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Introduction

Teacher education is considered universally as the key input to quality education. Absence of professionally qualified persons leads to mediocre teaching and learning becomes a nightmare for the child. Unqualified teachers find themselves unable to contend with the dilemma of organizing their teaching effectively to motivate children achieve the required competencies and move up the higher grades ladder. When this does not happen the tendency is for children drop out early from the school, perhaps having gained little or nothing from their stay. Such trends increase the cost of education by wasting scarce resources. The latter becomes a burden on the exchequers of the developing countries. More important is the loss of human resources potential which is left untapped. The quality of life of the people suffers as a consequence and is reflected in later years. The significance of the teaching learning process at the classroom level and the importance of teacher education must be underscored among the important national issues. This is truer in the developing countries. Yet despite these glaring roadblocks to education in developing countries, there is no area of education that is as maligned as Teacher Education. Student performances and achievements are always gauged in the same vein as the quality of teaching and instruction students receive from their teachers. Subsidiary factors of student achievement such home background, peer influence, and personal motivation is all submerged in a sea of emotions by parents, the community and policy makers. It is little surprising, therefore, that Teacher Education becomes a pariah among other professions. To complicate the situation further, the current status of Teacher Education seemed to have reached a cul-de-sac in those years of teaching the same methodologies in the same way and yielding the same results have led to a state in the discipline. In attempts to move forward a little bit, researchers have been at pains to explore exotic strategies of enriching Teacher Education to make teaching and learning more purposeful for the students. This paper explores some of these strategies, particularly with regards to the millennium generation of teacher educators and students.

Teacher Education in Developing Countries

The usual practice of taking a short cut to development by education policy planners in developing countries to adopt or adapt a specific educational policy to the local circumstances. The 1960s and 1970s were the era of curriculum development all over the world which saw the world-wide scale adoption/adaptation of curricular materials in Sciences in many developing countries. Most of these curricula, and their corresponding methods of delivery, were taken from alien cultures of Europe and North America. However, when teacher education follows alien models and theories it can result in anomalies in the education system. Theories developed elsewhere, based on experiments carried out in the western world, both in psychology and education, form the basis of teacher education in developing countries. Due to a lack of resources for basic research, it is rare that learning theories and practices are developed in these countries based on local issues. Hence problems occur at the classroom level, for both the teacher, who has a mono-delivery system, and the student, who has his own ways of learning. This clash of understanding between the teacher and the student seems to be the order of the day. Teachers rarely or never realize the issues related to the problems of the child. The only option for the student is to leave the formal system.

Thus irrelevant teaching breeds discontent and frustration and children who complete primary school seem to be less creative members of the community than if they had never been to school. They form part of the 'schooled illiterates'. In most situations, the principal and the teacher do not reflect on these issues as there seems to be no dearth of students in the school,

which is always full. As they follow 'maintenance management', i.e. managing the status quo, and never venture to undertake innovations, the issues related to quality of learning and understanding of the individual needs of the child becomes secondary or is even forgotten. Lack of focus of the teacher on issues that affect the learning process of the child beyond the classroom, is another fatal characteristic of these teachers. In general education programs have universal norms and approaches but these have to be suitably adjusted to local needs. When programs are not conceptualized these tend to obstruct the development process of a nation. Such programs tend to turn out misfits. The cycles/years of schooling, evaluation systems, teacher education programs, psychological theories are some of the areas where conceptualization becomes important. What has been developed elsewhere, per se, may be irrelevant. It has to be rationally critiqued and adapted. Education systems are subject to many criticisms and invariably blamed for all the problems of a country. Teacher education, which is at the bottom line, faces the brunt of these criticisms, indicating the vital role of the teacher and the responsibility imposed shown upon them by society.

Teaching the Teachers

In many countries, children are in large classes and many teachers are untrained. Many African children still do not go to school. If all children are to be in school and get a better education by 2015, far more teachers will be needed. Not enough have been produced by conventional teachers' colleges. Nearly ten years ago, UNESCO forecast that Africa needed to expand its teaching force at a rate of 5.6 per cent per annum during the 1990s. In fact, as Table 1 below shows, it has not managed to achieve anything like this rate.

Table 1: Primary-level teachers and students in some African countries

Country	Year	Pupils	Growth	Teachers	Growth	Gross	Net
		'000	% p.a.	'000	% p.a.	enrolment ratio 1997	enrolment ratio 1997
Botswana	1980	172		5.3			
	1995	314	4.1	12.3	5.8	118.3	98.4
Ethiopia	1980	2 131		33.3			
	1997	5 091	5.3	n/a	n/a	42.0	36.0
Ghana	1980	1 378		47.9			
	1990	1 945	3.5	66.9	3.4	77.5	n/a
Kenya	1980	3 927		102.5			
	1995	5 545	2.3	182.0	3.9	87.7	n/a
Malawi	1980	810		12.5			
	1995	2 887	8.8	49.1	9.5	133.5 ^a	n/a
Mali	1980	291		6.9			
	1997	863	6.6	10.9	2.7	50.0	39.9
Mozambique	1980	1 387		17.0			
	1995	1 415	0.1	24.6	2.5	68.2	38.5
Senegal	1980	420		9.2			
	1997	1 027	5.4	18.4	4.2	61.7	58.1 ^b
South Africa	1980	4 353		160.3			
	1995	8 159	4.3	224.9	2.3	96.5	87.1
Zambia	1980	1 042		21.5			
	1995	1 506	2.5	38.5	4.0	101.0	85.4
Africa	1980	62 134	n/a	1 661.0	n/a	n/a	n/a
	1997	100 226	2.9	2 927.0	3.4	80.7	n/a

Source: UNESCO *Statistical database*; UNESCO *Statistical yearbook*; UNESCO *Decade of education* CD-ROM; Own calculations

Notes: a. UNESCO reports that this figure is not validated; b 1996

In Africa as a whole, over the last fifteen years the teaching force has grown at 3.4 per cent, slightly ahead of the growth in the number of children in school, but at nothing like the rate needed to provide enough teachers for education for all. Meanwhile many teachers are untrained and have themselves had a limited basic education. Many of the existing teachers have themselves had a limited background education and specialist teacher training. Existing colleges are not training enough teachers to fill the gap. Furthermore, conventional teacher training tends to be relatively expensive. Even where its content is similar to that of secondary education, its costs are often several times the cost of secondary education.

Table 2: Annual cost of teacher training as multiple of cost of general secondary education

Country	Relative cost per student	Country	Relative cost per student
Bangladesh	1.64	Malawi	3.07
Botswana	2.83	Nigeria ^a	3.21
China	8.51	Pakistan	25.53
The Gambia	10.3	Swaziland	4.28
Ghana	2.96	Tanzania	4.11
Indonesia	1.10	Zambia	3.25

Source: Lockheed and Verspoor 1991: 97

Note: a. state not federal institutions

These well-worn warnings could alert us to the reality about Teacher Education in the Nigerian system. Teacher education is an integral component of the educational system. It is intimately connected with society and is conditioned by the ethos, culture and character of a nation. The constitutional goals, the directive principles of the state policy, the socio-economic problems and the growth of knowledge, the emerging expectations and the changes operating in education, etc. call for an appropriate response from a futuristic education system and provide the perspective within which teacher education programs need to be viewed.

Criticisms of Teacher Education

In the light of these realities there is therefore a series of criticism against current practices of teacher education world-wide. The first criticism of teacher education is the simple one of quantity: it has not produced the numbers of teachers needed for the rapidly expanding school-age population

Second, there are doubts about the effectiveness of teacher education. The research evidence is mixed but we have all too little evidence to show that pre-service teacher education provides skills and develops attitudes that carry through into a better education for pupils in school. Three overviews of the research data (Husen, Saha and Noonan 1978, Avalos and Haddad 1980, Schiefelbein and Simmons 1981) found only modest evidence of the effectiveness of teacher education. In a later study Avalos noted that, 'there is little evidence about which approaches work best in training teachers to undertake the variety of roles

required of them' (1991 p. 30-31) while work by UNICEF suggests that, 'in different parts of the world, primary education programmes that operate with under-qualified and para-professional staff are often showing equal or even better student results than those operating with professional, certified teachers' (Torres, 1996, p. 449). There have been two kinds of response to these findings. One response, mainly from practitioners, has been to develop proposals for raising the quality of teacher training (e.g. Dove, 1986 and Hawes and Stephens, 1990). Another response has been to argue for reducing the length of teacher training and put training which amounts to the equivalent of secondary level education back where it belongs in the secondary schools (Lockheed and Verspoor, 1991, p. 96). There is room for more research here, especially on the effectiveness of new approaches to teacher education and in-service education.

Third, we do not know enough about matching the curriculum of teacher education to the background of its students. It is probably the case that, where trainee teachers have little more than primary or junior secondary education, the best thing to be done is to raise their general educational background. At the other extreme, where they are already graduates in a particular discipline, teacher education probably needs to concentrate more on classroom processes and practice. Beeby (1966) spelt this out 30 years ago in identifying what he saw as stages of development in the building up of teaching forces and arguing that plans to raise the quality of the teaching force needed to be realistic about what teachers could be expected to do in the light of their own educational background. But we are short of any systematic guidance to help us in judging the weight to be given to different components of the curriculum for particular groups of students.

Fourth, the curriculum of teacher education has been criticized for its narrowness. Many programs have used a top-down approach, based on external definitions of the teacher's role rather than being grounded in the teacher's own experience and encouraging reflective practice. Centrally designed programmes have been conceived as a way of inculcating prescribed skills and attitudes. (This may be especially true of distance-education programmes.) Trainees are expected to master a curriculum which is 'limited in scope (e.g., to a body of professional content knowledge and teaching skills) and is fully determined in advance by others often on the basis of research on teacher effectiveness. The prospective teacher is viewed primarily as a passive recipient of this professional knowledge and plays little part in determining the substance and direction of his or her preparation program (Zeichner, 1983, p. 4). In contrast some teacher educators have been stressing the need to develop trainees' capacity not only in the technical skills of teaching but also in reflecting on their own work and in gaining 'the inclination and skills to analyze what they are doing in terms of its effects upon children, schools and society' (ibid., p. 6). Any move towards an inquiry-oriented curriculum of this kind has major implications for the organization and curriculum of teacher education and poses critical questions about the appropriate use of technology.

Fifth, within teacher education there is often a psychological distance, sometimes open hostility, between the colleges that teach teachers and the schools where they go to work. Theory and practice can be far apart. Teacher training institutions are often isolated from the education systems where their graduates will have to teach. In many countries, the plans and programmes of teacher preparation do not match what teachers are expected to teach in elementary and secondary education (Villegas-Reimers and Reimers, 1996, p. 480). Several factors contribute to the problem. Often those working in teachers' colleges have, themselves, limited experience of primary education even when training teachers to work at that level. Newly trained teachers need to feel comfortable in the schools where they are working and to work within its dominant culture. Where teachers' colleges have developed ideas and

approaches that are unfamiliar to schools, perhaps as part of a programme of educational innovation, newly trained teachers are likely to find there is a conflict between the culture of the colleges from which they have come and the school to which they are going. If the culture of education is to change, it needs to change at all levels of the system and it is unreasonable to expect the most recently trained teachers to be isolated but harbingers of change.

Sixth, teacher education is criticized as being costly: Teacher-training costs as much as 35 times the annual cost per student of a general secondary education. Although the difference in expenditures might be justifiable if the curricula were substantially different (teaching pedagogy, for example) or if particularly high levels of material inputs were required, but cannot be justified where the curriculum content is similar (Lockheed and Verspoor 1991, pp. 95-96)

There are such wide differences in the relative cost of teacher education and secondary education that generalizations are tricky. (In Bangladesh teacher education costs 1.64 times as much as secondary education while the figure for Pakistan is 25.33 (ibid., p. 97). As the teaching service is often the largest national profession, presenting the largest single wage bill to governments, so the costs of training the service are significant for educational budgets. The economic challenge is to find a way to expand the number of teachers trained and to improve the quality of that training, while at the same time doing so within tight budgetary constraints.

Teacher Education and Problems of Developing Nations

It is universally acknowledged that education is an effective means for social reconstruction and to a great extent it offers solutions to the problems a society is faced with. These problems may be economic, social, cultural, political, moral, ecological and educational. Since the teachers play a major role in education of children, their own education becomes a matter of vital concern to education policy makers. Teacher education must, therefore, create necessary awareness among teachers about their new roles and responsibilities. Education of teachers needs to strengthen and stress upon the main attributes of a profession, such as, the systematic theory, rigorous training over a specified duration, authority, community sanction, ethical code and culture, generating knowledge through research and specialization. It is acknowledged that formal professional training on continuous basis is necessary for becoming a good teacher as it caters to the development of one's personality and sharpening of communication skills and commitment to a code of conduct. Some of the problems that could hinder this include the following:

Economic Problems: Poverty, unemployment, and low rate of growth and productivity are some of the major economic problems of the country which have led to the compulsions of the backward economy. These problems seek immediate solution and demand a realistic co-ordination between economic planning and manpower planning. Education can help find solutions if it is properly coordinated with manpower needs. Introduction of work education and vocationalization of education in secondary schools will have to be given a modern and meaningful direction. The attitude towards the work culture needs a transformation. The Nigerian society needs education with special emphasis on science and technology, vocational inputs and realistic work experiences. Teacher education curriculum, therefore, has to promote such attitudes as are necessary for the emergence of a new economic order. Along with the vocational competencies and skills a new work culture will have to be created which necessarily involves the inculcation of dignity of work, the spirit of self-reliance and scientific temper among students. The courses of teacher education need to be enriched to enable teachers to understand the attributes of modernity and development.

Social Problems: Tribalism and regionalism are some of the problems in the body politic of the society which misguide the youth (witness the emergence of Bakassi Boys, OPC and other militant youths in the Niger Delta basin). Increasing delinquency, violence, terrorism and fissionary tendencies and use of inappropriate means to get one's ends served are threats to the national integration and social cohesion. Democracy, violence and terrorism cannot coexist. Education has to develop a peace loving personality and the program of teacher education has to contribute in this regard.

The explosion of population with all its allied disturbing trends is not only neutralizing the economic gains but also creating many problems for the country. The Nigerian society still suffers from evils like child labour (in the form of child beggars, child hawkers etc), child marriage, discriminatory treatment to women, etc. and most of the people are unaware of their legal rights. Modern model of development which puts man against nature by making it an object of exploitation has disturbed the harmony and equilibrium between the two. Its consequences are visible in serious environmental degradation, pollution and ecological imbalances. Strengthening national and social cohesion in a diverse and plural society, accelerating the process of economic growth, improving the life of the downtrodden and the people living below the poverty line, removing the widely prevalent ignorance, superstition and prejudices from the masses, inculcating scientific temper and developing a critical awareness about the social realities of Nigeria life are some of the issues which call for immediate attention. Teachers and the teacher educators have a special role to play in such efforts.

Problems of Cultural Reconstruction: Education is the process of transmission of dynamic and responsive components of cultural heritage and its continuous enrichment. There is a need to reinterpret the Nigerian culture in its distinct identity and composite strength. Its capacity to absorb the sublime from the other cultures needs to be highlighted. The teachers will have to play their role in cultural transmission and reconstruction.

Crises of Values and Morality: There has been a persistent erosion of values in the society. In the present day context certain values need to be redefined and reinstalled. There are situations when the values imparted and inculcated in schools are not generally practiced in society. Value education demands a planned and purposive approach. It is through education and as of necessity through teacher education programs that the task of inculcating values can be substantially accomplished. Whereas values are emotive, the other related significant dimension is that of moral education which is essentially conative in character. Morals are situation-specific and demand immediate decision and action and yet there are morals which are considered to be eternal and universal. Through committed teachers, the art of ensuring moral development in a secular, multi-religious and multi-ethnic society needs to be cultivated.

Problems within Education System

The nation has yet to fulfill the constitutional commitment to provide free and compulsory education to all children. Nigeria was also a party to the global commitment for achieving the goal of Education for All by the year 2000. It is now 2001 and the situation for the vast majority of poor children remains the same. The much-taunted Universal Basic Education program (UBE) has promised to ameliorate a lot of these problems; but its designers are still battling to determine which shape and direction it should take. Moreover, the education system has to respond to several major issues and problems which have hindered the progress in this regard. Maintenance of educational standards against the pressure of increasing enrolment, relevance and quality of school education and efficacy of school functioning under the decentralized role of political power are some of the pertinent issues. In addition, specific

requirements and need of social and economical groups of the society and of the minority communities, vocationalization of education, scientific and technological literacy, alienation of youth, rush for urbanization, perceived urban orientation of educational system and its inflexibility to respond to rural, tribal and regional requirements are some of the dominant issues. These would determine the nature and shape of teacher education program and the efficacy and functioning of teachers in their new and emerging multifaceted roles.

Isolation of Teacher Education: Teacher education institutions which were considered 'islands of isolation' have gradually developed linkages with schools, peer institutions, universities and other institutions of higher learning as also the community through accreditation of programs, teaching practice, and introduction of commercial certificate and diploma programs. However, much remains to be done in this direction. The curriculum of the school, its actual transactional modalities, examination system, management processes and its ethos need to be the main thrust areas of teacher education programs. To achieve these ends, teacher educators need to be made conversant with various aspects of school experiences. It is observed in day-to-day functioning that teacher educators often tend to lose contact with content areas relevant to their own disciplines resulting into gaps in communication and latest information. This trend continues right up to the highest levels of teacher training. In most Nigerian universities, for example, the Masters in Education (M.Ed) degree program is offered in isolation to the main subject area of specialization of the student. Thus we produce experts in Educational Administration and Planning, Curriculum Studies, Guidance and Counselling, Educational Psychology, Tests and Measurements and scores of others and in the process do not update the individual subject specializations of the students. It is, therefore, a felt need in the present-day context that teacher education institutions keep in continuous touch with institutions of higher learning and peer institutions for effective transmission of knowledge and its upgradation. The breaking of isolation from the community is essential for enabling teachers and teacher educators to reconstruct pedagogical and educational principles and practices in the light of experiences gained from mutually beneficial community interactions. Teacher as a professional and intellectual cannot remain indifferent to the events that are taking place in society. The academic and social issues are inter-related and inter-dependent. In contemporary context, the role of the teacher is no longer confined to teaching alone. The teachers are expected to play an active role in the developmental activities responding to progress of the community.

Expanding Scope of Teacher Education: Education of teachers is not an end in itself. Its target is the school. Any change in the nature, purpose, quality and character of the school demands a concomitant change in teacher education, especially in its curriculum. The implementation of the Universal Basic Education has potentials for transforming the complexion of education to a considerable extent from the pre-primary to end of primary cycle. There has been an increase not only in the quantum of knowledge, but also in its nature and purpose. In addition, new transactional techniques and strategies have also been evolved. Certain new subjects have replaced the old ones whereas some others have changed their context, content, orientation, theme and philosophy. These changes at the school level, out of necessity, demand a new pedagogy and evaluation techniques. But the changes at the level of teacher education have not adequately responded to the emerging realities at the school level. All that the teachers are expected to do in their work places need to be reflected in the teacher education activities and programs. The teaching community has to face the challenges thrown by science and technology. There has been an explosion not only of scientific and technological knowledge but also in the means and techniques of acquiring knowledge. The scientific researches and developments related to theories of heredity, learning, mental health, neurology, attention, motivation, and recently stem cell research etc. can no longer be treated alien to teacher education programs.

Evolving a Culture-Specific Pedagogy: Every region and state in Nigeria has its typical cultural identity, and there is a need to utilize the same as a basis for developing meaningful, relevant pedagogies. Since there is no one universal way in which the children learn, there is a strong need for looking into the cultural context in which a child is placed. A child in a tribal society may process information in an altogether different manner as compared to the one from the urban area and high socio-economic stratum. Pedagogy, therefore, should be culture-specific. Cultural practices such as story-telling, dramatics, puppetry, folk-play, community living, etc. should become a strong basis of pedagogy instead of using one uniform, mechanistic way of student learning. Cultural specificity should get embedded in the pedagogical practices which should be evolved for tribal, rural, urban communities and other ethnic groups.

In the light of these limitations the need for improved levels of educational participation for overall progress is well recognized. The key role of educational institutions in realizing this is reflected in a variety of initiatives taken to transform the nature and function of education -- both formal as well as non-formal. Universal accessibility to quality education is considered essential for development. This has necessitated improvement in the system of teacher education so as to prepare quality teachers. Further, the scale of the potential demand for teachers, which has not been met through conventional approaches to teacher education, prompts the question: what other ways are there of expanding their numbers? One of the most over-used buzz-words in Teacher Education is distance education.

Distance Education

Conventionally, and in much of the developing countries, teachers learn their craft in a teachers' college after completing between three and seven years of secondary education. Many teachers' courses in fact overlap the content of upper secondary education. Reviews in the 1980s found that two-thirds of programs in low and middle-income countries had courses similar to those of secondary schools with as much as 86 per cent of the content being the same (Lockheed and Verspoor 1991: 95). But, on average, in a group of low and lower-middle income countries, teacher training costs seven times as much as secondary education. Some figures for Africa and Asia are in table 2. While the variations between the figures are striking — with Bangladesh and Pakistan at opposite ends of a spectrum — the cost of teacher training tends to be high, in part because training courses are often residential and costs may include housing, food, and sometimes training salaries. To make things worse, we are not sure that teacher education works in developing the skills, knowledge and attitudes needed by good teachers. UNICEF, for example, has found that 'in different parts of the world, primary education programmes that operate with under-qualified and para-professional staff are often showing equal or even better student results than those operating with professional, certified teachers' (Torres 1996: 449). It is worth looking at alternative approaches. Teacher education is generally concentrated on four areas:

- giving trainee teachers a general education;
- improving their knowledge of the subjects;
- teaching teachers about children, the curriculum, and appropriate pedagogy;
- Developing their skills in the classroom.

Many programs are meant to go beyond this, encouraging potential teachers to develop particular attitudes to their job, to think about their future role in the community, and to

develop the capacity to think critically about their own day-to-day work. But those four areas are basic.

Some teacher education is done before teachers start work - preservice - and some after - in-service. But the distinctions may be blurred. 'For many unqualified teachers in-service training may be the only training they receive. For others, pre-service education may well have been of a general kind, an extension of their secondary education with some study of education thrown in for good measure. In-service education (if they are fortunate to receive any) may constitute their only source of *professional training*' (Hawes and Stephens 1990: 93). It is more useful to distinguish three categories of teacher education: initial training for inexperienced teachers, often immediately after they have left school; initial training for experienced but unqualified teachers, often done on the job; continuing education for teachers after their initial training.

Nigeria set about similar problems not by running a one-off, short-term, program but by setting up a specialized, distance-education, National Teachers Institute in 1976. It has become a permanent part of the federal education system. Over the years it has run courses both for unqualified teachers working in schools and for school leavers who follow a course at around upper-secondary level geared to teaching. The main emphasis of its work today is on the Nigerian Certificate of Education, which requires six years of secondary education for entry. In 1994 it produced 21,000 certificate holders, equivalent to the production of all 58 conventional teachers' colleges. The institute teaches mainly through correspondence, with some face-to-face support (Bako and Rumble 1993, Perraton 2000: 67-8). Thus in Africa, as elsewhere, distance education method is extensively adopted for non-formal education in areas like health, agriculture, family planning, rural development, and environment. Botswana, Tanzania, and Zambia have launched radio campaigns for public awareness and education on a massive scale. The African pour le Developpement Economique et social (INADES-formation), with its headquarters in Côte d'Ivoire and units in both Francophone and Anglophone Africa, serves as another example of the institutionalized program that uses distance teaching methods to teach rural farmers better agricultural practices and methods. INADES-formation was established in 1962 as a result of resolutions at a conference of Catholic bishops from Francophone Africa. Its activity now covers a number of countries in Anglophone and Francophone Africa. This shows that the educational broadcasting media in developing countries carry great potential in furthering open learning and education, especially general and non-formal education.

A Challenge to the Future

In an age of increasing global competitiveness and the breaking down of trade barriers (include trade in educational goods and services); knowledge is replacing resources as the engine of development. Most of the world's leaders now acknowledge that a nation's development is very much dependent on its human capital - the depth and spread of knowledge, skills and qualifications of its workforce. In such a competitive world, the quality of education has become a key policy issue for every nation, and governments as well as investors are increasingly judging not only the quantitative development but also the quality of each nation's education system and its institutions in terms of international benchmarks and indicator systems. The biggest engine for this growth is the development of Information Technology consciousness over the last decade.

Focus on IT in all aspects of education means modernizing the process and provision of an opportunity to share experiences and strategies with fellow practitioners all over the world. The Nigerian government has embraced the concept of IT to such an extent as having specific

National Information Technology (IT) policy. Further, the Nigeria-American Information Initiative, launched earlier this year in Abuja sees a closer co-operation between the Nigerian and American governments in the use of IT for sustainable information sharing. Teacher Education is one of expected beneficiaries of these policies in the sense that it will ride on the piggy-back of Distance Education to enhance the quality of teacher training.

Traditional national educational systems and institutions no longer have a monopoly on information or the delivery of educational programs. IT is creating the possibility of global virtual universities and on-line internationalized information and educational services, while demanding that we redefine what it means to be literate and what we demand of our graduates. Today's learners need to be able to process complex information, solve problems, work co-operatively with others with different backgrounds, make difficult decisions, and relate their knowledge to novel and ever changing situations. Progressively, all learners should have access to IT supported learning, and with IT, they should be able to more easily learn at any age, any time and any place. Teachers must assume new roles as we move from a teaching to a learning model. Teachers will have intellectually and professionally rewarding lives as facilitators of learning rather than information disseminators. But this demands competency in the use of IT and acceptance of the role as guide and researcher as opposed to a dispenser of facts.

If one should be realistic, one would state that in a society where the vast majority live in rural areas, where the urban areas are enhanced villages without electricity, water, good roads and poor background training, any IT policy will just remain a magnet for policy makers to attract funding and attention from multi-lateral aid agencies, but not to solve the problems of education. There is clearly a need to re-direct our priorities in education to make them more reality-based if we are to produce effective teacher education programs for a developing nation.

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