4

Mapping Teacher Education Institutions for Excellence

Anne Fabiyi and Sheidu A. Sule

Introduction

Functional education remains the veritable instrument for the production of a citizenry that can revitalize the economy for global competitiveness. Effective teaching and pleasant learning should produce active literate and numerate persons who can clearly read and write with required understanding, and communicate thoughts without any ambiguity. They should also observe things and analyze emerging data for a conclusive resolution of human and societal problems (Oyekan 2006). This exclusive and arduous task of human resource development for economic growth in a digital era is carried out by teachers. Such individuals whose professional roles and achievements largely depend on their trainable qualities and determination to succeed should be provided with well planned institutional mapping so as to motivate them towards excellence.

Teacher education is the provision of professional education and specialized training, within a specified period, for the preparation of individuals who intend to develop and nurture the young ones into responsible and productive citizens. In Nigeria, it is informed by the fact that teaching is an all-purpose profession which stimulates the development of mental, physical and emotional abilities in students.

It is therefore vital that during their training, student-teachers should be given the opportunity to reflect on what the teacher's task is; to discover that it is much more than applying methods to do a job or 'parroting' right answers to pass an examination (Farrant 1980). In Nigeria, institutions charged with these responsibilities are faculties of education in the universities, the National

Mathematical Centre, colleges of education, the National Teachers Institute, institutes of education, and schools of education in the polytechnics. Today, the country needs a large number of quality teachers who are well trained, flexible and willing to learn, in order to cope with the bright, slow and average students. They should be sufficiently exposed to well-planned academic curricula, professional education courses, general studies in education and teaching practice, with a thorough knowledge of the ethics of the teaching profession. Such well-trained and well-groomed teachers in Nigerian classrooms shall be equipped with professional artistry and scientific process of adjusting education to the changing needs of the children and their environment, especially in this digital era.

> Teacher education institutions are statutorily charged with the responsibility of providing professional education and specialized training within a specified period, for the preparation of individuals who intend to develop and nurture the young ones into responsible and productive citizens.

Present Situation (Problem)

According to Obiora (2006), one of the critical elements needed for the achievement of the Millennium Development Goals, Education For All (EFA) and the New Economic Partnership for African Development (NEPAD) and the Nigerian home-grown National Economic Empowerment and Development Strategies (NEEDS) are value reorientation and the empowerment of people through education. The improvement of the quality of education and promotion of ICT capabilities in teaching are expected to enhance the realization of the goals of all these and other development initiatives. Some of the immediate policies that have emerged as a result of these new global issues include: the adoption of a nine-year basic education programme (as an integration of primary and junior secondary school; new curriculum structure for lower basic, middle and upper basic; and their implication for the teacher training institution. According to the Nigeria National Policy on Education, the objectives of Teacher Education are to:

- produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational system;
- further encourage the spirit of inquiry and creativity in teachers;
- help teachers to fit into the social life of the community and the society at large, and enhance their commitment to national goals;
- provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations; and
- enhance teachers' commitment to the teaching profession.

These objectives, no doubt, demand a matching teacher training programme. The importance of this programme was emphasized by Fafunwa (1967) when he argued that, of all the educational problems that beset African countries, none was as persistent (or as compelling) as the one relating to the training of competent teachers. The demand for more and better schools in all parts of the continent, the need to relate the curriculum to the child's environment and, indeed, the overall problem of preparing the future citizens of Africa cannot be effectively accomplished without the aid of competent teachers.

One wonders if, after four decades, the above assertion still subsists today, given the experiences in teacher education. At the primary and secondary school levels, challenges for teacher training institutions are quality of programmes (available resources, venue and period of programme, physical and infrastructural facilities, etc). Teacher education at the tertiary level is made up of two complementary components – the subject matter and teaching-learning process. While the subject matter focuses on subject mastery, teaching practice prepares the trainee for effective lesson delivery. The practice has been that, only about three to nine months at the most is made available for pedagogy in all the four years of the programme. The disruption of the school calendar, entry qualifications, large class size, as well as the absence of physical and other relevant infrastructure for the teacher training programme in institutions at all levels (primary, secondary and tertiary) have been the cause of inefficiency in this aspect of the nation's educational sector. Some other common challenges that cut across the board are poor funding of the institutions and poor image of the teaching profession.

Teacher-education institution mapping is a dynamic process of identifying, logically and systematically, the communities and sites where the necessary facilities for the training of effective teachers are to be located. The purpose of school mapping is to set up a school network which will meet, in the most efficient and equitable way possible, the future demand for education.

The theoretical framework guiding the research for this chapter is the Social Network Theory. The major concepts are critically examined and some of the factors to consider in productive teacher education institution mapping are also discussed. These include the political, pedagogical, geographical, demographic and economic resource factors.

Furthermore, the procedures toward achieving success in teacher education institution mapping are equally discussed. Finally, some challenging factors to effective teacher education institution mapping and strategies for dealing with them are also highlighted in the chapter. The chapter recommends, among others, the training of technical personnel or experts in educational administration and planning to handle the mapping of teacher training institutions, especially in this digital era.

Theoretical Framework

The Social Network Theory (Leydesdoff 1987; Debacere and Clabysse 1998; Kretschmer and Aguillo 2004) focuses on organizations, author-knowledge interaction and communication, and views social relationship in terms of nodes and ties. While nodes are considered as the individual actors within the network, ties are the relationships between the actors. Some ties are weak as a result of geographically remote collaboration but they can promote new knowledge. Detecting and visualizing researchers that function as weak ties between institutions will help to demonstrate communication of knowledge and may further identify the structure of invisible colleagues.

School Mapping and Teacher Education Mapping

Oluchukwu (1998) in Fadipe and Ojedele (2000) sees school mapping as the diagnostic stock-taking of the educational system, with a specific aim of determining what types and stock of resources and facilities that would be needed in the future, and how best the existing facilities can be put into optimal use, in view of the scarcity of resources. In other words, school mapping is the application of thought processes and analytical techniques to see within a short, medium or long-term plan.

Obadan (1978) in Fadipe and Ojedele (2000) and Madumere (2008) define school mapping as 'a dynamic process of identifying logically and systematically the communities and sites where educational facilities are to be located under a plan policy'. This is to say that it is, in a way, the process of assessing an educational system. The purpose of school mapping is to set up a school network which will meet, in the most efficient equitable way possible, the future demand for education. Based on the foregoing definitions, teacher education institution mapping can be seen as the dynamic process of identifying logically and systematically, the communities and sites where teacher educational facilities are to be located in a way that all qualified prospective teacher trainees will have easy access to them. In other words, the entire process aims at achieving excellence in the distribution of educational facilities to produce well equipped and highly effective teachers.

Excellence

From the point of view of Rogers and Ruchlin (1971), excellence is closely related to efficiency or productivity. It is through maximum productivity that excellence or efficiency is achieved. They further observe that there are two aspects of productivity maximization. First, any given set of inputs should be utilized so as to produce the largest value of output. Second, for a specified output and quality level, inputs should be chosen and utilized so as to maximize production. An excellent system can be compared to a system that produces the required benefits and, in its entirety, minimizes or avoids wastage.

From the perspective of Okeke (1985), organizational excellence depends on proper combination of two factors, namely the personnel skill factor and the equipment and supplies factor. Excellence in the school system is determined on the basis of the relationship between the inputs (students, teachers and materials) into the system and outputs (graduated students, dropouts) from the system. If a school system produces maximum output with minimum possible input, the system can be said to be excellent or efficient. Two types of efficiency, 'external efficiency and internal efficiency' are discernible in the school system.

According to Coombs (1968), internal efficiency refers to the relationship of the inputs of the school system to outputs while external efficiency is the degree to which the school system meets the broad social, cultural and economic objectives of the society, that is, the ultimate benefits to the society from their educational investments (input). It is difficult to measure the external efficiency of the school system, one of the reasons being that it is not easy to monitor or measure the performance of the students who have graduated out of the system. The internal efficiency of the school system can, however, be measured.

Having defined or explained the major concepts: teacher education, teacher education institutions, teacher education institution mapping and excellence, we shall examine how we can use teacher education institution mapping to achieve excellence in the system. In order to do this, we shall consider the objectives of, as well as factors to be considered in, teacher education institution mapping. Furthermore, we shall identify and discuss the necessary procedure in teacher education institution mapping, namely, the diagnosis, enrolment, projection and student flow model. Finally, we will discuss the procedures and techniques involved in teacher education institution mapping for excellence.

Making teacher education institutions more efficient by improving the ratio between cost and performance, that is enhancing the input-output ratio, is vital. When the school map is being drawn up, the objective will be to ensure that optimal utilization roles of the school site equipment and staff, and the length of time they are used, are the highest possible, bearing in mind pedagogic and administrative limitations. The idea is to overcome the short-sighted view of the school as an isolated unit. The school forms part of a body of social services to be distributed geographically in a consistent manner, and in such a way that the working of the external economic factors results in the most effective possible use of school resources.

Procedure in Teacher Education Institution Mapping

Techniques for teacher education institution mapping can be by extracting institutions, creating institutions matrix and mapping of institutional collaboration. In this sense, the following should be considered:

Demographic Factors and Mapping of Institutions

These factors readily come to mind whether the aim is that of setting up, expanding or altering the school network. The first question to be raised is that of the potential clientele and its distribution. Here, we take cognizance of population dynamics so far as they can be foreseen:

i.   A geographical levelling out of the condition of supply, through the creation of equal intake capacities and an equitable distribution of human, material and financial resources over the various areas;

ii. Equal social opportunity for and access to schooling through active measures, encouraging students to enrol;

iii. Reforming structures, curricula and methods. Here, teacher education institution mapping should make it possible to determine how schools may be reconverted and school sites relocated geographically so as to adjust to new characteristics of the school system as laid down in the reform programme (Oluchukwu 1999). In a nutshell, the specific objectives of teacher education institution mapping, besides assisting to realize the goals of teacher education, are: (1) to achieve equality of opportunity and (2) to improve efficiency in the use of resources.

The Pedagogical Factors

We consider quite a number of parameters such as the normal period of utilization of the school site, weekly time table (staff and student) and breakdown by courses, department by department (vocational, special, business, science, technical, etc). An attempt must be made to fix the optimum size of the school at each level of the system as this produces the size which, at the same time, affords the best possibilities for management and administrative control for the human character of the school and full utilization of staff and facilities.

Social Factors

These are to be analysed in the light of the outlook for a reduction in the local or state disparities between social categories, and the foreseeable strength to schooling – for instance, girls in some part of the North and boys in some part of the East.

Economic Factors

These involve looking into the lowest financial cost after a decision on optimum size has been taken, resulting in cutting out schools that are under-utilized, schools with high percentage of hostel accommodation, etc.

Geographical Factors

The first step in school mapping is the diagnosis of the present institutional network in the area under consideration. This will uncover any weakness and thus help us to re-design and rationalize it. In carrying out the diagnosis, a number of assessment criteria are used, viz:

    i.   Does the existing institutional network meet the demand for education in the area?

    ii.   Is the existing institutional network economical?

    iii. Is the existing institutional network equitable?

Basically, there are two categories of concern in the school system. These are intra-educational diagnosis (that is, those areas of concern that are within the school system) and the extra-educational diagnosis (those that are outside of the school system).

Areas of Intra-educational Diagnosis

- *Education Stock-taking:* This includes determining the number of schools, classrooms, teachers and teacher training facilities, science laboratories, workshops, books, etc., that make up the school system.

- *The Internal Efficiency of the Different Levels of Schooling:* This comprises the means of determining, for each level of school, the rates of retention and dropout, transition rates and promotion rates. This is an essential part of diagnosis since the problem of wastage is of primary importance in the school system.

- *Student Flow:* This is related to efficiency but it is distinct. It permits us to know, during the school mapping, what happens to the students as they go in, throughout the school system.

- *Financial Resources:* Part of the diagnosis must include the financial resources available to the school system for both capital expenditure (construction of school, purchase of equipment, etc.) and recurrent expenditure (teachers' salaries, maintenance and other expenditures that occur with predictable regularity).

- *Cost:* This is, of course, related to financial resources. There are all sorts of diagnostic tools and techniques for determining the costs of education. We can compute total cost per level, cost per student (primary, secondary or tertiary, etc). Costs are theoretically related to output.

- *Issues of Equality and Disparities:* Equality of access to education and equality of educational opportunities are essential concerns for school mapping. The basic sources of inequalities are social, sexual and regional.

Areas of Extra-educational Diagnosis

- *Demographic factors:* These include mainly the growth in the school-age population so that, during the school mapping, we can discern what the social demand for education will be in the future. The demographic information is broken down by geographic regions and sex.

- *Social-economic factors:* These include the social class structure, the rural-urban distribution of the population, and the general economic situations and prospects.

- *Political Factors:* These include the question of political stability and how it can affect the educational policies of the government. The concept of quota system, catchment areas, educationally disadvantaged or advantaged come into play.

- *The External Efficiency of the School System:* Basically, this refers to the 'fix' between education and the needs of the society, especially the labour market. On this count, a diagnosis wants to see what happens to school leavers and graduates: Do they find the jobs they were educated and trained for? How long does it take them to find jobs? In other words, have they been educated and trained to become productive citizens?

- *Geographical Factors:* These have to do with the concept of catchment area. A catchment area is the geographical area served by a school. It is important to bear in mind that the relief and size of catchment areas depend on the means of getting from home to school since, in practice, the variable which decides how large a catchment area may be is not the distance students have to travel but the time involved when they do it.

- *Political Factors:* Politics also may influence teacher education institution mapping. To unify the ethnic groups in a country, government may provide teacher education institutions to reflect the federal character. Political learners can also establish school institutions in all parts of a state or a country to facilitate access to education. The political objective may be to promote egalitarianism in the social group.

- *Transportation:* Transport facilities that will connect schools to the catchment areas for easy accessibility should also be considered in teacher education institution mapping.

Challenges Facing Effective Teacher Education Mapping and Resolution Strategies

Effective teacher education mapping in Nigeria is challenged by a number of factors. Some of these factors are as follows:

a) *Lack of Qualified or Trained Personnel:* For effective teacher education mapping to be conducted or carried out, it has to be done by a team of experts in educational administration and planning. But in Nigeria, it is not uncommon to see a team of unqualified personnel carrying out such a specialized assignment. This can adversely hamper the achievement of the objectives of the whole exercise. Therefore, government at all levels should ensure more training of manpower, particularly in the area of educational administration and planning.

b) *Lack of Storage Facilities for Data:* This is common in all developing nations. There are no adequate or durable material or recordkeeping facilities. In Nigeria, government should, as a matter of urgency, provide the necessary data storage facilities and data retrieval backup to the Ministry of Education and all educational agencies, for the purpose of effective data storage and retrieval.

c) *Financial Constraint:* It requires some quantum of financial resources to obtain adequate information. In the process, one is required to travel from one place to another to collect the necessary data. But in a situation where insufficient or no money is released for this purpose, it becomes a problem for the right thing to be done, thereby affecting the objective of the exercise. It is therefore recommended that adequate financial resources should be made available by the government through the Ministry of Education, for the purpose of achieving excellence in teacher education institution mapping.

d) *Political Factors:* In as much as politics and education are inextricably connected, there in need for politics to be divorced from education, particularly those areas of politics that have nothing to do with the growth and development of education. Hence, teacher education institution mapping should be done without any political pressure from any quota of the geographical formation.

e) *Corruption:* Effective teacher education institution mapping is sometimes challenged by corruption on the part of some of our leaders. As we know very well, corruption is a crisis of pandemic proportions in our present-day society, particularly in the hearts of most or some of our leaders. Even when adequate resources are made available, because of this singular reason, these resources can be personalized or diverted from the purpose for which they were meant. Therefore, we must all have attitudinal reorientation towards public and private assignments.

Conclusion

The adoption of teacher education institution mapping in order to enhance excellence in the system implies a significant change in the method of planning for education and the implementation.

This requires:

i. The design methodology which may be applied to all the states of the federation.

ii. The training of technical personnel in charge of the preparation and implementation of the school map.

iii. Setting up administrative structures responsible for the preparation and implementation of the school map at the three levels of government.

In this chapter, we have discussed the major concepts, namely, teacher education, teacher education mapping and excellence. In addition, the objectives of mapping teacher education institutions to achieve excellence have been highlighted. Finally, we have looked at some challenges that could affect teacher education institution mapping for excellence and proffered some resolution strategies.

References

Coombs, P.H., 1968, *The World Educational Crisis: A System Analysis,* New York: Oxford University Press Ltd., p. 181.

Fafunwa, B., 1974, *History of Education in Nigeria,* London: George Allenland Unwin, p. 91.

Farrant, J., 1980, *Principles and Practice of Education,* London: Longman.

Leydesdoff, 1987, Debacere and Clabysse, 1998, Kretschmer and Aguillo, 2004, 'Various Methods for the MAPPING of Science', *Scientometrics* 11, 291-320.

Madumere, S.C., 2008, *School Mapping as a Tool for Rationalisation of Institutional Network of Schools,* Lagos: Vitaman Educational Books.

Obadan, E.M., 1975, 'School Mapping as a Tool for Structural Reform of Secondary School: A Case Study of Owan LGA of Bendel State, Unpublished M.Ed. thesis**,** University of Ibadan.

Obiora, G., 2006, *Resources for Science, Maths Qualification and Technology Education in the Context of Education Reforms in Nigeria, Keynote Address delivered at the 7th Annual Conference of STAN*, August 14, 2006 Calabar.

Oluchukwu, E.E., 1998, 'School Mapping and Rationalisation of Institutional Network, Criteria for Optimal Utilisation in a Period of Education Crisis'*,SEPA Journal*, NEPA 1 (1). Oluchukwu, E.E., 1999, 'School Mapping and Planning for Efficiency in the School System', in J.O. Fadipe and P.K. Oyedele, eds., *Management of Nigeria Education: Personnel Administration and Quality in Education*, NIEPA, 3.

Okeke, A.N., 1985, *Administration of Education in Nigeria: Problems and Prospects.,* Ibadan.

Oyekan, S.O., 2006, *Foundations of Teacher Education.,* Ibadan: Ben Quality Prints. Roger, D.C.

Ruchlin, 1971, *Economics of Education: Principles and Application*, New York: The Free Press.