OPTIMISING OPEN AND DISTANCE LEARNING FOR TEACHER EFFECTIVENESS IN UNIVERSITY OF LAGOS, AKOKA, NIGERIA

BY

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Abstract

The question is how far, and how well, can open and distance learning strengthen the teaching profession and help towards the 2015 educational targets? Good education demands good teachers. But many countries have too few teachers, or teachers who have themselves had only a limited or outdated education. Throughout much of the sub-Saharan Africa, teaching profession is faced with a lot of challenges which threaten the attainment of the education targets. There are shortages of teachers. While school enrolments generally grew in the 1990s, teacher numbers only just kept pace with them. AIDS is reducing the life expectancy of teachers and so increasing the numerical demands. With all the other pressures on educational budgets, it seems unlikely that teachers' colleges can be expanded at the rate necessary to meet these demands. Morbidity as well as mortality is affecting the teaching service: where teachers are too ill to work, their absence worsens teacher shortages. Again, female teachers are in a minority. Progress in getting more women into the profession is slow; in Africa the proportion of women primary-school teachers rose from 39.4 percent to 43.3 per cent between 1990 and 1997. While it rose only from 28.0 to 29.6 per cent in 2000 and 2009 respectively. Where tradition, religion or social pressure means that only women can teach girls, these figures threaten the attainment of both the world targets. Even where there are enough teachers, too many of them are untrained or under trained, and the quality of training is often itself inadequate. A number of studies have found little difference between the effectiveness of trained and untrained teachers. About half of the teachers in developing countries are unqualified in teems of their own country's formal standards for teachers' education. Many teachers have little more than secondary education themselves. Teaching methods are often old fashioned, with too much focus on rote learning. Problems of quality are compounded by a growing concern to reform education and change the role of the teacher. Many countries wish not just to raise the quality of the teaching force to match the present demands on them but also to change the nature of those demands. In this context, the development of open and distance learning, and the promises held out by new information and communication technologies, suggest that there may be new ways of expanding the teaching service and raising its quality. Open and distance learning has most often been used to overcome a shortage of teachers, usually seen as a temporary stopgap. It has also been used as part of the regular system of initial teacher training, to support curriculum reform, to offer continuing professional development to teachers, and to prepare them for new roles as head teachers, administrators or inspectors, or as teachers' college lecturers. There are, then, a set of subsidiary questions about the purpose, content and approach of teacher education.

Introduction

The world needs better teachers and more teachers. The Dakar conference revealed that there were still more than 100 million children out of school: they need teachers as the world moves towards the 2015 target of education for all. And we need to raise the skills of the existing 60 million teachers, too many of whom are untrained and unqualified. Beyond that, the skills and knowledge all teachers need are no longer fixed and familiar targets but moving ones. Teachers therefore need more opportunities than ever before to go on learning throughout their careers. One of the ways of strengthening the teaching profession is to use distance education or open and distance learning.

Many countries still do not have enough teachers. In some, the expansion needed in the teaching force is far beyond the capacity of traditional colleges. The supply of teachers is also adversely affected in countries where retention rates are low for newly trained teachers or where significant numbers of teachers are being lost through HIV-AIDS or in rural areas which have difficulties in recruiting and retaining teachers.

Teacher quality is an issue in most universities in Nigeria. Many teachers are untrained or under qualified or teaching subjects in which they are not qualified or trained. Nigerian teachers face a widening range of demands and roles from the National governments, international organisations and specific circumstances continually set new goals: gender parity and universal basic education by 2015; inclusive education; education for democracy, peace and social cohesion; multi-grade teaching; increased accountability for achieving learning targets; the development of learners who are self-managing and independent, skilled in critical thinking and problem solving, equipped with life-skills; the preparation of learners who are competent for knowledge-based economies, capable in the use of information technology; and amongst other.

Can open and distance learning respond to these challenges? These and many other questions are begging for answers. This paper offer some answers in optimizing ODL for teacher effectiveness in University of Lagos using a variety of technologies.

Teacher Education in Nigeria

The National Policy of Education was born out of the National curriculum conference held in Lagos in September, 1969. In 1977 the Federal Military Government issued the first white paper on the National Policy on Education which contained the recommendation of the 1973 national seminar on this subject, thus indicating that the Federal Government had accepted the recommendations in principle.

Teacher education is dealt with in Section 9, Paragraphs 57 to 82 of the National Policy on Education (2004) document. The document emphasises the importance of teacher education right from its opening paragraph, that is, paragraph 57, where it declares that:

> Teacher Education will continue to be given a major emphasis in all our educational planning because no education can rise above the quality of its teachers (FRN, 2004:38).

Teachers are known to be responsible for the translation and implementation of educational policies. They also put into practice the principles of education. Every school child knows the teacher, so also, every parent, indeed, every member of the public if one does not know physically, hears of the teacher. This is because one cannot reasonably talk of the educational system without acknowledging the importance of the teacher in it. Teacher is the main stay of the educational system. Teacher promotes the teaching-learning process in various capacities as an instructor, educator, tutor, lecturer, counsellor, adviser, researcher, innovator, exemplar, friend, parent, leader, and confidant and so on. As a result of these important and multiple roles teacher plays in the educational system, teachers' professional education requires careful planning and execution. True to type the history of teacher education in Nigeria is tied up with the efforts of experts in teacher education to fashion the best and most appropriate teacher education programmes for teachers in Nigeria at given periods.

The National Policy on Education provided a solid framework for such changes and challenges, yet much has not been achieved in teacher development in Nigeria. Bearing that framework in mind, the implementation of the latest teacher education programme is to be examined through open and distance education using different technologies.

To enhance the quality of education therefore, provision should be made for the production of highly dedicated, devoted and competent teachers. This

observation was probably considered in the formulation of the five objectives of Teacher education in the Nigeria National Policy document.

According to the policy document, Teacher Education aims at:

1. Producing highly motivated, conscientious and efficient classroom teachers for all levels of the educational system;

2. Encouraging further the spirit of enquiry and creativity in teachers;

3. Helping teachers to fit into the social life of the community and society at large and to enhance their commitment to national objectives;

4. Providing teachers with the intellectual and professional background adequate for their assignment and to make them adaptable to any changing situation not only in the life of their country, but in the wider world;

5. Enhancing teachers' commitment to the teaching profession (FRN, 2004:38).

The attention given to teacher education and their continuing professional development has in many cases lagged behind than that given to other parts of the education system. The importance of teachers is emphasised in many international reports (e.g., UNESCO 1998, UNESCO 2000, OECD 2001). There is wide recognition that teacher education, training and professional development need to be integrated, in ways that operationalise lifelong learning for teachers. The resources allocated to teacher education are usually inadequate and the opportunities too few. Nigerian teachers rarely attend in-service professional development. On average, government spend around one per cent of their annual education expenditure on the continuing professional development of teachers which is not adequate knowing the important role teachers plays towards the nation development.

All of these create new challenges for teacher education and continuing professional development and the need to find ways of using existing resources; by using adequate technologies to enrich teachers' context and support practice, hence, the need of this paper.

Concept of Open and Distance Learning
Distance education is an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner. Open learning, in turn, is an organized educational activity, based on the use of teaching materials, in which constrains on study are minimized in terms either of access, or of time and place, pace, method of study, or any combination of these. The term 'open and distance learning' is used as an umbrella term to cover educational approaches of this kind that reach teachers in their schools, provide learning resources for them, or enable them to qualify without attending college in person, or open up new opportunities for

keeping up to date no matter where or when they want to study. Open and distance learning often makes use of several different media. Students may learn through print, broadcasts, the internet and through occasional meetings with tutors and with other.

The Advantages of Open Distance Learning
Sometimes open and distance learning is used for school-age children and youth that are unable to attend ordinary schools, or to support teaching in schools, both at primary and secondary level. However, most courses and programmes are targeted at the adult population. In developing countries in particular distance education for school equivalency is an important way of expanding educational opportunities to the adult population. Open schools that use a variety of media are of particular interest to high-population countries.

Teacher training is an important area where open and distance learning has made a major contribution. This includes initial training for formal qual-ifications, in-service supplementary training for formal upgrading, and con-tinuing in-service training in particular subjects and topics. Many examples, particularly from developing countries, show that teacher training at a dis-tance may reach large groups of teachers and have profound impact on the development of national education systems. The use of open and distance learning for teacher education is therefore a crucial strategy when expansion or quality improvement is needed in the public education system.

A common need in many countries is to upgrade teachers' knowledge and competence in using new Ids, in particular the rich instructional and infor-mation resources available on the Web. In such cases it is also very appropriate to use the new technologies in the training programme for teachers.

Both private and public providers have made important contributions to the development of industry and trade through programmes for technical and vocational education. Core purposes include the ability to respond flexibly to the need for working adults to obtain training, and to provide oppor-tunities for those most disadvantaged by existing provision. The capacity of open and distance learning to support large-scale campaigns, e.g. in the field of HIV/AIDS education, is significant in the context of continuing education and training.

Non-formal education and community development represent other sectors where open and distance learning is increasingly used. Programmes at a distance often reach substantial numbers of women, in societies where women lack equal opportunities for participation in conventional forms of education and training. Open and distance learning approaches lend themselves to the teaching of many of the complex issues of the modern world, in which input from a variety of disciplines is necessary.

Distance education at the tertiary level shows a two-fold development pattern. On the one hand, numerous single mode open universities have emerged to absorb large numbers of new learners, while, on the other hand, increasing numbers of traditional universities have begun to offer their programmes also through distance education. The development of new ICTs has reinforced this trend.

Open and distance learning has the potential to generate new patterns of teaching and learning. Strongly linked with developments in information and communication technologies, it is close to the development of new learning needs and new patterns of information access and application and learning. There is evidence that it can lead to innovation in mainstream education, and may even have effects beyond the realm of education itself. Open and distance learning therefore plays an especially decisive role in the creation of the global knowledge-based society (UNESCO, 1998).

Open and Distance learning Context
Some countries used distance education to provide a route to initial qualifications for significant numbers of teachers, both new entrants to teaching and experienced unqualified teachers. The China Television Teachers College has long experience of this approach and has become a recognised and institutionalised part of the regular education system in their countries. The Open University in Britain runs a school-based qualifying programme for graduates who want to enter teaching but have had no professional teacher training (UNESCO, 2001).

Initial teacher education is no longer seen as enough. Therefore, distance education is used to raise the skills, deepen the understanding and extend the knowledge of teachers. Some programmes are broadly focused while others are targeted at specialist groups. Programmes are taken either by individuals or by groups of teachers who are encouraged to participate by their schools or their employers, as can be seen in the examples below:

A non-profit television station is taking the lead on supporting school groups in Brazil. Programmes are available for individual teachers who want to improve their skills and their status, often enrolling on an individual basis, and at their own expense. Indira Gandhi National Open University in India has a number of programmes of this kind of which its Certificate in Guidance is one. The University of South Africa also offers programmes on this basis (UNESCO, 2001).

South Africa B.ed programmes are for experienced under qualified teachers and also new entrants to teaching, which serve to meet individual goals as well as contributing to the policy goal of a graduate teaching force. Some programmes are aimed at the upgrading of teachers' qualifications required by official policy as new standards are set in a country (as in China).

Distance education can have a role in programmes of curriculum reform which aim to change either the content or the process of education. In South Africa, the Open Learning Systems Educational Trust is using radio to improve the

teaching of English, and to support teachers in this work. In Mongolia, radio and print are used across large distances to re-orient teachers to official changes in curriculum and teaching methods.

In response to policy initiatives aimed at establishing the use of ICT in schools, the Universidad de la Frontera in Chile is using ICT to support teachers who are teaching these subjects.

Distance education has been used for teachers' career development. As they seek promotion, or aim for the next qualification level, or aspire to become a head teacher, or work in a teachers' college, or become an inspector, teachers need to acquire new skills. A multinational distance education project in West Africa has developed a training programme in school management for head teachers and aspiring heads. Some of the programmes have more than one audience, qualified and unqualified teachers, and teachers studying for initial qualifications and those using the same programmes to upgrade their qualifications.

In general, distance education programmes have been developed with varied intentions: of widening access to teaching qualifications; of disseminating good practice; of strengthening the education system as a whole by reaching not only teachers but the wider community; in enabling school-based training and professional development and as a means of strengthening the links between theory and practice, focusing on the school as a site of teachers' learning.

As an alternative route to primary teacher qualifications in Nigeria, the National Certificate in Education (NCE) programme was offered by the National Teachers Institute in Nigeria. It provides an alternative but equivalent route to initial teaching qualifications for working primary teachers in a country very short of qualified teachers and where conventional college output cannot meet demand. It is a distance college for teachers. Its mission was to provide initial teacher qualifications and upgrade the quality of teachers through distance education. Its courses and qualifications were equivalent to those of conventional teachers' colleges. NTI is a parastatal organisation, with headquarters in Kaduna and offices in 36 states. It has made a significant contribution to teacher supply NCE graduates and is now an institutionalised part of the teacher education system (Aderinoye and Ojohkheta, 2004).

As if that is not enough, the National Open University was established by the Nigerian government to produce university graduates in disciplines necessary to meet national labour needs (e.g teachers, lawyers, administrators, nurses, etc). More will be said on this latter.

What then is the use of open and distance learning?

What Open and Distance Learning is Used for

Distance education is playing a role in four different areas, such as:

- Initial professional education;
- Continuing professional development;
- Curriculum reform and change, and
- Teachers' career development.

Initial professional education
Some countries have used distance education to provide a route to initial qualifications for significant numbers of teachers, both new entrants to teaching and experienced unqualified teachers. The China Television Teachers College and the National Teachers' Institute in Nigeria have long experience of this approach and both have become recognised and institutionalised parts of the regular education system in these countries. Also, the Open University in Britain runs a school-based qualifying programme for graduates who want to enter teaching but have had no professional teacher training,

These three examples from very different countries illustrate differing roles for open and distance learning in initial teacher education. The programmes in China and Nigeria take in large numbers of entrants and make a substantial numerical contribution to increasing qualified teacher supply. The Open University programme makes an important contribution towards providing alternative opportunities for trainee teachers but, in comparison to the Nigerian and Chinese cases, its numerical impact on British teacher supply is modest (Perraton 2000).

Teachers' Continuing Professional Development
Planners have chosen to use open and distance learning techniques to meet the needs of their scattered audiences, in doing so they have been able to take practical moves to provide long-term benefits, in terms of their capacity and status, to individual teachers as well as the education systems within which they work. In both England and Pakistan, for example, ministries of education have called on national open universities to distribute information and training on new curricula, rather than attempt to bring teachers together for this purpose. Some programmes using mass media have also sought to widen the audience beyond the core target of teachers to the broader community. The A-Plus television programme in Brazil uses mass media on a large scale to reach a wide community of viewers while at the same time using the series as a launching pad for further activities by groups of teachers.

As earlier indicated, initial teacher education was no longer seen as enough. Distance education is therefore also being used to raise the skills, deepen the understanding and extend the knowledge of teachers. Some programmes are broadly focused while others are targeted at specialist groups. Programmes are taken either by individuals or by groups of teachers who are encouraged to participate by their schools or their employers. For example, a non-profit television station is taking the lead on supporting school groups in Brazil. Programmes are available for individual teachers who want to improve their skills and their status, often enrolling on an individual basis, and at their own expense. Indira Gandhi National Open University in India has a number of programmes of this kind. The University of South Africa also

offers programmes on this basis. Their B.ed programmes are for experienced under qualified teachers and also new entrants to teaching, which serve to meet individual goals as well as contributing to the policy goal of a graduate teaching force. Some programmes are aimed at the upgrading of teachers' qualifications required by official policy on new national standards, as in China for example.

Curriculum Reform

Distance education can have a role in programmes of curriculum reform which aim to change either the content or the process of education. In South Africa, the Open Learning Systems Educational Trust is using radio to improve the teaching of English, and to support teachers in this work, In Mongolia, radio and print are used across large distances to re-orient teachers to official changes in curriculum and teaching methods within a country in transition. In response to policy initiatives aimed at establishing the use of information and communication technologies in schools, the Universidad de la Frontera in Chile is using the technologies to support teachers who are teaching these subjects.

The Universidad de la Frontera programme in supporting the teachers introduced information and communication technologies to schools in Chile, and provided an online programme for teachers as an alternative option to face-to-face programmes and ensured that the course assignments were of an applied nature. Though the cost of the two alternatives (face-to-face and online) were about the same, the online programme appeared to achieve more change, in fostering more familiarity with the technologies and the development of a 'network communication culture' missing from the face-to-face version.

The OLSET programme in South Africa has been effective in reaching large numbers of teachers not only with prescription and advice on how to teach English as a second language but with well-designed lessons, provision of models, and guidance in using the radio or audio-cassette resources and support for changes in teaching methods. There is some evidence that not only has the programme reached large numbers at low cost, it has been effective in helping young pupils to improve their English and teachers improve their teaching as well as their English.

Using radio in a different kind of way, as a topical magazine and involving teachers in topic identification and programme construction, primary teachers in Mongolia became familiar with new ideas about child-centred teaching and other new approaches and were able to apply them to their teaching (UNESCO, 2003).

Teachers' Career Development

Distance education has been used for teacher's career development. As they seek for promotion, or aim for the next qualification level, or aspire to become a head teacher, or work in a teachers' college, or become an inspector, teachers need to acquire new skills. A multinational distance-education project in West Africa has developed a training programme in school management for head teachers and aspiring heads. In Burkina Faso, over a quarter of the

country's head teachers (whose professional development is increasingly seen as a key element in school effectiveness) developed new knowledge and skills within four years. This served at least three functions as:

- it furthered teachers' careers,
- built capacity in the head teacher cohort and
- provided professional development.

This experience, and the demand for specific training and support for head teachers in many other countries, suggests that this as an area of work that merits investment and expansion. It is the kind of programme that will enhance and strengthen the status of teachers.

I will try to give the realities as I know it and with all humility give the relevance of ODL to teacher effectiveness.

The Use of Open and Distance Learning for Teacher Effectiveness
Distance education is been used to teach, support and develop teachers for many years. Open and distance learning has been used in many countries of the world with a reasonable record of success. The use of new information and communication technologies has drawn new attention to open and distance learning and offers new possibilities. One begins by asking why it has been attractive, the reasons are as follows:

ODL has been used to reach trainees in geographically challenging areas such as the riverain regions in Guyana, mountainous areas in Nepal, the dispersed communities of the Indonesian archipelago and the small island states in the Caribbean and Pacific. In some high population countries such as China and Pakistan, distance programmes have played an essential role in providing teacher education on a huge scale. In many Latin America countries distance education has been used widely to support curriculum reform and teacher upgrading. Teacher education by distance is being used to redress inequalities in teaching qualifications in post-colonial Namibia and Zimbabwe and in South Africa, as a tool for reconstruction of the teaching service in Uganda. In other countries, it is being used to reach marginalised communities such as refugees in Sudan, itinerant communities in Mongolia, and minority-groups in northern Pakistan (Robinson, 1997) therefore; Nigeria will not be an exception.

Using distance education for teacher training has various potential advantages. Large programmes have brought economies of scale. In contrast to college-based training, distance programmes can provide access to courses on a much larger scale and wider geographical reach. It can overcome regional differences in access to teacher education. It provides a means of side-stepping the slowness and dilution of the cascade approach. In continuing professional development, distance education can help avoid the cost of replacing a teacher who has gone to full-time education, it can open up access to teacher-training opportunities for teachers with family responsibilities who are earning an income and need to remain within their communities.

The establishment of a decentralised distance-education structure can also be used to support training in the districts and serve as a basis for the development of a programme for the continuing development of teachers. In print-poor countries, self-study materials can become a permanent resource. It can also put information about curricula and teaching approaches directly into the hands of individual teachers (Robinson 1997) and cut down the time between learning about new teaching practices and trying them out in the classroom. This is particularly important in curriculum reform and short professional development courses. Carefully balanced mixed-mode teaching can help to double and triple a college's training output per year. Where the infrastructure for them is in place, new information and communication technologies have opened up a range of new opportunities for course- and resource-based learning in teacher education.

Open and distance learning can be used for girl's school-age children and adult women that are unable to attend ordinary schools, or to support teaching in schools, both at primary and secondary level. However, it is to be noted that in distance education most courses and programmes are targeted at the adult population. In Nigeria distance education for school equivalency can be an important way of expanding educational opportunities to the women population. Hence, Open schools that use a variety of media such as audio-conference; video-conference; electronic-mail; telephone; fax; CD ROM, access to data base; radio or television; web conferencing among others will be of a particular interest to high-population country like Nigeria.

Female teachers training are an important area where distance education can make a major contribution. This includes initial training for formal qualifications, in-service supplementary training for formal upgrading, and continuing in-service training in particular subjects and topics. In Nigeria, distance learning can reach large groups of female teachers and will have a profound impact on the national development of women education systems. The use of distance learning for female teacher education is a crucial strategy in the expansion or quality improvement in the public education system.

Non-formal education and community development represent other sectors where distance education can increasingly be used. Programmes at a distance can reach substantial numbers of women, in societies where women lack equal opportunities for participation in conventional forms of education and training. The barriers that may be overcome by distance learning include not only geographical distance, but also other confining circumstances, (like the women in purdah), personal constraints, cultural and social barriers and lack of educational infrastructure; the extension of literacy and numeracy skills among millions of adults through the use of radio, television and telematics, helping rural women to develop entrepreneurial skills, assisting agricultural extension workers to improve their capacity to educate farm workers, training of women legislators in legislative drafting, increasing the speed of in-service training of un- or under-trained female teachers, and

delivering continuous professional development programmes for women in health, managers and administrators.

Furthermore, distance education is of potential benefit to teachers because it can reach scattered populations and can offer them education and training without their having to leave their schools. It has great logistical advantages. This means that it offers the chance of accelerating the supply, or the updating of teachers, beyond what could be done through conventional means.

Good programmes of open and distance learning have benefited from its strengths and avoided its weaknesses. Some aspects of teacher education need to be done face-to-face, or need close interaction with a tutor or with other students. Others do not. Programmes that combine conventional and distance methods are likely to be better than those that rely on a single approach.

Lastly, the more successful programmes have been carefully integrated into the structure of teacher education as a whole. They have not been designed as second-class alternatives to conventional education but as a part of a complementary system using a variety of different approaches, each chosen for its appropriateness to the curriculum and the audience.

The Use of ICTS for Teacher Education

There is no single answer to the question 'which technology is best?' Indeed, one starting point for choosing technologies is to recognise that media do not differ in their effectiveness. Of course a particular subject, or a particular kind of learning, may lend itself to a particular medium.

ICT in teacher education refers to two sets of activities or roles. One is training teachers to learn about ICT and its use in teaching as computers are introduced to schools. In many countries this is being done through face-to-face training programmes, often as part of initial teacher education. Some countries (such as the United Kingdom and Singapore) have developed policies which require all initial teacher education programmes to include compulsory courses in ICT as a strategy for building capacity in ICT. In other countries, no policy yet exists and teaching teachers about ICT is at best an option within teacher education programmes. In some cases, the facilities and equipment for supporting a strong policy are inadequate.

The advantages of ICT lie in its potential for increased interaction with and between learners, speedier delivery and response times to queries and feedback on assignments, greater access to communities of teachers and quicker lead-in times for updating course materials while at the same time needing the establishment of effective quality assurance procedures.

The use of ICT and CD-ROMs, is becoming more common for materials developers of distance education programmes of all kinds and for supporting administrative processes and staff involved in tutoring or learner-support.

The other role of ICT is as a means of providing teacher education, either as a core or main component of a programme, or playing a supplementary role within it. The case of Chile illustrates both kinds of activities within one professional development programme: teachers on the programme learn to use ICT and to use it in teaching their different subjects by means of a wholly online programme which has, as its core element, online delivery and activities. In the case of UK Open University's initial teacher education programme, the materials are not delivered online, but online communication plays a key role in supporting student-teachers during school-based training, providing interaction with tutors and other students and feedback to programme providers.

Research and experience so far show that where ICT is offered as an optional supplement in programmes, it is less likely to be used by student-teachers than when it is a required activity for a purpose. Teachers who took the online version of the programme developed more use of the virtual working environment than those on the face-to-face programme and developed a 'network communication culture'. So the outcomes of training programmes for teachers on the use of ICT appear to be affected by how the programmes are delivered. A common problem in programmes where ICT is a supplementary component is in getting students and tutors to use it.

There are examples of online use of ICT for continuing professional development programmes at diplomas and higher degree level and for short courses. A great deal of activity can be found at present in the use of ICT in providing informal professional development for teachers through online activities ('chat rooms', specialist subject conferences, virtual classrooms, networks, professional development websites, peer group discussions, bulletin boards, resource sharing). This gives teachers access to people and resources as well as putting more choices for professional development (formal and informal) into teachers' hands.

A classroom teacher, writing on a blackboard, and getting questions from students does all three at once. In open and distance learning one may use print to present material, the mail to distribute it, and face-to-face tutorial sessions for feedback and dialogue.

What are the technologies used for ODL teaching?

Planners are likely to choose between some or all of these technologies:
- Print remains the staple of much open and distance learning, providing a permanent document that is convenient to use. Distribution may be physical or electronic. Print allows two-way communication but only with a delay.
- Radio are widely use for formal and informal teaching, helping to bring teaching alive, and overcoming the problems of physical distribution that may limit print.

- Television has obvious merits but tends to cost more than the radio.
- Cassettes can be used for similar purposes to radio, overcoming the problems of timing that limit the use of broadcast radio.
- Videoconferencing allows specialists at a centre to reach scattered audiences provided they have the equipment to take part, Many videoconference systems allow for one way video and two-way audio so that, for some of the audience, it becomes a two- way medium.
- A variety of computer-based technologies have been used including the distribution of sample lesson plans on cd-roms, setting up exchanges by computer conference between teachers' colleges, encouraging the interactive use of computer-based learning materials, encouraging the use of web-based materials, and using computer conferencing to encourage discussion among learners.

In making choices the planner is likely to be influenced above all by the convenience of the learner, the cost, and the need for a culture of maintenance. Unfortunately many programmes have neglected the importance of maintenance or of budgeting for it.

How Programmes are used at a Distance in Nigeria
There are basic issues to be noted in the pedagogy of distance learning in Nigeria. In reality, different examples will be used to support different pedagogic approaches. For instance:

- The history of education in Nigeria dates back to the practice of correspondence education as a means of preparing candidates for the General Certificate in Education, a pre- requisite for the London matriculation examination. In this sense, Nigeria was not left out of the opportunities provided by university of London. Few illustrations take us beyond these clues. Ahmadu Bello University, offer a special training programme called: The Correspondence and Teachers in-Service programme (TISEP), Established in 1976 to prepare middle level teachers for Nigeria's primary schools.

- The Correspondence and Open Studies Unit (COSU), now called Distance Learning Institute, was established in 1974 by the University of Lagos to produce university graduates in disciplines necessary to meet national labour needs (e.g. Teachers, nurses etc).

- The first independent institution dedicated solely to distance education, the National Teachers' Institute (NTI), which was officially established in 1978 to upgrade unqualified teachers working in the nations primary schools and accelerate the preparation of qualified teachers needed for the implementation of the Universal Primary Education Programme in 1976 and the Universal Basic Education Programme introduced in 1999.

- The External Study Programme (ESP), that later became the Centre for External Studies (CES) and today is called the Distance Learning Centre (DLC), was established by the University of Ibadan's senate in 1988 under the umbrella of the Nigerian Department of Adult Education to provide opportunities for teachers working in the field to improve their skills and knowledge through on- the job training. This in- service training enabled them to subsequently raise their status from holders of Nigeria Certificate in Education (NCE) to full fledged university degree holders.

To offer similar programs, after being closed for 16 years, the National Open University was re- named in 2001 under a new name, the National Open University of Nigeria (NOUN) (Aderinoye and Ojokheta 2004).

- The National Open University of Nigeria (NOUN), have the NOUN radio, also in University of Lagos, Akoka, Nigeria, use the UNILAG Radio, and the Institute of Management and Technology, (IMT) Enugu are known for their (UNIAIR) programme. These radio stations are where student listens and receives their lectures. These are very popular and are being used by these institutions, to broadcast educational programs of variety on areas such as teacher education, rural development, programmes in agriculture for farmers, science education, creative writing, mass communication, in addition to traditional courses in liberal arts, science and business administration.

- National Open University of Nigeria (NOUN) provides learning resource centres (LRC) with a school based training system for all the study centres in the six regions. Sets of equipment compliments the learning resource centres. E.g. printers, CD- players and writer, data storage items (hard disks and CD-ROM, television, satellite dish and receiving software, digital camera, video use in micro-teaching, set of an audio and video CDS, prints and guides. Students download their course materials on their institutions website.

- Distance institutions in Nigeria, engages in the configuration of equipment, this is by getting and storing current information on the new curriculum and teaching methods. It is also by observing and discussing lessons taught by other teachers via technology, either on CD-ROM or in real-time via satellite television and learning to use computers.

- These institutions finds and creates educational resources to use in teaching, preparing lesson plan with colleagues, interacting with other teachers and trainers either online or in meetings and workshops. The teaching learning resources are adequately managed by efficient and effective planning, coordination, and monitoring.

- There are the technical and support trained staff to maintained equipment, solve technical problems, assist to use the equipment and

manage the educational resources, and learning support teachers who provided pedagogical leadership and assistance.

- NOUN concentrated much on human resource development. Emphasis was on the soft technology of people's skill, knowledge and understanding rather than on the hard technology of equipment. As a practical response to the growing demand for training and research, Regional Training and Research Institute for Open and Distance Learning (RETRIDAL) was established in collaboration with the Commonwealth of Learning (COL) to ensure the success of ODL system and fully maximise the benefits of distance education in the West Africa sub-region, much of the project's success was due to this.

- These distance institutions, spent some percent of its budget on equipment and training of different kinds (e.g. new curriculum, teaching methods, training of trainers, materials development, preparation of computer-mediated, online (web-based) and CD-ROM based distance learning materials, management of learning resource centres and the use of e-learning and its integration into teaching and learning).

- In dedicated distance education institutions in Nigeria, there has been a drive to get students online to support teaching, learning and administration. The internet provides various means to remedy the lack of interpersonal communications that has been '' the Achilles heel of distance education''.

- E-learning is pedagogically integrated into the course design and adapted for the current environment, which enable and support enhanced forms of learning. NOUN, UNILAG and IMT students, and amongst others are made to work in small groups on a collaborative task, where they use the internet to find information resource. Conferencing or e-mail is used to communicate and construct a joint project which is assessed, then using e-learning as a clear pedagogic role.

- With the computer networks, learners are encouraged to take an active part in the learning process and construct their knowledge by interacting with learning materials and their peers. There is an online learning discussion forum as social interactive learning environments, for constructivist learning theories. The constructive principles provide a set of guidelines for creating learner-centred, collaborative environments that support reflective and experiential processes.

Conclusion

One needs to learn more about the costs of teacher education, whether conventional or distance education. Although the data on costs is slowly accumulating, this continues to be a neglected area. Data is not available to the providers of distance education programmes, either because they have not recorded it at all, or in ways which would permit analysis. There is the

need to find out more about efficiency rates (enrolment, completion and success rates). It was surprisingly difficult to obtain data on these basic aspects. The data exists but not in a way that is easily accessible in records.

However, some continuing professional development programmes do not have a sequenced course with assessment at the end and are more like open learning. In these circumstances, appropriate measures need developing to find out what the participation rates are and what they signify and what kinds of record keeping would be both manageable and informative.

One needs to know more about effectiveness and the impact of programmes on teaching and learning. For some distance education providers, their task ends at the point of delivery. For others, like Brazil's A-Plus programme, delivery is the starting point for further activities. So one need to learn more about different kinds of outcomes and the kinds of linkages between programmes and outcomes and the translation of things learned by teachers into improved teaching, and ultimately, improvements in children's learning. There is also the need to know more about the benefits and drawbacks of different options and outcomes in deploying resources and focussing effort in teacher education, not just within initial teacher education or continuing professional development, but in the balance between them. One need to keep monitoring and evaluating applications of ICT in teacher education in order to build a realistic picture of its strengths, limitations and costs and to identify effective strategies for introducing it.

Finally, one need to find out more about the evaluation of teacher education through distance education: the methods and approaches that would be most useful as well as manageable, the kinds of practices that already take place, the tools that would be useful and ways of evaluating programmes to take as much account of teachers' voices in remote village schools as of specialist curriculum developers in capital cities. As distance educators, we also need to find better ways of disseminating what we already know.

Recommendations
For a successful implementation of open and distance learning in teacher education, the following issues and suggestions are for the planners:

- Building teachers' capacity in ICT and using ICT as a means of teacher education and professional development cannot happen in isolation.

- National policies, strategies and plans need to be integrated into the teacher education curriculum for initial teacher education and in priorities and funding allocation for continuing professional development.

- Teacher education cannot develop the use of ICT without the infrastructure and funding to support it and major investment and strong government policy is needed for this as the experience of some

countries has shown (for example, Chile, the United Kingdom and Singapore).

- It shows that teacher educators are a key element in establishing the use of ICT in education and teacher education but many teacher educators themselves lack skills and training in the use of ICT or the equipment to apply and develop their knowledge and skills, once gained.

- The very limited evidence available on costs so far shows that, an existing infrastructure, the development and teaching of online programmes cost as much or more than face-to-face equivalents, though the cost structure will be different from that of face-to-face teaching or other kinds of distance education. Since students will often need to bear some of the costs, this may affect their access.

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