be recorded and passed on more accurately to people out of earshot and to future generations. In many societies, the spread of literacy was slow; orality and illiteracy remained predominant for much of the population for centuries and even millennia.

Literacy in preindustrial societies was associated with civil administration, law, long distance trade or commerce, and religion. A formal schooling in literacy was often only available to a small part of the population, either at religious institutions or for the wealthy who could afford to pay for their tutors.

The earliest known universities, or places of higher education, started teaching a millennium or more ago. Universal education of all children in literacy has been a recent development, not occurring in many countries until after 1850 CE. Even today, in some parts of the world, literacy rates are below 60 per cent. Schools, colleges and universities have not been the only methods of formal education and training.

Many professions have additional training requirements, and in Europe, from the Middle Ages until recent times, the skills of a trade were not generally learnt in a classroom, but rather by serving an apprenticeship. Nowadays, formal education consists of systematic instruction, teaching and training by professional teachers. This consists of the application of pedagogy and the development of curricula.

EDUCATION IN PREHISTORY

Most of human history lies in prehistory, the period before the use of writing, and before written history. Throughout pre-history, most education was achieved orally and through observation and imitation.

From the origin of our species, thought by many anthropologists to have been around 20,000 years ago in the African savannah, until about 10,000 BC, most humans lived as hunter-gatherers. Some were settled in a given locale/region and others exhibited a nomadic lifestyle across a large territory. These bands or tribes had traditions, beliefs, values, practices and local knowledge which was passed orally for generations from person to person. The young learned informally from their parents, extended family and kin. At later stages of their lives, they received instruction of a more structured and formal nature, imparted by people not necessarily related, in the context of initiation, religion or ritual.

Some forms of traditional knowledge were expressed through stories, legends, folklore, rituals, and songs, without the need for a writing system. Tools to aid this process include poetic devices such as rhyme and alliteration. These methods are illustrative of orality. The stories thus preserved are also referred to as part of an oral tradition. The advent of agriculture prompted the Neo-lithic Revolution, when access to food surplus led to the formation of permanent human settlements, the domestication of some animals and the use of metal tools. Settlement, agriculture and metalwork brought new knowledge and skills to be learned and taught by each generation.

As communities grew larger, there was more opportunity for some members to specialize in one skill or activity or another, becoming priests, artisans, traders, builders or labourers. Many skills would have been learned from an experienced person on the job. The increased size of communities also brought changes to methods of leadership, politics and organization, together with early institutions. Society became less egalitarian as chiefdoms, States, city states and early civilizations replaced the earlier bands and tribes.

For example, the Uruk period saw the emergence of urban life in Mesopotamia. These early city-states had strong signs of government organization. The cities grew to cover up to 250 acres and up to 10,000-20,000 people by the end of the period. In large settlements, social stratification began to develop, a hierarchical arrangement of social classes or castes within the society. There might be a king and nobles.

There were often priests or other religious leaders, because religious beliefs in deities or spirits often formed an important part of a culture. In some societies, the status of women was lower than that of men; in some there were slaves.

A person's social class, caste or gender might in turn determine or limit the occupations which he or she might follow and the education that he or she would receive. Before the development of writing, it is probable that there were already epic poems, hymns to gods and incantations and other oral literature. In ancient India, the Vedas were learnt by repetition of various forms of recitation. By means of memorization, they were passed down through many generations.

EDUCATION IN ANCIENT CIVILIZATIONS

The Development of Writing

Starting in about 3500 BC, various writing systems were developed in ancient civilizations around the world. These writ In Egypt fully developed hieroglyphs that could be read in rebus fashion were in use at Abydos as early as 3400 BC.

Later, the world's oldest known alphabet was developed in central Egypt around 2000 BC from a hieroglyphic prototype. One hieroglyphic script was used on stone monuments, other cursive scripts were used for writing in ink on papyrus, a flexible, paper-like material, made from the stems of reeds that grow in marshes and beside rivers such as the River Nile. The Phoenician writing system was adapted from the Proto-Canaanite script in around the 11th century BC, which in turn borrowed ideas from Egyptian hieroglyphics. This script was adapted by the Greeks.

A variant of the early Greek alphabet gave rise to the Etruscan alphabet, and its own descendants, such as the Latin alphabet. Other descendants from the Greek alphabet include the Cyrillic alphabet, used to write Russian, among others.

The Phoenician system was also adapted into the Aramaic script, from which the Hebrew script and also that of Arabic are descended. In China, the early oracle bone script has survived on tens of thousands of oracle bones dating from around 1400-1200 BC in the Shang Dynasty. Out of more than 2500 written characters in use in China in about 1200 BC, as many as 1400 are identifiable as the source of later standard Chinese characters. Of several pre-Columbian scripts in Mesoamerica, the one that appears to have been best developed, and the one to be deciphered the most, is the Maya script.

The earliest inscriptions which are identifiably Maya date to the 3rd century BC, and writing was in continuous use until shortly after the arrival of the Spanish conquistadores in the 16th century AD. Other surfaces used for early writing include wax-covered writing boards, sheets or strips of bark from trees, the thick palm-like leaves of a particular tree, the leaves then punctured with a hole and stacked together like the pages of a book, parchment, made of goatskin that had been soaked and scraped to remove hair, which was used from at least the second century BC, vellum, made from calfskin, and wax tablets which could be wiped clean to provide a fresh surface.

Formal Education in Ancient Civilizations

In many early civilizations, education was associated with wealth and the maintenance of authority, or with prevailing philosophies, beliefs, or religion.

The Middle East

In what became Mesopotamia, the early logographic system of cuneiform script took many years to master. Thus only a limited number of individuals

were hired as scribes to be trained in its reading and writing. Only royal offspring and sons of the rich and professionals such as scribes, physicians, and temple administrators, went to school. Most boys were taught their father's trade or were apprenticed out to learn a trade. Girls had to stay home with their mothers to learn housekeeping and cooking, and to look after the younger children. Later, when a syllabic script became more widespread, more of the Mesopotamian population became literate. Later still in Babylonian times there were libraries in most towns and temples; an old Sumerian proverb averred that "he who would excel in the school of the scribes must rise with the dawn."

There arose a whole social class of scribes, mostly employed in agriculture, but some as personal secretaries or lawyers. Women as well as men learned to read and write, and for the Semitic Babylonians, this involved knowledge of the extinct Sumerian language, and a complicated and extensive syllabary. Vocabularies, grammars, and interlinear translations were compiled for the use of students, as well as commentaries on the older texts and explanations of obscure words and phrases.

Massive archives of texts were recovered from the archaeological contexts of Old Babylonian scribal schools, through which literacy was disseminated. The Epic of Gilgamesh, an epic poem from Ancient Mesopotamia is among the earliest known works of literary fiction.

The earliest Sumerian versions of the epic date from as early as the Third Dynasty of Ur. Ashurbanipal, a king of the Neo-Assyrian Empire, was proud of his scribal education. His youthful scholarly pursuits included oil divination, mathematics, reading and writing as well as the usual horsemanship, hunting, chariotry, soldierliness, craftsmanship, and royal decorum. During his reign he collected cuneiform texts from all over Mesopotamia, and especially Babylonia, in the library in Nineveh, the first systematically organized library in the ancient Middle East, which survives in part today.

In ancient Egypt, literacy was concentrated among an educated elite of scribes. Only people from certain backgrounds were allowed to train to become scribes, in the service of temple, pharaonic, and military authorities. The hieroglyph system was always difficult to learn, but in later centuries was purposely made even more so, as this preserved the scribes' status. The rate of literacy in Pharaonic Egypt during most periods from the third to first millennium BC has been estimated at not more than one percent, or between one half of one percent and one percent. One thousand years later, in ancient Israel and Judah a basic education eventually became more widespread.

The Torah includes commands to read, learn, teach and write the Torah, thus requiring literacy and study. In 64 AD the high priest caused public schools to be opened in every town and hamlet for all children above six or seven years of age. The expense was borne by the community, and strict discipline was observed. Raba fixed the number of pupils at twenty-five for one teacher; if the number was between twenty-five and forty an assistant teacher was necessary; and for over forty, two teachers were required. The standard education texts

were all hand-written until the invention of printing. However significant emphasis was placed on developing good memory skills in addition to comprehension by practice of oral repetition. Although girls were not provided with formal education in the yeshivah, they were required to know a large part of the subject areas to prepare them to maintain the home after marriage, and to educate the children before the age of seven. Despite this schooling system, it would seem that many children did not learn to read and write, because it has been estimated that at least 90 percent of the Jewish population of Roman Palestine in the first centuries AD could merely write their own name or not write and read at all, or that the literacy rate was about 3 percent.

India

In ancient India, during the Vedic period from about 1500 BC to 600 BC, most education was based on the Veda and later Hindu texts and scriptures. Vedic education included: proper pronunciation and recitation of the Veda, the rules of sacrifice, grammar and derivation, composition, versification and meter, understanding of secrets of nature, reasoning including logic, the sciences, and the skills necessary for an occupation. Some medical knowledge existed and was taught. There is mention in the Veda of herbal medicines for various conditions or diseases, including fever, cough, baldness, snake bite and others. Education, at first freely available in Vedic society, became over time more discriminatory as the caste system, originally based on occupation, evolved, with the brahman being the most privileged of the castes.

The oldest of the Upanishads - another part of Hindu scriptures - date from around 500 BC. These texts encouraged an exploratory learning process where teachers and students were co-travellers in a search for truth.

The teaching methods used reasoning and questioning. Nothing was labeled as the final answer. The Gurukul system of education supported traditional Hindu residential schools of learning; typically the teacher's house or a monastery. Education was free, but students from well-to-do families paid "Gurudakshina," a voluntary contribution after the completion of their studies.

At the Gurukuls, the teacher imparted knowledge of Religion, Scriptures, Philosophy, Literature, Warfare, Statecraft, Medicine, Astrology and History. The corpus of Sanskrit literature encompasses a rich tradition of poetry and drama as well as technical scientific, philosophical and generally Hindu religious texts, though many central texts of Buddhism and Jainism have also been composed in Sanskrit.

Two epic poems formed part of ancient Indian education. The Mahabharata, part of which may date back to the eighth century BC, discusses human goals, attempting to explain the relationship of the individual to society and the world and the workings of karma. The other epic poem, Ramayana, is shorter, although it has 24,000 verses. It is thought to have been compiled between about 400 BC and 200 AD. The epic explores themes of human existence and the concept of dharma. An early center of learning in India dating back to the 5th century BC

was Taxila, which taught the three Vedas and the eighteen accomplishments. It was an important Vedic/Hindu and Buddhist centre of learning from the 6th century BC to the 5th century AD.

China

During the Zhou Dynasty, there were five national schools in the capital city, Pi Yong and four other schools for the aristocrats and nobility, including Shang Xiang. The schools mainly taught the Six Arts: rites, music, archery, charioteering, calligraphy, and mathematics. According to the Book of Rituals, at age twelve, boys learned arts related to ritual and when older, archery and chariot driving. Girls learned ritual, correct deportment, silk production and weaving.

It was during the Zhou Dynasty that the origins of native Chinese philosophy also developed. Confucius founder of Confucianism, was a Chinese philosopher who made a great impact on later generations of Chinese, and on the curriculum of the Chinese educational system for much of the following 2000 years. During the Han Dynasty boys were thought ready at age seven to start learning basic skills in reading, writing and calculation. In 124 BC, the Emperor Wudi established the Imperial Academy, the curriculum of which was the Five Classics of Confucius. By the end of the Han Dynasty the Academy enrolled more than 30,000 students, boys between the ages of fourteen and seventeen years.

However education through this period was a luxury. Later, during the Ch'in dynasty, a hierarchy of officials was set up to provide central control over the outlying areas of the empire. To enter this hierarchy, both literacy and knowledge of the increasing body of philosophy was required: "...the content of the educational process was designed not to engender functionally specific skills but rather to produce morally enlightened and cultivated generalists".

The Nine rank system was a civil service nomination system during the Three Kingdoms and the Southern and Northern Dynasties in China. Theoretically, local government authorities were given the task of selecting talented candidates, then categorizing them into nine grades depending on their abilities. In practice, however, only the rich and powerful would be selected. The Nine Rank System was eventually superseded by the Imperial examination system for the civil service in the Sui Dynasty.

The Greek and Roman Empires

In the city-states of ancient Greece, most education was private, except in Sparta. For example, in Athens, during the 5th and 4th century BC, aside from two years military training, the state played little part in schooling. Anyone could open a school and decide the curriculum. Parents could choose a school offering the subjects they wanted their children to learn, at a monthly fee they could afford. Most parents, even the poor, sent their sons to schools for at least a few years, and if they could afford it from around the age of seven until fourteen, learning gymnastics, music and literacy. Girls rarely received formal education.

At writing school, the youngest students learned the alphabet by song, then later by copying the shapes of letters with a stylus on a waxed wooden tablet. After some schooling, the sons of poor or middle class families often learnt a trade by apprenticeship, whether with their father or another tradesman.

By around 350 BC, it was common for children at schools in Athens to also study various arts such as drawing, painting, and sculpture. The richest students continued their education by studying with sophists, from whom, they could learn subjects such as rhetoric, mathematics, geography, natural history, politics, and logic.

Some of Athens' greatest schools of higher education included the Lyceum and the Platonic Academy. The education system of the wealthy ancient Greeks is also called Paideia. In the subsequent Roman empire, Greek was the primary language of science. Advanced scientific research and teaching was mainly carried on in the Hellenistic side of the Roman empire, in Greek. The education system in the Greek city-state of Sparta was entirely different, designed to create warriors with complete obedience, courage, and physical perfection. At the age of seven, boys were taken away from their homes to live in school dormitories or military barracks. There they were taught sports, endurance and fighting, and little else, with harsh discipline. Most of the population was illiterate. The first schools in Ancient Rome arose by the middle of the fourth century BC. These schools were concerned with the basic socialization and rudimentary education of young Roman children. The literacy rate in the third century BC has been estimated as around one percent to two percent. We have very few primary sources or accounts of Roman educational process until the second century BC, during which there was a proliferation of private schools in Rome.

At the height of the Roman Republic and later the Roman Empire, the Roman educational system gradually found its final form. Formal schools were established, which served paying students. Normally, both boys and girls were educated, though not necessarily together. In a system much like the one that predominates in the modern world, the Roman education system that developed arranged schools in tiers. The educator Quintilian recognized the importance of starting education as early as possible, noting that "memory ... not only exists even in small children, but is specially retentive at that age". A Roman student would progress through schools just as a student today might go from elementary school to middle school, then to high school, and finally college. Progression depended more on ability than age with great emphasis being placed upon a student's ingenium or inborn "gift" for learning, and a more tacit emphasis on a student's ability to afford high-level education. Only the Roman elite would expect a complete formal education.

A tradesman or farmer would expect to pick up most of his vocational skills on the job. Higher education in Rome was more of a status symbol than a practical concern. It has been argued that literacy rates in the Greco-Roman world were seldom more than 20 percent; averaging perhaps not much above 10 percent in the Roman empire, though with wide regional variations, probably never rising above 5 percent in the western provinces, and that the literate in classical Greece did not much exceed 5 percent of the population.

THE IMPORTANCE OF EDUCATION

Education is very important for an individual's success in life. Education provides pupils teaching skills that prepare them physically, mentally and socially for the world of work in later life. Education is generally seen as the foundation of society which brings economic wealth, social prosperity and political stability. Higher education helps in maintaining a healthy society which prepares health care professionals, educated health care consumers and maintaining healthy population. Education is major aspect of development of any modern society since if there is a deficit of educated people then society will stop its further progress. Government should pay serious attention to education and support it economically and morally all over the country. Education is the best investment for the people because well educated people have more opportunities to get a job which gives them satisfaction. Educated individuals enjoy respect among their colleagues and they can effectively contribute to the development of their country and society by inventing new devices and discoveries. Today's ever growing numbers of people mostly are not satisfied with their basic education and try to get secondary or tertiary education in order to meet the demands of contemporary society. Some of them enter higher educational institutions and some search additional information on the internet. Good People sacrifices their time and money and sometimes even their health to raise educational level because they realise that education is their passport to the future and for tomorrow.

Main purpose of education is to educate individuals within society, to prepare and qualify them for work in economy as well as to integrate people into society and teach them values and morals of society. Role of education is means of socializing individuals and to keep society smoothing and remain stable.

Education in society prepares youngsters for adulthood so that they may form the next generation of leaders. It will yield strong families and strong communities. Indeed, parents taking an active role in their child education produce a willingness in children to learn. Education and society provides a forum where teachers and scholars all over the world are able to evaluate problems in education and society from a balanced and comparative social and economic perspective.

Education is an important aspect of the work of society and it will raise the countryside issues and promote knowledge and understanding of rural communities.

One of the education essential tasks is to enable people to understand themselves. Students must be equipped with knowledge and skills which are needed to participate effectively as member of society and contribute towards the development of shared values and common identity.

Education has a vital role to play in assisting students to understand their cultural identity. Education acts as the distribution mechanism of the cultural values such as it more layered the society and participate in society that carries the culture. In our culture today, there is a great emphasis on higher education. In a society, more educated you are, better off you are.

Every society has specialized individuals that require extended education to fulfil certain main positions. These persons are normally known as professors,

priests, doctors, mechanics or artists. Education has been a higher part of every culture on earth and education is a systemic project. Whole society should care for and support the education patriotism, cause and socialism among the young people.

Everyone must do work hard to cultivate moral conduct. Education mainly begins at home; one does not acquire knowledge from a teacher, one can learn and get knowledge from a parent or a family member. In almost all societies, receiving education and attending school is very necessary is one wants to achieve success. Education is the key to move in the world, seek better jobs and ultimately succeed in life.

Schools play a vital role in preparing our children and young people for effective participation and responsible citizenship in society. The development of education and educational opportunities is built on creativity tempered by knowledge and wisdom gain through the experience of learning. Investment in human capital, life long learning and quality education help in the development of society. Teachers are the most important factors for an innovative society because teachers' knowledge and skills not only enhance the quality and efficiency of education, but also improve the prerequisites of research and innovation. Many members of our society are not provided with a safe and secure environment in which children can develop, child abuse, violence against women and interpersonal violence cause a cancer on our society.

Society play a key role in the realization of life long learning. The improvement of social education facilities such as libraries and the learning opportunities are implemented by the local governments. Students today are exposed to loads of technology and information at everywhere.

MOVEMENT OF BASIC EDUCATION

The movement of basic education launched by Mahatma Gandhi more than 25 years ago, proposing a new type of elementary education for the nation which would Centre round some form of manual and productive work and have intimate links with the life of the community, was a landmark in the history of education in India. It was a revolt against the sterile, book-entered, examination-oriented system of education that had developed along traditional lines during several decades of British rule. It created a national ferment, which may not have transformed the quality of education at the primary stage, but which has certainly left its impact on educational thought and practice in a much wider sphere. We believe that the essential elements of the system are fundamentally sound, and that with necessary modifications these can form a part of education, not only at the primary stage, but at all stages in our national system.

These elements are:

- Productivity in education;
- Correlation of the curriculum with the productive activity and the physical and social environment; and
- Intimate contact between the school and the local community.

We indicate below how each of these has become an important element in the educational system we have proposed. With regard to productive work, we have already explained that the concept of work-experience as proposed by us is similar to that of productive work in basic education. At the primary stage, the resemblance between the two programmes is very close.

We have, however, extended the concept to secondary education also; and in our opinion, even institutions of higher education and universities have a special role to play in the development of work-experience as an integral part of education. It is they who set the fashion for the entire educational world and success for the programme would be ensured by launching it effectively and on a large scale at this stage from this point of view, we feel that it would be worth while to organise some special programmes for work-experience in universities and other institutions of higher education.

For instance:

- In the case of some selected institutions in science and technology, it would be most stimulating and profitable from every point of view, to assign to them some carefully chosen industrial/scientific projects. The institutions should carry the projects through all stages, up to full-scale production.
- Some institutions should take up the manufacture of workshop and scientific equipment required for schools and colleges.
- Some institutions could take up the manufacture of furniture, teaching aid, *etc.*, needed by themselves or those in the neighbourhood.

In our proposals, correlation which is the second important aspect of basic education is also extended, to the extent possible throughout the educational system. At the primary stage, the view in basic education has been that the curriculum content should be integrated, as far as practicable, with craft work and with the physical and social environment of the child. Our proposals at the primary stage are very similar to this. At the secondary stage, we have suggested that work-experience should be integrated with the curriculum content and that the teaching of subject should be correlated, as far as possible, with the environment. In higher education, we have emphasised the provision of greater elasticity in the choice of subjects, inter-disciplinary studies and the need to relate teaching and research to the understanding and solution of the local, regional, and national problems.

With regard to the third essential element of basic education, namely, school community relationship, it has been discussed elsewhere in this report. Basic education places considerable emphasis on the organisation of the school as a living and functioning community, with a lively programme of social, cultural and recreational activities.

It need hardly be stated that every good school should organise its corporate life in this way. What is of even greater importance in making children social-minded and cooperative is the active participation of the school in the life of the local community.

Many existing basic schools have set an excellent example in respect of service rendered to the people in the neighbourhood; and this programme of participation in community life and social service, as we pointed Out, should now become an integral part of education at all stages. Our secondary schools and colleges as well as our primary schools should establish close contact with the community outside and take part in projects of social work and national reconstruction so that the students may acquire the spirit of discipline, learn the dignity of manual labour and develop a keen sense of their obligations and responsibilities to the community and to the nation at large.

APPLICATIONS OF EDUCATION

Motivation is of particular interest to educational psychologists because of the crucial role it plays in student learning. However, the specific kind of motivation that is studied in the specialized setting of education differs qualitatively from the more general forms of motivation studied by psychologists in other fields. Motivation in education can have several effects on how students learn and how they behave towards subject matter.

It can:

- Direct behaviour towards particular goals
- Lead to increased effort and energy
- Increase initiation of, and persistence in, activities
- Enhance cognitive processing
- Determine what consequences are reinforcing
- Lead to improved performance.

Because students are not always internally motivated, they sometimes need situated motivation, which is found in environmental conditions that the teacher creates. If teachers decided to extrinsically reward productive student behaviours, they may find it difficult to extricate themselves from that path. Consequently student dependency on extrinsic rewards represents one of the greatest detractors from their use in the classroom.

The majority of new student orientation leaders at colleges and universities recognize that distinctive needs of students should be considered in regard to orientation information provided at the beginning of the higher education experience. Research done by Whyte in 1986 raised the awareness of counselors and educators in this regard.

In 2007, the National Orientation Directors Association reprinted Cassandra B. Whyte's research report allowing readers to ascertain improvements made in addressing specific needs of students over a quarter of a century later to help with academic success. Generally, motivation is conceptualized as either intrinsic or extrinsic. Classically, these categories are regarded as distinct. Today, these concepts are less likely to be used as distinct categories, but instead as two ideal types that define a continuum:

- Intrinsic motivation occurs when people are internally motivated to do something because it either brings them pleasure, they think it is

important, or they feel that what they are learning is significant. It has been shown that intrinsic motivation for education drops from grades 3-9 though the exact cause cannot be ascertained. Also, in younger students it has been shown that contextualizing material that would otherwise be presented in an abstract manner increases the intrinsic motivation of these students.

- Extrinsic motivation comes into play when a student is compelled to do something or act a certain way because of factors external to him or her.

Cassandra B. Whyte researched and reported about the importance of locus of control and academic achievement. Students tending towards a more internal locus of control are more academically successful, thus encouraging curriculum and activity development with consideration of motivation theories. Academic motivation orientation may also be tied with one's ability to detect and process errors. Fisher, Nanayakkara, and Marshall conducted neuroscience research on children's motivation orientation, neurological indicators of error monitoring (the process of detecting an error), and academic achievement. Their research suggests that students with high intrinsic motivation attribute performance to personal control and that their error-monitoring system is more strongly engaged by performance errors. They also found that motivation orientation and academic achievement were related to the strength in which their error-monitoring system was engaged. Motivation has been found to be an important element in the concept of Andragogy (what motivates the adult learner), and in treating Autism Spectrum Disorders, as in Pivotal Response Therapy. Doyle and Moeyn have noted that traditional methods tended to use anxiety as negative motivation (*e.g.*, use of bad grades by teachers) as a method of getting students to work. However, they have found that progressive approaches with focus on positive motivation over punishment has produced greater effectiveness with learning, since anxiety interferes with performance of complex tasks.

Indigenous Education, Learning, and Motivation

For many indigenous students (such as Native American children), motivation may be derived from social organization; an important factor educators should account for in addition to variations in Sociolinguistics and Cognition. While poor academic performance among Native American students is often attributed to low levels of motivation, Top-down classroom organization is often found to be ineffective for children of many cultures, who depend on a sense of community purpose and competence to effectively engage in material. Horizontally-structured, community-based learning strategies often provide a more structurally supportive environment for motivating indigenous children, who tend to be driven by "social/affective emphasis, harmony, holistic perspectives, expressive creativity, and non-verbal communication." This drive is also traceable to a cultural tradition of community-wide expectations of participation in the activities and goals of the greater group, rather than individualized aspirations

of success or triumph. Structure for social learning in indigenous communities also often allows siblings to co-parent younger children in their acquisition of behaviours and traditions, which fosters the dynamic of community-motivated engagement from a young age. Furthermore, it is commonplace for children to assist and demonstrate for their younger counterparts without being prompted by authority figures. Observation techniques are demonstrated in such examples as weaving in Chiapas, Mexico, where it is commonplace for children to learn by "a more skilled other" within the community. The assumption of responsibility amongst children is also apparent within Mayan weaving apprenticeships; often, when the "more skilled other" is tasked with multiple obligations, an older child will step in and guide the learner. Sibling guidance is supported from early youth, where learning through play encourages horizontally-structured environments through alternative educational models such as "Intent Community Participation." Research also suggests that that formal Westernized schooling can actually reshape the traditionally collaborative nature of social life in indigenous communities. This research is supported cross-culturally, with variations in motivation and learning often reported higher between indigenous groups and their national Westernized counterparts than between indigenous groups across international continental divides.

Sudbury Model Schools' Approach

Sudbury Model schools adduce that the cure to the problem of procrastination, of learning in general, and particularly of scientific illiteracy is to remove once and for all what they call the underlying disease: compulsion in schools. They contend that human nature in a free society recoils from every attempt to force it into a mold; that the more requirements we pile onto children at school, the surer we are to drive them away from the material we are trying to force down their throats; that after all the drive and motivation of infants to master the world around them is legendary. They assert that schools must keep that drive alive by doing what some of them do: nurturing it on the freedom it needs to thrive.

Sudbury Model schools do not perform and do not offer evaluations, assessments, transcripts, or recommendations, asserting that they do not rate people, and that school is not a judge; comparing students to each other, or to some standard that has been set is for them a violation of the student's right to privacy and to self-determination. Students decide for themselves how to measure their progress as self-starting learners as a process of self-evaluation: real lifelong learning and the proper educational evaluation for the 21st century, they adduce. According to Sudbury Model schools, this policy does not cause harm to their students as they move on to life outside the school. However, they admit it makes the process more difficult, but that such hardship is part of the students learning to make their own way, set their own standards and meet their own goals. The no-grading and no-rating policy helps to create an atmosphere free of competition among students or battles for adult approval, and encourages a positive cooperative environment amongst the student body.

BUSINESS

At lower levels of Maslow's hierarchy of needs, such as physiological needs, money is a motivator, however it tends to have a motivating effect on staff that lasts only for a short period (in accordance with Herzberg's two-factor model of motivation). At higher levels of the hierarchy, praise, respect, recognition, empowerment and a sense of belonging are far more powerful motivators than money, as both Abraham Maslow's theory of motivation and Douglas McGregor's theory X and theory Y (pertaining to the theory of leadership) demonstrate.

According to Maslow, people are motivated by unsatisfied needs. The lower level needs such as Physiological and Safety needs will have to be satisfied before higher level needs are to be addressed. We can relate Maslow's Hierarchy of Needs theory with employee motivation. For example, if a manager is trying to motivate his employees by satisfying their needs; according to Maslow, he should try to satisfy the lower level needs before he tries to satisfy the upper level needs or the employees will not be motivated.

Also he has to remember that not everyone will be satisfied by the same needs. A good manager will try to figure out which levels of needs are active for a certain individual or employee.

Maslow has money at the lowest level of the hierarchy and shows other needs are better motivators to staff. McGregor places money in his Theory X category and feels it is a poor motivator. Praise and recognition are placed in the Theory Y category and are considered stronger motivators than money.

- Motivated employees always look for better ways to do a job.
- Motivated employees are more quality oriented.
- Motivated workers are more productive.

The average workplace is about midway between the extremes of high threat and high opportunity. Motivation by threat is a dead-end strategy, and naturally staff are more attracted to the opportunity side of the motivation curve than the threat side. Motivation is a powerful tool in the work environment that can lead to employees working at their most efficient levels of production. Nonetheless, Steinmetz also discusses three common character types of subordinates: ascendant, indifferent, and ambivalent who all react and interact uniquely, and must be treated, managed, and motivated accordingly. An effective leader must understand how to manage all characters, and more importantly the manager must utilize avenues that allow room for employees to work, grow, and find answers independently.

The assumptions of Maslow and Herzberg were challenged by a classic study at Vauxhall Motors' UK manufacturing plant. This introduced the concept of orientation to work and distinguished three main orientations: instrumental (where work is a means to an end), bureaucratic (where work is a source of status, security and immediate reward) and solidaristic (which prioritizes group loyalty). Other theories which expanded and extended those of Maslow and Herzberg included Kurt Lewin's Force Field Theory, Edwin Locke's Goal Theory and Victor Vroom's Expectancy theory. These tend to stress cultural differences and the fact that individuals tend to be motivated by different factors at different times.

According to the system of scientific management developed by Frederick Winslow Taylor, a worker's motivation is solely determined by pay, and therefore management need not consider psychological or social aspects of work.

In essence, scientific management bases human motivation wholly on extrinsic rewards and discards the idea of intrinsic rewards. In contrast, David McClelland believed that workers could not be motivated by the mere need for money-in fact, extrinsic motivation (*e.g.*, money) could extinguish intrinsic motivation such as achievement motivation, though money could be used as an indicator of success for various motives, *e.g.*, keeping score. In keeping with this view, his consulting firm, McBer and Company, had as its first motto "To make everyone productive, happy, and free."

For McClelland, satisfaction lay in aligning a person's life with their fundamental motivations. Elton Mayo found that the social contacts a worker has at the workplace are very important and that boredom and repetitiveness of tasks lead to reduced motivation. Mayo believed that workers could be motivated by acknowledging their social needs and making them feel important. As a result, employees were given freedom to make decisions on the job and greater attention was paid to informal work groups. Mayo named the model the Hawthorne effect. His model has been judged as placing undue reliance on social contacts at work situations for motivating employees.

William Ouchi introduced Theory Z, a hybrid management approach consisting of both Japanese and American philosophies and cultures. Its Japanese segment is much like the clan culture where organizations focus on a standardized structure with heavy emphasis on socialization of its members.

All underlying goals are consistent across the organization. Its American segment retains formality and authority amongst members and the organization. Ultimately, Theory Z promotes common structure and commitment to the organization, as well as constant improvement of work efficacy. In *Essentials of Organizational Behaviour*, Robbins and Judge examine recognition programmes as motivators, and identify five principles that contribute to the success of an employee incentive programme:

- Recognition of employees' individual differences, and clear identification of behaviour deemed worthy of recognition
- Allowing employees to participate
- Linking rewards to performance
- Rewarding of nominators
- Visibility of the recognition process.

MODERN SYSTEMS OF EDUCATION

But let us first realise two fundamental differences between Ancient and Modern Systems of Education in their relation to the State, one of them prevailing alike in India and in Britain, and the other peculiar to India. In the Ancient System of India, Education and Culture were self-controlled, and while the State, the organised Nation, profited by them and from them drew its dignity, its religion, its morality, its effectiveness, and its consequent efficiency, the

Legislative and Executive Departments of its Government exercised over them no control, and did not interfere with their management. Kings built Universities and bestowed on them wealth, but claimed in them no authority. A Monarch might enter into the Convocation of a University, but no one rose to greet him and he took his seat like any other visitor; but on the entrance of its Head, the “Venerable of Venerables,” all rose and turned their faces towards him and in silence awaited his words. The University was the Temple of Learning, and the learned were its only Hierophants.

When Learning visited Royalty, when a Wise One entered a Court, even Shri Krishna descended from His throne and bowed at the feet of the Sage. In the Modern System, Education is under the control of a Government Department, the Legislature makes laws for it, the Executive appoints its Directors, or the Ministers, who are really its masters, sends its Inspectors into its Schools and Colleges, and puts the Educators into a steel-frame, which it misnames efficiency. This is now alike in East and West. But in India, where Kings had been its nursing fathers and had poured out their treasures at its feet, the foreign Government ignored the Ancient System, and, as its Rule spread, Education and Culture died of starvation in the kingdoms which became provinces.

The splendid inheritance from the Indian Past—Hindu, Buddhist and Muslim—disappeared, leaving only the Schools of Pandits, maintained by Indian Princes, or by the reverent charity of the Hindus, till but one University, that of Nadiya, survived; the Temple and Masjid schools remained for a while and the mufasal village school—that which the East India Company, on being compelled by the British Parliament to spend a lakh on Education, called in 1814, “this venerable and benevolent institution of the Hindus,” after the testimony of Sir Thomas Munro in 1813, that there were “schools established in every village”. The E.I.Co. ascribed to these “the general intelligence of the natives as scribes and accountants”. Dr. John Matthai, in his *Village Administration in British India*, says that “when the British took possession of the country,” they found in most parts of the country (except western and central India) that “there existed a widespread system of national Education”. Even in 1838, Adam’s Reports show a similar state of things in Bengal. He reports the results of an enquiry, held in 1835-1838, made in typical districts of the Presidency, and found both Toles and Madrasahs (High Schools) and Pathashalas and Maktabas (schools attached to Temples and Masjids). The colleges were found, he writes, in “all the large villages as in the towns. The age of the scholars was from about five or six to sixteen. The curriculum included reading, writing, the composition of letters, and elementary arithmetic and accounts, either commercial, or agricultural, or both”. I may add that in the village schools “Elementary Arithmetic” included multiplication tables not of only 12×12 , but up to 20×20 . The schools however continued to diminish in number. The *Quinquennial Review* for 1907-1912, shows 2,051 Madrasahs in 1907 against 1,446 in 1912, and 10,504 Masjid Schools in 1907 against 8,288 in 1912. Let me pause for a moment on the age of the scholars mentioned above.

In the old days, the education of the child up to the age of seven seems to have been more in the home than in the school. From seven to sixteen, the boy was to be taught and trained in school, and then to pass on to the University. The stage of infancy ends at seven, and up to that age, the body should be the first care, and lessons should be in the form of play, and great freedom of choice should be given to the little ones. No care in later life can restore the stamina of the body ill nourished, or unwisely nourished during those first seven years of life. With the joint family system there were children enough in the household, including those of the dependents, to make a society for the children, in which they learned unconsciously lessons of kindness, of courtesy, of gentle manners and refined speech, of little sacrifices born of love, of mutual helpfulness and mutual service.

With the narrowing of the home circle, the playing school is in many ways better and the children are happier in the merry games and the gay company of their little comrades. But the school must be well chosen, the teachers tender and helpful, songs, stories and play that exercises and trains the senses, the hand and the eye, and teaches graceful harmonious movements, are enough. From seven to fourteen are the years for training the memory and the emotions, for the stories of heroism and of virtue that inspire, drawn from the history of the Motherland, and great men and women; stories too of other countries; of all that can arouse enthusiasm and inspire to service.

Thus will the children have their minds and emotions so trained as to fit them to cross in safety the perilous bridge between childhood and youth. From fourteen to twenty-one is the time for hard mental study. By sixteen, the special capacities will have shown themselves, and will mark out the best avocation for the future life, and specialised Education may safely begin. This is but the barest indication of the broad stages in the preparation for manhood and womanhood, the Ideal of the Student Order of the well regulated life. But the knell of popular education was struck in 1854, when Sir Charles Wood tried, and the Government supported, the singular experiment of teaching the people in a foreign tongue, with the result that after seventy years, 3.4 per cent of the people receive primary education. So we have three stages in Education in India in relation to the State: I. Lavish help from Rulers and complete liberty of Education, paid for by the wealthy and free to the poor, who, in exchange, served their teachers and performed household duties; II. Entire neglect for 97 years, with an interval of a lakh a year spent on it; III.

The Government English-speaking Schools, and Colleges, and later Universities with, of recent years, partial and grudging introduction of the vernaculars. How shall we apply the Indian Ideals to the salvation of Modern Education and Culture in India? That is the question which Indian Universities alone can solve, and before they can answer it, may, before they can even begin the task, the old relationship must be recreated between the State and the Universities.

Learning must again be inspired with the Ancient Ideals, and these will be embodied in new forms. And in order that these new forms shall be expressions

of India's life, and not strait jackets to confine her, the old freedom must be restored to Education and Culture. Government should assign to educational and cultural institutions the material means for their support, gifts of land, grants of money for buildings, and for the necessary equipment, so that they may be able to give to the Nation the priceless assets of learned and skilled men and women of high character, to carry on the work in every department of national life.

Money given to Education by the Nation is not a gift, but an investment. It returns high interests to the Nation as well as power and happiness to the individual. Learned men produce literature which raises the Nation in the eyes of the world and, far more important, spreads knowledge over the earth, literature which ennobles and inspires not only contemporaries, but generations yet unborn.

Science makes discoveries which add to human knowledge, increase man's power over the forces on Nature, and—if it tread only righteous paths—will preserve, uplift any strengthen human life and human happiness. By Education and Culture of man's spiritual, intellectual, emotional and physical nature can he be lifted from the savage to the Sage and the Saint, can poverty be abolished, can society be made fraternal instead of barbarous, can crime, the fruit of ignorance, be gotten rid of, and international and social peace replace war and the strife of classes. Avidya is the mother of poverty, of sorrow, of misery.

It is the darkness which the Sun of Vidya must chase away. A generation of really educated people, with a proportion of the cultured, will change the face of India. Japan educated her people in forty years. As rapid as was the destruction may be the recovery, and each successive generation will show an improved result. Already Indian Ministers have made Primary Education free in seven Provinces and compulsory in three, compulsion to be introduced as rapidly as possible in the other four.

When India gains her own political freedom, may she be wise enough to restore freedom to Education and Culture, and, once more, the highest honour to Learning. After Freedom in the Educational and Cultural field is won, for it is not possible until this freedom is possessed, the very first thing must be the restoration of the Mother-tongues of India to their proper place in that field.

Nothing so denationalises a people as the imposition upon them of a foreign tongue, dominating their life and thought. When Germany, Russia and Austria rent Poland into three fragments, each banned the Polish tongue in the schools and imposed its own. Macaulay, with the most generous feeling and the most utter ignorance, urged the substitution of the English language, literature and civilization for those which he regarded as heathen and superstitious.

The Mother-tongues were despised, and a gulf was dug between the English-educated minority and the learned in the ancient Mother-language and the middle classes education in tongues derived from it. The free Universities will use the languages of the century throughout all schools and colleges, with English as a second language, and probably other tongues as well. So far, the Universities have given little culture; that has been gained by individuals for themselves.

But free Universities will have curricula which shall give both Education and Culture. Students will, as of old, be surrounded with Beauty in the Schools, the Colleges, the Universities. The second basic difference between the Ancient System and the Modern English one, as imposed on India, is the absence of religious and moral education.

In Britain itself, the religion of the country and the morality based on it are taught in the schools as an integral part of education; lately, as Nonconformity and Free Thought spread, a conscience clause has been introduced exempting children, whose parents objected to the Anglican form of Christianity or to Christianity itself, from compulsory attendance at the religious services and lessons. But when the rule of the East India Company spread, and English Education was introduced into India, the Government schools dropped religious and moral teaching, since, on the one hand, a Christian Government could not teach heathen religions, and, on the other, as there were several religions in India, the Government must treat them all equally, and therefore remain neutral in regard to them.

Thus Indians must pay the taxes which keep up Government and other schools, and must further send their children to these, or to Missionary schools where an alien religion is taught, or open their own schools and teach any religion they belong to, Government giving them grants-in-aid. Modern Education in India had practically confined itself to the training of the mental and intellectual nature, and has ignored the unfolding of the spiritual nature, the evoking and training of the emotional nature, and, until lately, the development and training of the physical body to a high state of efficiency.

The result has been, in the older generations, the overstrain of the nervous system, the enfeebling of the physical health, the shortening of the period of vigorous maturity, often a sudden breakdown, or, at best, the premature appearance of debility and old age.

Further, the exclusive development of the intelligence and the neglect of the emotions has overstimulated the self-regarding instincts, and has largely destroyed the feeling of Social and National Dharma, of duty to Society and to the Nation; hence the decay of public spirit, of social service, of responsibility and of sacrifice for the common weal, which characterise the good *citizen* as distinguished from the good *man*.

2

The Methods of Education

INTRODUCTION

A word about the methods of education in the Nursery School is perhaps necessary. A young child, as Abbott and Wood remark in their report, “needs experience more than instruction” and this is precisely what the Nursery School should aim at providing. They go on to say “that the education of the young children should provide for their physical care, for training them in good habits and for widening their experience through interesting activities. We envisage such activities as the following: acting and singing, physical exercises, games and dancing, care of flowers and animals, drawing and making things.

These activities minister to one or other of the characteristic needs of children and provide them with experience which gives them confidence in their growing powers. The infant schools must be sensible, happy institutions which patently do something for the children which the home does not do but yet which the parents appreciate when it is done “. There is hardly any room for any formal instruction in the 3 Rs in the daily programme of a Nursery School. But through sensory-training, through the promotion of self-expression, through community living and companionship in an educationally controlled environment, the all round development—mental, social and physical—of the child is fostered. The foundations are laid which cover all these aspects of growth and development and the young child is then ready to absorb and assimilate that education for citizenship which a well planned Basic School should impart.

The total number of children to be provided for on these lines can hardly be calculated accurately. This will depend entirely on the nature of the areas under

question and on the success of “nursery” propaganda. Then too the age range cannot be rigidly fixed. The two and three year old should be as welcome in a Pre-Primary School as the fours and fives. But the ages three to six may be taken as the normal range for the nursery school child and it would appear from the latest figures available for British India that there are 2,13,08,000 such children in the rural areas, and 31,00,000 in the towns. In England, about 1 child in 7 attends school voluntarily before the minimum compulsory age.

‘If the same, proportion were taken for this country the number between three and six would be 35,00,000, For the present, however, it may be sufficient to provide places for roughly, a third of these in a Nursery Schools and classes. On the same basis of calculation as for the Junior Basic Schools, *i.e.*, 30 children per teacher at an average salary of ₹. 42 5 p.m. the annual cost per capita comes to ₹. 31.84. In actual practice, this will probably work out somewhat higher, since the great majority of nursery children will be educated in town areas where the average salary of a teacher will have to be raised in order to meet the higher cost of living. Moreover, Nursery Schools require more space and more equipment. On the other hand relief may be given so far as staffing is concerned if older girls from High schools and Senior Basic Schools are attached to Nursery Schools for definite periods for training in child welfare. For the reasons above both the figure of 10,00,000 and the estimated cost must be regarded as tentative.

SOME APPLICATIONS TO EDUCATION

Why does a savage group perpetuate savagery, and a civilized group civilization? Doubtless the first answer to occur to mind is because savages are savages; being of low-grade intelligence and perhaps defective moral sense. But careful study has made it doubtful whether their native capacities are appreciably inferior to those of civilized man. It has made it certain that native differences are not sufficient to account for the difference in culture. In a sense the mind of savage peoples is an effect, rather than a cause, of their backward institutions. Their social activities are such as to restrict their objects of attention and interest, and hence to limit the stimuli to mental development.

Even as regards the objects that come within the scope of attention, primitive social customs tend to arrest observation and imagination upon qualities which do not fructify in the mind. Lack of control of natural forces means that a scant number of natural objects enter into associated behaviour. Only a small number of natural resources are utilized and they are not worked for what they are worth. The advance of civilization means that a larger number of natural forces and objects have been transformed into instrumentalities of action, into means for securing ends. We start not so much with superior capacities as with superior stimuli for evocation and direction of our capacities.

The savage deals largely with crude stimuli; we have weighted stimuli. Prior human efforts have made over natural conditions. As they originally existed they were indifferent to human endeavors. Every domesticated plant and animal, every tool, every utensil, every appliance, every manufactured document, every

esthetic decoration, every work of art means a transformation of conditions once hostile or indifferent to characteristic human activities into friendly and favouring conditions. Because the activities of children today are controlled by these selected and charged stimuli, children are able to traverse in a short lifetime what the race has needed slow, tortured ages to attain. The dice have been loaded by all the successes which have preceded. Stimuli conducive to economical and effective response, such as our system of roads and means of transportation, our ready command of heat, light, and electricity, our ready-made machines and apparatus for every purpose, do not, by themselves or in their aggregate, constitute a civilization. But the uses to which they are put are civilization, and without the things the uses would be impossible.

Time otherwise necessarily devoted to wresting a livelihood from a grudging environment and securing a precarious protection against its inclemencies is freed. A body of knowledge is transmitted, the legitimacy of which is guaranteed by the fact that the physical equipment in which it is incarnated leads to results that square with the other facts of nature. Thus these appliances of art supply a protection, perhaps our chief protection, against a recrudescence of these superstitious beliefs, those fanciful myths and infertile imaginings about nature in which so much of the best intellectual power of the past has been spent. If we add one other factor, namely, that such appliances be not only used, but used in the interests of a truly shared or associated life, then the appliances become the positive resources of civilization.

If Greece, with a scant tithe of our material resources, achieved a worthy and noble intellectual and artistic career, it is because Greece operated for social ends such resources as it had. But whatever the situation, whether one of barbarism or civilization, whether one of stinted control of physical forces, or of partial enslavement to a mechanism not yet made tributary to a shared experience, things as they enter into action furnish the educative conditions of daily life and direct the formation of mental and moral disposition. Intentional education signifies a specially selected environment, the selection being made on the basis of materials and method specifically promoting growth in the desired direction.

Since language represents the physical conditions that have been subjected to the maximum transformation in the interests of social life — physical things which have lost their original quality in becoming social tools — it is appropriate that language should play a large part compared with other appliances. By it we are led to share vicariously in past human experience, thus widening and enriching the experience of the present. We are enabled, symbolically and imaginatively, to anticipate situations.

In countless ways, language condenses meanings that record social outcomes and presage social outlooks. So significant is it of a liberal share in what is worth while in life that unlettered and uneducated have become almost synonymous. The emphasis in school upon this particular tool has, however, its dangers — dangers which are not theoretical but exhibited in practice. Why is

it, in spite of the fact that teaching by pouring in, learning by a passive absorption, are universally condemned, that they are still so entrenched in practice? That education is not an affair of "telling" and being told, but an active and constructive process, is a principle almost as generally violated in practice as conceded in theory. Is not this deplorable situation due to the fact that the doctrine is itself merely told? It is preached; it is lectured; it is written about.

But its enactment into practice requires that the school environment be equipped with agencies for doing, with tools and physical materials, to an extent rarely attained. It requires that methods of instruction and administration be modified to allow and to secure direct and continuous occupations with things. Not that the use of language as an educational resource should lessen; but that its use should be more vital and fruitful by having its normal connection with shared activities. "These things ought ye to have done, and not to have left the others undone." And for the school "these things" mean equipment with the instrumentalities of cooperative or joint activity.

For when the schools depart from the educational conditions effective in the out-of-school environment, they necessarily substitute a bookish, a pseudo-intellectual spirit for a social spirit. Children doubtless go to school to learn, but it has yet to be proved that learning occurs most adequately when it is made a separate conscious business. When treating it as a business of this sort tends to preclude the social sense which comes from sharing in an activity of common concern and value, the effort at isolated intellectual learning contradicts its own aim.

We may secure motor activity and sensory excitation by keeping an individual by himself, but we cannot thereby get him to understand the meaning which things have in the life of which he is a part. We may secure technical specialized ability in algebra, Latin, or botany, but not the kind of intelligence which directs ability to useful ends. Only by engaging in a joint activity, where one person's use of material and tools is consciously referred to the use other persons are making of their capacities and appliances, is a social direction of disposition attained.

THE MANAGEMENT OF EDUCATION

An overhaul of the system of planning and the management of education will receive high priority.

The guiding considerations will be:

- Evolving a long-term planning and management perspective of education and its integration with the country's developmental and manpower needs;
- Decentralisation and the creation of a spirit of autonomy for educational institutions;
- Giving pre-eminence to people's involvement, including association of non-governmental agencies and voluntary effort;
- Inducting more women in the planning and management of education;
- Establishing the principle of accountability in relation to given objectives and norms.

National Level

The Central Advisory Board of Education will play a pivotal role in reviewing educational development, determining the changes required to improve the system and monitoring implementation. It will function through appropriate Committees and other mechanisms created to ensure contact with, and coordination among, the various areas of Human Resource Development. The Departments of Education at the Centre and in the States will be strengthened through the involvement of professionals.

Indian Education Service

A proper management structure in education will entail the establishment of the Indian Education Service as an All-India Service. It will bring a, national perspective to this vital sector. The basic principles, functions and procedures of recruitment to this service will be decided in consultation with the State Governments.

State Level

State Governments may establish State Advisory Boards of Education on the lines of C.A.B.E. Effective measures should be taken to integrate mechanisms in the various State departments concerned with Human Resource Development. Special attention will be paid to the training of educational planners, administrators and heads of institutions. Institutional arrangements for this purpose should be set up in stages.

District and Local Level

District Boards of Education will be created to manage education up to the higher secondary level. State Governments will attend to this aspect with all possible expedition. Within a multi-level framework of educational development, Central, State, District and Local level agencies will participate in planning, coordination, monitoring and evaluation. A very important role must be assigned to the head of an educational institution. Heads will be specially selected and trained. School complexes will be promoted on a flexible pattern so as to serve as networks of institutions and synergic alliances to encourage professionalism among teachers, to ensure observance of norms of conduct and to enable the sharing of experiences and facilities. It is expected that a developed system of school complexes will take over much of the inspection functions in due course. Local communities, through appropriate bodies, will be assigned a major role in programmes of school improvement.

Voluntary Agencies and Aided Institutions

Non-government and voluntary effort including social activist groups will be encouraged, subject to proper management, and financial assistance provided. At the same time, steps will be taken to prevent the establishment of institutions set up to commercialise education.

Resources and Review

The Education Commission of 1964-66, the National Education Policy of 1968 and practically all others concerned with education have stressed that the egalitarian goals and the Practical, development-oriented objectives of Indian society can be realised only by making investments in education of an order commensurate with the nature and dimensions of the task. Resources, to the extent possible, will be raised by mobilising donations, asking the beneficiary communities to maintain school buildings and supplies of some consumables, raising fees at the higher levels of education and effecting some savings by the efficient use of facilities.

Institutions involved with research and the development of technical and scientific manpower should also mobilize some funds by levying access or charge on the user agencies, including Government departments, and entrepreneurs.

All these measures will be taken not only to reduce the burden on State resources but also for creating a greater sense of responsibility within the educational system. However, such measures will contribute only marginally to the total funding. The Government and the community in general will find funds for such programmes as: the universalisation of elementary education; liquidating illiteracy; equality of access to educational opportunities to all parts throughout the country; enhancing the social relevance, quality and functional effectiveness of educational programmes; generating knowledge and developing technologies in scientific fields crucial to self-sustaining economic development; and creating a critical consciousness of the values and imperatives of national survival. The deleterious consequences of non-investment or inadequate investment in education are indeed very serious. Similarly, the cost of neglecting vocational and technical education and of research is also unacceptable. Sub-optimal Performance in these fields could cause irreparable damage to the Indian economy. The network of institutions set up from time to time since Independence to facilitate the application of science and technology would need to be substantially and expeditiously updated, since they are fast becoming obsolete. In view of these imperatives, education will be treated as a crucial area of investment for national development and survival. The National policy on Education, 1968, had laid down that the investment on education be gradually increased to reach a level of expenditure of 6 per cent of the national income as early as possible, since the actual level of investment has remained far short of that target, it is important that greater determination be shown now to find the funds for the programmes laid down in this Policy. While the actual requirements will be Computed from time to time on the basis of monitoring and review, the outlay on education will be shapped up to the extent essential for policy implementation in the Seventh plan. It will be ensured that from the Eighth Five Year Plan onwards it will uniformly exceed to 6 per cent of the National income.

Review

The implementation of the various parameters of the New Policy must be reviewed every five years. Appraisals at short intervals will also be made to ascertain the progress of implementation and the trends emerging from time to time.

The Future

The future shape of education in India is too complex to envision with precision. Yet, given our tradition which has almost always put a high premium on intellectual and spiritual attainment, we are bound to succeed in achieving our objectives. The main task is to strengthen the base of the pyramid, which might come close to a billion people at the turn of the century. Equally, it is important to ensure that those at the top of the pyramid are among the best in the world, our cultural well-springs had taken good care of both ends in the past; the skew set in with foreign domination and influence. It should now be possible to further intensify the nation-wide effort in Human Resource Development, with Education playing its multifaceted role.

EDUCATION AND MODERNIZATION

We have already stated that the most distinctive feature of a modern society, in contrast with a traditional one, is in its adoption of a science-based technology. It is this which has helped such societies to increase their production so spectacularly. It may be pointed out, however, that science-based technology has other important implications for social and cultural life and it involves fundamental social and cultural changes which are broadly described as 'modernization'. We shall briefly discuss the impact of this modernization on programmes of educational reconstruction.

EXPLOSION OF KNOWLEDGE

There has been a great explosion of knowledge during the last few decades. In a traditional society, the stock of knowledge is limited and grows slowly so that the main aim of education is interpreted to be its preservation. In a modern society, on the other hand, the stock of knowledge is far greater and the pace of its growth is infinitely quicker. One of the main tasks of education in a modern society is to keep pace with this advance in knowledge. In such a society, knowledge inevitably ceases to be something to be received passively; it is something to be actively discovered. If this is rightly understood, it would involve a revolution in traditional education where 'to know' has come to mean 'to know by heart', where respect for all inherited knowledge is assiduously cultivated and where the assimilative faculties tend to be emphasized to the neglect of the critical and creative ones. In India, as in other countries where similar conditions prevail, this would require, among other things, a new approach to the objectives and methods of education, and changes in the training of teachers. Unless they are trained in new ways of teaching and learning, the students in schools and colleges will not be able to receive the type of education needed for the new society.

RAPID SOCIAL CHANGE

Another feature of a modern society is the quick, almost breath-taking rate at which social change takes place. In a traditional society, change is so slow

that the conservatism of the educational system does comparatively little harm. In a modern society, on the other hand, change is so rapid that the school must always be alert if it is to keep abreast of significant changes. There is, therefore, an imperative need for adopting a dynamic policy in such a situation. An educational system which does not continually renovate itself, becomes out of date and hampers progress because it tends to create a lag between its operative purposes and standards and the new imperatives of development, both in quality and quantity. The very aim of education has to be viewed differently-it is no longer taken as concerned primarily with the imparting of knowledge or the preparation of a finished product, but with the awakening of curiosity, the development of proper interests, attitudes and values and the building up of such essential skills as independent study and the capacity to think and judge for oneself without which it is not possible to become a responsible member of a democratic society.

NEED FOR RAPID ADVANCE

Two other aspects of modernization need emphasis. The first is that once a society launches itself upon a programme of modernization, there is no turning back, no half-way house where we can arrest the process. In the initial stages, such a change must disturb the traditional equilibrium reached and maintained over centuries which, though it had its obvious disadvantages, had some built-in redeeming factors as well. The attempt to create a new social order naturally creates a host of unexpected social, economic, cultural and political problems. But if one tinkers with the problems involved or tries to march with faltering steps, if one's commitments and convictions are half-hearted and faith is lacking, the new situation may turn out to be worse than the old one. The only solution to these transitional problems is to move rapidly forward and create a new equilibrium, based on the full implications of the process of modernization.

INSTRUCTIONAL TECHNIQUE AND TECHNOLOGIES

Problem Based Learning, Project-based Learning, and Enquiry-based learning are active learning educational technologies used to facilitate learning. Technology which includes physical and process applied science can be incorporated into project, problem, enquiry-based learning as they all have a similar educational philosophy. All three are student centered, ideally involving real-world scenarios in which students are actively engaged in critical thinking activities. The process that students are encouraged to employ is considered to be a technology. Classic examples of technologies used by teachers and Educational Technologists include Bloom's Taxonomy and Instructional Design.

THEORISTS

This is an area where new thinkers are coming to the forefront everyday. Many of the ideas spread from theorists, researchers, and experts through their

blogs. Extensive lists of educational bloggers by area of interest are available at Steve Hargadon's "Support Bloggers" site or at the "movingforward" wiki started by Scott McLeod.

Many of these blogs are recognized by their peers each year through the edublogger awards. Web 2.0 technologies have led to a huge increase in the amount of information available on this topic and the number of educators formally and informally discussing it.

BENEFITS

Educational technology is intended to improve education over what it would be without technology. Some of the claimed benefits are listed below:

- Easy-to-access course materials. Instructors can post the course material or important information on a course web site, which means students can study at a time and location they prefer and can obtain the study material very quickly
- Student motivation. Computer-based instruction can give instant feedback to students and explain correct answers. Moreover, a computer is patient and non-judgemental, which can give the student motivation to continue learning. According to James Kulik, who studies the effectiveness of computers used for instruction, students usually learn more in less time when receiving computer-based instruction and they like classes more and develop more positive attitudes towards computers in computer-based classes. The American educator, Cassandra B. Whyte, researched and reported about the importance of locus of control and successful academic performance and by the late 1980s, she wrote of how important computer usage and information technology would become in the higher education experience of the future.
- Wide participation. Learning material can be used for long distance learning and are accessible to a wider audience
- Improved student writing. It is convenient for students to edit their written work on word processors, which can, in turn, improve the quality of their writing. According to some studies, the students are better at critiquing and editing written work that is exchanged over a computer network with students they know
- Subjects made easier to learn. Many different types of educational software are designed and developed to help children or teenagers to learn specific subjects. Examples include pre-school software, computer simulators, and graphics software
- A structure that is more amenable to measurement and improvement of outcomes. With proper structuring it can become easier to monitor and maintain student work while also quickly gauging modifications to the instruction necessary to enhance student learning.
- Differentiated Instruction. Educational technology provides the means to focus on active student participation and to present differentiated

questioning strategies. It broadens individualized instruction and promotes the development of personalized learning plans. Students are encouraged to use multimedia components and to incorporate the knowledge they gained in creative ways.

EDUCATIONAL TECHNOLOGY AND THE HUMANITIES

Research from the Alberta Initiative for School Improvement indicates that enquiry and project-based approaches, combined with a focus on curriculum, effectively supports the infusion of educational technologies into the learning and teaching process.

TECHNOLOGY IN THE CLASSROOM

There are various types of technologies currently used in traditional classrooms. Among these are:

- *Computer in the classroom:* Having a computer in the classroom is an asset to any teacher. With a computer in the classroom, teachers are able to demonstrate a new lesson, present new material, illustrate how to use new programmes, and show new web sites.
- *Class web site:* An easy way to display your student's work is to create a web page designed for your class. Once a web page is designed, teachers can post homework assignments, student work, famous quotes, trivia games, and so much more. In today's society, children know how to use the computer and navigate their way through a web site, so why not give them one where they can be a published author. Just be careful as most districts maintain strong policies to manage official web sites for a school or classroom. Also, most school districts provide teacher webpages that can easily be viewed through the school district's web site.
- *Class blogs and wikis:* There are a variety of Web 2.0 tools that are currently being implemented in the classroom. Blogs allow for students to maintain a running dialogue, such as a journal, thoughts, ideas, and assignments that also provide for student comment and reflection. Wikis are more group focused to allow multiple members of the group to edit a single document and create a truly collaborative and carefully edited finished product.
- *Wireless classroom microphones:* Noisy classrooms are a daily occurrence, and with the help of microphones, students are able to hear their teachers more clearly. Children learn better when they hear the teacher clearly. The benefit for teachers is that they no longer lose their voices at the end of the day.
- *Mobile devices:* Mobile devices such as clickers or smartphone can be used to enhance the experience in the classroom by providing the possibility for professors to get feedback.

- *Interactive Whiteboards:* An interactive whiteboard that provides touch control of computer applications. These enhance the experience in the classroom by showing anything that can be on a computer screen. This not only aids in visual learning, but it is interactive so the students can draw, write, or manipulate images on the interactive whiteboard.
- *Online media:* Streamed video web sites can be utilized to enhance a classroom lesson
- *Digital Games:* The field of educational games and serious games has been growing significantly over the last few years. The digital games are being provided as tools for the classroom and have a lot of positive feedback including higher motivation for students.

There are many other tools being utilized depending on the local school board and funds available. These may include: digital cameras, video cameras, interactive whiteboard tools, document cameras, or LCD projectors.

- *Podcasts:* Podcasting is a relatively new invention that allows anybody to publish files to the Internet where individuals can subscribe and receive new files from people by a subscription. The primary benefit of podcasting for educators is quite simple. It enables teachers to reach students through a medium that is both "cool" and a part of their daily lives. For a technology that only requires a computer, microphone and internet connection, podcasting has the capacity of advancing a student's education beyond the classroom. When students listen to the podcasts of other students as well as their own, they can quickly demonstrate their capacities to identify and define "quality." This can be a great tool for learning and developing literacy inside and outside the classroom. Podcasting can help sharpen students' vocabulary, writing, editing, public speaking, and presentation skills. Students will also learn skills that will be valuable in the working world, such as communication, time management, and problem-solving.

Although podcasts are a new phenomenon in classrooms, especially on college campuses, studies have shown the differences in effectiveness between a live lecture versus podcast are minor in terms of the education of the student.

3

Principles of School Education

A school is an institution designed for the teaching of students under the direction of teachers. Most countries have systems of formal education, which is commonly compulsory.

In these systems, students progress through a series of schools. The names for these schools vary by country but generally include primary school for young children and secondary school for teenagers who have completed primary education. An institution where higher education is taught, is commonly called a university college or university. In addition to these core schools, students in a given country may also attend schools before and after primary and secondary education.

Kindergarten or pre-school provide some schooling to very young children. University, vocational school, college or seminary may be available after secondary school. A school may also be dedicated to one particular field, such as a school of economics or a school of dance. Alternative schools may provide non-traditional curriculum and methods.

There are also non-government schools, called private schools. Private schools may be for children with special needs when the government does not supply for them; religious, such as Christian schools, hawzas, yeshivas, and others; or schools that have a higher standard of education or seek to foster other personal achievements. Schools for adults include institutions of corporate training, Military education and training and business schools. In homeschooling and online schools, teaching and learning take place outside of a traditional school building.

HISTORY AND DEVELOPMENT OF SCHOOLS

The concept of grouping students together in a centralized location for learning has existed since Classical antiquity. Formal schools have existed at least since ancient Greece, ancient Rome, ancient India, and ancient China. The Byzantine Empire had an established schooling system beginning at the primary level. According to *Traditions and Encounters*, the founding of the primary education system began in 425 A.D. and "... military personnel usually had at least a primary education...".

The sometimes efficient and often large government of the Empire meant that educated citizens were a must. Although Byzantium lost much of the grandeur of Roman culture and extravagance in the process of surviving, the Empire emphasized efficiency in its war manuals. The Byzantine education system continued until the empire's collapse in 1453 AD. Islam was another culture that developed a school system in the modern sense of the word.

Emphasis was put on knowledge, which required a systematic way of teaching and spreading knowledge, and purpose-built structures. At first, mosques combined both religious performance and learning activities, but by the ninth century, the Madrasa was introduced, a proper school that was built independently from the mosque. They were also the first to make the *Madrasa* system a public domain under the control of the Caliph. The Nizamiyya madrasa is considered by consensus of scholars to be the earliest surviving school, built towards 1066 CE by Emir Nizam Al-Mulk.

Under the Ottomans, the towns of Bursa and Edirne became the main centers of learning. The Ottoman system of Külliye, a building complex containing a mosque, a hospital, madrasa, and public kitchen and dining areas, revolutionized the education system, making learning accessible to a wider public through its free meals, health care and sometimes free accommodation. The nineteenth century historian, Scott holds that a remarkable correspondence exists between the procedure established by those institutions and the methods of the present day.

They had their collegiate courses, their prizes for proficiency in scholarship, their oratorical and poetical contests, their commencements and their degrees. In the department of medicine, a severe and prolonged examination, conducted by the most eminent physicians of the capital, was exacted of all candidates desirous of practicing their profession, and such as were unable to stand the test were formally pronounced incompetent.

In Europe during the Middle Ages and much of the Early Modern period, the main purpose of schools was to teach the Latin language. This led to the term grammar school, which in the United States informally refers to a primary school, but in the United Kingdom means a school that selects entrants based on ability or aptitude. Following this, the school curriculum has gradually broadened to include literacy in the vernacular language as well as technical, artistic, scientific and practical subjects.

Many of the earlier public schools in the United States were one-room schools where a single teacher taught seven grades of boys and girls in the same

classroom. Beginning in the 1920s, one-room schools were consolidated into multiple classroom facilities with transportation increasingly provided by kid hacks and school buses.

Regional Terms

The use of the term *school* varies by country, as do the names of the various levels of education within the country.

United Kingdom and Commonwealth of Nations

In the United Kingdom, the term *school* refers primarily to pre-university institutions, and these can, for the most part, be divided into pre-schools or nursery schools, primary schools, and secondary schools. Various types of secondary schools in England and Wales include grammar schools, comprehensives, secondary moderns, and city academies. In Scotland, while they may have different names, all Secondary schools are the same, except in that they may be funded by the state, or independently funded. It is unclear if “Academys”, which are a hybrid between state and independently funded/controlled schools and have been introduced to England in recent years, will ever be introduced to Scotland. School performance in Scotland is monitored by Her Majesty’s Inspectorate of Education. Ofsted reports on performance in England and Wales.

In the United Kingdom, most schools are publicly funded and known as state schools or maintained schools in which tuition is provided free. There are also private schools or independent schools that charge fees. Some of the most selective and expensive private schools are known as public schools, a usage that can be confusing to speakers of North American English. In North American usage, a public school is one that is publicly funded or run.

In much of the Commonwealth of Nations, including Australia, New Zealand, India, Pakistan, Bangladesh, Sri Lanka, South Africa, Kenya, and Tanzania, the term *school* refers primarily to pre-university institutions.

India

In ancient India, schools were in the form of Gurukuls. Gurukuls were traditional Hindu residential schools of learning; typically the teacher’s house or a monastery. During the Mughal rule, Madrasahs were introduced in India to educate the children of Muslim parents. British records show that indigenous education was widespread in the 18th century, with a school for every temple, mosque or village in most regions of the country. The subjects taught included Reading, Writing, Arithmetic, Theology, Law, Astronomy, Metaphysics, Ethics, Medical Science and Religion.

Under the British rule in India, Christian missionaries from England, USA and other countries established missionary and boarding schools throughout the country. Later as these schools gained in popularity, more were started and some gained prestige. These schools marked the beginning of modern schooling

in India and the syllabus and calendar they followed became the benchmark for schools in modern India. Today most of the schools follow the missionary school model in terms of tutoring, subject/syllabus, governance, *etc.*, with minor changes.

Schools in India range from schools with large campuses with thousands of students and hefty fees to schools where children are taught under a tree with a small/no campus and are totally free of cost. There are various boards of schools in India, namely Central Board for Secondary Education, Council for the Indian School Certificate Examinations, Madrasa Boards of various states, Matriculation Boards of various states, State Boards of various boards, Anglo Indian Board, and so on. The typical syllabus today includes Language, Mathematics, Science - Physics, Chemistry, Biology, Geography, History, General Knowledge, Information Technology/Computer Science, *etc.* Extra curricular activities include physical education/sports and cultural activities like music, choreography, painting, theater/drama, *etc.*

Europe

In much of continental Europe, the term *school* usually applies to primary education, with primary schools that last between four and nine years, depending on the country. It also applies to secondary education, with secondary schools often divided between *Gymnasiums* and vocational schools, which again depending on country and type of school educate students for between three and six years.

In Germany students graduating from *Grundschule* are not allowed to directly progress into a vocational school, but are supposed to proceed to one of Germany's general education schools such as *Gesamtschule*, *Hauptschule*, *Realschule* or *Gymnasium*. When they leave that school, which usually happens at age 15-19 they are allowed to proceed to a vocational school. The term *school* is rarely used for tertiary education, except for some *upper* or *high* schools, which describe colleges and universities.

In Eastern Europe modern schools of both primary and secondary educations, often are combined, while secondary education might be split into accomplished or not. The schools are classified as middle schools of general education and for the technical purposes include "degrees" of the education they provide out of three available: the first - primary, the second - unaccomplished secondary, and the third - accomplished secondary. Usually the first two degrees of education are always included, while the last one gives option for the students to pursue vocational or specialized educations.

North America and the United States

In North America, the term *school* can refer to any educational institution at any level, and covers all of the following: preschool, kindergarten, elementary school, middle school, senior high school, college, university, and graduate school.

In the US, school performance through high school is monitored by each state's Department of Education. Charter schools are publicly funded elementary or secondary schools that have been freed from some of the rules, regulations, and statutes that apply to other public schools. The terms grammar school and *grade school* are sometimes used to refer to a primary school.

OPEN SCHOOL OF NON-FORMAL EDUCATION

The third instance of non-formal education corresponds to open systems or open learning, which have drifted much farther apart from the features of formal education, creating a wide, deep rift.

As remarked by Butts, "open learning systems are defined as those which offer students a measure of flexibility and autonomy, to study the programmes of their choice when and where they wish, and at a pace to suit their circumstances. "The features ascribed to open systems, by this author, necessarily set them up as non-formal education instances, jointly with correspondence learning and distance study. As Butts points out, "...distance learning is seen... as one type of open learning."

Correspondence learning can be deemed a type of distance learning and, as distance learning can be said to be an instance of open systems, we conclude that this latter is in the most widely encompassing class among non-formal education examples. Some authors also consider rather freely the concept of open education - as synonymous with open systems. As Yalli says, "the idea of openness may be twofold: open as to structures, that is, a rupture of the physical barriers of educative institutions, so as to provide free access to schools; or open as to methodology and learning resources." And, he concludes: "The essential fact about open education is that it does not matter how knowledge is acquired, all means are valid.

The open learning system aims at the formation of independent students who have capacity for self-discipline and a high capacity for synthesis and for analysis." This author defines that in an open system, learning is the function of an interaction between the student and the actual world.

DISTANCE LEARNING EDUCATION

According to Holmberg "Distance study is learning supported by those teaching methods in which, because of the physical separateness of learners and teachers, the interactive, as well as the preactive phase of teaching is conducted through print, mechanical or electronic devices." Distance learning is based on non-contiguous communication, that is, "the learner is at a distance from the teacher for much, most or even all the time during the teaching-learning process".

Based on this definition, we may infer that the concept of distance learning is wider than that of correspondence learning, with which it is sometimes confused. Thus, Butts remarks that "the rapid adoption, over the past 10 years, of the phrase 'distance learning' to replace 'correspondence courses' would

seem to reflect the incorporation of media other than print; the fresh impetus coming from research into individualized learning and self-instructional methods; the broadening of the social base for open learning systems; and the development of courses and qualifications designed specifically to meet the needs of distance learning students.”

The concept of open learning systems used by Butts is wider than that of distance learning, as below analysed.

In sum, according to Holmberg the three universally accepted features of distance learning are as follows:

- Typical of the whole distance study is that it is based on non-contiguous communication, *i.e.*, the learner is at a distance from the teacher for much, most or even all of the time during the teaching-learning process.
- A pre-produced course, as self-instructional as possible, printed and/or consisting of presentation brought about by other means than print guides the study.
- Organized non-contiguous two-way communication is a constitutive element of distance study. It is in most cases principally brought about by assignments for submission for the students to solve and answer and for the tutors to comment on but freer forms of communication also occur.

The organization and administration of distance learning significantly differs from those of formal education. Thus, for instance, no students attend classes at the institution, except for occasional visitors.

There are no classrooms; instead there are places where multidisciplinary teams comprised of redactors, authors, audio-visual experts, and so on, plan and compose the materials that will be used. In distance learning we find no “academic semesters”. The students may at will discontinue studies whenever he needs or wants to do so.

As per Holmberg distance learning is comprised of the following basic activities:

- The development and technical production of distance study courses;
- The distribution of course materials;
- The non-contiguous two-way communication between students and tutors/counselors; and
- Record-keeping.

Holmberg also reminds us that, in some case, other activities may be required, as for instance:

- Course certificate
- Examination and degrees
- Supplementary face-to-face contacts between students and tutors/counselors.

A large experience has been obtained over these years through application of distance study at various levels, for different target populations.

Our main concern in this stage relates to the use of distance study for higher level education. A well-succeeded example of such use is the Open University.

As pointed out by Oliveira, Open Universities are generally based on distance study through one or more communication media, such as radio, TV and the printed press.

They mostly formulate the instructional materials used in their courses, for the most part employing a distance tutoring system that contracts teachers to provide the required support to the performance of supplementary activities. The assessment and graduation requirements are not uniform and in some cases, the diplomas are on a par with those issued by regular universities, whereas in others we find that certain restrictions are made with regard to given courses. There are also open universities which are in no way concerned with the validation or equivalence of the offered courses and of their diplomas to those given in the existing formal universities.

Open universities need their own organizational structure that differs widely from that of traditional universities.

According to Oliveira, “The nature of their tasks and the *modus operandi* of open universities provide a mixture of academic culture and industrial activity”, requiring the cooperation of professionals from varied backgrounds to act as redactors, educational planners, professors specializing in the different fields, audio-visual experts, and so on, thus displaying a multidisciplinary character. The materials forwarded to the students, comprising printed texts, audio or videotapes, kits, *etc.*, is usually validated prior to their utilization, so as to ensure a high degree of efficacy and efficiency. Oliveira also notes that “in countries with a shallower academic sedimentation, open universities seldom have their start on an academic basis and this results is their remaining for the most part on the fringes of the educational process” -an extremely significant aspect which will be relevant to the proposal that will be submitted below.

The British Open University may be mentioned as being the most successful among all open universities. As described by Grayson, the British Open University founded on 1969 was created in order to remain open to new people, methods and ideas. The traditional matriculation requirements were abolished and efforts were made to attract working students. Approximately 63.000 students enrolled on 1980, and its syllabus includes printed materials, audiotapes, reading, study guides, self-assessments and radio and TV programmes. Tutorial assistance and counseling are available in about 280 study centers throughout Great Britain. We must include here a mention to the high quality level of the produced instructional resources, as well as to the disposition shown by the planners of the British Open University always to remain receptive to non-conventional programmes. The courses encompass six areas, namely: education, mathematics, sciences, social sciences, and technology

Their duration is approximately one year. The success of the British Open University led to the creation of several open universities in France, in Germany and in the United States as from 1971, without even mentioning the several Latin-American efforts in this field. Oliveira mentions the pilot-experiment of the China Open University which is planning to enrol approximately two and a

half million students. According to that author, “despite a variety of forms and contexts, Open Universities illustrate the many possibilities for widening the scope of higher level education.”

As to the expression “Open” he remarks that it may relate to:

- The moment in which the student enrolls on a course for which the required credits system has been extremely simplified;
- The educational process itself, as well as the range of options offered to the students as regards programmes and courses;
- The fact that the course is taught at a distance; and
- The fact that although not generally providing final degrees, they offer to students the possibility and the required flexibility to stay on or to leave the courses.

CORRESPONDENCE LEARNING

Correspondence Learning organized, structured correspondence schools date from more than one century. Several works and authors mention that in 1856, in Berlin, Toussaint and Langenscheidt founded a correspondence languages course. In 1886, in England, a graduate studies correspondence course was introduced. A “Society to Encourage Study at Home” was organized in 1873, in Boston, and the first formal experience took place in 1883, in New York, the “Correspondence University”.

In several countries similar efforts were made, named “enseignement par correspondance” in France, “fernUntersuch” and “fernStudium” in Germany, “home study”, “tuition mail” and “postal tuition” in England; “ensino por correspondência” in Portugal; “ensenanza por correo” and “ensenanza por correspondencia” in Spain. Nowadays, there is a large number of correspondence schools all over the World, encompassing studies that range from basic education to university studies, including a wide variety of subjects in the professional area. Correspondence course participants are found in all age brackets and economic-social classes. But, which are the main features of correspondence learning? It is a planned and systematized activity, based on the preparation of printed educational materials which are forwarded to students who are physically separated from the teachers who can give but a limited assistance to them.

Correspondence learning is an individualized learning system that allows students to proceed at their own pace, according to their interests. The institutional materials are for the most part printed and are generally prepared by a teacher who has not enough didactic and technical knowledge to prepare top quality educational material.

Although a number of correspondence courses currently offer other types of instructional material - audio-tapes and videotapes, kits, *etc.* - we shall for classification purposes solely consider the printed materials offered by correspondence courses. We shall reserve the name “distance learning” to the courses prepared on a high technical level, by a multidisciplinary team, administered by a relatively large institution, comprising a wide variety of educational materials.

Correspondence courses generally establish a bi-directional communication by mail, supported by the teacher who corrects the paperwork, offers guidance and the requested explanations.

A degree may or may not be obtained and there is no pressure - the student's motivation is the basic factor for the program's success. It is not difficult to see that correspondence courses do not incorporate several features of the formal education and are thus classified in the field of non-formal education.

NFE CENTERS

The Centrally Sponsored Scheme of Non Formal Education (NFE) was introduced in 1979-80 on a pilot basis with a view to support the formal system in providing education to all children upto the age of 14 years as enunciated in the Directive Principles of the Constitution. In subsequent years, the NFE scheme was expanded to cover 10 educationally backward states of Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and West Bengal.

The National Policy on Education (NPE), 1986 recognised that the school could not reach all children and a large and systematic programme of non-formal education would be required for school dropouts, for children from habitations without schools, working children and girls who could not attend whole day schools. Thus NFE became an important component of the overall strategy for achievement of Universalisation of Elementary Education. *The NFE scheme was revised in 1987-88.*

While the focus continued to be on 10 educationally backward states, but it also included urban slums, hilly, tribal and desert areas and projects for working children in other states and Union Territories as well. A major portion of the NFE scheme is run by the state governments which set up NFE centres. One component of this scheme provides grants to Voluntary Agencies directly from the central government for running of NFE centres and a third is for projects of experimental innovative nature by VAs.

The Programme of Action 1992 outlined strategies for strengthening of the NFE scheme including:

- Setting up NFE centres based on a micro-planning exercise carried out for UEE.
- Central role for community by involving them in setting up of the centre, identification of the instructor and supervision of the NFE centre.
- Efforts to evolve different models of NFE programme for different target groups.
- Adequate training and orientation of NFE instructors. 30 days initial training of instructors and 20 days in subsequent years, *etc.*
- Linkage with the formal school to facilitate lateral entry of the learners from the NFE stream.
- Efforts to link non-formal courses with formal schools.
- Adoption of learner-centered approach. The learning levels for the learners to be equivalent to the formal system.

Current Status of NFE Scheme

- Being implemented in 25 States/UTs by the state governments and by 826 VAs.
- 2.38 lakh primary and 6800 upper primary centres are presently sanctioned in the state sector.
- 58,000 primary and 1000 upper primary centres are run by VAs.
- 41 experimental and innovative education projects are being implemented by VAs.
- Total coverage of children under NFE scheme is about 74 lakh.

Review and Assessment of the NFE Scheme

Several evaluations and assessments by state governments, institutions and most notably the Programme Evaluation Organisation of the Planning Commission have indicated that the implementation of the Scheme has not been satisfactory.

The PEO's findings were:

- Insufficient involvement of the local community, the Village Education Committees and the Panchayati Raj Institutions.
- The absence of linkages for entry at different levels into formal schools and for tie-ups with the National Open School.
- The notion that the alternative system is inferior, second-rate and second-grade, both qualitatively and quantitatively.
- Insufficient decentralisation of administrative and financial powers.
- Insufficient flexibility. NFE needs to recognise that different children's groups have different educational needs and modify itself accordingly.
- Lack of success with girls. The attendance at girls' centres and the number of women functionaries in the programme have been noticeably low.
- Poor coordination of the work of VAs with state governments.
- Low overall coverage of the scheme. It covers less than 10 per cent of the out of school children.
- Delay in release of funds at all levels.
- Poor completion rates for the primary level by children studying NFE centres. Very low transition rates to the formal system

The NFE centres function for two hours daily at a time suitable for learners. But in many states the centres have functioned in the evening and night to accommodate children who are working during the day. The NFE Scheme did advocate flexibility in various aspects of running of the centre but the manner of its implementation resulted in a uniformity and rigidity almost across the country.

Certain states like Andhra Pradesh and Madhya Pradesh could not implement modified approaches which had been worked out by them within the existing NFE scheme. A large number of NFE centres were set up in habitations which had formal schools and therefore the target of small and scattered SC and ST

habitations without schools, did not receive a high priority. Clearly, in its present form the NFE Scheme could not ensure quality primary education for out of school children and the objectives and measures outlined in the NPE and POA could not be adequately met.

SCHOOL OWNERSHIP AND OPERATION

Many schools are owned or funded by states. Private schools operate independently from the government. Private schools usually rely on fees from families whose children attend the school for funding; however, sometimes such schools also receive government support. Many private schools are affiliated with a particular religion; these are known as parochial schools.

Components of Most Schools

Schools are organized spaces purposed for teaching and learning.

The classrooms, where teachers teach and students learn, are of central importance, But typical schools have many other areas, which may include:

- Cafeteria, dining hall or canteen where students eat lunch and often breakfast and snacks.
- Athletic field, playground, gym, and/or track place where students participating in sports or physical education practice
- Auditorium or hall where student theatrical and musical productions can be staged and where all-school events such as assemblies are held
- Office where the administrative work of the school is done
- Library where students consult and check out books and magazines and often use computers
- Specialized classrooms including laboratories for science education
- Computer labs where computer-based work is done and the internet accessed

School Security

The safety of staff and students is increasingly becoming an issue for school communities, an issue most schools are addressing through improved security. After mass shootings such as the Columbine High School massacre and the Virginia Tech incident, many school administrators in the United States have created plans to protect students and staff in the event of a school shooting. Some have also taken measures such as installing metal detectors or video surveillance. Others have even taken measures such as having the children swipe identification cards as they board the school bus. For some schools, these plans have included the use of door numbering to aid public safety response. Other security concerns faced by schools include bomb threats, gangs, vandalism, and bullying.

School Health Services

School health services are services from medical, teaching and other professionals applied in or out of school to improve the health and well-being of

children and in some cases whole families. These services have been developed in different ways around the globe but the fundamentals are constant: the early detection, correction, prevention or amelioration of disease, disability and abuse from which school aged children can suffer.

Stress

As a profession, teaching has levels of Work-Related Stress that are among the highest of any profession in some countries, such as the United Kingdom. The degree of this problem is becoming increasingly recognized and support systems are being put into place. Teacher education increasingly recognizes the need to train those new to the profession to be aware of and overcome mental health challenges they may face.

Stress sometimes affects students more severely than teachers, up to the point where the students are prescribed stress medication. This stress is claimed to be related to standardized testing, and the pressure on students to score above average.

Discipline

Schools and their teachers have always been under pressure—for instance, pressure to cover the curriculum, to perform well in comparison to other schools, and to avoid the stigma of being “soft” or “spoiling” towards students. Forms of discipline, such as control over when students may speak, and normalized behaviour, such as raising a hand to speak, are imposed in the name of greater efficiency. Practitioners of critical pedagogy maintain that such disciplinary measures have no positive effect on student learning. Indeed, some argue that disciplinary practices detract from learning, saying that they undermine students’ individual dignity and sense of self-worth—the latter occupying a more primary role in students’ hierarchy of needs.

RELIGIOUS INSTITUTIONS

Religion connects our individual existence to a deeper reality. It touches some of the deepest and most powerful values in the human spirit. Religious institutions have often done more harm than good. I can speak about the Roman Catholic Church that I was raised in. Today I consider it an immoral institution.

As a teenager I was taught that I could be damned to hell for all eternity for masturbating. That remains part of church teaching although the Second Vatican Council shifted the focus of the church towards God’s love and away from hell and damnation. Teaching a pubescent teenager that unforgiven masturbation leads to damnation is psychological child abuse. It damages teenagers, like I was, that foolishly take it seriously. That the nuns and priests who were doing the abusing firmly believed they were doing God’s will does not make it less abusive or less immoral. Morality is hard. It requires understanding the consequences of one’s actions and that is something one can never be certain of. It demands that one studies and understands what science teaches us about

human nature. When the evidence contradicts pridefully held ancient dogma the dogma must go. The current scandal in the Church about priestly child abuse has its roots in ignorant dogma taking priority over objective understanding. The scandal is not that some priests abused children. That is horrible, but it is the sin a few and not the scandal of a church. The scandal is the way the church dealt with the problem. Those who understood how to deal with it did not share the Church's ignorance of human sexuality. Those that shared the Church's ignorance, and thus were acceptable advisers to the church, were of course incompetent.

What the church calls natural law is in violent conflict with human nature. As a result the church is schizophrenic. In the United States the laity largely ignores the Church's teaching on sexuality. The clergy is torn between the need to minister to their flock as they actually behave and a dogma that insists that some of what the flock does, with no sense of guilt or sin, is cause for hell and damnation.

Many of the clergy are caught in a struggle between the reality of their own sexuality and the Church's sexual fantasies codified in church teaching. Outside of the developed world the prideful ignorance of the church leads to immorality on a grand scale. The bible says "By their fruits you shall know them." By that standard the sins of the Catholic Church are responsible for untold human suffering and death. Preaching against condom use in an Africa being destroyed by AIDS is to commit mass murder, if you are an institution whose teachings are taken seriously. It is irrelevant that what the church advocates does not spread AIDS. It is irrelevant that the church has no intention to kill. The only thing that is relevant is the predictable consequence of what the church does. "By their fruits you shall know them." Similarly preaching against birth control in a country that cannot support their existing population is an unconscionable cruel and evil act by those that have the trust and faith of the people.

The immorality of crashing a plane full of innocent people into a building full of innocent people is obvious. Claims that this is justified by God's will deserve utter contempt. The Catholic Church's immoral teachings on human sexuality have and are producing far more evil than the destruction of 3,000 innocent lives. The Church's invocation of God's will as justification deserves the same contempt we give to the religious claims of Bin Laden. This is not to imply that the two cases are similar. Murdering people with a religious rationale is different than preaching what one honestly believes even though it has disastrous consequences. The correct response to the former is police or military action. The correct response to the latter is to try to convince those doing the damage and their supporters of the evil results of their actions.

The church recognizes the immorality in its past when it was torturing in the cruelest possible manner and burning at the stake heretics, witches and anyone else that the church, in its psychotic paranoia, saw as a threat to its authority. When it was murdering people up close and personal there was a limit to the damage it could inflict. The cruelty it inflicts today is far worse.

We are living in a world that can no longer afford the prideful ignorance of such a powerful institution. It is immoral to support the corrupt Catholic Church financially or in any other way. Of course there are many truly good works the church does. Supporting these is not necessarily supporting the church as an institution. Making the distinction is not easy. Morality seldom is. I single out the Catholic Church because of my personal involvement and because of their size and importance. Many other Christian churches have teachings as abhorrently immoral if not more so than those of the Catholic Church. Orthodox Jews, many Muslims and branches of practically every religious tradition cling to obviously false dogma about human nature.

Science has done vastly more to ease human suffering than all the religions of history combined. I say this recognizing the enormous importance of spirituality to so many lives including my own. Spirituality is as natural as sex and does not require religious institution to experience and develop. More often than not institutions get in the way of authentic spirituality. The liturgy and symbolism of the Catholic Church can aid spiritual experience, but the obstacles of arbitrary and false dogma seriously hinder such experience. Religious freedom is essential to a democracy, but so is free speech. Those that cling to a religious tradition do not have a monopoly on the language of morality. When religion claims precedence over scientific understanding whether it is about the sun orbiting the earth or about human sexuality it is the moral obligation of those who know better to speak up. It is vitally important that they speak out when those beliefs lead to evil consequences.

‘Evil’ is the correct word, Science is not value free. It values the truth. To claim moral precedence for absurd beliefs violates the morality of science and scientists have a moral obligation to respond to such ignorance. When the consequences are human suffering than the language of morality is not just appropriate but essential.

PROVISION OF PRIMARY SCHOOLS

SCHOOLING IN SMALL HABITATIONS

Provision of primary schools in the villages/habitations that qualify for the opening of formal a school is generally at a satisfactory level. However, children who live in smaller habitations with very small population groups continue to face difficulties in accessing schooling facilities within walking distance. These habitations now are being provided with small schools under the Education Guarantee Scheme. Known as EGS Centres or alternative schools, these function as transitory facilities until they can be replaced by formal government primary schools.

The centres are opened in habitations with at least 25 out-of-school children in the 6-14 age group. The teachers or instructors in such centres are recruited by local self-government bodies and are managed locally. In addition, around 2,785 NGOs are involved in implementation of EGS and AIE schemes. More

generally, the EGS and AIE schemes support diversified strategies for educating under-privileged children who are at risk of not enrolling or not completing elementary education.

These include:

- Provision of education to children living in remote, habitations which do not have schools.
- Provision of education for children who migrate.
- Support to Maktabas/Madrasas to adopt a formal curriculum.
- Bridge courses/back to school camps for the re-entry of drop out children into formal schools.
- Long duration residential camps for older out-of-school children.
- Centres for remedial teaching.
- Short duration summer camps or schools.

In addition to EGS/AIE centres, other flexible strategies are being implemented for the education of children who cannot attend formal schools for a range of reasons. The strategies include residential and non-residential bridge courses, back to school camps, seasonal hostels, drop-in centres and other alternative schools. In 2005-2006, over 111,000 EGS centres were identified, reaching more than 4 million children. In 2006-2007, the number of children attending such centres is expected to have increased to 4.771 million. The AIE scheme mainly provides education to older children, who either have never been enrolled in school or who had to drop out from school for various reasons.

These children include those who migrate seasonally, live on the streets and in difficult situations, working children, children of sex workers and the destitute, and so on. In 2005-2006, over 3 million children benefited from a range of activities conducted under the AIE scheme. In 2006-2007, the number of children targeted for coverage under AIE was 5.6 million. An interesting aspect of the EGS and AIE schemes is that the amount earmarked for them should be spent on a per child basis. At present, ₹ 1535/- per annum per child is provided for primary EGS/AIE and ₹ 2960/- per child per annum for upper primary centres. In addition to EGS/AIE centres and bridge courses, as many as 4,867 Madrasas have been supported under AIE as of 2005-2006. In recent years, a substantial number of EGS/AIS centres have been upgraded to formal primary schools. In Bihar and Rajasthan, for example, 15,428 and 13,303 EGS centres were upgraded to primary schools respectively. Another 55,196 EGS centres were upgraded to primary schools by March 2007.

Quality continues to be a matter of concern in these centres, however, so the following measures have been taken up:

- The school must operate at least for four hours every day.
- Textbooks, teaching, learning materials and equipments must be provided before the centre begins functioning.
- Induction training of 30 days must be given to volunteers before they begin teaching at the centre, followed by regular refresher courses.

- The headmaster of the local school should be involved in regular supervision of the centres and their activities.
- Regular evaluation of children should be conducted.
- Regular monitoring and academic support must be ensured from the relevant block and cluster resource centres.

The functioning of EGS centres depends on the ability and commitment of the instructor and the local governing body, namely, the panchayat in most cases. While these centres have enrolled many children, they are often not able to take the students beyond second or third grade. Thus, while the strategy has increased access and enrolment, it also raises questions around quality, equity, and the transition from primary to higher levels of schooling. What happens to these children as they complete their initial years of schooling? Are the centres sustainable? These are important questions which demand empirical studies to develop a better understanding of the issues. It is also important to examine what factors have contributed to such a fast pace of growth of these institutions in hitherto un-reached areas. Could this be attributed to improved supply or is it due to unexplored demand side factors?

SCHOOLING ACCESS AND QUALITY

At Independence, India inherited a legacy of large-scale illiteracy and lack of proper provision for education. At the first post-Independence Census of 1951, only 9 per cent of women and 27 per cent of men were literate. It was resolved by the framers of the constitution that the new Indian state would endeavour to provide free and compulsory education to all children up to age 14 by 1960. This goal turned out to be elusive and the deadline for its achievement has been put back repeatedly in the past 55 years. While even today this goal remains unfulfilled, there has been very encouraging progress in schooling participation and other educational outcome indicators in recent times. We consider several educational access and quality indicators next.

PRIMARY AND SECONDARY ENROLMENT RATES

The ASER2006 survey provides the latest picture of schooling participation in India. It finds that 93.4 per cent of all elementary school age children (6-14 year olds) were enrolled in school, an encouraging statistic, reflecting a good deal of progress compared to enrolments in the early 1990s. Among children 11-14 years old enrol was lower: 10.3 per cent of girls and 7.7 per cent of boys were out of school (either never enrolled in school or dropped out). Among 15-16 years olds, the corresponding out-of-school figures rose steeply to 22.7 per cent and 20.2 per cent respectively for girls and boys. A gross enrolment rate in secondary education of 47 per cent, which we noted was below the level predicted for a country of India's per capita income level. Schooling participation depends on both the extent of demand for and the availability of supply of schooling. According to Seventh All India Education Survey, in 2002, there were only one-fifth as many secondary schools (those with grade 10 classes) as the number

of primary schools. Thus, it seems likely that secondary school enrolment rates are low partly because of the lack of supply of nearby secondary schools. However, despite supply constraints, demand for secondary education has risen and is likely to rise (partly via increase in private schooling) because it is lucrative level of education to acquire.

Kingdon and Kingdon and Unni (2001) find that the education-wage relationship is convex in India, *i.e.*, returns to secondary and higher education are significantly greater than to primary and middle levels of education. National Sample Survey data, also shows that the economic returns to education increase with education level, *i.e.*, since the coefficient on the quadratic term in years of education is large, positive and statistically significant in almost every state for both genders.

Both men and women, the returns to higher secondary and tertiary education have risen consistently over time. For women, the return to primary education has fallen but for men, it has remained static. These findings are based on National Sample Survey data analysed by Duraisamy (2002), Vasudeva-Datta (2006) and World Bank (2006).

Using National Sample Survey data for 1999-2000, there is a good deal of interstate variation in the extent of inequality in access to secondary schooling. The inequality (measured as the difference in access to secondary education among those in the top and bottom quintiles of the distribution of household per capita income) is greatest in Haryana, Andhra Pradesh and the so-called BIMARU states. Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh, which lag behind in many other indicators of social development. The inequality is lowest in the left leaning states of Kerala and West Bengal. Inter-state variation in gender-disparity in secondary school enrolment rates. The gender parity index here is the male to female secondary school enrolment ratio. A ratio of 1 represents gender equality. States such as Bihar and Rajasthan have grotesque gender inequality: girls are only half as likely to enrol in secondary school as boys. Other BIMARU states. Uttar Pradesh and Madhya Pradesh, together with their split-offs (Jharkhand and Chattisgarh), also have appalling gender inequality, but on the bright side, many states have gender parity or even slightly pro-female secondary enrolment rates, *e.g.*, Kerala and Tamil Nadu. Kingdon (2005) finds that an important part of the reason for gender inequality is to be found within the household, as opposed to institutional explanations (indeed, policy promotes girls' enrolment by instituting tuition free schooling for girls). Using household fixed effects equations, she finds strong within-household bias against daughters in terms of enrolment and household educational expenditure.

SCHOOL ATTENDANCE RATES

Current attendance rates are a more reliable indicator of schooling participation than enrolment rates, since large enrolment rates measured at the start of the school year can mask non-attendance and/or drop-out later in the school year. In this short 6-year period, school attendance among rural 6-10

year old girls and boys increased by 20 and 12 percentage points respectively; these are very substantial increases. In the rural 11-14 year age group, increases were more modest but still large, especially for girls, at 13.7 per cent. Urban increases were smaller. Andhra Pradesh, Madhya Pradesh, Rajasthan, and Uttar Pradesh made very large improvements in their current school attendance rates, particularly in rural areas where, in each of these four states, attendance rates rose by over 25 percentage points in the six-year period. Overall, nearly 80 per cent of all 6-14 year olds were attending school in 1999. As Kingdon et. al. (2004) notes, while attendance rates themselves are not a guarantee of grade completion or of achieving minimum levels of learning, these are nevertheless highly encouraging trends.

SCHOOL QUALITY

The impact of cognitive achievement on earnings, productivity and economic growth highlights the importance of school quality. How is India doing in terms of the common measures of schooling quality, namely school facilities and teacher effort?

The Public Report on Basic Education was the first serious evidence-based study of the state of primary schooling quality in India. It is based on a survey of schooling facilities in 242 villages across five north Indian states. Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Himachal Pradesh in 1996. PROBE found very poor school infrastructure, *e.g.*, 26 per cent of schools did not have a blackboard in every classroom, 52 per cent had no playground, 59 per cent no drinking water, 89 per cent no toilet, 59 per cent no maps or charts, 75 per cent no toys, 77 per cent no library and 85 per cent no musical instruments.

Nine years later, the ASER report found that in 2005, 66 per cent of primary schools had water (up from 41 per cent in 1996) and 42 per cent had functioning toilets (up from only 11 per cent in the PROBE survey of 1996). These improvements in school infrastructure are explained at least in part by the massive educational intervention called the District Primary Education Project. (DPEP) which started with donor assistance in the mid-1990s in districts with below national mean literacy rates.

One of the explicit objectives of the DPEP was to construct schooling facilities and upgrade school infrastructures. While DPEP and its successor programme Sarva Shiksha Abhiyan (Campaign for Education for All) have obviously helped, the current state of school facilities is nevertheless clearly far from satisfactory, with substantial proportions of primary schools still without the most basic essentials such as drinking water, toilets, furniture, teaching aids and books, let alone more advanced resources such as fans, playground, musical instruments, computers, *etc.*

Equally worrying perhaps is evidence of teacher negligence in schools. Firstly, teacher absence rates are high. Kremer et. al.'s (2005) survey of teacher absence in rural India in 2003 made three unannounced visits to each one of 3700 schools in 20 major states of India. They found that, on average, 25 per cent of teachers

in government primary schools were absent from school on a given day. Secondly, and more disturbingly, even among teachers who were present, only about half were found engaged in teaching. The PROBE survey had similar findings of low level of teaching activity in schools.

PROBE Team states that the extreme cases of teacher negligence were less devastating than the quiet inertia of the majority of teachers. In half of the sample schools, there was no teaching activity at the time of the investigators' visit. Inactive teachers were found engaged in a variety of pastimes such as sipping tea, reading comics, or eating peanuts, when they were not just sitting idle. Generally speaking, teaching activity has been reduced to a minimum in terms of both time and effort. And this pattern is not confined to a minority of irresponsible teachers - it has become a way of life in the profession. The ASER2005 report also found a teacher absence rate of 25 per cent.

GOVERNMENT AND LOCAL AUTHORITY SCHOOLS

Some problems of schools under the management of government and local authorities deserve notice. Government institutions, for instance, have certain advantages, such as good financial support, good system of remuneration and retirement benefits and security of tenure for their teachers, and a fairly adequate provision of other physical facilities. In spite of all these assets, however, most government schools show an average performance; and though some of them raise the average, very few qualify for the top places in the school system. This is so because of several reasons. The average government school is isolated from its community, and sometimes even indifferent to it.

The over-security of service creates an atmosphere of complacency and lethargy, especially because the conduct and discipline rules are such that it is difficult to reward merit, and even more so, to punish slackness. The teachers are recruited, not to individual institutions, but to a cadre and are frequently transferred from one institution to another. Consequently, they do not ordinarily develop loyalty to any individual institution.

They also have the minimum academic freedom and are hampered by rules and regulations at every step. The local authority schools also suffer from all these disadvantages. They have one compensating asset, namely, that they are more closely involved with their community. In practice, however, this generally proves to be not an asset, but a disadvantage, because their teachers are often harassed through postings and transfers and become involved in local politics and factions. A programme is, therefore, needed to overcome these weaknesses of government and local authority schools, so that the country can get an adequate return for the comparatively large investment it makes in these schools.

For this purpose we make the following recommendations:

- There should be a School Committee to look after every government or local authority school.

Such a committee will bring these schools closer to their local communities. Half the members of these committees should be elected by the local authority in charge of the area-village panchayat or municipality-and the remaining should be persons interested in education, nominated by the District School Boards.

The functions of these committees will include, among other things, the following:

- Responsibility for securing proper accommodation and construction and maintenance of school buildings, school gardens, children's parks and playgrounds;
- Provision of equipment;
- Distribution of books and writing materials to children;
- Grant of uniforms, scholarships and prizes;
- Enforcement of compulsory education within the area; Assisting in the organisation of extra-curricular activities and in building up a close relationship between the schools and the community;
- Provision of midday meals;
- Securing residential accommodation for teachers; and
- Generally taking all such measures as will help in improving school education within the area.

Each school committee should have a fund of its own for the proper discharge of its responsibilities. This fund, which may be designated as the School Fund, will consist of amounts placed at its disposal by the municipality or the village panchayat in the area; donations and contributions voluntarily made by the parents and local community from time to time; and a grant-in-aid given by the District School Board to stimulate local collections under and on some basis of equalisation, *i.e.*, a larger grant-in-aid being given to the poor areas while the richer ones may get a smaller one or none. The entire proceeds of the fund should be locally available for the development of such services in the schools as would supplement the effort made by the District School Board. It is evident that all school committees will not be equally efficient.

The system to be designed should, therefore, be elastic. School committees that are functioning well should be given more powers and more funds. The powers of those which are not working efficiently may be curtailed. If properly developed, this programme would make the local communities vie with one another in improving their schools, and their efforts should be a good supplement to those of the District School Board itself. Rational and appropriate policies have to be developed for transfers and postings of teachers which now cause considerable harassment, particularly to primary teachers under local bodies. As a rule, teachers should be allowed to remain in the same schools as long as possible and to develop loyalties to individual institutions. It is also necessary to give greater freedom to government and local authority schools and to reduce the existing red-tape to the minimum. Private schools already have a good deal of freedom, which is their main asset. There is no reason why similar freedom should not be given to government schools, where teachers and facilities are ordinarily of a better quality and where the freedom is likely to be better utilised.

PRIVATE SCHOOLS

The private educational institutions form a very heterogeneous group, falling into three main categories: recognised and aided institutions, recognised but unaided or independent institutions, and unrecognised institutions. The magnitude of the last two of these categories is small and we shall deal with them separately later. But the recognised and aided institutions, in spite of their 'private' management, have to be treated as an integral part of the system of public education.

Most of their expenditure comes from government grants and fees; and where fees have been abolished, they depend almost exclusively on government funds. Their main assets are: strong ties with the local community on whom they depend for support; a fair measure of freedom, although this is disappearing rapidly wider increasing departmental controls; and the loyalty of teachers who are recruited, unlike in government or local authority service, to individual institutions. These institutions have main weaknesses: a precarious financial position, due partly to the uncertainty of government grants and partly to their own increasing incapacity to raise funds; and very often, a bad and even unscrupulous management.

From the point of view of quality and efficiency, these institutions fall into two broad groups: a small group of very efficient institutions and a large group of weak and even undesirable ones. The institutions in the former have attracted and continue to attract competent and dedicated teachers who often form a self-perpetuating body of their own, and who remain virtually in charge of the management. Consequently, they maintain very good standards. The latter group includes a number of voluntary organisations which are dominated by sectarian considerations that affect the recruitment of teachers as well as their atmosphere. Several of them are run, not for purposes of education or social service, but for exploitation and patronage and are like commercial undertakings.

The conditions of service of teachers working under several of these organisations are far from satisfactory. They have little security of tenure and no pensionary benefits and sometimes not even a contributory provident fund; their remuneration is generally lower than that given to teachers of corresponding status under government or local bodies. In many cases, they do not even receive the amount which supposed to have been paid, to them because the managements, who are unable to raise popular contributions, often try to produce the matching contributions required of them under the grant-in-aid rules by an illegal and unacknowledged cut in teachers' salaries. It must be admitted that, by and large, these schools make a rather negative contribution to education and life, and they pose a major problem in school education.

In spite of all these limitations and deficiencies, however, these institutions will have to be treated as an integral part of the common school system of public education. It is the responsibility of government to see that they are improved through adequate support and proper management. This responsibility becomes all the greater because the bulk of the students in secondary schools

are in these institutions. Unfortunately, the efforts of the Education Departments in dealing with this problem have not been very successful.

As the existing grant-in-aid rules are based on egalitarian principles, all private schools are treated alike for purposes of financial assistance. This very often cramps the progress of the good schools while funds are unduly wasted on the poor ones. The attempt to check malpractices which are often found in the second group of these institutions and to give security of tenure to their teachers has resulted in a large measure of detailed control which again is applied to all schools alike.

This has not achieved its primary purpose, but has, on the contrary, weakened the discipline in these institutions and made things unnecessarily difficult even for good institutions who need, not greater control, but greater freedom. Moreover, the grant-in-aid rules are generally complicated and difficult to administer and the amount of aid is inadequate. Consequently, most of these institutions have remained in a very unsatisfactory condition. What is really needed is a discriminating rather than a uniform policy in respect of assistance to and control of private aided institutions.

The good private schools which maintain high standards and which have been able to attract the services of dedicated and competent teachers will have to be identified and given more freedom and adequate financial assistance. These institutions even today are the quality schools in the system and set the pace for others. They can quickly and effectively be developed as the 'seed farms' in the common school system of public education. At the same time, a sympathetic but firm policy will have to be adopted with the large group of private institutions which are substandard. They should be given time and assistance to put their houses in order. We expect that many of them will rise to the occasion and become good schools; but there will be many more that may not do so.

These latter should be dealt with firmly and either closed down or taken over by the Government. The position of private schools will be greatly affected by our recommendation that tuition fees should be abolished till the end of class X. When this recommendation is implemented, all fee-charging and aided private schools should be given the option either to abolish the fees and remain within the system or continue to charge fees and become independent. We anticipate, however, that most of the private schools will choose to remain within the common school system of public education.

MANAGEMENT OF SCHOOL BUILDING

During The Construction Period: Liaison with the local authority and the contractor:

- Before construction activities commence on site, it is important for the school to be aware of the project communication arrangements between the local authority project manager and the contractor. Regular site meetings are likely to be held, and it may be appropriate for the school to be represented, or to be briefed on progress.

- In many projects, day-to-day communication should be encouraged between the school co-ordinator and the contractor's site manager regarding 'housekeeping' matters which will affect the running of the school.
- As well as having a clear understanding of the design and contract programme, the school should also be aware of what terms and conditions, if any, were included in the contract regarding the contractor's working restrictions, health and safety, security and so on. The school itself will have no authority to enforce the terms of the contract. It is therefore essential to establish a single point of contact with the local authority for all communication regarding the project.

Keeping Staff and Pupils Informed

- The flow of information to and from school users is very important throughout the project. This is usually an element of the school co-ordinator's role.
- Existing communication arrangements within the school such as regular departmental and whole staff meetings should be used wherever possible rather than setting up separate project meetings. However, staff should be able to raise individual issues directly with the school co-ordinator.
- Pupils are usually kept informed about the project through school assemblies and feedback is often provided through the pupil council or through 'house structures' where these operate in secondary schools.
- The project is also likely to feature heavily on the agenda of any School Board and PTA meetings. The HT and school co-ordinator, as well as the contractor, may well be expected to make regular progress reports at these meetings.
- *One secondary school undergoing a major refurbishment set up a specific project users group which met monthly throughout the duration of the project. The group consisted of members representing staff, pupils, parents and others from the school community. Meetings were chaired by the HT and were attended by the local authority project manager and the contractor.*

Managing Disruptions

- A certain degree of inconvenience is unavoidable during a major construction project. The level of disruption likely to be experienced by the school will depend upon a variety of factors such as the scale and type of building operations, their proximity to the school activities, the time at which the works are carried out, and the constraints of the existing buildings and site.
- The following examples are the most common disruptions reported by schools during construction projects:
 - *Dust and dirt:* Apart from being particularly uncomfortable, airborne dust and dirt can give rise to medical complaints leading to staff and

pupil absences. Locating classrooms which require natural ventilation away from construction activities, and insisting on the constructing and maintaining of seals in affected areas can help to minimise the ingress of dust and dirt. In some cases, it may be appropriate to arrange additional cleaning for the school during the project.

- *Noise:* Health and Safety regulations ensure that noise levels will not be hazardous to health, but they may still be extremely distracting. Where construction works are in close proximity to the school, the contractor may be excluded from undertaking certain noisy activities during particular periods such as exams. It may also be possible for the school to request the contractor, on an informal basis, to reduce noise levels for short periods from time to time.
- *Distractions from increased traffic, both vehicular and personnel:* In order to avoid continuing distraction it may be possible to locate particularly sensitive school classes and activities away from the main site access and construction works. Ensure site activities are appropriately screened and avoid allowing contractor's staff access through pupil areas.
- *Frequent changes to access points and circulation routes:* The need to advise school users of continuing changes in access arrangements can be disruptive and resource intensive. This should be considered when agreeing the sequence of phasing of the construction works.
- *Planned and unplanned interruptions to water, gas, power, ICT services;* prior consultation and contingency planning with staff about the consequences of a particular service failure or disconnection will allow the school to better manage these situations when they occur.
- *Reduced playground space, loss of playing fields and car parking:* The loss of amenities during the construction process is often an unavoidable source of inconvenience to school users. However, early consultation with those affected, provides the opportunity to investigate and implement alternatives.

Managing Hazards and Disruptions

- The contractor will manage the health and safety and security aspects of the construction activities in any project. However, this in itself does not prevent the school from having to consider a number of health and safety matters or having to prepare at certain times for considerable disruption to the normal day-to-day running of the school.

Health and Safety/security

- The school will need to monitor its health and safety management procedures throughout the project and carry out additional risk

assessments where appropriate. In particular, any alterations to fire escape routes and gathering points, access arrangements and site boundaries should be clearly identified. Arrangements should be clearly displayed in the school with signage amended as appropriate. Fire drills should be undertaken each time escape routes are changed.

- Prior to construction commencing on site, all school users should be briefed on the health and safety arrangements for the project. Presentations to school assemblies by the contractor, often incorporating protective clothing and some basic statistics about construction site safety, are generally considered to have more impact than if these were delivered by the school management team.
- As school holidays approach further advice should be issued to pupils regarding the hazards of building sites. Security monitoring will be provided by the contractor but in some instances it may also be appropriate to alert the local police who may patrol the site at high risk periods.
- Where work needs to be carried out in occupied buildings, contractor's staff may require to gain access to parts of the construction site through operational parts of the school. These situations generally place greater responsibilities on the contractor's staff and school users. These responsibilities need to be understood by all.
- It may be considered appropriate in these situations for the contractor's staff to wear agreed forms of identification and to be prepared to be challenged by staff on school premises. It may also be considered necessary to caution contractor's staff to avoid initiating contact with pupils. It has also been known for school pupils to abuse construction workers, so the conduct of school users must also be considered and managed.
- Despite contractual agreements, breaches in health and safety procedures can still occur in these situations. For example contractor's staff may leave doors unlocked or materials and equipment unattended in circulation routes. School users should be particularly vigilant about possible hazards and procedures should be in place to report such incidents.

4

National System of Education

The Constitution embodies the principles on which the National System of Education is conceived of. The concept of a National System of Education implies that, up to a given level, all students, irrespective of caste, creed, location or sex, have access to education of a comparable quality. To achieve this, the Government will initiate appropriately funded programmes. Effective measures will be taken in the direction of the Common School System recommended in the 1968 Policy. The National System of Education envisages a common educational structure.

The 1 +2+3 structure has now been accepted in all parts of the country. Regarding the further break-up of the first 10 years efforts will be made to move towards an elementary system comprising 5 years of primary education and 3 years of upper primary, followed by 2 years of High School. The National System of Education will be based on a national curricular framework which contains a common core along with other components that are flexible.

The common core will include the history of India's freedom movement, the constitutional obligations and other content essential to nurture national identity. These elements will cut across subject heritage, egalitarianism, democracy and secularism, equality of the sexes, protection of the environment, removal of social barriers, observance of the small family norm and inculcation of the scientific temper.

All educational programmes will be carried on in strict conformity with secular values. India has always worked for peace and understanding between nations, treating the whole world as one family. True to this hoary tradition, Education has to strengthen this world view and motivate the younger generations for international cooperation and peaceful co- existence.

This aspect cannot be neglected. To promote equality, it will be necessary to provide for equal opportunity to all not only in access, but also in the conditions for success. Besides, awareness of the inherent equality of all will be created through the core curriculum. The purpose is to remove prejudices and complexes transmitted through the social environment and the accident of birth. Minimum levels of learning will be laid down for each stage of education. Steps will also be taken to foster among students an understanding of the diverse cultural and social systems of the people living in different parts of the country. Besides the promotion of the link language, programmes will also be launched to increase substantially the translation of books from one language to another and to publish multi-lingual dictionaries and glossaries.

The young will be encouraged to undertake the rediscovery of India, each in his own image and perception. In higher education in general, and technical education in particular, steps will be taken to facilitate inter-regional mobility by providing equal access to every Indian of requisite merit, regardless of his origins. The universal character of universities and other institutions of higher education is to be underscored.

In the areas of research and development, and education in science and technology, special measures will be taken to establish network arrangements between different institutions in the country to pool their resources and participate in projects of national importance. The Nation as a whole will assume the responsibility of providing resource support for implementing programmes of educational transformation, reducing disparities, universalisation of elementary education, adult literacy, scientific and technological research, *etc.* Life-long education is a cherished goal of the educational process.

This presupposes universal literacy. Opportunities will be provided to the youth, housewives, agricultural and industrial workers and professionals to continue the education of their choice, at the pace suited to them. The future thrust will be in the direction of open and distance learning. The institutions which will be strengthened to play an important role in giving shape to the National System of Education are the University Grants Commission, the All India Council of Technical Education, the Indian Council of Agricultural Research and the Indian Medical Council.

Integrated planning will be instituted among all these bodies so as to establish functional linkages and reinforce programmes of research and postgraduate education. These, together with the National Council of Educational Research and Training, the National Institute of Educational Planning and Administration and the International Institute of Science and Technology Education will be involved in implementing the Education Policy.

A MEANINGFUL PARTNERSHIP

The Constitutional Amendment of 1976, which includes Education in the Concurrent List, was a far-reaching step whose implications—substantive, financial and administrative—require a new sharing of responsibility between

the Union Government and the States in respect of this vital area of national life. While the role and responsibility of the States in regard to education will remain essentially unchanged, the Union Government would accept a larger responsibility to reinforce the national and integrative character of education, to maintain quality and standards to study and monitor the educational requirements of the country as a whole in regard to manpower for development, to cater to the needs of research and advanced study, to look after the international aspects of education, culture and Human Resource Development and, in general, to promote excellence at all levels of the educational pyramid throughout the country. Concurrency signifies a partnership which is at once meaningful and challenging; the National Policy will be oriented towards giving effect to it in letter and spirit.

THE NOTION OF EVALUATION

Many people confuse about the notion of evaluation, some of them didn't understand the difference between measurement, test, and assessment. Did You know it? Here I will give a little explanation about that.

Evaluation is an identification activity to see if a programme that has been planned achieved or not, valuable or not. It's also to see the level of implementation efficiency. Evaluation is relating to the decision value. Stufflebeam said that: *educational evaluation is the process of delineating, obtaining, and providing useful information for judging decision alternatives*. From Stufflebeam's views, we can see that the essence of evaluation is to provide information for decision making purposes. In education, we can evaluate the new curriculum, an education policy, specific learning resources, teacher or work ethic.

The test is the assessment ways to designed and implemented to students at a particular time and place and under conditions that meet certain requirements are clear. In particular, in the context of learning in the classroom, the assessment is to determine the progress and outcomes of students, diagnosing learning difficulties, provide feedback/improvement of teaching and learning process, and determining the increase in class. The assessment can be obtained accurate information about the organisation of teaching and learning success of students, teachers, and the learning process itself. Based on that information, teacher can make decisions about learning, learner's difficulties and the effort necessary guidance and presence of curriculum itself.

PSYCHOMETRICS

Psychometrics is the field of study concerned with the theory and technique of psychological measurement, which includes the measurement of knowledge, abilities, attitudes, personality traits, and educational measurement. The field is primarily concerned with the construction and validation of measurement instruments such as questionnaires, tests, and personality assessments.

It involves two major research tasks, namely: (i) the construction of instruments and procedures for measurement; and (ii) the development and refinement of theoretical approaches to measurement. Those who practice

psychometrics are known as psychometricians. All psychometricians possess a specific psychometric qualification, and while many are clinical psychologists, others work as human resources or learning and development professionals.

19th Century Foundation

Psychological testing has come from two streams of thought: one, from Darwin, Galton, and Cattell on the measurement of individual differences, and the second, from Herbart, Weber, Fechner, and Wundt and their psychophysical measurements of a similar construct. The second set of individuals and their research is what has led to the development of experimental psychology, and standardised testing.

Victorian Stream

Charles Darwin was the inspiration behind Sir Francis Galton who led to the creation of psychometrics. In 1859, Charles Darwin published his book “The Origin of Species”, which pertained to individual differences in animals. This book discussed how individual members in a species differ and how they possess characteristics that are more adaptive and successful or less adaptive and less successful. Those who are adaptive and successful are the ones that survive and give way to the next generation, who would be just as or more adaptive and successful. This idea, studied previously in animals, led to Galton’s interest and study of human beings and how they differ one from another, and more importantly, how to measure those differences.

Galton wrote a book entitled “Hereditary Genius” about different characteristics that people possess and how those characteristics make them more “fit” than others. Today these differences, such as sensory and motor functioning (reaction time, visual acuity, and physical strength) are important domains of scientific psychology. Much of the early theoretical and applied work in psychometrics was undertaken in an attempt to measure intelligence.

Francis Galton, often referred to as “the father of psychometrics,” devised and included mental tests among his anthropometric measures. James McKeen Cattell, who is considered a pioneer of psychometrics went on to extend Galton’s work. Cattell also coined the term *mental test*, and is responsible for the research and knowledge which ultimately led to the development of modern tests.

German Stream

The origin of psychometrics also has connections to the related field of psychophysics. Around the same time that Darwin, Galton, and Cattell were making their discoveries, J.E. Herbart was also interested in “unlocking the mysteries of human consciousness” through the scientific method. Herbart was responsible for creating mathematical models of the mind, which were influential in educational practices in years to come.

Following Herbart, E.H. Weber built upon Herbart’s work and tried to prove the existence of a psychological threshold saying that a minimum stimulus was

necessary to activate a sensory system. After Weber, G.T. Fechner expanded upon the knowledge he gleaned from Herbart and Weber, to devise the law that the strength of a sensation grows as the logarithm of the stimulus intensity. A follower of Weber and Fechner, Wilhelm Wundt is credited with founding the science of psychology. It is Wundt's influence that paved the way for others to develop psychological testing.

20th Century

The psychometrician L. L. Thurstone, founder and first president of the Psychometric Society in 1936, developed and applied a theoretical approach to measurement referred to as the law of comparative judgement, an approach that has close connections to the psychophysical theory of Ernst Heinrich Weber and Gustav Fechner.

In addition, Spearman and Thurstone both made important contributions to the theory and application of factor analysis, a statistical method developed and used extensively in psychometrics. In the late 1950s, Leopold Szondi made an historical and epistemological assessment of the impact of statistical thinking onto psychology during previous few decades: "in the last decades, the specifically psychological thinking has been almost completely suppressed and removed, and replaced by a statistical thinking. Precisely here we see the cancer of testology and testomania of today."

More recently, psychometric theory has been applied in the measurement of personality, attitudes, and beliefs, and academic achievement. Measurement of these unobservable phenomena is difficult, and much of the research and accumulated science in this discipline has been developed in an attempt to properly define and quantify such phenomena. Critics, including practitioners in the physical sciences and social activists, have argued that such definition and quantification is impossibly difficult, and that such measurements are often misused, such as with psychometric personality tests used in employment procedures:

"For example, an employer wanting someone for a role requiring consistent attention to repetitive detail will probably not want to give that job to someone who is very creative and gets bored easily."

Figures who made significant contributions to psychometrics include Karl Pearson, Henry F. Kaiser, Carl Brigham, L. L. Thurstone, Georg Rasch, Eugene Galanter, Johnson O'Connor, Frederic M. Lord, Ledyard R Tucker, Arthur Jensen, and David Andrich.

Psychometric, psychometrician and psychometrist appreciation week is the first week in November.

DEFINITION OF MEASUREMENT IN THE SOCIAL SCIENCES

The definition of measurement in the social sciences has a long history. A currently widespread definition, proposed by Stanley Smith Stevens (1946), is

that measurement is “the assignment of numerals to objects or events according to some rule.” This definition was introduced in the paper in which Stevens proposed four levels of measurement. Although widely adopted, this definition differs in important respects from the more classical definition of measurement adopted in the physical sciences, which is that *measurement is the numerical estimation and expression of the magnitude of one quantity relative to another* (Michell, 1997).

Indeed, Stevens’s definition of measurement was put forward in response to the British Ferguson Committee, whose chair, A. Ferguson, was a physicist. The committee was appointed in 1932 by the British Association for the Advancement of Science to investigate the possibility of quantitatively estimating sensory events. Although its chair and other members were physicists, the committee also included several psychologists. The committee’s report highlighted the importance of the definition of measurement. While Stevens’s response was to propose a new definition, which has had considerable influence in the field, this was by no means the only response to the report. Another, notably different, response was to accept the classical definition, as reflected in the following statement:

Measurement in psychology and physics are in no sense different. Physicists can measure when they can find the operations by which they may meet the necessary criteria; psychologists have but to do the same. They need not worry about the mysterious differences between the meaning of measurement in the two sciences.

These divergent responses are reflected in alternative approaches to measurement. For example, methods based on covariance matrices are typically employed on the premise that numbers, such as raw scores derived from assessments, are measurements. Such approaches implicitly entail Stevens’s definition of measurement, which requires only that numbers are *assigned* according to some rule. The main research task, then, is generally considered to be the discovery of associations between scores, and of factors posited to underlie such associations.

On the other hand, when measurement models such as the Rasch model are employed, numbers are not assigned based on a rule. Instead, in keeping with Reese’s statement above, specific criteria for measurement are stated, and the goal is to construct procedures or operations that provide data that meet the relevant criteria. Measurements are estimated based on the models, and tests are conducted to ascertain whether the relevant criteria have been met.

INSTRUMENTS AND PROCEDURES

The first psychometric instruments were designed to measure the concept of intelligence. The best known historical approach involved the Stanford-Binet IQ test, developed originally by the French psychologist Alfred Binet. Intelligence tests are useful tools for various purposes. An alternative conception of intelligence is that cognitive capacities within individuals are a manifestation

of a general component, or general intelligence factor, as well as cognitive capacity specific to a given domain. Psychometrics is applied widely in educational assessment to measure abilities in domains such as reading, writing, and mathematics. The main approaches in applying tests in these domains have been Classical Test Theory and the more recent Item Response Theory and Rasch measurement models. These latter approaches permit joint scaling of persons and assessment items, which provides a basis for mapping of developmental continua by allowing descriptions of the skills displayed at various points along a continuum. Such approaches provide powerful information regarding the nature of developmental growth within various domains.

Another major focus in psychometrics has been on personality testing. There have been a range of theoretical approaches to conceptualising and measuring personality. Some of the better known instruments include the Minnesota Multiphasic Personality Inventory, the Five-Factor Model (or “Big 5”) and tools such as Personality and Preference Inventory and the Myers-Briggs Type Indicator. Attitudes have also been studied extensively using psychometric approaches. A common method in the measurement of attitudes is the use of the Likert scale. An alternative method involves the application of unfolding measurement models, the most general being the Hyperbolic Cosine Model.

Theoretical Approaches

Psychometricians have developed a number of different measurement theories. These include classical test theory (CTT) and item response theory (IRT). An approach which seems mathematically to be similar to IRT but also quite distinctive, in terms of its origins and features, is represented by the Rasch model for measurement. The development of the Rasch model, and the broader class of models to which it belongs, was explicitly founded on requirements of measurement in the physical sciences.

Psychometricians have also developed methods for working with large matrices of correlations and covariances. Techniques in this general tradition include: factor analysis, a method of determining the underlying dimensions of data; multidimensional scaling, a method for finding a simple representation for data with a large number of latent dimensions; and data clustering, an approach to finding objects that are like each other. All these multivariate descriptive methods try to distil large amounts of data into simpler structures. More recently, structural equation modelling and path analysis represent more sophisticated approaches to working with large covariance matrices. These methods allow statistically sophisticated models to be fitted to data and tested to determine if they are adequate fits.

One of the main deficiencies in various factor analyses is a lack of consensus in cutting points for determining the number of latent factors. A usual procedure is to stop factoring when eigenvalues drop below one because the original sphere shrinks. The lack of the cutting points concerns other multivariate methods, also.

ADULT EDUCATION

Our ancient scriptures define education as that which liberates - *i.e.*, provides the instruments for liberation from ignorance and oppression in the modern world, it would naturally include the ability to read and write, since that is the main instrument of learning. Hence the crucial importance of adult education, including adult literacy.

The critical development issue today is the continuous upgradation of skills so as to produce manpower resources of the kind and the number required by the society.

Since participation by beneficiaries in the developmental programmes is of crucial importance, systematic programmes of adult education linked with national goals such as alleviation of poverty, national integration, environmental conservation, energisation of the cultural creativity of the people, observance of small family norm, promotion of women's equality, *etc.*, will be organised and the existing programmes reviewed and strengthened. The whole Nation must pledge itself to the eradication of illiteracy, particularly in the 15-35 age group.

The Central and State Governments, political parties and their mass organisations, the mass media and educational institutions must commit themselves to mass literacy programmes of diverse nature. It will also have to involve on a large scale teachers, students, youth, voluntary agencies, employers, *etc.*, Concerted efforts will be made to harness various research agencies to improve the pedagogical aspects of adult literacy.

The mass literacy programme would include, in addition to literacy, functional knowledge and skills, and also awareness among learners about the socioeconomic reality and the possibility to change it.

A vast programme of adult and continuing education will be implemented through various ways and channels, including-

- Establishment of centres in rural areas for continuing education;
- Workers' education through the employers, trade unions and concerned agencies of government;
- Post-secondary education institutions;
- Wider promotion of books, libraries and reading rooms;
- Use of radio, TV and films, as mass and group learning media;
- Creation of learners' groups and organisations;
- Programmes of distance learning;
- Organizing assistance in self-learning; and
- Organising need and interest based vocational training programmes.

OPEN UNIVERSITY AND DISTANCE LEARNING

The Open University system has been initiated in order to augment opportunities for higher education and as an instrument of democratising education. The Indira Gandhi National Open University, established in 1985 in fulfilment of these objectives, will be strengthened. This powerful instrument will have to be developed with care and extended with caution.

Delinking Degrees From Jobs

A beginning will be made in de-linking degrees from jobs in selected areas. The proposal cannot be applied to occupation-specific courses like Engineering, Medicine, Law, Teaching, *etc.* Similarly, the services of specialists with academic qualifications in the humanities, social sciences, sciences, *etc.*, will continue to be required in various job positions.

De-linking will be applied in services for which a university degree need not be a necessary qualification. Its implementation will lead to a re-fashioning of job-specific courses and afford greater justice to those candidates who, despite being equipped for a given job, are unable to get it because of an unnecessary preference for graduate candidates. Concomitant with de-linking, an appropriate machinery, such as a National Testing Service, will be established, in appropriate phases, to conduct tests on a voluntary basis to determine the suitability of candidates for specified jobs and to pave the way for the emergence of norms of comparable competence across the nation.

Rural University

The new pattern of the Rural University will be consolidated and developed on the lines of Mahatma Gandhi's revolutionary ideas on education so as to take up the challenges of micro-planning at grassroot levels for the transformation of rural areas. Institutions and programmes of Gandhian basic education will be supported.

EDUCATION FOR EQUALITY

DISPARITIES

The new Policy will lay special emphasis on the removal of disparities and to equalise educational opportunity by attending to the specific needs of those who have been denied equality so far.

Education for Women's Equality

Education will be used as an agent of basic change in the status of woman. In order to neutralise the accumulated distortions of the past, there will be a well-conceived edge in favour of women. The National Education System will play a positive, interventionist role in the empowerment of women. It will foster the development of new values through redesigned curricula, textbooks, the training and orientation of teachers, decision-makers and administrators, and the active involvement of educational institutions. This will be an act of faith and social engineering. Women's studies will be promoted as a part of various courses and educational institutions encouraged to take up active programmes to further women's development.

The removal of women's illiteracy and obstacles inhibiting their access to, and retention in, elementary education will receive overriding priority, through

provision of special support services, setting of time targets, and effective monitoring. Major emphasis will be laid on women's participation in vocational, technical and professional education at different levels. The policy of non-discrimination will be pursued vigorously to eliminate sex stereotyping in vocational and professional courses and to promote women's participation in non-traditional occupations, as well as in existing and emergent technologies.

THE EDUCATION OF SCHEDULED CASTES

The central focus in the SCs' educational development is their equalisation with the non-SC population at all Stages and levels of education, in all areas and in all the four dimensions - rural male, rural female, urban male and urban female.

The measures contemplated for this purpose include:

- Incentives to indigent families to send their children to school regularly till they reach the age of 14;
- Pre-matric Scholarship scheme for children of families engaged in occupations such as scavenging, flaying and tanning to be made applicable from Class onwards. All children of such families, regardless of incomes, will be covered by this scheme and time-bound programmes targetted on them will be undertaken;
- Constant micro-planning and verification to ensure that the enrolment, retention and successful completion of courses by SC students do not fall at any stage, and provision of remedial Courses to improve their prospects for further education and employment.
- Recruitment of teachers from Scheduled Castes;
- Provision of facilities for SC students in students' hostels at district headquarters, according to a phased programme;
- Location of school buildings, Balwadis and Adult Education, Centres in such a way as to facilitate full -participation of the Scheduled Castes;
- The utilization of N.R.E.P. and R.L.E.G.P. resources so as to make substantial educational facilities available to the Scheduled Castes; and
- Constant innovation in finding new methods to increase the participation of the Scheduled Castes in the educational process.

The Education of Scheduled Tribes

The following measures will be taken urgently to bring the Scheduled Tribes on par with others:-

- Priority will be accorded to opening primary schools in tribal areas. The construction of school Buildings will be undertaken in these areas on a priority basis under the normal funds for education, as well as under the N.R.E.P, R.L.E.G.P, Tribal Welfare schemes, etc.
- The socio-cultural milieu of the STs has its distinctive characteristics including, in many cases, their own spoken languages. This underlines the need to develop the curricula and devise instructional materials in tribal languages at the initial stages, with arrangements for switching over to the regional language.

- Educated and promising Scheduled Tribe youths will be encouraged and trained to take up teaching in tribal areas.
- Residential schools, including Ashram Schools, will be established on a large scale.
- Incentive schemes will be formulated for the Scheduled Tribes, keeping in view their special needs and life styles. Scholarships for higher education will emphasise technical, professional and paraprofessional courses. Special remedial courses and other programmes to remove psycho-social impediments will be provided to improve their performance in various courses.
- Anganwadis, Non-formal and Adult Education Centres will be opened on a priority basis in areas predominantly inhabited by the Scheduled Tribes.
- The curriculum at all stages of education will be designed to create an awareness of the rich cultural identity of the tribal people as also of their enormous creative talent.

Other Educationally Backward Parts and Areas

Suitable incentives will be provided to all educationally backward parts of society, particularly in the rural areas. Hill and desert districts, remote and inaccessible areas and islands will be provided adequate institutional infrastructure.

Minorities

Some minority groups are educationally deprived or backward. Greater attention will be paid to the education of these groups in the interests of equality and social justice. This will naturally include the Constitutional guarantees given to them to establish and administer their own educational institutions, and protection to their languages and culture. Simultaneously, objectivity will be reflected in the preparation of textbooks and in all school activities, and all possible measures will be taken to promote an integration based on appreciation of common national goals and ideals, in conformity with the core curriculum.

The Handicapped

The objective should be to integrate the physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence.

The following measures will be taken in this regard:

- Wherever it is feasible, the education of children with motor handicaps and other mild handicaps will be common with that of others.
- Special schools with hostels will be provided, as far as possible at district headquarters, for the severely handicapped children.
- Adequate arrangements will be made to give vocational training to the disabled.

- Teachers' training programmes will be reoriented, in particular for teachers of primary classes, to deal with the special difficulties of the handicapped children; and
- Voluntary effort for the education of the disabled, will be encouraged in every possible manner.

REORGANISATION OF EDUCATION AT DIFFERENT STAGES

EARLY CHILDHOOD CARE AND EDUCATION

The National Policy on Children specially emphasises investment in the development of the young child, particularly children from parts of the population in which first generation learners predominate. Recognising the holistic nature of child development, *viz.*, nutrition, health and social, mental, physical, moral and emotional development, Early Childhood Care and Education will receive high priority and be suitably integrated with the Integrated Child Development Services programme, wherever possible. Day-care centres will be provided as a support service for universalisation of primary education, to enable girls engaged in taking care of siblings to attend school and as a support service for working women belonging to poorer parts.

Programmes of ECCE will be child-oriented, focussed around play and the individuality of the child. Formal methods and introduction of the 3 R's will be discouraged at this stage. The local community will be fully involved in these programmes. A full integration of child care and pre-primary education will be brought about, both as a reeder and a strengthening factor for primary education and for human resource development in general. In continuation of this stage, the School Health Programme will be strengthened.

ELEMENTARY EDUCATION

The new thrust in elementary education will emphasise two aspects:

- Universal enrolment and universal retention of children up to 14 years of age, and
- A substantial improvement in the quality of education.

Child-Centred Approach

A warm, welcoming and encouraging approach, in which all concerned share a solicitude for the needs of the child, is the best motivation for the child to attend school and learn. A child-centred and activity-based process of learning should be adopted at the primary stage.

First generation learners should be allowed to set their own pace and be given supplementary remedial instruction. As the child grows, the component of cognitive learning will be increased and skills organised through practice. The policy of non- detention at the primary stage will be retained, making

evaluation as disaggregated as feasible. Corporal punishment will be firmly excluded from the educational system and school timings as well as vacations adjusted to the convenience of children.

School Facilities

Provision will be made of essential facilities in primary schools, including at least two reasonably large rooms that are usable in all weather, and the necessary toys, blackboards, maps, charts, and other learning material. At least two teachers, one of whom a woman, should work in every school, the number increasing as early as possible to one teacher per class. A phased drive, symbolically called-OPERATION BLACKBOARD will be undertaken with immediate effect to improve Primary Schools all over the country. Government, local bodies, voluntary agencies and individuals will be fully involved. Construction of school buildings will be the first charge on NREP and. RLEGP funds.

Non-Formal Education

A large and systematic programme of non-formal education will be launched for school drop-outs, for children from habitations without schools, working children and girls who cannot attend whole- day schools. Modern technological aids will be used to improve the learning environment of NFE centres. Talented and dedicated young men and women from the local community will be chosen to serve as instructors, and particular attention paid to their training. Steps will be taken to facilitate their entry into the formal system in deserving cases.

All necessary measures will be taken to ensure that the quality of non-formal education is comparable with formal education. Effective steps will be taken to provide a framework for the curriculum on the lines of the national core curriculum, but based on the needs of the learners and related to the local environment. Learning material of high quality will be developed and provided free of charge to all pupils. NFE programmes will provide participatory learning environment, and activities such as games and sports, cultural programmes, excursions, *etc.* Much of the work of running NFE centres will be done through voluntary agencies and panchayati raj institutions. The provision of funds to these agencies will be adequate and timely. The Government will take over-all responsibility for this vital sector.

A Resolve

The New Education Policy will give the highest priority to solving the problem of children dropping out of school and will adopt an array of meticulously formulated strategies based on micro- planning, and applied at the grass-roots level all over the country, to ensure children's retention at school. This effort will be fully coordinated with the network of non-formal education.

It shall be ensured that all children who attain the age about 11 years by 1990 will have had five years of schooling, or its equivalent through the non-formal stream. Likewise, by 1995 all children will be provided free and compulsory education upto 14 years of age.

SECONDARY EDUCATION

Secondary education begins to expose students to the differentiated roles of science, the humanities and social sciences. This is also an appropriate stage to provide children with a sense of history and national perspective and give them opportunities to understand their constitutional duties and rights as citizens.

Conscious internalisation of a healthy work ethos and of the values of a humane and composite culture will be brought about through appropriately formulated curricula. Vocationalisation through specialised institutions or through the refashioning of secondary education can, at this stage, provide valuable manpower for economic growth. Access to secondary education will be widened to cover areas unserved by it at present. In other areas, the main emphasis will be on consolidation.

Pace-Setting School

It is universally accepted that children with special talent or aptitude should be provided opportunities to proceed at a faster pace, by making good quality education available to them, irrespective of their capacity to pay for it. Pace-setting schools intended to serve this purpose will be established in various parts of the country on a given pattern, but with full scope for innovation and experimentation.

Their broad aims will be to serve the objective of excellence, coupled with equity and social justice to promote national integration by providing opportunities to talented children largely rural, from different parts of the country to live and learn together, to develop their full potential, and, most importantly, to become catalysts of a nation-wide programme of school improvement. The schools will be residential and free of charge.

Vocational

The introduction of systematic, well-planned and rigorously implemented programmes of vocational education is crucial in the proposed educational reorganisation. These elements are meant to enhance individual employability, to reduce the mis-match between the demand and supply of skilled manpower, and to provide an alternative for those pursuing higher education without particular interest or purpose.

Vocational education will be a distinct stream, intended to prepare students for identified occupations spanning several areas of activity. These courses will ordinarily be provided after the secondary stage, but keeping the scheme flexible, they may also be made available after Class VIII. In the interests of integrating vocational education better with their facilities the Industrial Training Institutes will also conform to the larger vocational pattern. Health planning and health service management should optimally interlock with the education and training of appropriate categories of health manpower through health-related vocational courses. Health education at the primary and middle levels will ensure the

commitment of the individual to family and community health, and lead to health-related vocational courses at the +2 stage of higher secondary education. Efforts will be made to devise similar vocational courses based on Agriculture, Marketing, Social Services, *etc.*

An emphasis in vocational education will also be on development of attitudes, knowledge, and skills for entrepreneurship and self-employment. The establishment of vocational courses or institutions will be the responsibility of the Government as well as employers in the public and private sectors; the Government will, however, take special steps to cater to the needs of women, rural and tribal students and the deprived parts of society.

Appropriate programmes will also be started for the handicapped. Graduates of vocational courses- will be given opportunities, under predetermined conditions, for professional growth, career improvement and lateral entry into courses of general, technical and professional education through appropriate bridge courses. Non-formal, flexible and need-based vocational programmes will also be made available to neo-literates, youth who have completed primary education, school drop-outs, persons engaged in work and unemployed or partially employed persons.

Special attention in this regard will be given to women. Tertiary level courses will be organised for the young who graduate from the higher secondary courses of the academic stream and may also require vocational courses. It is proposed that vocational courses cover 1 per cent of higher secondary students by 1990 and 25 per cent by 1995. Steps will be taken to see that a substantial majority of the products of vocational courses are employed or become self employed. Review of the courses offered would be regularly undertaken. Government will also review its recruitment policy to encourage diversification at the secondary level.

Higher Education

Higher education provides people with an opportunity to reflect on the critical social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialized knowledge and skills. It is therefore a crucial factor for survival. Being at the apex of the educational pyramid, it has also a key role in producing teachers for the education system. In the context of the unprecedented explosion of knowledge, higher education has to become dynamic as never before, constantly entering uncharted areas.

There are around 15 universities and about 5, colleges in India today. In view of the need to effect an all round improvement in these institutions, it is proposed that, in the near future, the main emphasis will be on the consolidation of, and expansion of facilities in, the existing institutions. Urgent steps will be taken to protect the system from degradation. In view of mixed experiences with the system of affiliation, autonomous colleges will be helped to develop in large numbers until the affiliating system is replaced by a freer and more creative

association of universities with colleges. Similarly, the creation of autonomous departments within universities on a selective basis will be encouraged. Autonomy and freedom will be accompanied by accountability. Courses and programmes will be redesigned to meet the demands of specialisation better. Special emphasis will be laid on linguistic competence.

There will be increasing flexibility in the combination of courses. State level planning and coordination of higher education will be done through Councils of Higher Education. The UGC and these Councils will develop coordinative methods to keep a watch on standards. Provision will be made for minimum facilities and admission will be regulated according to capacity. A major effort will be directed towards the transformation of teaching methods. Audio-visual aids and electronic equipment will be introduced; development of science and technology curricula and material, research, and teacher orientation will receive attention. This will require preparation of teachers at the beginning of the service as well as continuing education thereafter.

Teachers' performance will be systematically assessed. All posts will be filled on the basis of merit. Research in the universities will be provided enhanced support and steps will be taken to ensure its high quality. Suitable mechanisms will be set up by the UGC for coordinating research in the universities, particularly in thrust areas of science and technology, with research undertaken by other agencies. An effort will be made to encourage the setting up of national research facilities within the university system, with proper forms of autonomous management.

Research in Indology, the humanities and social sciences will receive adequate support. To fulfil the need for the synthesis of knowledge, inter-disciplinary research will be encouraged. Efforts will be made to delve into India's ancient fund of knowledge and to relate it to contemporary reality. This effort will imply the development of facilities for the intensive study of Sanskrit and other Classical languages. In the interest of greater coordination and consistency in policy, sharing of facilities and developing interdisciplinary research, a national body covering higher education in general, agricultural, medical, technical, legal and other professional fields will be set up.

5

Development of Education in Response to Social Change

VIEWS ON SOCIAL CHANGE

As Western societies transitioned from pre-industrial economies based primarily on agriculture to industrialized societies in the 19th century, some people worried about the impacts such changes would have on society and individuals. Three early sociologists, Weber, Marx, and Durkheim, perceived different impacts of the Industrial Revolution on the individual and society and described those impacts in their work.

WEBER AND RATIONALIZATION

Max Weber was particularly concerned about the rationalization and bureaucratization of society stemming from the Industrial Revolution and how these two changes would affect humanity's agency and happiness. As Weber understood society, particularly during the industrial revolution of the late 19th century in which he lived, he believed society was being driven by the passage of rational ideas into culture which, in turn, transformed society into an increasingly bureaucratic entity. Bureaucracy is a type of organizational or institutional management that is, as Weber understood it, rooted legal-rational authority.

Weber did believe bureaucracy was the most rational form of societal management, but because Weber viewed rationalization as the driving force of society, he believed bureaucracy would increase until it ruled society. Society,

for Weber, would become almost synonymous with bureaucracy. As Weber did not see any alternative to bureaucracy, he believed it would ultimately lead to an iron cage; society would bureaucratize and there would be no way to get out of it. Weber viewed this as a bleak outcome that would affect individuals' happiness as they would be forced to function in a highly rational society with rigid rules and norms without the possibility to change it. Because Weber could not envision other forces influencing the ultimate direction of society the exception being temporary lapses into non-bureaucracy spurred by charismatic leaders—he saw no cure for the iron cage of rationality.

Society would become a large bureaucracy that would govern people's lives. Weber was unable to envision a solution to his iron cage of bureaucracy dilemma; since a completely rational society was inevitable and bureaucracy was the most rational form of societal management, the iron cage, according to Weber, does not have a solution.

MARX AND ALIENATION

Karl Marx took a different perspective on the impact of the Industrial Revolution on society and the individual. In order to understand Marx's perspective, however, it is necessary to understand how Marx perceived happiness. According to Marx, species being is the pinnacle of human nature. Species being is understood to be a type of self-realization or self-actualization brought about by meaningful work. But in addition to engaging in meaningful work, self-actualized individuals must also own the products of their labors and have the option of doing what they will with those products.

In a capitalist society, which was co-developing with industry, rather than owning the fruits of their labors, the proletariat or working class owns only their labour power, not the fruits of their labors. The capitalists or bourgeoisie employ the proletariat for a living wage, but then keep the products of the labour. As a result, the proletariat is alienated from the fruits of its labour " they do not own the products they produce, only their labour power.

Because Marx believed species being to be the goal and ideal of human nature and that species being could only be realised when individuals owned the results of their labors, Marx saw capitalism as leading towards increasingly unhappy individuals; they would be alienated from the results of their production and therefore would not be self-realised. But the alienation from the results of their production is just one component of the alienation Marx proposed.

In addition to the alienation from the results of production, the proletariat is also alienated from each other under capitalism. Capitalists alienate the proletariat from each other by forcing them to compete for limited job opportunities. Job opportunities are limited under capitalism in order for capitalists to keep wages down; without a pool of extraneous workers, capitalists would have to meet the wage demands of their workers. Because they are forced to compete with other members of the proletariat, workers are alienated from each other, compounding the unhappiness of the proletariat.

While Marx did have a solution to the problem of alienation. Marx's proposed solution was for the proletariat to unite and through protests or revolution overthrow the bourgeoisie and institute a new form of government's communism. This form of government would be based on communally owned and highly developed means of production and self-governance. The means of production would be developed "through capitalism" to the point that everyone in society would have sufficient 'free' time to allow them to participate in whatever governmental decisions needed to be made for the community as a whole. By re-connecting the individual with the fruits of their labour and empowering them towards true self-governance, species being would be realised and happiness would be returned.

Two additional comments are in order here. First, the communism that developed in The Soviet Union and China as well as other parts of the world—was not the communism envisioned by Marx. These forms of communism still had stratified hierarchies with two groups: a ruling elite and everybody else. Second, Marx believed capitalism, while harmful to species being, was necessary to advance the means of production to a stage where communism could be realised. Thus, while Marx was highly critical of capitalism, he also recognized its utility in developing the means of production.

DURKHEIM AND SOLIDARITY

Durkheim's view of society and the changes it was undergoing as a result of industrialization also led him to believe unhappiness was a possible outcome. Durkheim believed that an important component of social life was social solidarity, which is understood as a sense of community. In his classic study, *Suicide*, Durkheim argued that one of the root causes of suicide was a decrease in social solidarity "termed anomie by Durkheim. Durkheim also argued that the increasing emphasis on individualism found in Protestant religions" in contrast to Catholicism" contributed to an increase in anomie, which resulted in higher suicide rates among Protestants.

In another work, *The Division of Labour in Society*, Durkheim proposed that pre-industrial societies maintained their social solidarity through a mechanistic sense of community and through their religious affiliations. Most people were generalists in their work" they farmed and created their own tools and clothing. Because they were alike in their generality, they were also more likely to share a sense of community, which Durkheim saw as an important component of happiness.

In addition to their similarity in occupations, many individuals belonged to the same religious groups, which also fostered a sense of solidarity. In industrializing societies, Durkheim recognized the inevitability of specialization. By definition, specialization means that individuals are going to have dissimilar occupations. This specialization would also affect religion.

In industrial societies, religion would become just one aspect of lives that were increasingly divided into compartments" home, family, work, recreation,

religion, *etc.* Durkheim believed there were two components that would alleviate the decreasing social solidarity in industrializing societies: organic solidarity and conscientious attempts to find camaraderie through one's place of employ.

Whereas social solidarity was maintained in preindustrial societies through a mechanistic sense of similarity and dependence along with communal religious affiliations, in industrialized societies, social solidarity would be maintained by the interdependence of specialists on one another. If one individual specialized in treating the injured or ill, they would not have time to raise crops or otherwise produce food. Doctors would become dependent on farmers for their food while farmers would become dependent on doctors for their healthcare.

This would force a type of organic solidarity" organic in the sense that the parts were interdependent like the organs of an animal are interdependent for their survival. In addition to the inevitable interdependence a specialized society would warrant, Durkheim believed that a conscientious effort to develop and foster friendships would transition from a religious brotherhood to friendships developed at one's place of employment.

Specialized individuals would have a great deal in common with their co-workers and, like members of the same religious congregations in pre-industrial societies, co-workers would be able to develop strong bonds of social solidarity through their occupations. Thus, for Durkheim, the answer to the decrease in mechanistic solidarity and the increasing anomie was organic solidarity and solidarity pursued within one's specialty occupation.

SOCIAL CHANGE IN HUMAN DEVELOPMENT

THE PEOPLE

Human beings are distinguished among all living species by their capacity to develop and think. Though development is often measured in terms of so many miles of roads, number of tall buildings, airports, cars, TVs, computers *etc.*, it is not things and places alone that define development. Development must be people centric. Twenty years hence, the people of India will be more numerous, better educated, healthier and more prosperous than at any other time in our long history. Having eradicated the scourge of famine that plagued the country for centuries, we still confront the challenging tasks of providing a nutritious diet to all our children, educating our teeming masses, abolishing epidemic diseases and creating employment opportunities for all our citizens. Today India is the second most populous country in the world, with about 1.04 billion people, home to a-sixth of humanity. Although it is difficult to accurately predict population growth rates 20 years to the future, we expect this number to rise by another 300-350 million, in spite of continuous efforts to reduce fertility rates. This would raise the total population to about 1330 million by 2020. India is in the process of a demographic transition from high fertility, high mortality and stable population to low fertility, low mortality and stable population.

This transition is a global phenomenon generated by the improved availability and access to modern health care that sharply reduced mortality rates and increased life expectancy. The Crude death rate has declined to one-third of its level in 1941 and the expectation of life at birth has nearly doubled during this period. Falling mortality rates have been followed by a steady decline in birth rates, but this decline has not been as steep as the fall in death rate; even after reaching the replacement fertility rates, the population will continue to grow because of large numbers of young persons entering reproductive age.

While assessing future prospects, it is necessary to take into account the vast regional differences in demographic parameters. Population growth has recently decelerated below 2 per cent for the first time in four decades, but not uniformly across the length and breadth of the country. Several states in south India have already reached, or are about to attain, the replacement level of fertility that would ensure a zero growth rate of population in the long run. On the other hand, in many states in north India, characterised by high fertility rates, it may take several decades to reach the replacement level of fertility. There are also similar differentials in levels of mortality, especially in infant and child mortality. At the national level, two alternate scenarios for achieving population stabilisation have been considered. In the optimistic scenario, which is based on achieving the demographic goals of the National Population Policy 2000, life expectancy is assumed to rise to 71 for males and 74 for females by 2020. Under the realistic scenario, life expectancy is assumed to reach 65 for males and 69 for females by 2020.

Under either scenario India's population would exceed 1.3 billion in the year 2020. In both cases the sex ratio of population (females per 1000 males) would marginally increase from 932 in 2000 to 950 in 2020; reversing the historical trend of falling sex ratio is expected in the 21st Century. We can be more certain of the changes in the age structure of the population as given in Table.

Table. Population Projections (millions).

Year	2000	2005	2010	2015	2020
Total	1010	1093	1175	1256	1331
Under 15	361	368	370	372	373
15-64	604	673	747	819	882
65+	45	51	58	65	76

Actually, the population under-15 years is expected to increase only marginally over the next 20 years. This means that pressure for expansion of the educational system will come only from increasing enrolment and efforts to reduce drop-out rates. The largest growth of population will be in the 15-64 year age group, which will expand by about 46 per cent by 2020 (*i.e.*, annually by 1.9 per cent as against the population growth of much lower, at 1.4 per cent). It is expected to rise from 604 million in 2000 to 883 million in 2020, *i.e.*, from 60 to 66 per cent of the total population.

This rise will accentuate the need for challenge of reducing fertility and increasing employment opportunities, so that the family size comes down and incomes rise. The elderly population is also expected to rise sharply from 45 to 76 million, (*i.e.*, by 2.6 per cent per annum) and their share in the total population would rise from 4.5 to 5.7 per cent. As a consequence of these age structural changes, the age-dependency ratio of non-working age population to working age population) is expected to fall from 67 per cent in 2000 to 46 per cent in 2020, although the percentage of elderly people to population will increase.

FOOD SECURITY

The single most important implication of India's rapid population growth during the second half of the twentieth century was the threat it posed to national food security. That threat reached dangerous proportions in the mid-1960s, leading to the launching of the Green Revolution, achievement of food self-sufficiency, and subsequently, a growing stock of surplus food grains by the mid-1970s. Happily, such a threat no longer exists for the country.

Growth of food production has exceeded population growth for each of the past three decades. Statistics present a confusing picture of India's progress on food security. Both per capita food grain consumption and total calorific intake have declined slightly in recent years among all levels of the population. At the same time, grain surpluses have reached peak levels and real per capita expenditure on food is rising among all income groups.

The factors influencing this trend are numerous and complex, however, it can be primarily attributed to:

- Reduction in calorie requirement due to a more sedentary life style among both the rural and urban population. Bicycle and bus travel, mechanised pumps and equipments, access to telephones and newspapers have reduced the physical work to a greater or lesser extent for most Indians.
- Diversification of the Indian diet to include a larger intake of fruits, vegetables, dairy products, sugar, oil and pulses, eggs, fish and meat products, thereby reducing the required intake of calories from cereals.

However, the challenge of achieving food security for all our people remains a real one even today, and will continue to demand our attention in the coming decades. Food security depends on both availability of food and access to it.

Long-term food security requires not only producing sufficient food to meet the market demand, but also ensuring that all citizens have the required purchasing power to obtain the food they need for a nutritious and healthy life. India has won the first battle, but the second still looms large. By best estimates, nearly half of the population still suffers from chronic under-nutrition. The most vulnerable are children, women and the elderly, specially among the lower income groups. While the number of children suffering from severe malnutrition declined significantly in the 1990s, the prevalence of mild and moderate under-nutrition, especially among those in the lower 30 per cent income group, is still

high. Prevalence of micro nutrient deficiencies such as anaemia is also very high. The problem of chronic macro and micro nutrient under-nutrition cannot be addressed simply by increases in food production or the accumulation of larger food buffer stocks.

Nor has the public distribution system been able to effectively target the most needy in an effective manner. Targeted food for work programmes and targeted nutrition programmes can alleviate the problem temporarily. But in the long run, the solution is to ensure employment opportunities for all citizens so that they acquire the purchasing power to meet their nutritional requirements. Thus, employment or livelihood security becomes an essential and inseparable component of a comprehensive strategy for national food security and must be considered as one of the nation's highest priorities.

Increasing food consumption alone is not a sufficient condition for overcoming malnutrition in India. It is also necessary to address the factors responsible for the high incidence of gastrointestinal and respiratory infections as well as cultural factors responsible for faulty child feeding and weaning practices.

Assured provision of safe drinking water, improved health care and education for all women are necessary elements of a comprehensive strategy to eliminate malnutrition and achieve the goal of Food for All before 2020. India's population is still rapidly expanding. Living standards are rising and slated to rise faster than in the past.

As they rise, both calorific intake and diversification of diet will increase significantly. Although a portion of this increase can and will be obtained from abroad, a fulfilling vision of India 2020 depicts this nation—with its conducive and varied climate, the largest irrigated area in the world and a vast farming population—as a major food exporter. Both as a challenge and as an opportunity, India can and must do much more to modernise and diversify its agriculture to meet the increased domestic and international demand for a wide variety of food products. Continued growth of the agriculture sector is particularly important because it plays such a vital role in generating purchasing power among the rural population.

Therefore, it is essential that agricultural development strategies for the 21st Century focus on generating both higher incomes and greater on-farm and off-farm employment opportunities. India is now entering the fourth stage of agricultural transformation. The Green Revolution phase spread in the north-western and southern states from the mid-1960s to the mid-1980s. From the early 1980s, it spread rapidly in the central, and to a lesser extent the eastern states. This, coupled with a further growth of productivity in the north-western and southern states, enabled India to achieve a 3.77 per cent annual growth rate in agricultural production during the 1980s.

The overall growth slowed to 2.72 per cent in the 1990s, which was associated with a reduction in public investment in both agriculture and agricultural research, slower growth of fertilizer consumption and the area under high yielding varieties, and degradation of soils.

Stages of Agricultural Development:

- *Pre-Green Revolution:* Boost in productivity growth of coarse grains and pulses per unit of land.
- *Green Revolution:* Expansion of area and rapid growth in productivity of wheat and rice, made possible by widespread adoption of improved varieties, expansion of agricultural research, demonstration and education, and investment in irrigation, supported by establishment of a national infrastructure to produce and supply inputs and to warehouse, distribute and market outputs.
- *Post-Green Revolution:* Continued growth in productivity through intensification of chemical and labour inputs, followed by a gradual deceleration in productivity growth. Expansion of area under maize, cotton, sugarcane, and oilseeds.
- *Commercialisation:* Further diversification of cropping patterns from low value to high value crops such as fruits, vegetables, flowers and other horticulture crops for domestic consumption, processing and export.

There is enormous scope for accelerating growth in agriculture, through improved soil nutrition and pest management, diversification into higher value-added crops, expansion and more efficient use of irrigation potential, rainwater harvesting, and infrastructure development for agroprocessing industries. India's productivity on major crops ranks far below the world average. This low productivity contributes to low farm incomes and wages, lower on-farm employment generation, and relatively high food prices for all Indians. Average yields from tomato cultivation, for example, are 76 per cent higher in Mexico and more than four times higher in the USA, while average yields on seed cotton are more than four times higher in Mexico and three times higher in USA. Even within India, some progressive farmers have achieved yields comparable to their foreign counterparts till recently; but these high achievers are a rare exception. Progressive farming must become the rule and the standard. Raising the productivity of our soil and water resources is an effective way to increase the profit margins of farmers, while at the same time reducing the cost of farm produce, so that it is more affordable to the masses. A minimum target should be to double or triple the average yields of major commercial crops.

This will reduce pressure on scarce land and water resources as well as enable the country to utilise less fertile areas for other purposes. Tapping the full potential of Indian agriculture to meet the rising domestic demand and to take advantage of the liberalisation of international trade will require, first and foremost, the recognition of the vital role that agriculture can continue to play in national development.

The other necessary conditions are: greater public investment in research; expansion and development of rural infrastructure including roads, storage capacity and organised markets; improved farmer education; effective involvement of the private sector to provide technology, investment and

organisational expertise for commercialisation; and modification of land regulations to achieve greater production efficiency. A suitable land use pattern will also need to be implemented, based on the principle that each region would focus on crops best suited to their agro-climatic characteristics, soil types and water resources.

Strong measures will also be needed to address the problem of land degradation that affects an estimated 45 per cent of total land area. India's objective for 2020 must not only be to produce the food its population requires but also to fully exploit the comparative advantages it possesses—agro-climatic variety, irrigation, scientific capabilities and low labour cost—to become a low cost, high profit producer for the world market. Figure depicts the projected food production under two scenarios, together with estimates of food demand in 2020.

Business-as-usual (BAU) assumes that growth of production continues at the same rates as during the 1990s. The Best-case scenario (BCS) assumes that production grows at the higher rates achieved during the 1980s.

Even under the BAU, India will be able to meet the projected demand in all five food categories. This indicates that more emphasis can be placed on diversifying production to other value added agricultural products.

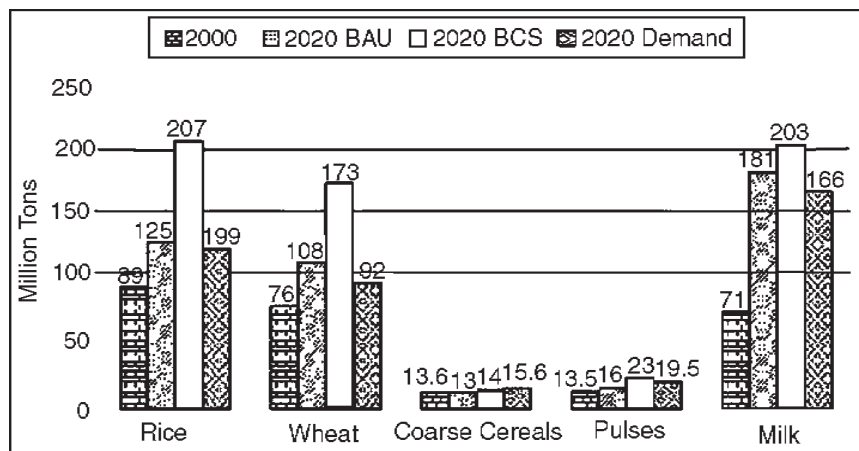


Fig. Current and Projected Food Production vs. Demand in 2020

India needs to sustain an agricultural growth rate of 4.0 to 4.5 per cent in order to reduce food insecurity and poverty, while increasing rural purchasing power. At this growth rate, agricultural development could more rapidly diversify into horticulture, fishery, dairying, animal husbandry and other areas.

It would also spur the growth of agro-processing industries in rural areas. Such an achievement is well within reach, provided there is the requisite commitment to raising crop productivity through dissemination of advanced technologies; increasing investment in irrigation, research and training; water harvesting and improved access to credit.

While food production should be able to comfortably meet the total domestic demand, there will still be parts of the population that require assistance in

order to meet their nutritional requirements. In view of the high cost and inefficiency of the public food distribution system, reform should directly target the most vulnerable parts, which can be more effectively accomplished through programmes such as food vouchers or food stamps. For the vast majority of the population, food security can best be achieved by ensuring creation of gainful employment opportunities for all job seekers.

EMPLOYMENT

Population, food security, education and remunerative employment opportunities are closely interconnected. Rising levels of education and rising living standards are powerful levers for reducing birth and mortality rates. As population growth slows to replacement levels over the next two decades, India's greatest challenge will be to expand the opportunities for the growing labour force, to enrich their knowledge and skills through education, raise their living standards through gainful employment and make provisions for ensuring a good life for the aged. India has met the challenge of producing sufficient food to feed everyone, but it has yet to meet the challenge of generating sufficient employment opportunities to ensure that all its people have the purchasing power to obtain the food they require. Gainful employment is one of the most essential conditions for food security and economic security.

Conversely, food security is an essential requirement for raising the productivity of India's workforce to international levels. India's labour force has reached 375 million approximately in 2002, and it will continue to expand over the next two decades. The actual rate of that expansion will depend on several factors including population growth, growth of the working age population, labour force participation rates, educational enrolment at higher levels and school drop-out rates.

Projections based on these parameters indicate that India's labour force will expand by 7 to 8.5 million per year during the first decade of this century, and will increase by a total of about 160-170 million by 2020, *i.e.*, 2.0 per cent per annum. Total unemployment in India has been estimated to be about 35 million persons in 2002. This figure takes into account the significant level of underemployment and seasonal variations in the availability of work. It also reflects wide variations in the rate of unemployment among different age groups and regions of the country. Approximately three-fourth of the unemployed are in rural areas and three-fifth among them are educated.

The recent trends towards shedding excess labour to improve competitiveness and increasing capital intensity have further aggravated the situation. A clear consensus is now emerging that major changes in economic policy and strategy will be needed to meet the country's employment needs. Future rates of unemployment will depend on a range of factors, including the growth rate of the labour force and changes in the structure of employment between different sectors, as well as the growth rate of the economy. Adopting the higher number takes us closer to understanding the full magnitude of the challenge the country

faces for providing employment opportunities for all its people. India needs to generate on the order of 200 million additional employment opportunities over the next 20 years.

The first question that inevitably arises is whether generating nine or ten million jobs a year is feasible, and that naturally budgets the question of what rates of economic growth would be required for achieving this. However logical and inevitable it may sound, we believe this is the wrong way to approach the problem. The right question to ask is: How important is it to us as a nation to create employment opportunities for all?

The answer here is simple. It is extremely important. It is as important to create job opportunities for all citizens in a market economy as it is to provide universal suffrage to all adults in a democracy. Access to employment is an essential component of freedom of economic choice. Absence of such opportunity means depriving our young not only of economic freedom but of hope as well. India's vision for 2020 must be founded on the premise of gainful Jobs for All.

Access to employment should not only be a top priority of the government but a constitutionally guaranteed fundamental human right. But can we possibly achieve such an ambitious goal and that too within the framework of a non-subsidised market economy? In order to answer this question, first of all we need to recognise that the economy we build over the next two decades and the jobs we create will be products of the decisions we make, not some irreversible logic of economic science. It is we, the nation, that have to decide what we want to accomplish and how serious we are about doing it, how willing we are to change our attitudes and to alter our policies to achieve this desirable goal. We conclude that if the will and determination are present, the goal is achievable. Achieving full employment will require a reorientation of national priorities, technology policy and government action. Until now, planning to achieve national goals has been largely done on a sector-wise basis by respective ministries assigned with the responsibility.

These parallel lines of planning need to be integrated around a central vision and set of goals, of which full employment must be one. As we have incorporated an environmental analysis into all our planning, every plan initiative needs also to be re-evaluated to consider its impact on employment. Despite a persistent tendency to associate employment with large industry in the organised sector, an in-depth examination of employment potentials makes it evident that the largest share of new jobs will come from the unorganised sector.

In evaluating the importance of developing each sector, we must include an assessment of its potential contribution to employment. Such an assessment will have to be made for the unorganised sector, which currently contributes 92 per cent of the country's employment and generates seven times greater labour intensity per unit of production, as compared to the organised sector. The public organised sector has been and will continue to shed jobs.

Although the private organised sector will contribute significantly to the growth of the economy, its contribution to the overall employment generation

will be quite modest, since total employment in this sector currently represents only 2.5 per cent of all jobs. Even if this sector grows by 30 per cent per annum, over five years it will contribute less than one per cent to the growth of the workforce. International comparisons reveal that small and medium enterprises (SMEs) create the majority of jobs.

In the USA, nearly half of the private workforce is employed in small firms, of which three-fifth have less than five employees. In Japan, 78 per cent of jobs are generated by small and medium enterprises. The small and medium manufacturing enterprises in Korea account for 99 per cent of all manufacturing enterprises and 69 per cent of employment in this sector. Therefore, the unorganised sector, including small and medium enterprises, must play a central role in the country's employment strategy. This will require modification of policies and programmes to level the playing field, improve availability of credit, increase productivity, raise quality consciousness and competitiveness, and enhance job quality. Recent experiences of different countries in the context of globalisation also demonstrate that SMEs are better insulated from the pressures generated by the volatility of world trade and capital markets. They are more resistant to the stresses, and more responsive to the demands of the fast-changing technologies and entrepreneurial responses. Indeed, they are observed to be a very important vehicle for new technology adoption and entrepreneurial development.

What is true of the most developed countries today will be true for India in 2020. SMEs will play a crucial role in ensuring India's international competitiveness and its rapid assimilation of new technologies. An assessment of the different sectors reveals a vast untapped employment potential in a wide range of fields for unskilled, semi-skilled, skilled and professionally educated workers. A list of specific sectors with the largest gross employment potential per unit of output.

High Employment Potential Sectors:

- Commercial agriculture
- Agro-industry and agri-business
- Afforestation for pulp, fuel and power
- Retail and wholesale trade
- Tourism
- Housing
- Construction
- Garment industry
- Other small scale and medium industries
- IT and IT enabled services
- Education
- Health
- Financial services
- Transport
- Communications
- Community services

The growth of food grain production may not lead to a significant growth in on-farm employment opportunities. However, there is substantial scope for creating new jobs through watershed development programmes, expansion of the area under irrigated cultivation, raising crop yields which increases labour intensity, and diversification of cropping patterns into cash crops—especially vegetables and horticultural crops. Together, these could generate upwards of 20 to 30 million new on-farm employment opportunities during the next decade. India processes less than 2 per cent of its fruit and vegetable products, as compared with 70 to 80 per cent in countries such as Brazil, Malaysia and Philippines.

The development of downstream processing, packaging and distribution activities can generate millions of additional off-farm jobs. Policies are needed to attract greater private sector participation in terms of land development, production and processing technologies, investment, management and marketing. A concerted effort to fully develop the potentials of agri-business could generate millions of additional jobs. The recorded forest area constitutes about 23 per cent of the geographical area (about 71 million hectares) of the country, but half of this area is degraded.

Hence, it is unable to play an important role in environmental sustainability and in meeting the forest produce needs of the people, the industry and other sectors. India has more than 50 million hectares of degraded wasteland that lie outside the national forests, in addition to 30 million hectares within protected areas. In spite of this huge expanse, the country is a net importer of forest products to the extent of ₹2.5 billion annually.

Afforestation of India's vast expanse of wastelands and depleted forest areas for production of wood pulp, timber, fuel, fodder, biomass power, edible and fuel soil, fuel, herbs and medicinal plants for exports can create millions of jobs, while reversing environmental degradation and supporting industrial development. Every two hectares of additional area placed under plantation of forest crop such as bamboo, casuarina, eucalyptus or oil-bearing plants can generate year-round employment for one person.

Development of forests can generate 10 to 15 million additional employment opportunities over the next five year plan period and increase the livelihood opportunities of low income families during the transition period, while educational levels are rising and other sectors of the economy are developing.

The contribution of primary sector employment to the total workforce has been coming down very slowly, to 56-57 per cent in 1999-2000, and should decrease to about 51 per cent by 2006-2007. This slow rate of decline is likely to continue for at least a decade, because of the hidden under-employment in the agriculture sector, partly compensated for by the vast potential for additional job creation by crop diversification and afforestation.

Increasing prosperity in agriculture will naturally lead to the growth of non-farm jobs in agri-industries, agro-business and other occupations required to meet the needs of an increasingly prosperous farming community. During the

second decade of the 21st Century, increasing domestic demand for manufactured products and services, coupled with more rapid mechanisation of agriculture will draw in more and more people to non-farm occupations.

By 2020, total employment in agriculture may fall to less than 45 per cent, while the share of the services sector increases proportionately. The small scale industries (SSI) sector accounts for 95 per cent of industrial units, 40 per cent of value addition, 35 per cent of exports, and 80 per cent of manufacturing employment. Registered SSI units provide nearly 18 million jobs in the country at this time. Among manufacturing sectors, the single largest employment potential is in textiles, which is slated to generate 7 million jobs over the next five years alone.

More than 40 per cent of these jobs are in garment production units in the SSI sector. A healthy and rapidly expanding small sector is essential for a vibrant growth of the Indian economy as a whole. This sector serves as the field for entrepreneurship to flourish, as an entry point for new entrepreneurs who can start small and then grow, as a vehicle for extending the regional spread of industry, as a laboratory for development of innovative products and services, and as an essential support to attract large manufacturing assembling industries from overseas. Since SSIs are generally more employment intensive per unit of capital than large scale industry, they are also a source of much needed employment. Employment in the registered SSI sector has nearly tripled over the past 20 years.

A repetition of this performance would generate an additional 36 million jobs over the next 20 years. A comprehensive package of venture capital, credit, liberalisation of controls, technical training, marketing and management measures is needed to ensure the continuous expansion of this sector. By far, the largest number of new jobs will be in the services sector. Over the past 100 years, the US economy has more than quadrupled the total number of those employed, yet the percentage of the US workforce engaged in manufacturing is now back to the same level as it was in 1850, while agricultural employment has shrunk to less than 3 per cent of the US workforce.

Today, the fastest growing job categories in the USA are in services industries such as financial services, insurance, education, health, construction and real estate. Rapid growth is slated for a wide range of services in India, including professional, computer-related research and development, real estate, leasing, advertising, printing and packaging, marketing, telecommunications, postal and courier, audiovisual, engineering and construction, wholesale and retail distribution, all levels and types of education, environment, banking, insurance, health, travel, sports and recreation, and all categories of transport services.

By the year 2020 more than 120 million jobs will come from the services sector alone. Tourism-related occupations, including hotels and restaurants, employ 10.8 per cent of workers globally, compared to only 5.6 per cent in India. Domestic tourism will rise rapidly as living standards increase. India's domestic tourist sector is the fastest growing in the world, but with the lowest

level of investment. The potential for international tourism too has not yet been exploited properly. China currently attracts more than five times as many foreign tourists, excluding visitors from Hong Kong.

Thailand, Malaysia, and Turkey attract three to four times as many. By one estimate, development of India's tourism infrastructure such as roads, airports and medium priced hotels, combined with modifications in air and hotel pricing and tax policies, could generate more than 20 million additional employment opportunities in tourist related businesses within a decade. Numerous studies have been undertaken to assess the potentials of the IT industry and to identify specific strategies needed to accelerate development of this sector.

The NASSCOMMcKinsey study in 1999 projected creation of a ₹70 billion IT industry, employing more than two million persons within 10 years. The worldwide market for IT services is expected to exceed ₹900 billion by 2010. The recent growth of IT-enabled service businesses in India—call centres, medical transcription, technical support and back office processing, engineering and design, geographic information services, payroll and other human resource services, insurance claim processing, legal databases—is powerful evidence that the potential of IT technology and knowledge based industries extends far beyond the development of software and hardware.

The US experience shows that, as the application of information technology spreads and encompasses traditional industries, it can generate new employment opportunities ten times greater in number than those directly involved in core IT industries.

IT is also a stimulant to the growth of home-based employment opportunities, especially suitable for women. The trend towards tele-working, which is growing rapidly in USA and some other countries, is just beginning in India. The lower cost and greater convenience of home-based employment is bound to open up greater job opportunities for educated women with children. IT services will be a powerful engine of job growth, but the term 'Knowledge-based industries' includes a much wider range of commercial opportunities.

It encompasses all fields in which the application of mind, judgment and skill, rather than the application of mechanised production technology is the core resource. Education, health services, biotechnology, pharmaceuticals, insurance and financial services are among the leading industries in this category. They are also among the fastest growing industries in the world. Added to these, there is enormous scope for other knowledge intensive activities such as clinical drug trials and many other types of scientific research. The management of all types of information is emerging as a major growth industry worldwide and India is well poised to become a global leader in this field.

Increasing demand for education within the country and worldwide will create tremendous demand for qualified teachers with adequate language skills. An estimated two million additional teachers will be needed in India to support 100 per cent primary school enrolment and to reduce the teacher-student ratio for improved quality of teaching. Another two million or more will be required

to support higher rates of upper primary and secondary school education and to reduce teacher-student ratios at those levels. Teaching staff for vocational training and higher education need to be expanded as well. Demand for health services is increasing worldwide. Already nurses and medical technicians are in short supply.

The USA has a doctor-nurse ratio of about twice that of India. Yet the US currently faces a shortfall of nurses, that is more than three times India's total annual production of new nurses. Physicians, nurses, medical technicians and other scientific occupations will become growth industries to rival the IT sector within the next decade. Creation of new jobs in existing industries can and should be supplemented by creation of new services industries that will in turn stimulate increased employment opportunities. It is extremely difficult to project unemployment rates 20 years into the future, when so much doubt exists even about current levels of unemployment and underemployment.

However, it is clear that rising levels of education and growth of the 60 plus age group will mitigate to some extent the growth of the labour force. Combined with the enormous opportunities for creation of new employment opportunities, the incidence of unemployment should be almost eliminated during the second decade of the century.

EVOLUTION OF EDUCATION IN ADAPTATION TO SOCIAL CHANGE

Successful population policy is directly linked to successful education policy. Success in raising literacy rates and school enrolment rates while reducing drop-out rates, especially for women, are closely correlated with the delayed onset of marriage and child birth, improved mortality for both mothers and children, and reduction in family size.

In fact, a successful education policy forms the bedrock of all fields of national development—political, economic, technical, scientific, social, and environmental. Education is the foundation for a vibrant democracy in which informed citizens exercise their franchise to support the internal growth of the nation and its constructive role in the world community. It is the foundation for growth in productivity, incomes and employment opportunities and for the development, application and adaptation of science and technology to enhance the quality of life.

Education is the foundation for access to the benefits of the information revolution that is opening up vistas on the whole world. Education is also the foundation for improved health care and nutrition. Literacy, the basis of all education, is as essential to survival and development in modern society as food is to survival and development of the human body. Literacy rates in India have arisen dramatically from 18 per cent in 1951 to 65 per cent in 2001, but these rates are still far from the UMI reference level of 95 per cent. Literacy must be considered the minimum right and requirement of every Indian citizen. Vast differences also remain among different parts of the population. Literacy

among males is nearly 50 per cent higher than females, and it is about 50 per cent higher in urban areas as compared to the rural areas. Literacy rates range from as high as 96 per cent in some districts of Kerala to below 30 per cent in some parts of Madhya Pradesh. Rates are also significantly lower among scheduled castes and tribes than among other communities. These differential rates of progress leave approximately 300 million illiterate adults in the country, the largest number of illiterates in the world.

For these people, the traditional avenues of knowledge dissemination through education and printed information are ruled out. These are the people who are most vulnerable to the challenges of development, because they are least equipped to rapidly expand their knowledge base. Since many of them are relatively young adults who will still be active in 2020, the country cannot afford to ignore them or leave them behind. The Government has already set a goal to achieve 75 per cent literacy by the end of the Tenth Five Year Plan.

A 100 per cent literate India is of paramount importance for realising the vision for the country in 2020 as presented in this document. Even when this goal is achieved, innovative approaches will be needed to increase knowledge dissemination through TV and other means, to literate adults with little or no formal education.

Literacy is an indispensable minimum condition for development, but it is not sufficient. In this increasingly complex and technologically sophisticated world, ten years of school education must also be considered as an essential prerequisite for citizens to adapt and succeed economically, avail of the social opportunities and develop their individual potentials. Education is the primary and most effective means so far evolved for transmitting practically useful knowledge from one generation to another. India's education system has expanded exponentially over the past five decades, but its current achievements are grossly inadequate for the nation to realise its potential greatness.

The net enrolment rate in primary schools is around 77 per cent and in secondary schools it is around 60 per cent. These compare with the 99.9 per cent primary and 69 per cent secondary enrolment for the UMI reference level. The drop out rate was 40 per cent at the primary level and 55 per cent at the upper primary level in 1999-2000. These high drop out rates from both primary and secondary school, combined with low enrolment rates at the higher levels deprive tens of millions of children of their full rights as citizens. Out of approximately 200 million children in the age group 6-14 years, only 120 million are in schools and net attendance in the primary level is only 66 per cent of the enrolment. Further, less than 7 per cent of the children ever pass the 10th standard public examination.

Apart from addressing the needs of a large illiterate population, India's knowledge strategy must also develop innovative approaches to enhance knowledge acquisition among the large community of school drop-outs. Unless something is done to drastically reduce drop-out rates, by the year 2016 there will be approximately 500 million people in the country with less than five

years of schooling, and another 300 million that will not have completed high school. In other words, about two-thirds of the population will lack the minimum level of education needed to keep pace with and take advantage of the social changes occurring within the country and worldwide.

Extending the primary school system to over 500,000 villages in India has brought education to the masses. Unfortunately, this huge quantitative expansion has been accompanied by a tremendous dilution in the quality of schooling. High drop out rates in rural areas is one result of single room schools, with few teaching aids and inadequate instruction both in terms of quantity and quality. Qualitative improvement in the system can be accomplished by promoting centralised schools serving clusters of 10 or more villages, wherever distances and transportation links make that feasible.

This will permit greater investment in educational infrastructure, including introduction of computers. Achieving 100 per cent enrolment of all children in the 6 to 14 year age group is an ambitious but achievable goal for 2020. This must be coupled with efforts to increase the quality and relevance of school curriculum to equip students not only with academic knowledge but also with the values and practical knowledge needed for success in life. A business-as usual scenario for primary and secondary education in 2020, based on recent trends as well as an alternative scenario designed to radically enhance the quantity and quality of school education in the country. A tremendous expansion of schools and classrooms will be required to support a quantitative and qualitative improvement in the country's school system. In order to achieve the best-case scenario total school enrolment would have to increase by 75 million or 44 per cent.

That will require a proportionate expansion in the number of classrooms. In addition, efforts to improve the quality of education by reducing the class size would require a further 20 per cent increase in the number of classrooms. Together, this will necessitate increasing the total number of classrooms by 65 per cent within 20 years.

Table. Education Scenarios in 2020

Actual	1980 Estimated as-usual	2000 Business- as-usual Scenario	2020 Best-case	2020
Primary enrolment (1-5)	80%	89%	100%	100%
Elementary enrolment (1-8)	77%	79%	85%	100%
Secondary enrolment (9-12)	30%	58%	75%	100%
Drop-out rate (1-5)	54%	40%	20%	0%
Drop-out rate (1-8)	73%	54%	35%	0%

An enormous increase in the number of teachers will also be required to achieve the alternative scenario, *i.e.*, eliminating primary school drop outs and reducing the teacher-pupil ratio from the present high level of 1:42 down to around 1:20, which is the UMI reference level. Together, this will require an additional three million primary school teachers, more than twice the number currently employed. Similar increases will be required at middle and secondary school levels. The

training of such large number of teachers will require the establishment of additional teacher training colleges and much larger budget allocations for teachers' salaries. Qualitative improvements in education should reflect a change in pedagogical methods and lay emphasis on several dimensions, including:

- A shift from methods that emphasize passive learning to those that foster the active interest and ability of children to learn on their own.
- A shift from rote memorisation to development of children's capacity for critical thinking.
- A shift from traditional academic to practically relevant curriculum.
- A shift from imparting information to imparting life values such as independent thinking, self-reliance and individual initiative that are essential for success in any field of endeavour.

An important role of education is to foster in each child the attributes and values of a responsible, capable, active and healthy member of the family and society. The rigidity of curriculum, testing and teaching methods need to be relaxed so that innovative methods and new models of education can be evolved, tested and perfected. Vocational streams have to be developed and expanded to equip larger numbers of high school students with occupation-related knowledge and skills. Experimentation is needed with new methods for knowledge delivery. Television can be a very effective means for educating both school going and non-school going children and adults. It can deliver teaching materials in a more dynamic, entertaining, and interesting manner, utilising the nation's best teachers and multimedia teaching materials on each subject. A TV based curriculum can help slow learners to supplement classroom teaching, fast learners to learn at much faster rates than the rest of the class, drop outs to acquire knowledge they missed out in school, and adults to expand their level of education without returning to school.

New methods of delivery will be particularly necessary to augment access and improve delivery at higher levels of education. Although India's college and university network has expanded dramatically, it is able to accommodate only a tiny fraction of the college-age population. In addition, the quality of facilities, teaching and course materials leaves much to be desired. Recruitment and promotion are highly politicised; seniority rule precludes merit advancement; and the cost of delivery is beyond the means of the vast majority of young Indians.

India in 2020 must be a nation in which all those who aspire for higher education have access to college and university level courses.

Table. Growth of Higher Educational Institutions

Years	Colleges for General Education	Colleges for Professional Education	Universities
1951	370	208	27
1998	7199	2075	229

A national network of community colleges, similar to the highly successful American system, is needed to provide knowledge and job-oriented skills to millions of young people who lack interest in or capacity for more stringent academic studies. The advent of computer and the Internet-based educational methods offer an exciting new learning medium that can literally transform our concept of school and classroom from physical into virtual realities.

Studies in the USA project a radical reshaping of higher education over the next two decades as a result of the digital revolution. Many traditional colleges will close as more course works are delivered at a distance through alternative channels. The traditional boundaries between education and other sectors will fade, as publishers, for-profit and non-profit organisations, offer accredited, multimedia-enhanced courses directly to students, by-passing the university. The traditional classroom type of education, which is most useful for students that require personal attention and assistance and for subjects that involve hands-on experimentation, will no longer be the predominant model of education.

For all other purposes, it is very costly and not very efficient in the way it uses the time of both teachers and students. Experience shows that computer-based educational methods can lead to much faster rates and higher quality of learning, which is more interactive and motivating for students at all levels of education from pre-school to post-graduation. It is extremely effective for enhancing reading and language skills and general knowledge among the very young and even for some sophisticated professional courses such as medicine and engineering. Given the huge number of young students that will quest for all levels of higher education in the coming decades and the severe shortage of qualified instructors, and in the light of India's outstanding expertise in the IT industry, the country needs to embark on a massive programme to convert the entire higher educational curriculum into a multi-media, web-based format and to establish accreditation standards for recognition of the distance education so imparted. Our vision of India in 2020 is predicated on the belief that human resources are the most important determinants of overall development. As India's IT revolution has been fuelled by the availability of a very large reservoir of well-trained engineers, its future development in many different spheres will depend on commensurate development of sufficient and surplus capabilities.

Full development of India's enormous human potential will require a shift in national priorities, to commit a greater portion of the country's financial resources to the education sector. India currently invests 3.2-4.4 per cent of GNP on education. This compares unfavourably with the UMI reference level of 4.9 per cent, especially with countries such as South Africa, which invests 7.9 per cent of GNP on education. A near doubling of investments in education is the soundest policy for quadrupling the country's GDP per capita.

S&T CAPABILITIES

Literacy and general education form the base of the knowledge pyramid that is essential for rapid and sustained development in the 21st century. The

continuous advancement of science and application of improved technology form the middle rung; and social ideals and spiritual values form the apex. Technical education, both vocational and professional, constitutes the foundation for development of science and technology. India is rightly proud of the international standing of its IITs, but a handful of world class technical institutions is not sufficient. A large number of the country's approximately 500 engineering colleges need to be upgraded to quality standards nearer to those of the IITs, and given similar autonomy. Private sector initiative and investment, whether from Indian corporates or NRIs or reputed foreign universities, need to be fully encouraged. Close links need to be fostered between technical institutions and industry. India's enormous manpower base of scientists and engineers is often coveted.

President Kalam observed that India's human resource base is one of its greatest core competencies. This is true in absolute terms, but as a percentage of the total population, we are at 1/100th of the US levels and 1/50th of the Korean level. Even China's manpower base of scientists and engineers as a percentage of its population exceeds ours by more than three times. Absolute numbers do count, but manpower alone is not sufficient to excel in the development and application of science and technology. In terms of total investment in R&D, India's expenditure is 1/60th of that of Korea, 1/250th of that of the USA, and 1/340th of that of Japan.

More significantly, atomic energy, space and defence research account for 71 per cent of all central spending on science and technology, which means that relatively little is left for investment in agriculture, energy, telecommunications and other crucial sectors within the sphere of science and technology. R&D expenditure even in India's fast-growing IT sector has been averaging around 3 per cent of sales turnover (STO), which is much lower as compared to the 14-19 per cent expended by internationally reputed software firms. These low figures reflect on our R&D performance.

India's share of global scientific output in 1998 was only 1.58 per cent of the world's total. Out of 500,000 new patent applications filed globally each year, China accounts for 96,000 and Korea accounts for 72,000, while India accounts for only 8,000. Of greater concern has been the country's inability to capitalise on our huge pool of manpower and extensive network of scientific research organisations for transferring proven technologies from the lab to the land and to the factory. Despite possessing the world's largest cadre of agricultural scientists, we have not been able to extend the momentum of Green Revolution to other regions and crops and to update the scientific practices of our farmers to levels comparable with most other nations. Crop productivity remains far below and production costs far above world averages. A similar gap exists in the application of science and technology for food processing and many other industries. High technology exports account for only 6 per cent of total manufacturing exports for India, compared to over 20 per cent for the UMI reference level.

India has a number of premier universities for scientific and technical education which produce world class scientists and engineers, but the national research system rarely produces world class results. One reason is the missing link between scientists in universities and research institutes and practitioners in agriculture and industry. Another is that non-teaching research institutes lack the continuous inflow of young talented researchers required to challenge assumptions and infiltrate new ideas and approaches. Bureaucracy, tenure and lack of accountability minimise the pressure for practical application of scientific knowledge.

Other countries have done a much better job of providing optimum incentives to their scientific community and creating close linkages between science and industry. The management of technology and the administration of government require different sets of skills and a different culture. Management of technology demands innovation, global competitiveness, and wide latitude for individual freedom, characteristics that are difficult to foster under an administrative regime. The objectives of many institutes and the mechanisms for achieving them need a radical reorientation to bring them in tune with the changing environment brought about by liberalisation of imports, technology tie-ups with foreign agencies and foreign direct investment in key sectors.

If the national R&D bodies do not reorganise themselves to face globalisation and global competition, nor take into consideration the nature of the factor endowment of the country along with many existing indigenous technologies so far neglected, then they risk becoming irrelevant to the mainstream activities of industrial development. The nature of service offered by these institutions has to undergo a sea change. Grass-root consultancy and turnkey project consultancy, including project implementation and monitoring are increasingly in demand. Another essential step is to improve the linkages between technology development and technology application by fostering close ties between basic research and business. In the USA, a large proportion of scientific research at the university level is financed by business, and most leading universities operate technology incubators designed to promote commercialisation of new products and processes.

India's recent experiment with the Science and Technology Entrepreneur Parks (STEPs) has been successful in promoting application of technologies, new business start-ups, and employment. The STEPs in combination with technology incubators need to be rapidly multiplied around the country. Effective R&D management backed by suitable incentives for commercialisation are essential for bridging the gap between the lab and the land or factory. R&D is not only essential for propelling growth in industrial fields. It can also become a growth industry on its own. Much of the work done by Indian software companies for overseas clients and parent companies rightly fall under the category of new product development. Vast potential exists for complementing India's strengths in IT with corresponding strengthening of fields such as biotechnology, pharmaceuticals, designer-made materials, and others. India's

investment in the biotechnology sector is expected to increase five-fold by the end of the current decade largely as a result of growing collaboration between multinational corporations and indigenous research efforts. Huge opportunities also exist for R&D in the field of genomics, bioinformatics, DNA technologies, clinical studies and genetically modified crops. Rationalisation of procedure, backed by effective bio-safety regulations are needed to govern testing and approval of biotech products. India has the potential of converting its strong R&D infrastructure into a global research, design and development platform.

VOCATIONAL TRAINING

The knowledge and skill of our workforce will be a major determinant of India's future rate of economic growth as well as the type and number of jobs we create. The greater that knowledge and skill, the higher will be the productivity, the better the quality, and the lower the cost of the products and services we generate. Similarly, the better the quality and lower the cost, greater will be the comparative advantage and market potential. Currently only 5 per cent of the country's labour force in the 20-24 age category have undergone formal vocational training, compared with 28 per cent in Mexico, 60 to 80 per cent in most industrialised nations, and as much as 96 per cent in Korea.

A strategy to achieve full employment must include as an important component, a strategy to ensure that all new entrants to the workforce are equipped with the knowledge and skill needed for high productivity and high quality. India has over 4,200 industrial training institutes (ITI) imparting education and training in 43 engineering and 24 non-engineering trades. Of these, 1,654 are government run ITIs, while 2,620 are private. The total seating capacity in these ITIs is 6.28 lakh. Most of this training is conducted in classroom style in the form of one to two year diploma courses. In addition, about 1.65 lakh persons undergo apprenticeship vocational training every year in state-run enterprises. If a wider definition of applied courses is taken that includes agriculture, engineering and other professional subjects, the total number receiving job related training is about 17 lakh per annum, which still represents only 14 per cent of new entrants to the workforce. The nature of vocational skills makes it impossible for vocational schools to fully address the nation's needs.

The variety of skills needed by the workforce is far too great. The changes in technology and work processes are too rapid for training courses and their instructors to stay up-to-date. The cost of training is also relatively high as it often demands full time enrolment for a prolonged period. Some vocational fields do not lend themselves to classroom or laboratory study at all. A comprehensive strategy is thus needed to enhance the nation's employable skills. It must begin by preparing a catalogue of the entire range of vocational skills needed to support the development of the country. The network of vocational training institutes and the range of vocational skills taught needs to be expanded substantially to impart those skills for which institutional training is most suitable. The private sector, which promoted the rapid proliferation of computer

training institutes throughout the country, should be encouraged to recognise the commercial potential of vocational training in many other fields. In addition, it is essential to fashion more effective and efficient mechanisms for disseminating useful knowledge and skills, especially through the TV media and through computerised vocational training. The importance of computer has been widely recognised as a means to improve efficiency in business, government and formal education, but its application in vocational training is not fully appreciated.

Use of Computers in Vocational Training:

- Rates of learning on computer for both academic as well as vocational or skill-based subjects are four to ten times faster than they are in a classroom setting, and learning retention is likely to be much higher.
- Computers can provide multimedia, interactive, customised and individually paced learning with instantaneous feedback and testing.
- It eliminates the need for producing and deputing a large number of highly skilled instructors. Course contents can be rapidly modified to reflect changing needs.
- For many types of vocational skills, computerised training also offers specific advantages over the live delivery of skills in a classroom.
- Training can be delivered wherever computers are available. A nationwide network of 50,000 computerised vocational centres, run as private self-employed businesses similar to the STD booths and Internet cafes, can deliver low-cost, high-quality training to 10 million workers every year—more than five times the total number covered by existing programmes.

Although 58 per cent of Indians are engaged in agriculture, vocational training for farmers is one of the weakest links in the Indian educational system. Agricultural universities cater to the nation's need for agricultural scientists and extension officers. An extensive network of more than 300 Krishi Vignan Kendras (KVK) offers short and medium term courses for farmers on specialised subjects. The KVK network provides training to several hundred thousand farmers each year, but it can cater to the needs of only a miniscule percentage of all farmers. Agricultural education can be moved from the campus into the village by establishing a national network of farm schools, offering practical demonstration and training on lands leased from farmers in the local community. The prime objective of the schools would be to impart knowledge and skills designed to double yields on important commercial crops. Educated farmers can be trained as self-employed instructors to operate the farm schools as private enterprises on a commercial basis.

HEALTH FOR ALL

The health of a nation is difficult to define in terms of a single set of measures. At best, we can assess the health of the population by taking into account indicators like infant mortality and maternal mortality rates, life expectancy

and nutrition, along with the incidence of communicable and non-communicable diseases. The health of the Indian population has improved dramatically over the past fifty years. Life expectancy has risen from 33 years to 64 years. The infant mortality rate (IMR) has fallen from 148 to 71 per 1000. The crude birth rate (CBR) has declined from 41 to 25 and the crude death rate (CDR) has fallen from 25 to under 9. The couple protection rate (CPR) and total fertility rate (TFR) have also improved substantially. Despite these achievements, wide disparities persist between different income groups, between rural and urban communities, and between different states and even districts within states. The infant mortality rate among the poorest quintet of the population is 2.5 times higher than that among the richest. Maternal mortality remains very high. More than one lakh women die each year due to pregnancy-related complications.

Like population growth and economic growth, the health of a nation is a product of many factors and forces that combine and interact with each other. Economic growth, per capita income, employment, levels of literacy and education—especially among females—age of marriage, birth rates, availability of information regarding health care and nutrition, access to safe drinking water, public and private health care infrastructure, access to preventive health care and medical care, health insurance, public hygiene, road safety, and environmental pollution are among the factors that contribute directly to the health of the nation. Communicable diseases such as malaria, kalaazar, tuberculosis and HIV infection remain the major causes of illness in India.

During the next five to ten years, existing programmes are likely to eliminate polio and leprosy and substantially reduce the prevalence of kalaazar and filariasis. However, TB, malaria and AIDS will continue to remain major public health problems.

India has about 1.5 million identified cases of TB that are responsible for more than 3,00,000 deaths annually. Improved diagnostic services and treatment can reduce the prevalence and incidence of TB by 2020. About 2 million cases of malaria are reported in India each year. Restructuring the “malaria workforce” and strengthening health infrastructure can reduce the incidence of this disease by up to 50 per cent within a decade. Assessing the impact of HIV epidemic is more difficult; there are about 4 million persons infected with HIV. The National Health Policy aims at achieving a plateau in the prevalence of HIV infection by 2007.

Childhood diarrhoea, another major cause of illness, is largely preventable through simple community action and public education, and deaths due to diarrhoea can be eliminated by 2010. Childhood under-nutrition, the other major area of concern, can be addressed by targeting children of low birth weights and employing low-cost screening procedures to detect under-nutrition at an early age. Given the projected improvement in living standards, food security, educational levels and access to health care among all levels of the general population, substantial progress can be made in reducing the prevalence of severe under-nutrition in children by 2020. China’s remarkable success in combating

disease over the past two decades is proof that a determined commitment to improving public health can dramatically reduce the incidence of infectious diseases within one or two decades. With the demographic and epidemiological transition taking place in the coming years, non-communicable diseases are also likely to emerge as major public health problems.

Modernisation of life styles will further aggravate health problems. The rapid proliferation of two and four wheel motor vehicles, increasing congestion on city roads and intercity highways have all contributed to an increasing number of deaths and serious injuries from traffic related accidents. Greater emphasis on education and enforcement of road safety rules by both drivers and pedestrians is an urgent need of the hour.

As already noted, there will be a massive increase in population in the 15-64 age group. Reproductive and Child Health care programmes must meet the needs of this rapidly growing clientele. The population in this age group will be more literate and have greater access to information. They will have greater awareness and expectations about access to quality services for maternal and child health, contraceptive care, management of gynaecological problems, *etc.* A major focus of vision 2020 must be on improving access to health services to meet the health care needs of women and children. India's significant achievements in the field of health have been made possible by the establishment of a huge rural health infrastructure, along with the formation of a massive health care manpower consisting of over five lakh trained doctors working under plural systems of medicine, and a vast frontline of over seven lakh nurses and other health care workers; 25,000 primary and community health care centres; and 1.6 lakh sub-centres, complemented by 22,000 dispensaries and 2,800 hospitals practicing Indian systems of medicine and homeopathy. This infrastructure remains under-equipped, under-manned and under-financed to cope with the challenge of eradicating major threats to human life. The inadequacy of the current health care system is starkly showed by the fact that only 35 per cent of the population have access to essential drugs, while the UMI reference level is above 82 per cent.

Infant immunisation against measles and DPT for children under 12 years is only 60 per cent and 78 per cent compared to the UMI level of over 90 per cent for both diseases.

As a larger proportion of the population reaches middle class standards of living, an increasing number of people will turn to private health care providers. This development is welcome, because it will permit the public health care system to concentrate more resources on meeting the needs of the poorer parts. But at the same time, the level of public expenditure on health care needs to rise about four-fold from the current level of 0.8 per cent of GDP to reach the UMI reference level of 3.4 per cent.

Rapid growth of the private health care system, however, requires the formulation of competence and quality standards to check and balance the increasing emphasis on health care as a business.

Criteria for a More Equitable and Effective Health Care System:

- Universal access and access to an adequate level of health care without financial burden.
- Fair distribution of financial costs for access and fair distribution of burden in rational care and capacity.
- Ensuring that providers have the competence, empathy and accountability for delivering quality care and for effective use of relevant research.
- Special attention to vulnerable groups such as women, children, the disabled and the aged.

Development plans for India's health care systems need to place greater emphasis on public health education and prevention. The wide dissemination of health and nutrition related information through traditional channels should be supplemented by an ambitious and persistent programme of public health education through the print, television, radio and electronic media. Health insurance can play an invaluable role in improving the overall health care system. The insurable population in India has been assessed at 250 million and this number will increase rapidly in the coming two decades. This should be supplemented by innovative insurance products and programmes by panchayats with reinsurance backup by companies and government to extend coverage to much larger parts of the population.

The life expectancy of the Indian population is expected to reach above 65 years in 2020, which compares favourably with the UMI reference level of 69 years. Mortality rates for infants is expected to decline to about 20 per 1000 in 2020, which compares favourably with the UMI reference level of 22.5.

VULNERABILITY

Economic growth, rising levels of education among the young, expansion of employment opportunities for the working age population, slower population growth, and declining infant mortality, however, will not eliminate and may even aggravate, inequalities between different age groups, the sexes, income groups, communities and regions, unless specific corrective steps are taken for levelling the different degrees of capacity and opportunity.

The Vision 2020 must have special focus on bridging the existing gaps in the various levels of development and endeavour its best to fulfil the Constitutional commitment of raising the status of the vulnerable groups vis-a-vis the rest of the society. During the next 20 years, the aged population in India will nearly double, placing much greater demand on the infrastructure of hospitals and nursing homes, while at the same time shifting the profile of health disorders from problems of the young to those of the aged.

The population above 65 years of age will increase from 45 to 76 million persons by 2020. Reference has already been made to the very high incidence of malnutrition among this group and the growing incidence of diseases associated with aging, such as cancer and cardiovascular diseases.

A disproportionate number of the aged population are illiterate and living below the poverty line. While majority of these people live in rural areas where

the extended family system remains prevalent, increasing urbanisation and mobility will destabilise their situation in future. The problem of coping with a larger aged population will be partially solved by a big surge in the size of the working age labour force and a reduction in the dependency ratio, meaning that there will be a larger proportion of workers to support the aged.

Specific strategies will be needed to provide targeted assistance for the most vulnerable members of this group, including research on the disabilities of the aged, greater development of geriatric medicine, training of minders for the aged, and establishment of innovative support systems such as the highly successful Japanese model. Like the aged, the disabled persons also form another subgroup that is particularly vulnerable and unlikely to benefit directly from the general advance of society, unless specific provisions are made to address their particular needs, including a special system of schools, clinics and homebased learning programmes, combined with therapeutic and institutional care.

Increasing gender equity is an important challenge of the coming years. Literacy rates for females are 40 per cent lower than for males. Females represent only 43 per cent of all students at primary level, 37 per cent at higher secondary level, and 35 per cent of those in higher education. Drop out rates are also higher for girls. The UNDP's gender development index ranks India 108th among 174 countries in terms of gender equity. It is no coincidence therefore that countries ranking highest on this index are among the most prosperous in the world.

Gender equity and social development are inseparably interlinked. Reducing the disparity in nutritional, literacy and educational levels between the sexes is essential for realisation of the country's full potentials. Children being the supreme assets of the country, the 'Rights' based approach will continue to play an important role in ensuring their 'survival', 'protection' and 'development', with special attention to the girl child. Our vision for 2020 in this regard is to see a nation free from all forms of child labour. However, complete elimination of child labour through legal means is not only difficult to implement but may also prove to be counter productive in protecting the interest of these very children.

While legal enforcement can contain the demand for child labour, it may leave the poor households supplying child labour more vulnerable rather than addressing the underlying socio-economic compulsions generating the supply of such labour. Indeed, poverty eradication combined with educational reforms to provide free (or affordable) access to quality education with an interesting, innovative and job-oriented curriculum for all can effectively eliminate child labour once and for all. The other categories of the vulnerable groups include the scheduled castes (SC), scheduled tribes (ST), other backward classes (OBC) and minorities, constituting nearly three-fourths of the country's total population.

They require special attention in order to narrow down the disparities between them and the more privileged part of the population. Literacy rates for SCs and

STs are 25 per cent lower than for other communities. Education enrolment rates among this group, especially for females, lag significantly behind that of other communities. Low levels of education lead to lower paying employment opportunities and lower incomes. Thus, it becomes exceedingly difficult for these communities to come out of the vicious circle. Large number of people in other communities also suffer from similar disparities. Regional disparities in rates of development are of similar concern. Regardless of the community or the region, the overall progress of the nation will depend to a large extent on its ability to provide increasing opportunities for the disadvantaged to take initiative for their self development. Otherwise, these disadvantaged will exact an increasing toll on the stability, well-being and development of the country as a whole.

It is notable that rising levels of violence and crime in society are not so much associated with overall low levels of development, as they are with wide disparities between levels of development, which create frustration and resentment. The progress of the whole will ultimately depend on the progress of its weakest links. India's vision of 2020 must be one in which all levels and parts of the population and all parts of the country march forward together into a more secure and prosperous future.

6

Education as a Facilitator of Development

THE CONDITIONS OF GROWTH

In directing the activities of the young, society determines its own future in determining that of the young. Since the young at a given time will at some later date compose the society of that period, the latter's nature will largely turn upon the direction children's activities were given at an earlier period. This cumulative movement of action towards a later result is what is meant by growth.

The primary condition of growth is immaturity. This may seem to be a mere truism — saying that a being can develop only in some point in which he is undeveloped. But the prefix "im" of the word immaturity means something positive, not a mere void or lack. It is noteworthy that the terms "capacity" and "potentiality" have a double meaning, one sense being negative, the other positive.

Capacity may denote mere receptivity, like the capacity of a quart measure. We may mean by potentiality a merely dormant or quiescent state — a capacity to become something different under external influences. But we also mean by capacity an ability, a power; and by potentiality potency, force. Now when we say that immaturity means the possibility of growth, we are not referring to absence of powers which may exist at a later time; we express a force positively present — the ability to develop.

Our tendency to take immaturity as mere lack, and growth as something which fills up the gap between the immature and the mature is due to regarding

childhood comparatively, instead of intrinsically. We treat it simply as a privation because we are measuring it by adulthood as a fixed standard. This fixes attention upon what the child has not, and will not have till he becomes a man. This comparative standpoint is legitimate enough for some purposes, but if we make it final, the question arises whether we are not guilty of an overweening presumption. Children, if they could express themselves articulately and sincerely, would tell a different tale; and there is excellent adult authority for the conviction that for certain moral and intellectual purposes adults must become as little children. The seriousness of the assumption of the negative quality of the possibilities of immaturity is apparent when we reflect that it sets up as an ideal and standard a static end. The fulfillment of growing is taken to mean an accomplished growth: that is to say, an Ungrowth, something which is no longer growing. The futility of the assumption is seen in the fact that every adult resents the imputation of having no further possibilities of growth; and so far as he finds that they are closed to him mourns the fact as evidence of loss, instead of falling back on the achieved as adequate manifestation of power. Why an unequal measure for child and man?

Taken absolutely, instead of comparatively, immaturity designates a positive force or ability, — the power to grow. We do not have to draw out or educe positive activities from a child, as some educational doctrines would have it. Where there is life, there are already eager and impassioned activities. Growth is not something done to them; it is something they do. The positive and constructive aspect of possibility gives the key to understanding the two chief traits of immaturity, dependence and plasticity.

It sounds absurd to hear dependence spoken of as something positive, still more absurd as a power. Yet if helplessness were all there were in dependence, no development could ever take place. A merely impotent being has to be carried, forever, by others. The fact that dependence is accompanied by growth in ability, not by an ever increasing lapse into parasitism, suggests that it is already something constructive. Being merely sheltered by others would not promote growth.

It would only build a wall around impotence. With reference to the physical world, the child is helpless. He lacks at birth and for a long time thereafter power to make his way physically, to make his own living. If he had to do that by himself, he would hardly survive an hour. On this side his helplessness is almost complete. The young of the brutes are immeasurably his superiors. He is physically weak and not able to turn the strength which he possesses to coping with the physical environment.

The thoroughgoing character of this helplessness suggests, however, some compensating power. The relative ability of the young of brute animals to adapt themselves fairly well to physical conditions from an early period suggests the fact that their life is not intimately bound up with the life of those about them. They are compelled, so to speak, to have physical gifts because they are lacking in social gifts. Human infants, on the other hand, can get along with physical

incapacity just because of their social capacity. We sometimes talk and think as if they simply happened to be physically in a social environment; as if social forces exclusively existed in the adults who take care of them, they being passive recipients.

If it were said that children are themselves marvelously endowed with power to enlist the cooperative attention of others, this would be thought to be a backhanded way of saying that others are marvelously attentive to the needs of children. But observation shows that children are gifted with an equipment of the first order for social intercourse. Few grown-up persons retain all of the flexible and sensitive ability of children to vibrate sympathetically with the attitudes and doings of those about them. Inattention to physical things is accompanied by a corresponding intensification of interest and attention as to the doings of people. The native mechanism of the child and his impulses all tend to facile social responsiveness.

The statement that children, before adolescence, are egotistically self-centred, even if it were true, would not contradict the truth of this statement. It would simply indicate that their social responsiveness is employed on their own behalf, not that it does not exist. But the statement is not true as matter of fact. The facts which are cited in support of the alleged pure egoism of children really show the intensity and directness with which they go to their mark.

If the ends which form the mark seem narrow and selfish to adults, it is only because adults have mastered these ends, which have consequently ceased to interest them. Most of the remainder of children's alleged native egoism is simply an egoism which runs counter to an adult's egoism. To a grown-up person who is too absorbed in his own affairs to take an interest in children's affairs, children doubtless seem unreasonably engrossed in their own affairs.

From a social standpoint, dependence denotes a power rather than a weakness; it involves interdependence. There is always a danger that increased personal independence will decrease the social capacity of an individual. In making him more self-reliant, it may make him more self-sufficient; it may lead to aloofness and indifference. It often makes an individual so insensitive in his relations to others as to develop an illusion of being really able to stand and act alone — an unnamed form of insanity which is responsible for a large part of the remediable suffering of the world.

The specific adaptability of an immature creature for growth constitutes his plasticity. This is something quite different from the plasticity of putty or wax. It is not a capacity to take on change of form in accord with external pressure. It lies near the pliable elasticity by which some persons take on the colour of their surroundings while retaining their own bent. But it is something deeper than this. It is essentially the ability to learn from experience; the power to retain from one experience something which is of avail in coping with the difficulties of a later situation. This means power to modify actions on the basis of the results of prior experiences, the power to develop dispositions. Without it, the acquisition of habits is impossible.

It is a familiar fact that the young of the higher animals, and especially the human young, have to learn to utilize their instinctive reactions. The human being is born with a greater number of instinctive tendencies than other animals. But the instincts of the lower animals perfect themselves for appropriate action at an early period after birth, while most of those of the human infant are of little account just as they stand. An original specialized power of adjustment secures immediate efficiency, but, like a railway ticket, it is good for one route only.

A being who, in order to use his eyes, ears, hands, and legs, has to experiment in making varied combinations of their reactions, achieves a control that is flexible and varied. A chick, for example, pecks accurately at a bit of food in a few hours after hatching.

This means that definite coordinations of activities of the eyes in seeing and of the body and head in striking are perfected in a few trials. An infant requires about six months to be able to gauge with approximate accuracy the action in reaching which will coordinate with his visual activities; to be able, that is, to tell whether he can reach a seen object and just how to execute the reaching. As a result, the chick is limited by the relative perfection of its original endowment. The infant has the advantage of the multitude of instinctive tentative reactions and of the experiences that accompany them, even though he is at a temporary disadvantage because they cross one another.

In learning an action, instead of having it given ready-made, one of necessity learns to vary its factors, to make varied combinations of them, according to change of circumstances. A possibility of continuing progress is opened up by the fact that in learning one act, methods are developed good for use in other situations. Still more important is the fact that the human being acquires a habit of learning. He learns to learn.

The importance for human life of the two facts of dependence and variable control has been summed up in the doctrine of the significance of prolonged infancy. ¹ This prolongation is significant from the standpoint of the adult members of the group as well as from that of the young.

The presence of dependent and learning beings is a stimulus to nurture and affection. The need for constant continued care was probably a chief means in transforming temporary cohabitations into permanent unions.

It certainly was a chief influence in forming habits of affectionate and sympathetic watchfulness; that constructive interest in the well-being of others which is essential to associated life. Intellectually, this moral development meant the introduction of many new objects of attention; it stimulated foresight and planning for the future.

Thus there is a reciprocal influence. Increasing complexity of social life requires a longer period of infancy in which to acquire the needed powers; this prolongation of dependence means prolongation of plasticity, or power of acquiring variable and novel modes of control. Hence it provides a further push to social progress.

SCIENCE AS A BASIC COMPONENT OF EDUCATION AND CULTURE

A basic distinction between traditional and modern societies is the development and use by the latter of science-based technology which helps modernization of agriculture and the development of industries. In a traditional society, production is based largely on empirical processes, experience, and trial and error, rather than on science; in a modern society, it is basically rooted in science. The electrical industry was probably the first to become science-based; next came the chemical industry; and now, in industrialized countries, agriculture is fast becoming a branch of applied science. This close interlocking and interdependence between science and technology is a characteristic of the contemporary world. In recent years, several countries have been able to raise their GNP very rapidly because of their investment in basic science, technology and education.

We are at a crucial stage in the process of development and transformation; and in this context the role of science is of the utmost importance. Science education must become an integral part of school education; and ultimately some study of science should become a part of all courses in the humanities and social sciences at the university stage, even as the teaching of science can be enriched by the inclusion of some elements of the humanities and social sciences. The quality of science teaching has also to be raised considerably so as to achieve its proper objectives and purposes, namely, to promote an ever deepening understanding of basic principles, to develop problem-solving and analytical skills and the ability to apply them to the problems of the material environment and social living, and to promote the spirit of enquiry and experimentation. Only then can a scientific outlook become part of our way of life and culture.

It is necessary to highlight this last point which is sometimes underestimated. Science strengthens the commitment of man to free enquiry and to the quest for truth as his highest duty and obligation.

It loosens the bonds of dogmatism and acts as a powerful dispeller of fear and superstition, fatalism and passive resignation. By its emphasis on reason and free enquiry, it even helps to lessen ideological tensions which often arise because of adherence to dogma and fanaticism. Although it is largely occupied with the understanding of Nature at present, its development is tending more and more to help man to understand himself and his place in the universe. In the developments that we envisage in the future, we hope that the pursuit of mere material affluence and power would be subordinated to that of higher values and the fulfillment of the individual. This concept of the mingling of 'science and spirituality' is of special significance for Indian education.

WORK-EXPERIENCE

As another programme to relate education to life and productivity, we recommend that work-experience should be introduced as an integral part of all

education-general or vocational. We define work-experience as participation in productive work in the school, in the home, in a workshop, on a farm, in a factory or in any other productive situation.

In our opinion, all good and purposeful education should consist of at least four basic elements:

- ‘Literacy’ or a study of languages, the humanities and the social sciences;
- ‘Numeracy’ or a study of mathematics and the natural sciences; work-experience; and
- Social service.

In the present educational system, most of the time is taken up with the first, although even in this limited sphere, the attainments are not appreciable. The second is still quite weak and needs a great deal of emphasis. But the third and fourth have been almost totally absent till recently and need to be highlighted-the former mainly for relating education to productivity, and the latter as a means of social and national integration. The need to include work-experience as an integral part of education is to some extent inherent in the very nature and organization of formal education. Traditionally, an individual grew up in society through participation in its activities, and work-experience formed the bulk of his education.

While this method had several advantages, its weakness consisted in that it was not essentially dynamic and forward-looking and tended to perpetuate traditional patterns of behaviour. Formal education, on the other hand, tended to withdraw the child temporarily from participation in community activities and to train him, in an artificial environment for his anticipated future role in society. This created a cleavage between the world of work and the world of study. This defect is particularly conspicuous in our system of education which tends to strengthen the tradition of denigrating work and alienates the students, particularly the first-generation learners, from their homes and communities. The introduction of work-experience is intended to overcome, to some extent, these weaknesses and to combine the advantages of the formal and informal systems of education. Work-experience is thus a method of integrating education with work. This is not only possible but essential in modern societies which adopt science-based technology.

In all traditional societies, an antithesis between education and work is usually postulated, partly because the techniques of production are primitive and do not necessarily require formal education, special skills or high intellectual ability, and partly because the work is generally manual, low-paid, akin to drudgery and confined mostly to the uneducated ‘lower’ classes. As against this, education is generally the privilege of the upper classes who are interested, not in working for a living, but in the cultivation of interests which may help them in the enjoyment of life. The educated elite thus become largely parasitical in character and the real productive workers-at a low level of efficiency, generally-are the unlettered peasants and artisans.

The complex techniques of production adopted in modern societies, on the other hand, require higher forms of general or technical education and a comparatively higher level of intellectual ability. High talent is required for research in technology, and even at the lower levels of work, brains become more important than physical strength. The traditional resistance of educated persons to engage themselves in productive work tends to disappear because, with the adoption of the new technology, work in industry or on the farm becomes more productive and remunerative and ceases to be looked down upon socially.

The educated person thus becomes an important source of production and the uneducated person, an unproductive burden on society. This process, which has already started in our country, needs to be accelerated and therefore the inclusion of work experience as an integral part of all education acquires an urgent significance. The need to provide some such corrective to the over-academic nature of formal education has been widely recognized.

In the curricula of most contemporary school systems, particularly in the socialist countries of Europe, a place is found for what is variously called 'manual work' or 'work-experience'. In our country, a revolutionary experiment was launched by Mahatma Gandhi in the form of basic education. The concept of work-experience is essentially similar. It may be described as a redefinition of his educational thinking in terms of a society on the road to industrialization. In addition to being an effective educational tool, work-experience can, in our view, serve some other important purposes. It can help to make the distinction between intellectual and manual work less marked as also the social stratification based on it.

It could make the entry of youth into the world of work and employment easier by enabling them to adjust themselves to it. It could contribute to the increase of national productivity both by helping students to develop insights into productive processes and the use of science, and by generating in them the habit of hard and responsible work. And it might help social and national integration by strengthening the links between the individual and the community and by creating bonds of understanding between the educated persons and the masses. In providing work-experience, every attempt should be made to link programmes realistically to technology, to industrialization and to the application of science to productive processes, including agriculture. This 'forward look' in work-experience is important for a country which has embarked on a programme of industrialization.

In a well-organized programme, work-experience, at least from the higher primary stage, should also result in some earning for the student-either in cash or in kind. This would meet, to some extent, the expenditure which the students have to incur on their education or on their maintenance while at study. The amount of this earning will naturally increase as the students go up the educational ladder and it becomes possible to organize work-experience in a manner that would enable them to 'earn and learn'. The ultimate objective should be to move towards a situation in which the education of a student is

not held to be complete unless he participates in some type of work-experience in real-life conditions and earns some amount, however small, towards his own maintenance. This will also help to develop in him values which promote economic growth, such as appreciating the importance of productive work and manual labour, willingness and capacity for hard work, and thrift. We realize that this is no easy task. But it will pay adequate dividends in the long run.

VOCATIONALIZATION

Another programme which can bring education into closer relationship with productivity is to give a strong vocational bias to secondary education and to increase the emphasis on agricultural and technological education at the university stage. This is of special significance in the Indian situation. where, as we have pointed out, the educational system has been training young persons so far mostly for government services and the so-called white-collar professions. The introduction of practical subjects in secondary schools so as to divert them into different walks of life was first recommended, as far back as in 1882, by the Indian Education Commission.

But little or no effective action was taken to implement the recommendations and even today the enrolment in the vocational courses at the secondary stage is only nine per cent of the total enrolment, which is among the lowest in the world. Even at the university stage, vocational education was mostly ignored throughout the last century. The Calcutta University Commission pointed out that the great majority of university students about 22,000 out of 26,000- pursue purely literary courses which do not fit them for any but administrative, clerical, teaching and legal careers. About fifty years later, we find that the overall picture has improved only slightly and the proportion of students at the university stage enrolled in all courses of professional education is only 23 per cent of the total enrolment.

Our proposals on this subject are discussed elsewhere. But it may be briefly stated here that we visualize the future trend of school education to be towards a fruitful mingling of general and vocational education-general education containing some elements of prevocational and technical education, and vocational education, in its turn, having an element of general education. In the kind of society in which as suggested, be living in the coming years, a complete separation between the two will not only be undesirable but impossible. We also expect a considerable expansion of professional education at the university stage, especially in the agricultural and technological fields.

IMPROVEMENT OF SCIENTIFIC AND TECHNOLOGICAL EDUCATION

For the planned development of the national economy we need a large-scale expansion of enrolment in engineering and agriculture, and at the postgraduate level, in pure science subjects. The increase has to be several times the present enrolments. The quality of education and research needs a radical improvement.

DYNAMIC AND EVOLVING STANDARDS

One of the common criticisms against the development of education in the post- Independence period is that there has been a fall in standards, and two main illustrations are given to support it: the increase in the number of sub-standard institutions of general education, and the increase in the number of students with sub- standard attainments.

The first of these is far more serious and is largely the cause of the second.

We admit that there is considerable force in this criticism and we do not wish to minimize its gravity. But we would not like to ignore the other side of the picture either.

It has to be remembered that:

- A part of the increase in the number of students with ‘sub- standard’ attainments is due to the first generation learners, who depress the standards to some extent, but whose entry into secondary schools and colleges in large numbers, especially in rural areas, is also a sign of progress; - considerable improvements have been made in recent years in the teaching of several subjects;
- Good institutions and first-rate students are now more numerous and qualitatively as good as ever, if not better; and
- The total amount of education in society is substantially higher at present than at any time in the past. The overall situation is thus a mixed picture of light and shade, of improvement as well as deterioration, and of a rise in standards in some areas accompanied by a comparative decline in others. While we fully support the need and urgency for raising standards, we would also like to recognize the qualitative achievements of the educational system in the last few years. They are a source of inspiration and guidance and can help us to face the task ahead with greater confidence.

CRITERIA FOR EVALUATING STANDARDS

In our opinion, the basic issue in educational reconstruction is not to compare the standards of today with those of the past or to determine whether they are rising or falling. On the other hand, we should judge them on the basis of three interrelated criteria: adequacy, dynamism, and international comparability.

Standards must be:

- Adequate in relation to the tasks for which they are intended;
- Dynamic, and should keep on rising with the demands for the higher levels of knowledge, skills or character which a modernizing society makes; and
- Internationally comparable, at least in those key sectors where such comparison is important.

Judged on the basis of these criteria, the existing situation appears to be far from satisfactory. Our universities do a good deal of work which really belongs to the secondary school and the latter in its turn does a good deal of work of the

primary school. Even where the standards have risen, the rise has not been adequate and better results would have been possible if the existing facilities had been intensively utilized. The main purpose of the first degree should be to bring students to the frontiers of knowledge and to the threshold of the world of research; and that of the second degree to provide a high level of specialization or to initiate the student into research itself.

Our first and second degrees in arts, commerce and science do not generally come up to these standards. Moreover, our degrees should be internationally comparable in the sense that those given by our best centres should be as good as those of similar institutions in any part of the world. But by and large, it is our second degree in arts, commerce and science that introduces the student to the world of research and is comparable to the first degree in the educationally advanced countries.

Lower standard for these degrees was deliberately adopted in the early years of higher education, because universities had to institute a quick first degree in arts and science in order to produce the large number of graduates needed for the expanding administration. The weakness of these degrees was pointed out by the Calcutta University Commission more than forty years ago. But the situation has not materially changed to this day. Meanwhile, advanced countries have made phenomenal progress in education, specially since the Second World War. The gap between our standards and theirs has widened further; and the holders of the first degree of our universities in arts and science are now generally equated with matriculates in the important universities of western countries and are eligible for admission only to the first year of their first degree course.

PROPER ARTICULATION BETWEEN THE DIFFERENT STAGES OF EDUCATION

Still another way in which standards can be raised is by securing better coordination between the different stages of education and by making the educational institutions function in small groups instead of in isolation. At present, there is little practical coordination between educational institutions functioning at different levels of education. The people at the university stage criticize those at the secondary stage for a fall in standards; and those at the secondary stage pass the blame on to the persons at the primary stage. This situation of mutual recrimination has to be changed into one of mutual help, and this can be done by making each higher stage of education take the responsibility for improving standards at the lower stages. *The Role of Universities and Colleges.* The universities and colleges, for example, should assist the secondary schools in improving their efficiency.

The following are some of the programmes which can be undertaken:

- Each college can be functionally related to a number of secondary schools in the neighbourhood and enabled to provide extension services and guidance to them to improve their standards. A similar programme for the colleges themselves could be developed through the universities.

- The universities can conduct special diploma courses, either pre-service or in-service, for improving the competence of secondary teachers. These can preferably be correspondence courses, requiring only short-term personal attendance.
- The universities can conduct experimental secondary or primary schools to evolve improved techniques of teaching and organization.
- The university and college teachers can take upon themselves the responsibility for improving school textbooks and providing better types of instructional materials.
- The universities and colleges could select talented students from the schools in different subjects at an appropriate stage, say, in the age-group 13-15, and help them to develop their knowledge in special fields through individual guidance, provision of laboratory facilities, *etc.*, over and above regular school work.

These programmes have been cited merely as illustrations. Once the principle that the universities should assist in the improvement of standards at lower stages is accepted, it will be possible to devise many other programmes.

THE SCHOOL COMPLEX

What was for the relationship between universities, colleges and secondary schools, could be easily extended further to secondary and primary schools. There are about 26,000 secondary schools at the beginning of the Fourth Plan and about 14,000 of these are in rural areas. In addition, the rural areas have about 65,000 higher primary schools and about 360,000 lower primary schools.

In other words, in a rural area having a radius of five to ten miles, there are: one secondary school, about five higher primary schools and 28 lower primary schools. The total number of teachers may be about 80 to 100. This is a fairly small and manageable group which can function in a face-to-face relationship within easily accessible distance.

It has also a good potential for planning and guidance, since there will be at least five or six trained graduates in the group. Moreover, it is possible to provide new aids like a projector, a good library, a good laboratory in each secondary school as a unit and make them functionally available to all the schools in the area. This group built round a secondary school should, in our opinion, be adopted as the minimum viable unit of educational reform and developed accordingly. The linking of secondary and primary schools under this programme can be done in two tiers. In the first tier, each higher primary school should be integrally related to the eight to ten lower primary schools that exist in its neighbourhood so that they form one complex' of educational facilities.

The headmaster of the higher primary school should provide an extension service to the lower primary schools in his charge, and it will be his responsibility to see that they function properly. For this purpose, there would be a committee under his chairmanship which would be responsible for planning and developing all the schools as a single 'complex'. The second tier would be a committee

under the chairmanship of the head- master of the secondary school which will plan the work and give guidance to all the schools in the area, in the light of which each higher primary school complex would carry on its work.

This group of schools and teachers can be given a good deal of freedom to develop their own programmes, subject to the general guidance of the inspecting staff. The group should also be requested to coordinate its work with the local communities and to derive as much help from this source as possible. Such an organization will have several advantages in helping to promote educational advance.

It will break the terrible isolation under which each school functions at present. It will enable a small group of schools working in a neighbourhood to make a cooperative effort to improve standards. It will enable the Education Department to devolve authority with comparatively less fear of its being misused and to provide the necessary stock of talent at the functional level to make use of this freedom.

A CHALLENGE AND A FAITH

India is on the move again-with the promise of a new renaissance in the making. After a long period of foreign rule she has emerged into freedom. That her means for the winning of freedom, adopted under Gandhi and Nehru, were as noble as the ends, is a signpost of profound historical significance. Politically the land is free, but economically she has a long, way to go. The elimination of ignorance and of grinding poverty accumulated over centuries of inertia and exploitation is not an easy task. India today has half of the total illiterate population of the world. About fifty million of her people, a tenth of the total population, live on an yearly income of no more than ₹ 120. The problems are grave and immense.

But this is only one side of the picture. During recent, years, great strides have been taken towards industrialization, towards modernization of agriculture, and to provide better health and life to the people. The most powerful tool in the process of modernization is education based on science and technology. The one great lesson of the present age of science is that, with determination and the willingness to put in hard work, prosperity' within the reach of any nation which has a stable and progressive government.

There is no doubt that in the years to come India's trade and commerce will grow: there will be more food for all, more education, better health; and a reasonable standard of living will be available. But India's contribution can and should be far more than these material gains. She should learn to harness science but she must also learn not to be dominated by science. In this respect India has a unique advantage with her great tradition of duty without self-involvement unacquisitive temperament tolerance, and innate love of peace and reverence for all living things. Too often are these precious assets forgotten and we tend to relapse into moods of pessimism, fears and forebodings, discord and destructive criticism.

A new pride and a deeper faith expressed in living for the noble ideals of peace and freedom, truth and compassion, are now needed. In our efforts to go in a big way for science-based industrialization, we have the advantage of drawing upon a great stock of knowledge accumulated by the western world over the last two hundred years.

We also have another lesson to learn. The industrialization of the West was in some ways brought about at no small cost to the human spirit. The two world wars resulting in human killing on an unprecedented scale are a grim reminder of that suffering of the spirit. If we learn the lesson right, we can harness science to support rather than weaken our basic commitment to cultural and spiritual values. It should be our goal and obligation to re-interpret, and raise to a new level of understanding, the Insight gained by the ancient seers as regards the fundamental problems of life which in some ways is unique and 'represents the quintessence of deepest insight into the happenings of the world'.

Man's knowledge and mastery of outer space and of his own self are out of balance. It is this imbalance which mankind must seek to redress. Man now faces himself. He faces the choice of rolling down a nuclear abyss to ruin and annihilation or of raising himself to new heights of glory and fulfilment yet unimagined. India has made many glorious contributions to world culture, and perhaps the grandest of them all is the concept and ideal of non-violence and compassion, sought, expounded and lived by Buddha and Mahavira, Nanak and Kabir, and in our own times by Vivekananda, Ramana Maharishi and Gandhi, and which millions have striven to follow after them. The greatest contribution of Europe doubtlessly is the scientific revolution. If science and ahimsa join together in a creative synthesis of belief and action, mankind will attain to a new level of purposefulness, prosperity and spiritual insight. Can India do something in adding a new dimension to the scientific achievement of the West? This poses a great challenge and also offers a unique opportunity to the men and women of India, and especially to the young people who are the makers of the future.

In this context we cannot do better than to quote Pandit Jawaharlal Nehru:

- Can we combine the progress of science and technology with this progress of the mind and spirit also? We cannot be untrue to science because that represents the basic fact of life today. Still less can we be untrue to those essential principles for which India has stood in the past throughout the ages. Let us then pursue our path to industrial progress with all our strength and vigour and, at the same time, remember that material riches without toleration and compassion and wisdom may well turn to dust and ashes.

SOCIAL, MORAL AND SPIRITUAL VALUES

Modernization does not mean-least of all in our national situation-a refusal to recognize the importance of or to inculcate necessary moral and spiritual values and selfdiscipline. Modernization, if it is to be a living force, must derive

its strength from the strength of the spirit. Modernization aims, amongst other things, at creating an economy of plenty which will offer to every individual a larger way of life and a wider variety of choices. While this freedom to choose has its own advantages, it also means that the future of society will depend increasingly upon the type of choice each individual makes.

This would naturally depend upon his motivation and sense of values, for he might make the choice either with reference entirely to his own personal satisfaction or in a spirit of service to the community and of furthering the common good. The expanding knowledge and the growing power which modernization places at the disposal of society must, therefore, be combined with the strengthening and deepening of the sense of social responsibility and a keener appreciation of moral and spiritual values.

While a combination of ignorance with goodness may be futile, that of knowledge with a lack of essential values may be dangerous.

The weakening of social and moral values in the younger generation is creating many serious social and ethical conflicts in western societies and there is already a desire among some great western thinkers to balance the knowledge and skills which science and technology bring with the values and insights associated with ethics and religion. At its best, *viz.*, a search for the knowledge of the Self, of the meaning of life, of the relationship of man to other human beings and to the ultimate reality in the situation that is developing it is equally important for us to give a proper value-orientation to our educational system.

It is not our purpose to enumerate a list of values to be inculcated. What we would like to emphasize is the need to pay attention to the inculcation of right values in the students, at all stages of education. We are happy to note that an awareness of this responsibility has been growing since independence.

The University Education Commission considered both its philosophical and practical aspects and made certain valuable proposals for reform. However, except in a small number of institutions, they were not implemented. The Central Advisory Board of Education appointed a special committee on Religious and Moral Instruction. The Report of this Committee has been before the country for five years, but the response from educational institutions has been neither active nor enthusiastic. This is having a very undesirable effect on the character of the rising generation. It has, therefore, become necessary and urgent to adopt active measures to give a value-orientation to education. *From this point of view, we make the following recommendations:*

- The Central and State Governments should adopt measures to introduce education in moral, social and spiritual values in all institutions under their direct control on the lines recommended by the University Education Commission on religious and moral instruction.
- The privately-managed institutions should also be expected to follow suit.
- Apart from education in such values being made an integral part of school programmes generally, some periods should be set apart in the

time-table for this purpose. They should be taken, not by specially recruited teachers but by general teachers, preferably from different communities, considered suitable for the purpose. It should be one of the important objectives of training institutions to prepare teachers for it.

- We also suggest that the University Departments in Comparative Religion should be specially concerned with the ways in which these values can be taught wisely and effectively and should undertake preparation of special literature for use by students and teachers.

Our proposals for such instruction at the school stage are discussed elsewhere. For higher education, we agree with the suggestions made by the University Education Commission and the Sri Prakasa Committee. A general study of the different religions of the world should be a part of the first degree courses and a graded syllabus should be prepared for the purpose. For instance, in the first year, it can deal with the lives of great religious leaders; in the second, selections from the scriptures of the world with a universal appeal could be studied; and in the third year, the central problems of the philosophy of religions considered. We would also like to lay stress on the importance of encouraging students to meet in groups for silent meditation. In the attempt to inculcate values through education, we should draw freely upon our own traditions as well as the traditions of other countries and cultures. There are strands within Indian thought itself which can lead to the new outlook appropriate for a modern society and which can prepare the people for a willing acceptance of life with all its joys and sorrows, its challenges and triumphs. In them, too, we can find inspiration for social service and a faith in the future. Mahatma Gandhi, for instance-and some other great leaders of thought-discovered the inspiration for their idealism and their passionate striving for social justice and social reconstruction largely from these sources. It is such re-interpretations and re-evaluations of the past that are now most needed. It is, however, specially important in the world of today that this effort should not be restricted to the national sources only. It would be necessary to draw upon the liberalizing forces that have arisen in the western nations and which have emphasized, among other things, the dignity of the individual, equality and social justice, *e.g.*, the French Revolution, the concept of the welfare state, the philosophy of Marx and the rise of socialism.

A major weakness of the Indian, and particularly of the Hindu society, in the past has been a lack of equality and social justice. These balancing influences have, therefore, a great significance. Similar assimilations of whatever is significant should also be discriminatingly made from other important nations and cultures such as the Chinese, Japanese or Islamic.

THE EDUCATIONAL BEARINGS OF THE CONCEPTION OF DEVELOPMENT

We have been occupied with the conditions and implications of growth. If our conclusions are justified, they carry with them, however, definite educational

consequences. When it is said that education is development, everything depends upon how development is conceived. Our net conclusion is that life is development, and that developing, growing, is life. Translated into its educational equivalents, that means that the educational process has no end beyond itself; it is its own end; and that the educational process is one of continual reorganizing, reconstructing, transforming.

Development when it is interpreted in comparative terms, that is, with respect to the special traits of child and adult life, means the direction of power into special channels: the formation of habits involving executive skill, definiteness of interest, and specific objects of observation and thought. But the comparative view is not final. The child has specific powers; to ignore that fact is to stunt or distort the organs upon which his growth depends. The adult uses his powers to transform his environment, thereby occasioning new stimuli which redirect his powers and keep them developing. Ignoring this fact means arrested development, a passive accommodation. Normal child and normal adult alike, in other words, are engaged in growing.

The difference between them is not the difference between growth and no growth, but between the modes of growth appropriate to different conditions. With respect to the development of powers devoted to coping with specific scientific and economic problems we may say the child should be growing in manhood. With respect to sympathetic curiosity, unbiased responsiveness, and openness of mind, we may say that the adult should be growing in childlikeness. One statement is as true as the other.

Three ideas which have been criticized, namely, the merely privative nature of immaturity, static adjustment to a fixed environment, and rigidity of habit, are all connected with a false idea of growth or development, — that it is a movement towards a fixed goal. Growth is regarded as having an end, instead of being an end.

The educational counterparts of the three fallacious ideas are first, failure to take account of the instinctive or native powers of the young; secondly, failure to develop initiative in coping with novel situations; thirdly, an undue emphasis upon drill and other devices which secure automatic skill at the expense of personal perception. In all cases, the adult environment is accepted as a standard for the child. He is to be brought up to it.

Natural instincts are either disregarded or treated as nuisances — as obnoxious traits to be suppressed, or at all events to be brought into conformity with external standards. Since conformity is the aim, what is distinctively individual in a young person is brushed aside, or regarded as a source of mischief or anarchy. Conformity is made equivalent to uniformity. Consequently, there are induced lack of interest in the novel, aversion to progress, and dread of the uncertain and the unknown. Since the end of growth is outside of and beyond the process of growing, external agents have to be resorted to to induce movement towards it. Whenever a method of education is stigmatized as mechanical, we may be sure that external pressure is brought to bear to reach an external end.

Since in reality there is nothing to which growth is relative save more growth, there is nothing to which education is subordinate save more education. It is a commonplace to say that education should not cease when one leaves school. The point of this commonplace is that the purpose of school education is to insure the continuance of education by organizing the powers that insure growth. The inclination to learn from life itself and to make the conditions of life such that all will learn in the process of living is the finest product of schooling.

When we abandon the attempt to define immaturity by means of fixed comparison with adult accomplishments, we are compelled to give up thinking of it as denoting lack of desired traits. Abandoning this notion, we are also forced to surrender our habit of thinking of instruction as a method of supplying this lack by pouring knowledge into a mental and moral hole which awaits filling. Since life means growth, a living creature lives as truly and positively at one stage as at another, with the same intrinsic fullness and the same absolute claims.

Hence education means the enterprise of supplying the conditions which insure growth, or adequacy of life, irrespective of age. We first look with impatience upon immaturity, regarding it as something to be got over as rapidly as possible. Then the adult formed by such educative methods looks back with impatient regret upon childhood and youth as a scene of lost opportunities and wasted powers. This ironical situation will endure till it is recognized that living has its own intrinsic quality and that the business of education is with that quality.

Realization that life is growth protects us from that so-called idealizing of childhood which in effect is nothing but lazy indulgence. Life is not to be identified with every superficial act and interest. Even though it is not always easy to tell whether what appears to be mere surface fooling is a sign of some nascent as yet untrained power, we must remember that manifestations are not to be accepted as ends in themselves.

They are signs of possible growth. They are to be turned into means of development, of carrying power forward, not indulged or cultivated for their own sake. Excessive attention to surface phenomena may lead to their fixation and thus to arrested development. What impulses are moving towards, not what they have been, is the important thing for parent and teacher. The true principle of respect for immaturity cannot be better put than in the words of Emerson: "Respect the child. Be not too much his parent.

Trespass not on his solitude. But I hear the outcry which replies to this suggestion: Would you verily throw up the reins of public and private discipline; would you leave the young child to the mad career of his own passions and whimsies, and call this anarchy a respect for the child's nature? I answer, — Respect the child, respect him to the end, but also respect yourself.... The two points in a boy's training are, to keep his nature and train off all but that; to keep his nature, but stop off his uproar, fooling, and horseplay; keep his nature and arm it with knowledge in the very direction in which it points."

And as Emerson goes on to show this reverence for childhood and youth instead of opening up an easy and easy-going path to the instructors, "involves at once, immense claims on the time, the thought, on the life of the teacher. It requires time, use, insight, event, all the great sessions and assistances of God; and only to think of using it implies character and profoundness."

EDUCATIONAL IMPLICATIONS OF THE ESTIMATES

We broadly accept these forecasts, subject to periodical revision, as a basis for a national enrolment policy and invite attention to the main conclusion they indicate with regard to future educational development.

These are:

- To restrict the unplanned and uncontrolled expansion of general secondary and higher education, if massive educated unemployment is to be avoided;
- To make special and intensive efforts to vocationalize secondary education and to develop professional education at the university stage; and
- To devise suitable machinery, at both the national and State levels, which will relate the estimates of manpower needs effectively to the output of the educational system so that, by and large, there is some assurance that a suitably trained person would be available for every job to be done and every educated person would find a job appropriate for his education and professional training.

ADMISSIONS TO LOWER SECONDARY EDUCATION

In order to restrict unplanned and uncontrolled expansion of secondary and higher education, it is necessary to restrict the provision for places in accordance with manpower estimates and wherever the applicants for admission exceed the places, to make the admissions on a selective basis.

At the lower secondary stage, however, which is to be regarded as completion of general education, emphasis should not be laid on 'selection' in the sense of admitting the 'fit' students and weeding out the 'unfit'. At this level, selection should be oriented more towards 'testing and guidance' than towards 'elimination'.

Its main objective should be to enable a student to know his own level of achievement and his potentialities and to decide whether it would be in his interest to leave the school and enter the world of work, or to join a particular vocational course, or to continue in the stream of general education. In other words, 'selection' at this stage will be mostly 'self-selection' helped through a testing and guidance service.

This service should be available to all schools in all areas, irrespective of the level of expansion of secondary education. Whether a system of more rigorous selections is needed or not in a particular area is a matter for local decision and will depend upon the needs for manpower in the area and the level of expansion already reached.

ADMISSIONS TO HIGHER SECONDARY AND UNIVERSITY EDUCATION

Beyond the lower secondary stage, a system of selective admissions becomes inescapable in view of the limited resources available. This idea is gaining much wider support but is still opposed on certain socio-economic grounds. It is argued, for instance, that this policy would adversely affect access to higher education of the backward classes, the rural areas and under-privileged groups now entering higher education for the first time. These fears have some Justification.

But the remedy is not to be sought in the continuance of the present policy of open-door access. The under-privileged sections have a very small and disproportionate share in existing facilities in spite of the unrestricted admissions. This inequality would be removed more quickly, not by continuing the present laissez-faire policy, but by adopting positive measures to promote equalization of opportunities, such as the grant of scholarships on the 'school cluster' basis recommended elsewhere. When such measures are provided on an adequate scale and it is clearly demonstrated that they increase the proportional enrolment of the backward or under-privileged groups in institutions of higher education, opposition to selective admissions will quickly diminish and even disappear.

As a transitional measure, however, these fears may be allayed, if necessary, by adopting a suitable system of reservation of seats.

It is often argued that secondary and higher education should be given to all young persons who have completed primary and secondary education and cannot find jobs and it is further contended that such asylum for them is a lesser evil than leaving them on the streets.

This is an escapist attitude, commonly observed in developing and labour-surplus societies, to over-educate young persons by regarding education as a substitute rather than as a preparation for work. In industrialized and labour deficit societies, job opportunities are so plentiful that many young persons remain in school largely because of compulsory laws. As soon as the compulsory age-limit is reached, a large proportion leave school and take up employment. This helps also in improving standards in educational institutions, because resources are plentiful in relation to the number of places to be provided in post-compulsory education.

In developing and labour-surplus economies, on the other hand, employment opportunities are so poor that 'opportunity costs' of education are very low and young people join secondary schools or colleges either because there is nothing else to do, or in the pious hope that a job may be more readily available from the raised platform of a higher education. But as resources are limited and the number of seats to be provided is larger, standards in secondary and higher education remain poor. The result, in some cases, is a negative rather than a positive contribution to individual and social life.

We trust that decisive efforts will be made to check this tendency to use education as a substitute for employment. Much of the opposition to a policy of

selective admissions would disappear if good methods of selection were evolved. Existing methods of selection tend to be based on a rather rigid acceptance of examination marks. This approach finds popular support because of its apparent 'Justice', facility of administration, and because of a fear that any discretion given to individual institutions may lead to favouritism, nepotism, casteism or even corruption.

But examination marks are an undependable measure of native talent or of potential growth. They are also socially unjust, being heavily weighted in favour of urban students and children from well-to-do homes and good schools. What is needed is a reliable method of selection which will take account of past performances, native talent and the principles of social justice. Educational research will have to be developed vigorously to discover such methods.

Suggestions for reform of present methods are discussed later. If enrolment in higher secondary and university education should be related to broadly determined national goals for trained manpower, two steps are needed. The first is to fix the number of places in university departments or colleges in advance, keeping in view the manpower needs and the facilities available; and the second is to make admissions to these places on a selective basis with due regard to the natural talents of the students, their achievements at earlier stages, and the principles of social justice. A policy of selective admissions is already being implemented, to a large extent, in courses in science, technology, medicine and agriculture and even in a fair number of institutions of general education which are anxious to maintain standards. Moreover, it has now become urgent to ensure that the principle of selective admissions becomes the national policy for all courses and institutions of higher education, including courses in humanities and commerce and in the affiliated colleges.

THE VALUATION OF STUDIES

The theory of educational values involves not only an account of the nature of appreciation as fixing the measure of subsequent valuations, but an account of the specific directions in which these valuations occur. To value means primarily to prize, to esteem; but secondarily it means to apprise, to estimate. It means, that is, the act of cherishing something, holding it dear, and also the act of passing judgement upon the nature and amount of its value as compared with something else. To value in the latter sense is to value or evaluate.

The distinction coincides with that sometimes made between intrinsic and instrumental values. Intrinsic values are not objects of judgement, they cannot be compared, or regarded as greater and less, better or worse. They are invaluable; and if a thing is invaluable, it is neither more nor less so than any other invaluable. But occasions present themselves when it is necessary to choose, when we must let one thing go in order to take another. This establishes an order of preference, a greater and less, better and worse. Things judged or passed upon have to be estimated in relation to some third thing, some further end. With respect to that, they are means, or instrumental values.

We may imagine a man who at one time thoroughly enjoys converse with his friends, at another the hearing of a symphony; at another the eating of his meals; at another the reading of a book; at another the earning of money, and so on. As an appreciative realization, each of these is an intrinsic value. It occupies a particular place in life; it serves its own end, which cannot be supplied by a substitute. There is no question of comparative value, and hence none of valuation. Each is the specific good which it is, and that is all that can be said. In its own place, none is a means to anything beyond itself. But there may arise a situation in which they compete or conflict, in which a choice has to be made. Now comparison comes in. Since a choice has to be made, we want to know the respective claims of each competitor. What is to be said for it? What does it offer in comparison with, as balanced over against, some other possibility? Raising these questions means that a particular good is no longer an end in itself, an intrinsic good.

For if it were, its claims would be incomparable, imperative. The question is now as to its status as a means of realizing something else, which is then the invaluable of that situation. If a man has just eaten, or if he is well fed generally and the opportunity to hear music is a rarity, he will probably prefer the music to eating. In the given situation that will render the greater contribution. If he is starving, or if he is satiated with music for the time being, he will naturally judge food to have the greater worth. In the abstract or at large, apart from the needs of a particular situation in which choice has to be made, there is no such thing as degrees or order of value.

Certain conclusions follow with respect to educational values. We cannot establish a hierarchy of values among studies. It is futile to attempt to arrange them in an order, beginning with one having least worth and going on to that of maximum value. In so far as any study has a unique or irreplaceable function in experience, in so far as it marks a characteristic enrichment of life, its worth is intrinsic or incomparable.

Since education is not a means to living, but is identical with the operation of living a life which is fruitful and inherently significant, the only ultimate value which can be set up is just the process of living itself. And this is not an end to which studies and activities are subordinate means; it is the whole of which they are ingredients. And what has been said about appreciation means that every study in one of its aspects ought to have just such ultimate significance. It is true of arithmetic as it is of poetry that in some place and at some time it ought to be a good to be appreciated on its own account — just as an enjoyable experience, in short. If it is not, then when the time and place come for it to be used as a means or instrumentality, it will be in just that much handicapped. Never having been realised or appreciated for itself, one will miss something of its capacity as a resource for other ends.

It equally follows that when we compare studies as to their values, that is, treat them as means to something beyond themselves, that which controls their proper valuation is found in the specific situation in which they are to be used.

The way to enable a student to apprehend the instrumental value of arithmetic is not to lecture him upon the benefit it will be to him in some remote and uncertain future, but to let him discover that success in something he is interested in doing depends upon ability to use number.

It also follows that the attempt to distribute distinct sorts of value among different studies is a misguided one, in spite of the amount of time recently devoted to the undertaking. Science for example may have any kind of value, depending upon the situation into which it enters as a means. To some the value of science may be military; it may be an instrument in strengthening means of offence or defence; it may be technological, a tool for engineering; or it may be commercial — an aid in the successful conduct of business; under other conditions, its worth may be philanthropic — the service it renders in relieving human suffering; or again it may be quite conventional — of value in establishing one's social status as an "educated" person. As matter of fact, science serves all these purposes, and it would be an arbitrary task to try to fix upon one of them as its "real" end. All that we can be sure of educationally is that science should be taught so as to be an end in itself in the lives of students—something worth while on account of its own unique intrinsic contribution to the experience of life.

Primarily it must have "appreciation value." If we take something which seems to be at the opposite pole, like poetry, the same sort of statement applies. It may be that, at the present time, its chief value is the contribution it makes to the enjoyment of leisure. But that may represent a degenerate condition rather than anything necessary. Poetry has historically been allied with religion and morals; it has served the purpose of penetrating the mysterious depths of things. It has had an enormous patriotic value. Homer to the Greeks was a Bible, a textbook of morals, a history, and a national inspiration. In any case, it may be said that an education which does not succeed in making poetry a resource in the business of life as well as in its leisure, has something the matter with it — or else the poetry is artificial poetry.

The same considerations apply to the value of a study or a topic of a study with reference to its motivating force. Those responsible for planning and teaching the course of study should have grounds for thinking that the studies and topics included furnish both direct increments to the enriching of lives of the pupils and also materials which they can put to use in other concerns of direct interest. Since the curriculum is always getting loaded down with purely inherited traditional matter and with subjects which represent mainly the energy of some influential person or group of persons in behalf of something dear to them, it requires constant inspection, criticism, and revision to make sure it is accomplishing its purpose. Then there is always the probability that it represents the values of adults rather than those of children and youth, or those of pupils a generation ago rather than those of the present day. Hence a further need for a critical outlook and survey. But these considerations do not mean that for a subject to have motivating value to a pupil is the same thing as for him to be

aware of the value, or to be able to tell what the study is good for. In the first place, as long as any topic makes an immediate appeal, it is not necessary to ask what it is good for. This is a question which can be asked only about instrumental values. Some goods are not good for anything; they are just goods. Any other notion leads to an absurdity. For we cannot stop asking the question about an instrumental good, one whose value lies in its being good for something, unless there is at some point something intrinsically good, good for itself. To a hungry, healthy child, food is a good of the situation; we do not have to bring him to consciousness of the ends subserved by food in order to supply a motive to eat. The food in connection with his appetite is a motive.

The same thing holds of mentally eager pupils with respect to many topics. Neither they nor the teacher could possibly foretell with any exactness the purposes learning is to accomplish in the future; nor as long as the eagerness continues is it advisable to try to specify particular goods which are to come of it. The proof of a good is found in the fact that the pupil responds; his response is use. His response to the material shows that the subject functions in his life. It is unsound to urge that, say, Latin has a value *per se* in the abstract, just as a study, as a sufficient justification for teaching it. But it is equally absurd to argue that unless teacher or pupil can point out some definite assignable future use to which it is to be put, it lacks justifying value. When pupils are genuinely concerned in learning Latin, that is of itself proof that it possesses value. The most which one is entitled to ask in such cases is whether in view of the shortness of time, there are not other things of intrinsic value which in addition have greater instrumental value.

This brings us to the matter of instrumental values — topics studied because of some end beyond themselves. If a child is ill and his appetite does not lead him to eat when food is presented, or if his appetite is perverted so that he prefers candy to meat and vegetables, conscious reference to results is indicated. He needs to be made conscious of consequences as a justification of the positive or negative value of certain objects. Or the state of things may be normal enough, and yet an individual not be moved by some matter because he does not grasp how his attainment of some intrinsic good depends upon active concern with what is presented. In such cases, it is obviously the part of wisdom to establish consciousness of connection.

In general what is desirable is that a topic be presented in such a way that it either have an immediate value, and require no justification, or else be perceived to be a means of achieving something of intrinsic value. An instrumental value then has the intrinsic value of being a means to an end. It may be questioned whether some of the present pedagogical interest in the matter of values of studies is not either excessive or else too narrow. Sometimes it appears to be a labored effort to furnish an apologetic for topics which no longer operate to any purpose, direct or indirect, in the lives of pupils. At other times, the reaction against useless lumber seems to have gone to the extent of supposing that no subject or topic should be taught unless some quite definite future utility can be

pointed out by those making the course of study or by the pupil himself, unmindful of the fact that life is its own excuse for being; and that definite utilities which can be pointed out are themselves justified only because they increase the experienced content of life itself. The Segregation and Organization of Values.

It is of course possible to classify in a general way the various valuable phases of life. In order to get a survey of aims sufficiently wide to give breadth and flexibility to the enterprise of education, there is some advantage in such a classification. But it is a great mistake to regard these values as ultimate ends to which the concrete satisfactions of experience are subordinate. They are nothing but generalizations, more or less adequate, of concrete goods. Health, wealth, efficiency, sociability, utility, culture, happiness itself are only abstract terms which sum up a multitude of particulars. To regard such things as standards for the valuation of concrete topics and process of education is to subordinate to an abstraction the concrete facts from which the abstraction is derived. They are not in any true sense standards of valuation; these are found in the specific realizations which form tastes and habits of preference. They are, however, of significance as points of view elevated the details of life whence to survey the field and see how its constituent details are distributed, and whether they are well proportioned.

No classification can have other than a provisional validity. The following may prove of some help. We may say that the kind of experience to which the work of the schools should contribute is one marked by executive competency in the management of resources and obstacles encountered; by sociability, or interest in the direct companionship of others; by aesthetic taste or capacity to appreciate artistic excellence in at least some of its classic forms; by trained intellectual method, or interest in some mode of scientific achievement; and by sensitiveness to the rights and claims of others — conscientiousness. And while these considerations are not standards of value, they are useful criteria for survey, criticism, and better organization of existing methods and subject matter of instruction.

The need of such general points of view is the greater because of a tendency to segregate educational values due to the isolation from one another of the various pursuits of life. The idea is prevalent that different studies represent separate kinds of values, and that the curriculum should, therefore, be constituted by gathering together various studies till a sufficient variety of independent values have been cared for. The following quotation does not use the word value, but it contains the notion of a curriculum constructed on the idea that there are a number of separate ends to be reached, and that various studies may be evaluated by referring each study to its respective end. "Memory is trained by most studies, but best by languages and history; taste is trained by the more advanced study of languages, and still better by English literature; imagination by all higher language teaching, but chiefly by Greek and Latin poetry; observation by science work in the laboratory, though some training is to be got

from the earlier stages of Latin and Greek; for expression, Greek and Latin composition comes first and English composition next; for abstract reasoning, mathematics stands almost alone; for concrete reasoning, science comes first, then geometry; for social reasoning, the Greek and Roman historians and orators come first, and general history next.

Hence the narrowest education which can claim to be at all complete includes Latin, one modern language, some history, some English literature, and one science." There is much in the wording of this passage which is irrelevant to our point and which must be discounted to make it clear. The phraseology betrays the particular provincial tradition within which the author is writing. There is the unquestioned assumption of "faculties" to be trained, and a dominant interest in the ancient languages; there is comparative disregard of the earth on which men happen to live and the bodies they happen to carry around with them.

But with allowances made for these matters we find much in contemporary educational philosophy which parallels the fundamental notion of parceling out special values to segregated studies. Even when some one end is set up as a standard of value, like social efficiency or culture, it will often be found to be but a verbal heading under which a variety of disconnected factors are comprised. And although the general tendency is to allow a greater variety of values to a given study than does the passage quoted, yet the attempt to inventory a number of values attaching to each study and to state the amount of each value which the given study possesses emphasizes an implied educational disintegration.

As matter of fact, such schemes of values of studies are largely but unconscious justifications of the curriculum with which one is familiar. One accepts, for the most part, the studies of the existing course and then assigns values to them as a sufficient reason for their being taught. Mathematics is said to have, for example, disciplinary value in habituating the pupil to accuracy of statement and closeness of reasoning; it has utilitarian value in giving command of the arts of calculation involved in trade and the arts; culture value in its enlargement of the imagination in dealing with the most general relations of things; even religious value in its concept of the infinite and allied ideas.

But clearly mathematics does not accomplish such results, because it is endowed with miraculous potencies called values; it has these values if and when it accomplishes these results, and not otherwise. The statements may help a teacher to a larger vision of the possible results to be effected by instruction in mathematical topics. But unfortunately, the tendency is to treat the statement as indicating powers inherently residing in the subject, whether they operate or not, and thus to give it a rigid justification. If they do not operate, the blame is put not on the subject as taught, but on the indifference and recalcitrancy of pupils.

This attitude towards subjects is the obverse side of the conception of experience or life as a patchwork of independent interests which exist side by side and limit one another. Students of politics are familiar with a check and balance theory of the powers of government. There are supposed to be

independent separate functions, like the legislative, executive, judicial, administrative, and all goes well if each of these checks all the others and thus creates an ideal balance. There is a philosophy which might well be called the check and balance theory of experience. Life presents a diversity of interests.

Left to themselves, they tend to encroach on one another. The ideal is to prescribe a special territory for each till the whole ground of experience is covered, and then see to it each remains within its own boundaries. Politics, business, recreation, art, science, the learned professions, polite intercourse, leisure, represent such interests. Each of these ramifies into many branches: business into manual occupations, executive positions, bookkeeping, railroading, banking, agriculture, trade and commerce, *etc.*, and so with each of the others. An ideal education would then supply the means of meeting these separate and pigeon-holed interests. And when we look at the schools, it is easy to get the impression that they accept this view of the nature of adult life, and set for themselves the task of meeting its demands. Each interest is acknowledged as a kind of fixed institution to which something in the course of study must correspond. The course of study must then have some civics and history politically and patriotically viewed; some utilitarian studies; some science; some art; some provision for recreation; some moral education; and so on.

And it will be found that a large part of current agitation about schools is concerned with clamor and controversy about the due meed of recognition to be given to each of these interests, and with struggles to secure for each its due share in the course of study; or, if this does not seem feasible in the existing school system, then to secure a new and separate kind of schooling to meet the need. In the multitude of educations education is forgotten.

The obvious outcome is congestion of the course of study, overpressure and distraction of pupils, and a narrow specialization fatal to the very idea of education. But these bad results usually lead to more of the same sort of thing as a remedy. When it is perceived that after all the requirements of a full life experience are not met, the deficiency is not laid to the isolation and narrowness of the teaching of the existing subjects, and this recognition made the basis of reorganization of the system. No, the lack is something to be made up for by the introduction of still another study, or, if necessary, another kind of school. And as a rule those who object to the resulting overcrowding and consequent superficiality and distraction usually also have recourse to a merely quantitative criterion: the remedy is to cut off a great many studies as fads and frills, and return to the good old curriculum of the three R's in elementary education and the equally good and equally old-fashioned curriculum of the classics and mathematics in higher education.

The situation has, of course, its historic explanation. Various epochs of the past have had their own characteristic struggles and interests. Each of these great epochs has left behind itself a kind of cultural deposit, like a geologic stratum. These deposits have found their way into educational institutions in the form of studies, distinct courses of study, distinct types of schools. With the

rapid change of political, scientific, and economic interests in the last century, provision had to be made for new values. Though the older courses resisted, they have had at least in this country to retire their pretensions to a monopoly. They have not, however, been reorganized in content and aim; they have only been reduced in amount. The new studies, representing the new interests, have not been used to transform the method and aim of all instruction; they have been injected and added on. The result is a conglomerate, the cement of which consists in the mechanics of the school programme or time table.

This situation in education represents the divisions and separations which obtain in social life. The variety of interests which should mark any rich and balanced experience have been torn asunder and deposited in separate institutions with diverse and independent purposes and methods. Business is business, science is science, art is art, politics is politics, social intercourse is social intercourse, morals is morals, recreation is recreation, and so on. Each possesses a separate and independent province with its own peculiar aims and ways of proceeding.

Each contributes to the others only externally and accidentally. All of them together make up the whole of life by just apposition and addition. What does one expect from business save that it should furnish money, to be used in turn for making more money and for support of self and family, for buying books and pictures, tickets to concerts which may afford culture, and for paying taxes, charitable gifts and other things of social and ethical value? How unreasonable to expect that the pursuit of business should be itself a culture of the imagination, in breadth and refinement; that it should directly, and not through the money which it supplies, have social service for its animating principle and be conducted as an enterprise in behalf of social organization! The same thing is to be said, *mutatis mutandis*, of the pursuit of art or science or politics or religion. Each has become specialized not merely in its appliances and its demands upon time, but in its aim and animating spirit. Unconsciously, our course of studies and our theories of the educational values of studies reflect this division of interests.

The point at issue in a theory of educational value is then the unity or integrity of experience. How shall it be full and varied without losing unity of spirit? How shall it be one and yet not narrow and monotonous in its unity? Ultimately, the question of values and a standard of values is the moral question of the organization of the interests of life. Educationally, the question concerns that organization of schools, materials, and methods which will operate to achieve breadth and richness of experience.

7

Fundamental Principles of Elementary Education

Since the education is essentially craft centred, the choice of the craft may make all the difference between success and failure. We have already pointed out that the educational significance of a craft would depend largely on the place it occupies in the life of the community. Now we have to go a step further and indicate limitations which follow from overemphasis of any one craft. Basic education seeks not only to train the future citizen but to do so under conditions which are as close to life as possible.

It is therefore essential that the Basic school must reflect the life of the community. No community can survive, let alone flourish on any single craft. If therefore a Basic school is engrossed in only one craft, it would to that extent fail to reflect the many-steadiness of life. Spinning and weaving have often been regarded as the only crafts suitable for Basic schools. While the importance of spinning and weaving cannot be ignored, it has to be remembered that concentration on them to the exclusion of other crafts would violate a fundamental principle of Basic education.

ELEMENT OF BASIC EDUCATION

Nevertheless, Basic education introduced one new element in the concept of activity as related to schools. In Basic education, the activity chosen for the training of the child is a purposive, creative and socially useful activity. When a mother engages her child in some activity, she no doubt has a purpose, but the child need not be conscious of it. Nor is the child's activity in fact always creative

or useful. Similarly, the activities emphasized in the Schools of Europe and America do not take into considerations whether such activities have any social purpose or not. It is the addition of this element of social utility to the child's activity that differentiates Basic education from other types of activity-centred education. The emphasis on social utility and purpose is not accidental or fortuitous. Production is the backbone of organized human life, for society lives by its capacity to produce the goods needed by its members. The level of production can be sustained by the co-operative effect of all. Basic education in its emphasis on socially useful activity treats the child as a member of the community from the very beginning of his educational life.

While educational thinkers in India and outside increasingly stressed the value of activity and freedom, the system prevalent in India tended to become more and more book-centred.

Even in the case of children it became more and more an exercise of the memory than a development of intellect, emotions and character. Overmuch concern with books tended to divorce education from the realities of Indian life. It often drew the child away from his social and cultural milieu and encouraged in him a distaste, if not contempt, for manual labour. The result is that the child trained up in the traditional way tends to become dependent upon a particular type of employment. If opportunity does not offer in that particular direction, he often becomes helpless and hopeless. As a result an average educated man in India often lacks self-confidence and initiative and flounders hopelessly when confronted with a new and changing situation. Apart from its failure as preparations for life, the system is not satisfactory even from a purely educational point of view.

Instead of aiming at the balanced development of personality, it tends to place an undue emphasis on the intellect. The will and imagination are neglected and, of the different aspects of the intellect, a greater emphasis is placed on memory than on reasoning and judgement. The result is that even the intellect does not attain its full maturity. The child acquires information but does not grow up into an adult human being.

Gandhi reacted against the prevailing system the prevailing system of education even though he was himself its product. His revolt started from its educational inadequacy but gained in strength because of the economic and social implications of the alternative he had helped to evolve. It would, therefore, be well to point first to some important aspects in which Basic education marks a departure from the form of education which has been prevalent in India in recent times.

One fundamental defect of the traditional system is that instead of basing secondary and higher education on a well-planned and comprehensive system of elementary education, it has made secondary and primary education subsidiary and subservient to higher education. In a sense this was perhaps inevitable. It is only in the last hundred years or so that the State has recognized that the provision of a system of universal education is one of its obligations.

If this was so with national Governments, one could hardly expect an alien Government to provide such facilities for its subjects. The East India Company and later the British Crown were interested in introducing western education primarily for utilitarian ends. It was a means of training a sufficient number of Indians in English to make the task of administering the country easier. It is true that a band of Christian missionaries and enlightened Indian leaders had different aims. There also were in the Government itself men like Macaulay who held that contact with western sciences and political thought would benefit the Indian people. The main emphasis on education however remained utilitarian. In consequence elementary and secondary education were regarded mainly as stages preparing the pupils needed at the higher stage. It was also inevitable that in such a context the needs of the rural areas, where the vast majority of the Indian people live, should be largely ignored. Basic education is seeking to remedy the situation in both respects. It places a far greater emphasis on rural needs and seeks to serve as a completed stage of education for the average citizen.

Another defect from which the system which the British introduced suffered was that it was essentially an individualistic system. For a century or more, it emphasized the theme of competition rather than co-operation between individuals and societies.

PATTERN OF BASIC EDUCATION

Although there are local exceptions to the pattern of basic education in the rural areas of low-income countries sketched above, opportunities for basic learning are generally inadequate to help rural dwellers to break out of the poverty cycle. This lack of basic learning opportunities is both a contributing cause and an effect of rural poverty. It is part of what the International Fund for Agricultural Development calls the 'interlocking logjam' of disadvantages. Rural people are poorer partly because they are likelier to live in remote areas, to be unhealthy and illiterate, to have higher child/adult ratios and to work in insecure and low-productivity occupations.

They may also experience discrimination as members of ethnic minorities (IFAD, 2001). These several disadvantages tend to overlap (*e.g.*, poor, illiterate, malnourished women belonging to an ethnic minority in a remote rural area) and cumulate so as to reduce their access to education and any possibilities of escaping from poverty or helping their children to escape. Basic education by itself is unlikely to break this vicious circle, but it should be a key part of a rural poverty-reduction strategy. Given the oft-reiterated commitment of governments to reducing poverty, why is there not greater investment in basic education in rural areas? The main reason seems to be that developing country governments have other priorities that absorb their attention and resources.

Public expenditure patterns reveal that most countries' real priorities favour urban development rather than rural development. This reflects an understandable concern to deal with the many problems associated with the relentless process of urbanization, but it is also a response to the growing political

power of the urban population. “Where resources have to be divided between rural and urban spending on, for instance, health and education, outlay per head is normally less in reaching rural areas, even though rural people have lower initial health and literacy. So higher spending in rural areas should normally improve outcome more than higher spending in urban areas” (IFAD, 2001). Thus this urban bias in public expenditure is not only inequitable, it is not cost effective, nor does it contribute to a country’s sound, overall development.

The poverty and political weakness of rural populations are cited as main causes of rural neglect in a recent report issued by UNESCO’s International Research and Training Centre for Rural Education: “... governance in developing countries bypass [sic] the politically voiceless – those who suffer multiple deprivations on account of their income, ethnicity, gender, religion and because they live in rural areas ... The poor in general and religious, ethnic and cultural minorities, in particular, bear disproportionately the burden of deprivation from essential public services including education [...]. The facts clearly are that the social sectors, especially the priority items of human development and education for the politically inarticulate and invisible rural poor, have been crowded out from government budgets by such items as heavy military expenditures, keeping afloat loss-making public enterprises in urban areas, subsidies that do not often reach the poor and external and internal debt servicing” (INRULED, 2001).

Basic education thus suffers neglect for reasons that apply to all forms of social investment in rural areas, but there are also other reasons specific to its nature. As seen above, the vast, unmet basic learning needs in rural areas cannot be satisfied through schooling alone. Much effort and investment is needed to reach out-of-school children, adolescents and adults. Most developing countries make little provision in their education budget for such programmes, nor do they have the administrative capacity to manage them. Although the 1990 World Conference on Education for All stressed the importance of providing basic education for all children, *youth and adults*, governments (and donors) have tended to focus exclusively on universalizing primary education– an ambitious goal in itself. Consequently, the provision of basic education for youth and adults, as well as out-of-school children, has been left largely to NGO and private initiatives.

Even when government recognizes the imperative need to invest more in rural areas, it must sort through many competing demands and fix reasonable priorities. For some countries, prior disappointing experiences with agricultural education and with adult literacy campaigns raise legitimate questions about how best to proceed.

For instance, how can primary school curricula be made relevant to local needs and conditions? What kind of adult basic education programmes will be most effective? Attempting to deal with these issues through a centralized education bureaucracy is fraught with problems and few governments have so far found a formula that allows sufficient flexibility and accountability. Meanwhile, indecision and hesitant initiatives prevent any serious increase in

resources allocated to basic education in rural areas. Finally, the very enormity of the needs in rural areas may have sometimes discouraged investment. According to one analysis, the generally dismal picture of education in rural areas tends to reinforce a 'deficit view' that lowers expectations, overlooks options, and reduces enthusiasm among those who could initiate and carry out improvements (World Bank, 2000a: 5). The question for them becomes: Why invest scarce resources in a less promising, if not hopeless, part of the education system? However, the next section examines a number of positive experiences that suggest that this 'deficit view' is unduly pessimistic.

LEARNING OF BASIC EDUCATION

Concentration on one craft is inconsistent with the spirit of Basic education in another way. In formal and academic teaching a prescribed syllabus is binding on the pupils as well as the teacher. Schools are more concerned with completing the syllabus before the date of the examination than with preparing future citizens of the State.

Basic education claims that learning through activity gives a wide freedom to both the teacher and the taught. This cannot however be ensured in the absence of alternative crafts. Restriction to one craft means that teachers and children with different tastes and abilities have no freedom of choice. Alternative crafts are thus necessary for three reasons. Multiple crafts tend to reflect something of many-sidedness of life. Different crafts meet the requirements of children and teachers with different abilities. Still more important the presence of alternative crafts given to the child a sense of freedom of choice.

The above discussion should make it clear that, on educational considerations alone, there is an unmistakable case for the gradual conversion of all existing elementary school into Basic schools. The educational argument is given added strength by the economic situation in India. Gandhi was attracted to the system as much by its educational value as by his feeling that its introduction may well be the only means to make education accessible to all. Our present economic backwardness cannot be denied. Any system which is expensive would therefore have to be ruled out in our present context however desirable it may otherwise be. Basic education by its emphasis on craft aims to make education at least partly self-supporting.

THEORY AND PRACTICE OF BASIC EDUCATION

A national system of education is always the reflection of a national system of ideals. One can in act go further and say that education is shaped by and in turn shapes the life-purposes of individuals and groups. This applies not only to human beings but also to what we tend to regard as the lower order of creation. Thus the young of animals prepare themselves for future life by imitating the actions of the adults. In the case of man such imitation is a conscious process of

training for fulfilling the responsibilities of adult life. It is this consciousness of purpose that distinguishes human systems of education from the unreflective acquisition of habits and skills in animal life. Changes in the environment require changes in the response of the individual if the species is to survive. Wherever members of a species fail to modify their reactions in response to variations in the stimuli that species is set on the way to extinction. The story of evolution is a record of the continuous effort at improving adaptation to the environment. Human beings have however reached a stage where they are no longer content merely to respond to the environment: they now seek to adapt the environment to their own needs.

Since conscious purposes govern a continually expanding area of human activity, any change in social objectives demands and is invariably accompanied by a change in the system of education. Like other social reformers, Mahatma Gandhi knew that without reform in education he could not attain his social objectives.

The quality of a society depends on the quality of its members. Improvement of the individual through education is thus the only means to achieve an improved type of society. The recognition that the citizen of the future can be best moulded during the first and formative years of his life led Gandhi to formulate his conception of Basic education as the means to achieve a co-operative commonwealth of men. In his own words, 'The principal idea is to impart the whole education of the body and the mind and the soul through the handicraft that is taught to the children. You have to draw out all that is in the child through teaching all the processes of the handicraft and all your lessons in history, geography and arithmetic will be related to the craft.' The human individual is essentially a social being and must live in a community.

Basic education treats the child as a member of a co-operative group. The school is an epitome of society and in fact each class is a miniature society. The recognition of the school as a community thus offers the most suitable atmosphere for training in citizenship. The children are taught to feel as members of one community and as such, responsible to and for one another. Duties to others are as important as one's own rights. Basic education therefore seeks to correct the modern tendency to loosen family and social ties in the name of individual liberty. Overemphasis on rights leads to a distortion of the human personality. The effect of such distorting is seen in maladjusted individuals and divided societies. Gandhi felt strongly that education must reintegrate the individual and develop him as a member of a living society.

EDUCATIONAL PSYCHOLOGISTS

As a unit of a co-operative group, all activities of the child have a social content. Basic education is based on recognition of this fact and aims to make such recognition a part of the mental make-up of the growing children. Not only are all school activities organized in group but they are such as have an immediate social utility. The aim is to inoculate in the child a spirit of co-

operation and a sense of responsibility from the very beginning. All educational psychologists agree the child can learn more quickly through active participation in a process than by passive reception of instruction given by a teacher. A child loves to do things. By nature he is active and his restlessness is only an expression of his abundant energy. It is an imposition on him to make him sit silently and without movement for long periods, as so often happens in a traditional school. Except when his interest is engrossed in what he is told, for example when he listens to a fairy tale or a story of adventure, he likes to talk or do things himself.

In a very real sense, this is no new discovery. Even without the explicit formulation of a theory of activity, activity has in fact formed part of children's education from time immemorial. The youngest of mothers very soon discovers that the only way of dealing with children is to give them something to do, for this develops their skill while keeping them happy. The extension of this maternal wisdom to the field of formal education may have been tardy, but nevertheless such extension has taken place. Since at least the latter half of the last century, education has tended to become more and more activity-centered in both Europe and America. Some fifty years ago, Tagore began his great experiment in education by stressing the importance of freedom and activity for the child. If emphasis on activity is regarded as the essence of Basic education, it has to be admitted that its basic principle is not new even to India.

THE ECONOMICS OF BASIC EDUCATION

The products of the children's labour have social utility and can, therefore, be absorbed in the social economy. For various reasons the best utilization of such products is in the school itself. If part of the food and clothing of the teachers and the pupils can be met from the products of their labour one big item in the educational budget of the nation would automatically be met. Further, it would give both pupils and teachers an added incentive and a sense of fulfillment if they find the results of their labour coming back to them. If after meeting these requirements of pupils and teachers there is still some surplus, it could be utilized for meeting some unserviceable school expenses. The economics of Basic education has to be carefully worked out, not only to test its claim that it makes a system of national education feasible, but even more to ensure that its educational value is not impaired.

Over-emphasis on production carries with it the risk that the school may be turned into a factory exploiting child labour. The risk is made greater by the fact that Basic education makes far greater demands on the teacher than the traditional school. We have indicated how Basic education eases the burden on the pupil by bringing greater variety into school work and breaking the monotony of reading and writing by intervals of productive labour. Liberation of the pupils from a prescribed syllabus however places on the teacher the task of co-ordinating all school activities. This imposes on him a constant strain, for he has continually to find solutions to problems as they arise. The traditional teacher can fall back on a set routine but the teacher in a Basic school has no

such easy way out. So long as Basic education is carried out by a body of devoted pioneers, there is not much risk in this. When, however, the system expands and the early missionaries are replaced by professional men, not all of whom can be expected to have a sense of dedication to the work, there will be a real risk that the teachers may concentrate on those aspects of Basic education where success or failure can be easily measured. Since the creative aspects of education are intangible and cannot be measured, the spread of Basic education involves a distinct risk that teachers may fall back on increase of production as the only measure of their success. To find out if a school has produced a prescribed quantum of goods is simple. It is not so easy to judge whether it has developed the character of the pupils and given them an appreciation of the values of life.

It is of course clear that in the first two or three years, the goods produced by the children can have little economic value. As the children grow up and acquire greater skill, the goods they turn out should improve in quality. Insistence on standards is necessary as a part of education. If the children are properly trained and do their work with skill, care and conscientiousness, there is no reason why the products should be unsatisfactory or shoddy. If a thing is to be done at all it ought to be done well. There is no overture in amateurishness or lack of skill. Production of goods of good quality is therefore part of the training children must receive in schools.

It cannot however be stressed too strongly that the school is a centre for training citizens of the future and *not* a factory for turning out goods for current consumption. The craft on which education is centred should draw out the abilities of the child and make him realize the organic nature of society through its correlation with other subjects. Some of the goods produced by the child should and will be saleable, but there should be no attempt to make saleability the sole criterion of his work.

It ought to be remembered that even a child of fourteen or fifteen is at best an apprentice. Any attempt to make him a skilled artisan at that age can be successful only if standards are kept low. From the point of view of the community, it is better that an adolescent should be a half-trained technician of promise than a finished craftsman of a low order.

One other consideration should be kept in mind in discussing this question. The training itself will differ according to the end in view.

If the aim is to increase production, the trainer will concentrate on increasing the skill of the trainee. This can be done best by breaking up the process of production into various stages and making each trainee specialize in one particular item. If the aim is the education of the child, the teacher will, as soon as it has acquired a fair degree of skill in one, transfer it to a new item in the process of production. If a school of carpentry seeks to produce a larger number of chairs, every pupil in the school will specialize on one particular item in the production of chairs.

VALUE BASED EDUCATION

The word for 'Education' in many Indian languages is vidya. The root vid, from which vidya is derived, represents a homology meaning, 'to know' and 'to exist' from which words like vidwan are derived nanya pantha vidyate anyanaya. Thus, the word vidya translated into English means 'To learn is to exists', 'Existence is knowledge or learning to be'. Every living organism is prewired for the capacity to learn, to remember and experience. Therefore, neither can there be life without education nor can there be education divorced form life.

Vidya becomes a-vidya when education initiates a process where wisdom is lost in knowledge and knowledge in information, where materialism divorced from spiritualism seeks pleasure and comfort which distort perception of reality and where complete lack or distorted vision of inter-connectedness leads to alienation, isolation and anomie. When this happens, one's responsibility to oneself, to one's neighbours, country and the world becomes the premium.

Melvin J. Lasky, in his book Utopia and Revolution points out how utopia ends in revolution, revolution turns into dogma, dogma provokes heresay which in turn triggers revolution. This cycle enslaves the minds of intellectuals in such a way that they become victims of a new cycle. In the words of Nietzsche ".....life no longer resides in the whole. The word becomes sovereign and leaps out of the page, and the page comes to life at the expense of whole, the whole is no longer a whole".

In ancient India, life was measured in terms of fullness. Since fullness is such a concept that the product of all the four mathematical operations is fullness there was no space for emptyness, isolation and alienation when Vasudhaiva Kutumbakam and Yadum ure yavarum Ke ½ir "the world is my village and every person my kinsman", how can one become lonely? When God is so pervasive that one can accept and surrender, reject and deny, or doubt and question, how can one escape God? Thus, God being a presence even in refusal and rejection, a person cannot, but be aware of interconnectedness, environmental, social and cosmic, value education must, therefore, begin with awareness of one's connection with the immediate eco-culture, with fellow beings in society and with cosmic laws and forces which bind the particular with the universal. The creative interdependence among the three has become all the more essential in face of modern science and technology, which is based on the triple principles of self destructive competition, materialistic acquisition and emphasis on commodity values.

Rabindranath Tagore made a distinction between Mukhos 'mask' and Mukhashree 'natural glow of the face'. That distinction is all the more important to remember today, when education tends to teach the use of mask rather than helping the natural inner glow to be reflected. School is not an extension of home, it has become either a substitution or rejection of home. The school does not treat the child as a resource. The child is treated as an object to be fashioned in the image of the elders by knowing textbook lessons doing social work pre-determined by curriculum makers. There is no effort at relating knowing and

doing with being and becoming. That explains why modernity is not rooted in tradition and seeking of status and affluence through grossly improper measures of excellence gets precedence over professional excellence and idealism to fight against untruth, injustice and inequality or to seek the causes of all of these.

The denial of the child and the refusal to treat the child as an independent layer of social science concern finds expression in the rejection of the child's home language in formal schooling. The teacher's lack of cognition of the processes of language acquisition and processes of reading and writing on the one hand and the teacher's belief that there is a single standard and correct form of language is responsible for this rejection. The dialects and the minority languages are also rejected on this count. Whether it is the child or the non-standard 'dialect' speaker, (s)he is not perceived as a human being, but a human becoming. With the waves of educational theories since World War II, the focus of concern has moved like a pendulum from the subject matter to the child and vice versa, but the medium has been taken for granted.

That is why curricular reform has meant change in textbooks and methods of approaching them, but has seldom concerned itself with modes of language use, communicability of languages used in textbooks and linkage between home language and school language on the one hand and first, second and further language on the other.

Intellect, emotion and will are the basic faculties of human psyche and all three are integrally related to language development. By rejecting, suppressing, supplanting, or denigrating the mother tongue, not only creativity and innovativeness is curbed, but the resultant intellectual mediocrity and emotional sterility distorts the perception of life as an integrated whole. Take for example English medium education for Indian language speaking children. Lack of words in English for the familiar flowers, fruits, plants, trees, birds, beasts, rains, winds results in an imbalanced relation between the child and the environment. Neutralisation of the three dimensional kin terms by terms like uncle, aunt and cousin result in distortion in the perception of societal relations. Lack of transmission of the myths and other cultural symbols leads to the creation of cultural perception blind spots which affect appreciation of literature, plastic and performing arts and architecture which use such myths and symbols. All these lead to disintegration of society and culture. All these erodes the values the culture holds high.

Value is not mask to be worn, but is a glow permeating culture. It is manifested in the personal, societal, psychological, cultural, educational, economic and political behaviour. As the seminar on the New Education Policy and Moral Education convened by the Bharatiya Vidya Bhavan, rightly observes, "A society wallowing in luxury, conspicuous consumption, obscenity, dissipation, corruption, disparities, exploitation, rivalries, hatred and violence can never achieve any real progress howsoever vast and well planned the efforts of Government may be for its economic development." It is unfortunate that neither social scientists nor agencies engaged in the study of development have

undertaken trend measurement is respect of values among the youth both in school and out of school. Let me share with you my perception of changes in values which have taken place during my life time. When I was young, money was not the defining criteria of success and respectability. Family tradition was a major factor. A Complex set of factors explained respectability of family and cut across castes and class. Joint family was still the norm and naturally family ties were cohesive and dense which absorbed a lot of socio-economic shock and tension. Marriage was arranged by the family, where informally the son or daughter's consent was obtained, family traditions were checked and the whole society participated in celebrations. There was a work ethic. A person who did not work was criticised. Today a person who works is criticised. We were then told that, early to bed and early to rise, keeps a man healthy, wealthy and wise. The present day youth addicted to late night TV shows or nocturnal violence wakes up late from an alcoholic slumber. For him/her to be lazy, corrupt and inefficient is to be healthy, wealthy and wise.

In my young days, a person who did not take loan was respected. Now a person who does not take loan is considered foolish and one who gets away with the loan is considered clever. There has been a movement towards "deauthoritisation" as a result of which there is lessening of obedience to authority of law, the police, the government, the principal in an educational institution and the boss in a work situation. In my young days a sense of patriotism led us to movement of disobedience to an alien authority.

The present trend appears to have no respect of the traditional concept of patriotism. The un-critical acceptance of Marxian dogma that labour has no country and the capitalist dogma that capital has no country has made the Indian intellectuals rootless and abettors of ruthless exploitation. Uncritical acceptance of liberalised sex modes without reference to the individual and social values has created a class of people who are neither Indian nor Western.

The present day Indian youth is taught in a dilemma. Their values are not a synthesis between what is good in traditional and in modern values, but an antithesis of traditional values. It is primarily due to ignorance of tradition and its distorted representation as seen through Western eyes.

Ideologically, they are opposed to a purely economic society bound in daily routines and which has no care for others, but practically they seek security in money which leads them to support an underling society. Neither organized religion nor organized schooling has been able to present a synthesis of life which would help deal with opposites and steer a course which would make a person to be Indian as well as universal without losing many identities which link the local with the universal.

In the past Hinduism was a cover term for all those who practised their own religion, without disrespect for other religions. Thus Hinduism encompasses monism, dualism, triad, transcendentalism, immanence, worship of 23 millions of gods including nature, idea and object gods as well as those challenging the existence of god. This was not a religion in the narrow sense of the term, but

Dharma which binds together apparently disparate elements. In a single thread by which one perceived one self as a part of cosmic whole. Unless the core value of respect for different is emphasized in all disciplines and in all modes of behaviour, the thirst of Western values incompatible with the India, will continue to erode the value base of the Indian society and threaten its very existence. At the time of doubt and despair, Buddha's message to his discipline, was Attadipo bhava. This has been variously translated as "make yourself a light" and 'look inwards of light', At a time when we are uncertain and afraid of our own identities and confused about the road to take, there is greater need to emphasize an integrated life and value based education. Therefore, all of us, young and old, who are victims of identity crisis, disbelief, dismay, and resultant paralysis of thought and action join together in involving the cosmic principle.

PREVALENT SYSTEM OF BASIC EDUCATION

This was not surprising, for like the educational philosophy which guided Britain during the nineteenth century, it was based on a misunderstanding of the theory of evolution. Though co-operation is at least as important for survival as competition there was a tendency to interpret evolution in terms of the struggle for existence among individuals and groups. The educational system of the day reflected this tendency and encouraged in the individual a desire to get on without regard to the general interest. Adherents of this philosophy believed that the general interest would be somehow served if each individual pursued his own ends. Basic education also differs from the prevalent system in its emphasis on the performance of concrete tasks and the joy which is its accompaniment. Traditional education, particularly in the hands of unsatisfactory teachers, tends to reduce all instruction to an intellectual drill. Because of its abstract nature the contents are often unintelligible and therefore uninteresting to the pupils.

They do not understand what they are taught and fall back on mechanical memorizing. Information remains so much dead matter and does not become part of the texture of living thought. Since the child does not see the purpose of the education he receives, he remains passive and in many cases, an unwilling subject who submits to, rather than receives, education. As opposed to this, in education centred round a craft, a child has immediate experience of the results of his labour.

The product of the craft is to him a physical symbol of success and gives him a sense of achievement. Artists and scientists know that there is no greater pleasure in life than that which follows the successful accomplishment of a self-imposed task. Though in a lower key, children in Basic schools have a sense of similar exhilaration when they see the product of their own labour.

By its emphasis on manual work, Basic education is helping to break down another barrier which has long divided Indian society. In origin, the caste system may be traced to the need for the division of labour. It is also true that at one stage it was functional and had a large degree of flexibility. This was however soon lost and the ossification of caste led to a sharp division between intellectual

and manual labour. In course of time, manual labour acquired an element of social stigma. The impact of the British did not help to break down this repugnance to manual about. The class consciousness of the British was added to the caste consciousness of the Indians and created a situation where the gap between defloration social state become even more right than before. Simultaneously, economic and political conditions were creating a situation where such inequality could not last.

Nevertheless, the pressing attached to the so-called intellectual classes persisted. It was inevitable that in such a context, the system of education prevailing in India should become essentially bookish and literary. By its close correlation of instruction with manual labour and physical activities, Basic education is helping to break down the repugnance to manual work and inculcating in the minds of children a recognition of the dignity of labour. The concentration of socially useful work has yielded good dividends in other respects as well.

The children are engaged in crafts which lead to the production of material goods. The result of their labour is thus seen by them almost immediately. By giving them the satisfaction of tangible achievement, it serves to increase their self-confidence. It is common knowledge that confidence leads to enhancement of ability. Besides, the performance of tasks in co-operation with their fellow develops in the children a sense of social responsibility.

Responsibility brings with it a sense of discipline, not imposed from above but evolved in the pursuit of their work. That children in Basic schools often display greater self-confidence and sense of discipline than children in ordinary schools is, therefore, not accidental. So far as innate qualities go, there is no reason why there should be any difference between children in the two types of schools. They all come from the same community with more or less the same social background. The only difference is in the atmosphere of the school and the method of teaching. In one case, the children are subject to discipline imposed from above. In the other, they are given freedom of activity within the limits prescribed by the schools. The fact that children in the traditional schools are all the time recipients and not contributors to society, while children in the Basic school are producers and conscious of the fact, can alone to explain the difference in their deportment.

Of the various criticisms levelled against the traditional system, one of the most valid is that school subjects are chosen at random and often have no intelligible relation to one another. Thus a child may study history and mechanics and a classical language without any idea even on the part of the teacher as to why these particular subjects have been chosen. Basic education seeks to correct this effect by establishing an organic correlation between the different school subjects by drawing out their implications in relation to a selected craft.

In a sense, the idea of correlation is also not new. Educationists belonging to the most divergent schools have stressed the need of co-ordination in studies in order to develop the unity of mental life. Life of the individual is a constant adjustment between different functions and claims. Such adjustments cannot

be made unless the different activities can be correlated to one another. It is essential that the child should be trained to correlate and co-ordinate his interests from early days. Basic education thus follows a sound education principle in emphasizing the correlation between different school activities.

EXPANSION OF BASIC EDUCATION

If on the other hand the aim is to turn out good and skilled carpenters, every pupil will be made to go through every stage of carpentry. There is bound to be some loss in productive efficiency by such transfers but it would be more than compensated by the enlargement of the experience and the enrichment of the personality of the pupil. It cannot be emphasized too strongly that production in a Basic school is essentially a by-product. While any income derived from the sale or utilization of such products is welcome, it contained should not be expected to contribute more than a very small share towards the nation's educational budget.

The expansion of Basic education and the induction of large numbers of teachers without the missionary spirit make it necessary to devise safeguards against the conscious or unconscious exploitation of children by overzealous or pedestrian teachers. A teacher with vision and imagination can make the children do great deeds but there is a risk that the routine teacher may seek to emulate his example by forcing the children beyond their capacity. Some kind of a limit may, therefore, be set to measure the volume of work expected of children. Careful and extensive experiments are necessary before this can be done and in any case, such limits must be flexible and vary according to the nature of the institution and the craft.

Some who have considerable experience of Basic schools hold that it would be enough if the cost of the raw material utilized for crafts is recovered, but this does not seem adequate. The longest experience of Basic education is available in Bihar. Some of the schools there have recovered as much as fifty per cent. Or more of the total expense of the school, but for various reasons, it is doubtful if the experience of these pioneer institutions can be repeated elsewhere. Many Bihar schools have however earned double the amount spent on purchase of raw material for the craft and this seems a reasonable demand. On many perhaps say that at least twice the cost of the raw material used plus the depreciation of the equipment ought to be recovered from the work done by the teacher and the pupils. If this is not done, it would be a reflection on the efficiency of the teacher. Similarly, an upper limit might be fixed at about twenty to thirty per cent, of the expenses of the school. There would be a strong presumption that if this limit is exceeded, the teacher is placing greater emphasis on the productive than on the educational aspects of the craft.

The Central Advisory Board of Education has considered this problem in some detail. It has heard the views of those who stated with the claim that the school should and can be completely self-supporting, but on being pressed conceded that it would be enough if the children learnt to be self-reliant in all

things. The Board after careful consideration declined to prescribe any fixed proportions of recover and contented itself by recommending that equal attention should be paid to the academic and the productive aspects of Basic education if the system is to succeed.

Over-emphasis on the productive aspect of craft is thus a danger which basic education must avoid. This does not however imply any criticism against the system as such, for there is no system in the world which cannot be abused. The provision of multiple crafts has a special importance from this point of view as well. Many crafts will mean greater diversity for both pupils and teachers and help to emphasize the educative rather than the economic aspects of Basic education.

At the same time, it would in the long run contribute to the economic betterment of the country. Multiplication of crafts is particularly needed in a country like India which suffers from widespread poverty. Basic schools with multiple crafts would create the foundation for the expansion of industry and trade. The experience of Soviet Russia in the early days justifies such a hope. The progress of universal education received a great impetus when education was built round different crafts. Children as well as adolescents were offered the prospect of improving their skill and earning capacity. This was the first step towards polytechnization of schools and polytechnization supplied the foundation on which industrialization and development of Soviet Russia has been built. The spread of Basic education may well be the beginning of such polytechnization for India.

Freedom and organization are the two principles that ensure not only the progress but the very survival of society. A spirit of freedom and of loyalty to the organization must therefore be inculcated in the child from the beginning of his conscious life. That is why the Basic school has as one of its foremost aims the development of spontaneity and social sense in the child. Spontaneity leads to the flowering of all the faculties of the child. Social sense gives him a sense of responsibility and makes him aware of himself as a productive agent in society. The system of class ministers and executives develops initiative and the sense of repressibility. Corporate activities emphasize the value of co-operation. Together, they make education real to the children, for they feel that they are members of a community. In our prevalent types of education, the child is *told about* society and what he ought to do. In basic education, the child is made to *live as* member of the community. One is verbal instruction and therefore twice removed from life. The other is actual participation in the life of the community and therefore direct training in citizenship.

A Basic school should therefore be an example of democracy in action. Whether this idea is achieved depends largely on the quality of the teacher. Like all democracies, the school community can function effectively only if there is intelligent and adequate leadership. I have already indicated that with its freedom from textbooks and a prescribed syllabus, Basic schools make great demands upon the teacher. I have seen Basic schools where there were attempts

to correlate the teaching of physics or chemistry to the craft of spinning, but the children had no idea of the area or size of the classroom, or even of their own weight and height. I have seen other Basic schools where learning was one continuous and exciting adventure of discovery of the environment by the children. In any system, it is ultimately the teacher who matters, and in the Basic school he matters even more than in the ordinary school. Happiness is in a sense the end of all human activity. In fact some psychologists have defined happiness as the satisfactory performance of a function.

The imposition of books and dead routine has caused much misery to children by enforcing prolonged periods of inactivity. Basic education seeks to remove this by offering the child an opportunity of free and spontaneous but purposive and useful activity. The introduction of crafts makes the school more vital and interesting to the child and breaks the monotony of merely academic or literary work. If, however, too great an emphasis is placed on making the schools economically self-sufficient, the craft may become for the children a wearisome burden rather than a pleasurable creative activity.

National programmes of education in almost all countries seek to make learning a joyful process. Efforts are constantly made to lessen the fatigue and monotony and to increase the interest of pupils. This healthy tendency must be encouraged by every means in India. It is the more necessary to emphasize this point in the Indian context, as we often have a tendency to exalt suffering for its own sake. Asceticism has always had a strong appeal to many Indians. Persons with a strong sense of idealism feel that to give up pleasure for the sake of their cause is the test of their sincerity. Suffering for the sake of an ideal may ennoble a person, but we must remember that suffering in itself has no value and can be justified only as a means to an end. Among some teachers in Basic schools there is a tendency to exalt suffering or austerity for its own sake. Unless such tendencies are checked, there is a danger that Basic education, instead of being a great release of the creative urges of the younger generation, may become a check and a deterrent.

Basic education truly understood liberates the child from monotony and boredom by combining mental and physical work and making academic subjects grow out of the activities of a craft. It seeks to create an atmosphere of freedom and joy in the school. Basic education is therefore good for the child, for it helps him to develop his personality through freely chosen and self-initiated activities. What is good for the child is good for society as well. One advantage to society has already been pointed out. By meeting at least in part the expenses for a national system of universal education, Basic education helps to make education accessible to all. It also helps to overcome the objections of those who seek to judge all human activities in terms of social utility. All agree that education is productive in the long run, but the short-term difficulties often prevent the realization of the long-term gains. Judicious investment no doubt yields profit but what is one to do if there is no capital to invest. It so to this question that Basic education attempts an answer. Basic schools seek to prove

that education need not be an investment yielding only indirect and distant profits, but one in which the returns can be direct and immediate. One final work of caution is necessary before this study is concluded. From the nature of the case, the change-over from the traditional to the Basic pattern of education must be gradual. The conversion of over two hundred thousand school and retraining of almost a million teachers must necessarily be spread over many years. Since the two systems will have to continue side by side during this transitional period, it is necessary to ensure that there is no antagonism between them. We should not therefore encourage the idea that the conversion means a violent break with the past. We should rather look upon it as a reassertion of certain old values which for various reasons had been forgotten or ignored. That young children should be trained through activity, that all school subjects should be taught in an integrated manner and that education should be purposive and self-evident truths. All good educationists have recognized these principles in practice even though they may not have always formulated them as explicit theories. Nevertheless, the conscious acceptance of these principles is of sufficient importance to make the Indian decision to convert elementary education to the Basic pattern one of evolutionary significance.

BASIC PRINCIPLES OF EDUCATION

Basic principles of education encompass fundamental concepts and theoretical frameworks that underpin teaching, learning, and educational practice. These principles provide a foundational understanding of the goals, methods, and processes involved in education, guiding educators, policymakers, and stakeholders in shaping educational systems and practices. Key principles include an appreciation for the diversity of learners and the importance of equity and inclusion in education. Recognizing individual differences in abilities, backgrounds, and learning styles, educators strive to create inclusive learning environments that cater to the needs of all students, fostering their intellectual, social, and emotional development. Moreover, basic principles of education emphasize the importance of learner-centered approaches, where the needs, interests, and experiences of students are central to the design and implementation of instruction. By engaging students actively in the learning process, educators can promote curiosity, critical thinking, and lifelong learning skills. Additionally, principles of education highlight the significance of collaboration and communication in educational settings, emphasizing the value of partnerships between educators, students, families, and communities in supporting student success and well-being. Through collaboration, educators can leverage diverse perspectives and resources to enhance teaching and learning experiences, address challenges, and promote positive outcomes for all learners. The book on Basic Principles of Education offers a comprehensive exploration of foundational concepts and theoretical frameworks essential for understanding the dynamics of teaching, learning, and educational practice.



Dr. Ritu Bala is a distinguished academician with a strong foundation in Zoology, having earned her M.Sc. from Maharaja Ganga Singh University, Bikaner (Rajasthan). Her educational journey also includes B.Ed. and M.Ed. degrees from the University of Rajasthan, Jaipur, showcasing her dedication to a well-rounded academic background. Driven by her passion for research, she successfully obtained a Ph.D. in Education from Rajasthan University, Jaipur (Rajasthan). Currently serving as a Professor in the Faculty of Education at Tantiya University, Sri Ganganagar (Rajasthan), Dr. Ritu Bala is a beacon of knowledge and expertise in her field. Her commitment to research is

evidenced by her impressive portfolio of more than twenty-two (22) research papers published in esteemed national journals, underlining her substantial contributions to the academic community. Furthermore, she has been an active participant in over twenty (20) International/National Seminars, where she has presented her research findings and shared valuable insights. With over eighteen (18) years of teaching experience, Prof. Dr. Ritu Bala has played a pivotal role in shaping the educational landscape. Her remarkable guidance has culminated in 19 students being awarded Ph.D.s in Education, further solidifying her status as a mentor and educator of distinction.



Dr. Meetu Sharma, an educationist, spiritual guru and a philanthropist has over 30 years of experience in the field of education and more than 20 years of association with Art of living organisation. Her educational journey encompasses prominent degrees- Bachelors and Masters degree in Science with a specialization in Zoology complimented by MA in Education and Ph.D Education from Tantiya University. With a proven track record of academic excellence and a passion for fostering holistic learning, she laid the foundation and is the principal to the prestigious Blooming Dales International School. Not only this, currently she is acting as a senior teacher

coordinator for Rajasthan state under the Art of Living Organisation. She is the holder of Assistant Director Commissioner, position in Scouts and guide. Under her distinctive leadership and guidance, BDIS has reached spectacular heights and has achieved various landmarks of which happiness and a peaceful meditative mind is a priority. The focus is not just to excel in academics but also to be a good human being. Many prestigious organisations have awarded and recognised her efforts. She is the recipient of best academician award by WEBCOM, Govt of West Bengal; Best principal awardee by ALLEEN, SOF, Edu World, Brainfeed, Education Today, GSLC and many more. She has also received various honorary awards from Rotract Club, Rotary club, lions club, Maheshwari samaj, RSV samaj, Worthy wellness, foundation and Bharat Vikas Parishad and many more are added to the list. Her recent & profound achievement is to be blessed as a Sehaj Teacher. Another gem in the crown of accomplishment is to be The Intuition Trainer. This program taps into the intuitive abilities of the mind that would "Revolutionise Education". It would prompt the practitioners towards new discoveries and innovations.



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