PROJECTING ENROLMENT FOR UNIVERSAL BASIC EDUCATION IN EDO STATE

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ABSTRACT
Primary education is the foundation for other levels of education, thus enrolment at that level is very crucial if the policy of Universal Basic Education (UBE) will be successful and data on enrolment must be accurate, available and accessible. Consequently the paper projected enrolment for UBE programme in Edo State.
Data on enrolment was collected through checklist from the relevant bodies. Data were analyzed with Econometric formulae.
The results showed that the actual enrolment in 2006/07 academic session was 463,627 (56.6%) with 43.4 percent pupils not in school. In the year 2020 the enrolment will be 1,351,651 with corresponding ideal number of 33,791 and 45055 teachers and facilities. Thus, the existing staff and facility gap needs to be filled.

INTRODUCTION
In compliance with the Article 26 of the Human rights declaration of 1948 on the right of every child to free primary education by the United Nations, further reiterated by the 1990 Jomtien declaration of Education For All (EFA), Nigeria like other nations has adopted education as the most veritable vehicle for achieving the developmental goals and at various times embarked on the implementation of this project through the initiation of various free education programmes such as Universal Primary Education (UPE) at different times. Precisely, UPE programmes established in 1955, 1957, 1976 and 1979 in the Western and Eastern regions, national and western states respectively. Recently, the Nigerian government launched the UBE programme in 1999 and the Act establishing it in 2004 (Federal Republic of Nigeria, 2004). A report published by UNESCO (2009) however, revealed that the failure of governments across the world to tackle deep and persistent inequalities in education is consigning millions of children to lives of poverty and diminished opportunity. About 75 million children of primary school age are not in school, including just under one-third of the relevant age group in sub-Saharan Africa. This is blamed on a combination of political indifference, weak domestic policies, and the failure of aid donors to act on commitments. It reiterated that unequal opportunities for education fuel poverty, hunger, and child mortality, and reduce prospects for economic growth. That is why governments must act with a greater sense of urgency.

Edo State in compliance with the federal government's directive on the establishment of UBE at state level commenced the programme in 2004. However, it has been unable to fully implement the policy guidelines as the state was unable to access the fund accrued to it due to the inability of the state to raise the counterpart funds and the politicization of the issue that has in recent time generated argument between the executive and the legislative arms of the state government (Edo State Ministry of Basic Education, 2009).

With free, universal and compulsory education already put in place at the primary and JSS school level, it follows that there will be enrolment explosion. Hence education at this level needs to be planned

to accommodate all school-age children irrespective of sex, religion, ethnic and culture. Adeyemi and Igbineweka (2001) asserted that: "for education to facilitate development, the school (one of the invaluable institutions established by society to educate its citizenry) has to be made accessible to all persons irrespective of age and circumstances of birth for the society to develop."

The objective of this paper therefore is to provide educational planners and relevant bodies with enrolment projection for the UBE programme in Edo State that will enhance the effective implementation of the programme without excluding any child from the programme in terms of providing adequate human, materials and financial resources. Furthermore, the data on enrolment is to assist in the planning of other levels of education in the state. This paper assumes that: the transition rate from primary to JSS level remains 100%; the progression rates also remains 100%; there is no wastage in form of drop outs, withdrawal, death, and social unrest; the data gathered from sources such as National Population Commission, Ministry of Basic Education are accurate and reliable and the "compulsory" component of the UBE policy objectives is enforced by the government.

ENROLMENT PROJECTION

Planned national development requires accurate date about the various aspects of socio-economic conditions at different levels. Indicators of development are directly or indirectly related to the population dynamics. It is therefore, of paramount importance to know the various aspects of the size and structure of population at different point in time. Another important requirement of educational planning is enrolment projections which serve as the tool for having a fore knowledge of what enrolments population will be in school in the nearest future and also forms the basis for many investment decisions such as determining the cost of all other inputs into education, the number of schools to be opened or upgraded, classes, teachers required, facilities, funding, teaching aids, etc (Aghenta, 2001and Mehta, 2004).

An unknown enrolment tends to lead to inaccurate provision of educational resources. Often time, when there is no match between the pupils' enrolments and resources for teaching and learning, there is the problem of institution inefficiency. The wastage been observed in our schools and has constituted a terrible drain on the economy, hence it must be nipped at the bud. One of the ways to achieve this is to plan adequately for the education programme which can be possible only with availability of accurate and adequate data on enrolments.

Poor planning and implementation was attributed for the failure of the various UPE programmes embarked on by the government. Ocho (1993) affirmed that between 1979 and 1984, Nigerian primary education almost collapsed. Salaries of teachers were in arrears and most schools became abandoned because funding of the system was not sufficient. Furthermore, reports showed that the state of school facilities were inadequate as the number of pupils anticipated by the government to be in schools was out weighed by the demands. Therefore, the financial resources of the government were over-stretched. This has been attributed to lack of accurate enrolment figures of pupils and teachers (Ikelegbe, 1993).

The UBE programme is an attempt to provide equal education opportunities for all children of school age between 6 and 15 years old irrespective of sex, ethnicity or religion. However, the realization of this depends on availability of accurate data on school characteristics. According to Adeyemi and Akpotu (2004) enrolment projection reduces the risk of excluding any child within this age group. In addition, it provides the needed information to determine other resources as well as the financial implication. The fore-knowledge that when the number of enrolled student increases, the cost of providing education also increases, prepared the government for the task (Cohn and Geske, 1990; Aghenta, 2001; Nwadiani and Igbineweka, 2006). Furthermore, the government often times want to know the performance of its policy objectives as it concerns the actual enrolments at various levels of education as the numbers of students determines the funding arrangement. Thus, if the government is to succeed in achieving its UBE objectives, it must plan its activities as planning makes the management of the programme effective and efficient. What should be planned include the curriculum, facilities/equipment, enrolment of students, staffing, funding and supplies.

ENROLMENT PROJECTION METHODOLOGY

There are various methods of projecting enrolment such as using either mathematical or analytical methods. However, the use of these methods requires a comprehensive educational data on actual

enrolments (Gerald and Hussar 2008). These are often difficult to obtain in Nigeria due to reasons such as falsification of data and absence of data base. According to Black (2004), "Without data, enrolment management plans can only be tactical, not strategic. Even at tactical level, the absence of data results in plan predicated on intuition and wishful thinking with a low probability of success."

The paper therefore adopted Extrapolation of Past Trend of enrolment approach developed by (Chesswas, 1969) to make total enrolment projection for this paper. In addition, Sprague's Multipliers was used to determine the school-age population from the 2006 census population figure while the academic staff required for the projected enrolments was determined by using the National Policy on Education (2004) which recommended average teacher-student ratios (TSR) of 1:40.

The paper adopted as framework the rational comprehensive planning and comprehensive system theories propounded by Faludi and Needham (1973) and Immegeart and Pilecki (1973) respectively. Rational comprehensive planning theory advocates a total view of planning at once without limiting the scope of planning. That is, it allows for planning for the entire educational system of a country for five or more years. It is applicable in this paper, as the projection plan is for the entire UBE programme that spans over five years. The comprehensive system theory was also adopted because the state's population census figure and the component student enrolment are known. Thus, the data for the school-age specific for 6 years to 14 years old group were extracted from the 2006 census figures using Sprague Multipliers. The available data on enrolment into primary 1-6, and JSS 1-3 in the 2006/2007 academic session for classes already existing and staff on roll obtained from the Ministry of Basic Education was used to determine the number of pupils that will be in primary 1-6 and Junior Secondary School (JSS) 1, 2 and 3 in 2010/2011 academic session. The result is presented in table 1.

Table 1: Actual and Ideal Enrolment in Primary 1 to JSS 3 in Edo State in 2006/2007

Year	Pry 1	Pry 2	Pry 3	Pry 4	Pry 5	Pry 6	JSS 1	JSS 2	JSS 3	Total
2006 Actual	76651	67881	67341	65655	62422	56119	24229	23217	20112	463627
2006 Ideal	109242	108651	101623	96566	90629	83664	78206	76091	74352	819024

Source: Edo State Ministry of Basic Education

Table 1 revealed that enrolment in the Primary- Junior Secondary School in 2006/2007 academic session was 463,627 out of 819024 representing 56.6 percent with 43.4 percent. There exists a gap between the actual and ideal enrolment of school-age population in 2006 academic session which could be an indication that most school-age children are not enrolled.

Based on the available data, it is assumed that enrolment figures for Primary Grade 4 to JSS 3 were already in school in 2006, and these cohorts will continue to progress without any major changes and subsequently progressed respectively to the next grade without any wastage. Consequently, enrolment was projected for 2010 to 2020 academic sessions.

Table 2: Actual and Projected Enrolment in Edo State in 2006/07 and 2010

Year	Pry 1	Pry 2	Pry 3	Pry 4	Pry 5	Pry 6	JSS 1	JSS 2	JSS 3	Total
2006	76651	67881	67341	65655	62422	56119	24229	23217	20112	463627
2010	123911	120068	119419	111694	106136	99611	91956	85957	883632	942384

Source: Researcher

Table 2 shows that in 2010, a total of 942,384 children are expected to enroll in the UBE programme covering primary one through JSS 3. Based on this, the following assumptions were made and enrolment for a period of eleven years was projected. The data is presented in table 3.

* School-age projection figure is expected to have enrolled in UBE in 2006 (base year) using Chesswas (1969) equation; r (growth rate) = 3.2%

** Estimated number of 6 year to 14 year old children extracted from the 2006 national census for Edo State using Sprague Multipliers Coefficient.

*** 100 percent promotion and progression rates.

Table 3: Enrolment Projection for UBE 9-Year programme in Edo State (2010-2020) Based on the Ideal Projected 2006/2007 Enrolment

Grade	Pry 1	Pry 2	Pry 3	Pry 4	Pry 5	Pry 6	JSS 1	JSS 2	JSS 3	Total Enrolment
2006	109242	108651	101623	96566	90629	83664	78206	76091	74352	819024
2010	123911	120068	119419	111694	106136	99611	91956	85957	83632	942,384
2011	127876	123911	120068	119419	111694	106136	99611	91956	85957	986,628
2012	131968	127876	123911	120068	119419	111694	106136	99611	91956	1,032,629
2013	136191	131968	127876	123911	120068	119419	111694	106136	99611	1,076,874
2014	140549	136191	131968	127876	123911	120068	119419	111694	106136	1,117,812
2015	145046	140549	136191	131968	127876	123911	120068	119419	111694	1,156,722
2016	149688	145046	140549	136191	131968	127876	123911	120068	119419	1,194,716
2017	154478	149688	145046	140549	136191	131968	127876	123911	120068	1,229,772
2018	159421	154478	149688	145046	140549	136191	131968	127876	123911	1,269,128
2019	164523	159421	154478	149688	145046	140549	136191	131968	127876	1,309,740
2020	169787	164523	159421	154478	149688	145046	140549	136191	131968	1,351,651

Table 3 indicates that in 2010 and 2020, school-age children that expected to enroll are 942,384 and 1,351,651 respectively. This will portend a huge financial commitment to the government who is the sole financer of the UBE programme.

Though the paper will not cover the cost implications of this projection, the facilitator of teaching and learning (teacher) and the facilities such as desks and benches required for the enrolment figure are equally projected.

The teacher-student ratio of 1:40 stipulated by NPE (2004) was adopted.

Table 4: Teachers Required for the UBE Programme from 2010-2020

Year	Pupils	Teachers Required	Additional Teachers Needed
2010	942,384	23,560	
2011	986,628	24,666	1106
2012	1,032,629	25,816	1150
2013	1,076,874	26,922	1106
2014	1,117,812	27,945	1023
2015	1,156,722	28,918	973
2016	1,194,716	29,868	950
2017	1,229,772	30,744	876
2018	1,269,128	31,728	984
2019	1,309,740	32,744	1016
2020	1,351,651	33,791	1047

Table 4 shows that for an ideal enrolment, 23, 560 and 33791 teachers will be required for the 2010 and 2020 academic years respectively and the existing gap is to be filled yearly. The provision of adequate physical facilities gives shape to teaching and learning activities. Without adequate facilities put in place, there can be no meaningful teaching and learning. Thus, the paper adopted the UNESCO recommendation as adapted by Coombs and Hallak, (1987) which stated that for a classroom with a maximum enrolment of 32 pupils the following number of furniture is to be provided: 1 teacher desk, 1 regular chair, 32 students' chairs, 16 double classroom tables, 1 classroom cupboard and 1 notice board to the projected enrolment. Applying it to a maximum enrolment of 40 pupils per class, for the long desk that seats four pupils (equivalent of 10 benches and 10 long desks; 4:1) and for the dual desk that seats two pupils (equivalent of 20 benches and 20 long desks; 2:1). The furniture required for the expected enrolment was projected while other facilities remain constant. The number of classrooms that will be

required is equivalent to the number of teachers computed for each year if a teacher is to oversee a class. Thus, government is left to decide whether to build new classrooms or will introduce a shift system to reduce cost of building new ones. Furthermore, based on the stipulated number of facilities to be put in place, benches and desks required are projected.

Table 5: Projected Enrolment and the Facilities Required

Year	Enrolment	Furniture Required (2:1)	Yearly Difference	Furniture Required (4:1)	Yearly Difference
2010	942,384	47119		23560	
2011	986,628	49331	2212	24666	1106
2012	1,032,629	51631	2300	25816	1150
2013	1,076,874	53844	2213	26922	1106
2014	1,117,812	55891	2047	27945	1023
2015	1,156,722	57836	1945	28918	973
2016	1,194,716	59736	1900	29868	950
2017	1,229,772	61489	1753	30744	876
2018	1,269,128	63456	1967	31728	984
2019	1,309,740	65487	2031	32744	1016
2020	1,351,651	67583	2096	33791	1047

Table 5 reveals that Edo State Government has to provide 23560 and 33791pupils' furniture for the 2010 and 2020 academic sessions. This entails that government has to take stock of the available ones and make new ones to meet up with the stipulated number. In the subsequent years, additional benches and desks are needed for effective teaching and learning.

DISCUSSION OF FINDINGS

The focus of this paper was to project pupils' enrolment for the UBE programme in Edo State as well as determines the required teaching staff and facilities. Based on the analysis of the existing trend and census figures, it was found that there was gap between the actual and expected enrolment and staff on roll in 2006/07 session.

The projections for the pupil enrolment and number of teaching staff/facilities required between 2010 and 2020 showed that 23,560 teaching staff and 2212/1106 furniture will be the ideal requirements for the projected 942, 384 enrolment in 2010, while 33,791 teachers and 2096/1047 furniture will be required for the projected 1,351,651 enrolment in 2020. There exists a gap that should be filled between the expected enrolment and the number of staff/facilities requirements for the future years. This will cost the government a fortune in terms of funding. This finding is supported by Aghenta (2001) and Mehta (2004) who found that many investment decisions such as determining the cost of all other inputs into education, the number schools to be opened or upgraded, classes, teachers required, facilities, funding, teaching aids, etc are determined by enrolment.

IMPLICATIONS FOR STRATEGIC PLANNING

The findings of this paper revealed that most problems that are related to enrolment and other inputs in the school system are the result of the difficulty in obtaining accurate data on the true situation of the system. With the huge projected pupil enrolment and the required teachers and facilities between 2010 and 2020, the fear is the financial capacity of the government to cope. Supporting this view, Ocho (1993) and Ikelegbe (1993) attributed the inadequacy of school funding, facilities and high enrolment of pupils in schools to lack of accurate enrolment figures of pupils, facilities and teachers because the anticipated enrolments by the government was outweighed by the demands. The effective functioning of the system will require more schools, funding, staff development, infrastructures, facilities etc which portends serious material and financial implications for all stakeholders. This therefore calls for urgent plan of action that will facilitate 100 percent enrolment and adequate supply of education resources and services that will be needed on regular basis and in right mix.

CONCLUSION

Based on the findings of this paper, it can be concluded that the access to basic education in Edo State is still low. There is also shortage of teaching staff and inadequacy of facilities. It can also be concluded that based on the projected enrolment vis-à-vis teaching staff/facilities that will be required, there is going to be serious upsurge in both enrolment and staff requirement in the implementation of the UBE programme in Edo State in the nearest future

RECOMMENDATIONS

The following recommendations are made based on the findings of this paper:

There has to be political will to carry through the programme. Plan for the programme must be executed faithfully. To improve on student enrolment, there is need for new strategies in enrolment management such as identifying barriers affecting admission, completion and transition rate. The sources of the adequate provision of funds and facilities for the programme must be determined and funds released as at when due. The school managers and administrators must be dedicated, honest selfless and be accountable. The recommendations can only be effective if and when continuous monitoring and evaluation of the programme is carried out to ensure effective implementation of the programme and the authorities should be ready to implement the result of the evaluation.

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APPENDICES

$En = Eo (1+r)^n$ (Chesswas, 1996). Where:

Eo = the enrolment for base year of the period considered

En = the enrolment in the final year of the period considered.

r = the rate of growth of enrolment during this period.

n = the number of years between the base year and the final year.

Enrolment Projection:

Average growth rate = 3.2%, If base year = 2006 academic session,

$En = Eo (1+r)^n$, Eo = 2006, En =2010, n =4, Age-specific enrolment (6year) in 2006 = 109242

En (2010) = 109242 (1+ .032)4 = 109242 (1.032)4 = 123911; En (2010) = 123911 etc.

Teachers' Projection.

Average teacher-student ratios by discipline = 1:40, Base year 2006, Ideal student enrolment = 453627

Number of staff required = 453627/40 = 11,583

2010, student enrolment = 942384

Number of staff required = 942384/40 = 23,560

2020, student enrolment = 1,351,651

Number of staff required = 1,351,651/40 = 33,791

Yearly additional required = 24666-23560

= 1106

Sprague Multipliers

fo = fa x f-1 +fb x f-2 + fc x f+1 +fd x f+2 +fe x f+3 Where:

fo is the number of age group being considered;

f-1, f-2 is equal to the number of the two preceding age group;

f+1, f+2, f+3…. . Numbers in the three following age group.

fa, fb, fc, fd, fe etc is the number in the first to the fifth single year panel.

Edo State 2006 Census Population Figure = 3,218,332

2006 Census Age-Specific Population 6-14 Years

Age (Year)	Population	Age (Year)	Population
6	109242	10	90629
7	108651	11	83664
8	101623	12	78206
9	96566	13	76091
		14	74352