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PUPILS-TEACHER RATIO IN PUBLIC PRIMARY SCHOOLS IN OYO STATE: THE NEED FOR CAPACITY BUILDING IN MATHEMATICS FOR THE 21ST CENTURY

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ABSTRACT

The study was conducted among the public primary schools in Oyo state. As a descriptive research study it made use of 330 primary school teachers in the 66 public primary schools and 33 local education secretaries in the 33 local government areas of the state. Three research questions were raised, and the data collected were analyzed through simple ratio and percentages. Two different instruments were developed and used for the study. They comprised of primary school teachers' questionnaires ($r = 0.66$) and local education secretary questionnaires ($r = 0.63$) on the number of teachers and pupils' enrolment in their schools and their local education areas respectively. Findings revealed that four different shortages of primary school teachers were identified, and that the trends of the teacher-pupils were skewed more to one area than others. The implications of the findings towards the mathematics manpower training and supply in the 21st century were discussed as they dictate the quality of Universal Basic Education (UBE), subset of global philosophy of "Education for All (EFA)" in the 21st century.

Key words: Pupils-teacher, primary school, capacity building, Mathematics

INTRODUCTION

All subjects in the school system are significant but some are more important than others due to the educational philosophy of the nation, which the school system is expected to serve. The objective of education is to prepare the young ones and to sensitize them throughout their lives. To attain this objective, different school subjects are combined, with each subject having its objective to provide. Mathematics is an important subject in the sense that its unique position and importance may be appreciated in the understanding and advancement of science and technology. This is why Mathematics is introduced to learners at early stage of the education system. Primary education plays vital role in the development of learners throughout their lifetime due to the objectives, which include:

- i. Providing the child with the necessary basic skills in numeracy
- ii. Exposing the child to ways of applying these skills to his problems
- iii. Providing the child with the basic manipulative skills useful in ordinary life
- iv. Providing the child with the basic skills in logical thinking
- v. Introducing the child to the basic concepts of spatial relationship;
- vi. Introducing the child to the basic of record keeping and aspect of accounting (NCPE, 1981) Fafunwa in Adaralegbe (1972) expressed the view that no adequate training can take place without competent teachers to handle the training programme. Teachers translate policies into practice and programmes into action. However, there has been a longstanding crisis of confidence in the quality delivery of primary education in Nigeria. A World Bank report placed Nigerian children at the bottom pack of twenty-one African countries in educational achievement. Performance in literacy, numeracy, and life skills has been especially deplorable. Scholastic achievement at the secondary school level has not been any better, either, especially in Mathematics, Science, and English in which less than a quarter of the candidates obtain credit level passes over many years (The Report, 2006, P.I)

To this end government has placed premium emphasis on the training of teachers in specialized institutions like colleges of education that award Nigerian Certificate of Education (NCE) to the candidates upon completion. This certificate is regarded as the minimum entry qualification into teaching profession at primary school level. Decree 5 sections 3 to monitor the colleges of education's programmes established National Commission for Colleges of Education (NCCE) in 1989, and fashion out objectives for all programmes among which is the Mathematics Education programme. At this level Mathematics Education objectives include:

- (i) Discussion with confidence the historical development of Mathematics as a discipline
- (ii) Solve abstract problems through the use of Mathematical functions and formula

- (iii) Motivate pupils' interest in Mathematics by the use of appropriate teaching strategies particularly at the primary and junior secondary school levels
- (iv) Analyze relationships in quantitative terms
- (v) Apply the computer to data processing
- (vi) Demonstrate convincing enthusiasm and intellectual ability for further studies in Mathematics (NCCE, 1996)

These objectives would make the would-be candidates to demonstrate the teaching of Mathematics at the primary school levels. UNESCO (1992) defines Teacher education as the education of those persons who are directly responsible for the education of pupils or students.

However, two of the forty-six colleges of education are situated in Oyo state with the 1990-2000 session's preparation of the mathematics teachers not matching the pupils enrolment in the public primary school as shown in tables 1, 2 and 3.

Table 1: Mathematics teachers' preparation in the colleges of education from 1990-2000 sessions

Year	Distinction	Credit	Merit	Pass	Failure	Total Pass	Total Failure	Aggregate
90/91	02	04	20	08	16	34	16	50
91/92	-	09	53	14	12	76	12	88
92/93	04	17	66	20	04	107	04	113
93/94	-	17	31	08	04	56	04	60
94/95	04	11	35	10	02	60	02	62
95/96	03	13	57	16	11	89	11	100
96/97	01	11	56	25	23	93	23	116
97/98	01	04	20	09	09	34	09	43
98/99	03	08	27	13	22	49	22	71
99/00	-	07	32	12	16	51	16	67
Total	18	101	397	135	119	649	119	770

Source: Academic offices of the Colleges of Education

Table 1 describes the quantity of mathematic teachers' preparation from the two existing colleges of education in Oyo state and it was found to be grossly inadequate. This corroborates the finding of Taiwo (1980) who had expressed the view that the two major problems of teacher education from primary school teachers were the low output of teachers from the training colleges and the poor quality of teachers produced.

Table 2: Enrolment in the public primary schools and local government in Oyo State from 1996-2000

Local Govt	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001	Total
Afijio	18,379	20,555	22,333	23,128	24,321	108,716
Akinyele	29,932	35,533	35,378	28,510	39,452	168,805
Egbeda	19,805	22,790	22,789	22,951	43,162	131,497
Ibadan North	36,796	40,999	40,999	44,338	52,995	216,127
Ibadan N.E	47,791	47,533	47,662	50,929	54,448	302,811
Ibadan N.W	24,766	27,895	27,895	31,805	43,733	156,094
Ibadan S.E	46,024	52,771	52,771	56,693	62,077	270,337
Ibadan S.W	38,722	36,138	36,092	37,658	42,675	191,285
Ibarapa East	11,368	11,363	11,355	15,349	12,764	62,199
Ibarapa Central		17,572	18,853	13,309	15,127	
Ibarapa North	20,755	17,555	17,577	19,544	14,735	155,027
Ido	13,118	15,602	15,609	23,125	28,980	96,434
Olorunsogo	13,594	11,127	11,129	12,599	21,582	
Irepo		14,188	14,188	19,967	21,125	139,499
Iseyin	39,009	34,684	33,624	37,869	38,017	183,199
Itesiwaju		15,223	15,174	16,687	19,773	
Iwajowa	26,868	12,887	12,887	12,948	14,173	244,666
Kajola		23,921	23,666	22,256	28,203	
Lagelu	17,688	25,243	26,345	28,000	37,018	134,294
Ogbomoso North	14,303	20,660	20,560	26,736	31,335	113,594
Ogbomoso South	14,542	21,449	21,449	24,020	31,022	112,482

Ogo-Oluwa	8,663	13,773	13,800	14,806	19,151	7
Oluyole	26,210	35,693	35,693	44,864	42,361	1
Ona-Ara	35,884	38,918	38,918	43,112	60,289	1
Oore-Lope	8,545	17,622	17,622	18,858	20,377	1
Oriire	15,850	20,451	22,835	24,937	32,398	1
Atiba	55,281	28,427	26,369	28,005	30,147	1
Oyo East		16,912	13,312	18,641	22,028	
Oyo West		17,254	17,254	18,285	20,231	
Atisbo	49,607	13,310	13,390	19,992	21,866	1
Saki East		14,724	14,732	18,606	18,748	
Saki West		24,193	24,193	24,554	27,478	
Surulere	20,269	28,324	28,324	29,017	30,805	
Total	653,769	797,267	947,777	872,098	1,022,612	4

Source: Planning, Research and Statistics Department, Oyo SUBEB (2001)

Table 2 describes the pupils' enrolment to be geometric in nature without complementary increase in number of teachers preparation especially the mathematics teachers as shown in table 1 for the affected y

Table 3: In-service teachers by genders in the public primary schools in Oyo State from 1996-2000

Gender/Year	1996	1997	1998	1999	2000	Total
Male	7500	7009	6885	7272	7057	35723
Female	13444	15250	13212	15136	16353	73395
Total	21004	22259	22067	22048	23410	109118

Source: Planning, Research and Statistics Department, Oyo SUBEB (2001)

Table 3 describes the in-service teachers by genders in the public primary schools in Oyo State from 2000. It is acknowledged that the coverage from 1996 is due to unavailable data of the previous year emanated from the transfer of documents as a result of the creation of Osun state out of the old Oyo. One is not sure if the present trend in manpower supply could sustain the pupils' enrolment trend especially in the 21st century that Universal Basic Education (UBE) is being considered as panacea to Education for All (EFA). Apart from that, one is not sure of the manpower availability in the area of Mathematics to sustain the objective of teaching the subject at the primary school level. Though it is assumed that a ratio of prepared teachers for the existing public primary schools come through different accredited colleges of education out of which these two existing are among, yet one could not lay claim substantively to the quality delivery of instruction by a single teacher to a large number of pupils compared to world standard of 30 pupils in a class. The need for capacity building in terms of mathematics teaching is imperative. According to Osafehinti (1999), capacity building involves the development of appropriate capacities in terms of human resources, institutions and policy formation to ensure effective implementation of programmes of intent. At this juncture, the programme of intent is provision of qualitative education at all the primary school levels where mathematics teachers are indispensable. Hence, the study explores teachers-pupils trend in the state for the 2005/2006 session, which serves as an index for manpower training in Mathematics.

Statement of the Problem

The study was carried out to investigate the pupils-teachers trend in the public primary education of Oyo state for the 2005/2006 session. Specifically, the study sought to provide answers to the following research questions.

Research Questions

RQ₁: What are the pupils' enrolments in the public primary schools for the 2005/2006 session?

RQ₂: What are the qualifications of available teachers in the public primary schools for the 2005/2006 session?

RQ₃: What are the trends of qualified public primary schools teachers to pupils for the 2005/2006 session?

METHODOLOGY

Research Design

The study was a descriptive research designed to explore the current trend of the pupils-teachers in the public primary schools in Oyo State.

Population

Oyo state has 1,591 public primary schools across the 33 local education areas with an estimated 21,957 and 23,403 primary school teachers for the 1998/1999 and 1999/2000 sessions respectively (Oyo State, 2001).

Sample and Sampling procedures

33 local education secretaries and 330 primary school teachers from 66 public primary schools were selected for the study. This was done purposively to include the school headmaster/mistress in order to obtain response, which would be compared with the information supplied by local education authorities regarding the same issues raised in the instruments.

Instruments

Two different instruments were developed and used for the study. They comprised of mathematics primary school teachers and local education secretary questionnaires on the number of teachers and pupils' enrolment in their schools and their local education areas respectively. Both instruments were 19 items questions, which allowed the respondents free response to the issues raised.

Validation of Instruments

One of the instruments prepared for the primary school teachers was trial tested among the sandwich students of Lagos State University, Ojo and the second one was pilot tested among some selected local education secretaries in Lagos State. The ambiguities in the instruments were corrected and final drafts produced for the respondents.

Reliability of Instruments

Sequel to the two weeks interval trial testing of the instruments the KR-21 formula was used to estimate the internal consistency of the two, which were found to be 0.66 and 0.63 for the primary school mathematics teachers and education secretaries respectively. These values, by standard, were considered to be high and reliable for this kind of study.

Procedures for the administration of instruments

The first instrument was administered to the primary school teachers via the assistance of teaching practice students in their schools, and was collected after two days. The second instrument was administered to the secretaries of education local council via the assistance of the colleagues in the State Universal Basic Education Board (SUBEB). The returns of the instruments followed the same procedures, which the study took in the administration.

Data analysis and scoring

The data obtained were interpreted via the use of simple percentages and ratio to explain the trends of the pupils and teachers at the primary school levels in the state. The implication of the findings was discussed further.

Findings

RQ₁: What are the pupils' enrolment in the public primary schools for the 2005/2006 sessions?

Table 4: Pupils' enrolment in the public primary schools for the 2005/2006 sessions

Local Government	Pry I	Pry II	Pry III	Pry IV	Pry V	Pry VI	Total
Afijio	4185	3985	4122	3987	4005	3918	24,202
Akinyele	6991	6654	6671	6777	6518	6643	40,254
Atiba	3469	3533	3556	3546	3472	3378	20,954
Atisbo	3859	4033	3539	3495	3386	3415	21,727
Egbeda	3197	3274	3127	3174	3248	3145	19,165
Ibadan North	6077	6751	6796	6935	6860	8120	49,659
Ibadan N. East	6291	6248	6500	6550	6521	7813	39,923

Ibadan N. West	4217	4296	4466	4698	4846	4997	27,
Ibadan S. East	5122	5288	5740	5988	6101	6756	34,
Ibadan S. West	4345	4629	4989	4890	5121	5872	29,
Ibarapa Central	3106	2929	2890	2934	2780	2710	17,
Ibarapa East	2414	2283	2231	2165	2105	1914	13,
Ibarapa North	2877	2844	4164	2808	2757	2509	17,
Ido	4484	4415	4279	4260	4087	3842	25,
Irepo	8857	8129	5679	5196	4470	4163	34,
Iseyin	5361	5144	5089	5432	4796	5165	30,
Itesiwaju	3553	3418	2837	2622	2603	2410	17,
Iwajowa	4057	3484	3339	3214	3010	2795	19,
Kajola	5161	5520	5331	5206	5073	4621	30,
Lagelu	2880	3024	3077	2866	3348	4028	19,
Ogbomoso North	4656	4347	4265	4209	4301	4369	26,
Ogbomoso South	2662	2542	2688	2773	2712	2938	16,
Ogo- Oluwa	2602	2465	2414	2282	2253	1977	13,
Olorunsogo	3280	4653	4717	4255	1394	3484	21,
Oluyole	4711	4628	4841	4619	4584	4808	28,
Ona Ara	5501	5643	5836	5855	5713	6347	34,
Oorelope	2909	2725	2390	2344	2296	2032	14,
Oriire	5902	5972	5978	6038	5640	5774	35,
Oyo East	3238	3143	3138	2978	2883	2895	18,
Oyo West	3122	2929	2831	4055	2979	2942	18,
Saki East	3329	3420	3301	3443	2815	2591	18,
Saki West	5088	5065	4744	4754	4478	3955	28,
Surulere	4347	4767	4571	4435	4040	3660	25,
Total	141,850	142,180	140,136	138,783	131,195	135,986	830

Table 4 describes the schools' enrolments in the 33 local government areas of Oyo state with 141850, 142180, 140136, 138783, 131195 and 135986 pupils in primaries one, two, three, four, five and six respectively. It should be emphasized here that large numbers of pupils were recorded at the initial stage but the numbers dwindled towards the last period of the schools. Meanwhile, manpower availability to sustain the pupils' enrolment could not be substantive as the pupils' ratio is more than 30: 1 of standard level of United Nations Educational, Scientific and Cultural Organization

RQ 2: What are the qualifications and available teachers in the public primary schools for the 2005/2006 sessions?

Table 5: Availability and qualifications of the public primary schools teachers for the 2005/2006 session

Local Government	Degree Holders	NCE Holders	TC II Holders	Arabic Certificate Holders	Tc
Afijio	52	733	89	01	8
Akinyele	31	941	136	03	1,
Atiba	50	737	119	12	9
Atisbo	23	450	108	05	5
Egbeda	-	998	76	06	1,
Ibadan North	103	1,572	108	38	1,
Ibadan N.E	67	1,574	96	14	1,
Ibadan N.W	64	828	91	20	1,
Ibadan S.E	42	1,436	89	48	1,
Ibadan S.W	83	1,503	36	32	1,
Ibarapa Central	10	527	196	04	7
Ibarapa East	54	439	107	05	6
Ibarapa North	27	297	146	10	4
Ido	24	579	92	20	7

Irepo	19	320	45	27	411
Iseyin	75	825	176	07	1,083
Itesiwaju	12	277	123	03	415
Iwajowa	13	306	193	11	523
Kajola	34	530	109	12	685
Lagelu	36	820	147	21	1,024
Ogbomoso North	83	654	64	07	808
Ogbomoso South	73	596	31	02	702
Ogo-Oluwa	63	366	88	-	517
Olorunsogo	03	271	34	04	312
Oluyole	38	640	83	22	783
Ona-Ara	12	774	95	10	891
Oore-Lope	14	363	74	10	461
Oriire	31	480	128	03	642
Oyo East	56	679	96	10	841
Oyo West	66	608	97	19	790
Saki East	23	410	72	05	500
Saki West	39	867	155	11	1,072
Surulere	137	721	119	08	985
Total	1,457	23,121	3,418	410	28,395

Table 5 describes the available public primary school teachers and their qualifications with 1,457 first degree holders representing 5%, 23,121 NCE holders in different fields representing 81%, 3,418 TC II holders representing 12% and 410 non-qualified teachers of varying certificate representing 1%. Although the percentage of these unqualified teachers is very small, the great havoc, which their knowledge dissemination could cause the pupils, cannot be underestimated. The delicate nature of teaching may be best appreciated from the consideration of the fact that while the mistake of a doctor ends in the mortuary, that of a lawyer may end in jail and that of engineers may be collapse of buildings, but in the mistake of teachers is the peril of a generation, the doom of a society (Adepoju, 2006)

RQ₃: What are the trends of qualified public primary schools teachers and pupils for the 2005/2006 session?

Table 6: Trends of qualified public primary schools teachers to pupils for the 2005/2006 sessions

Local Government	Pupils	(Degree)(NCE)(TCII)	Pupils: teacher	Remarks
Afijio	24,202	(52)(733)(89)	28:1	Sub-normal
Akinyele	40,254	(31)(941)(136)	36:1	Abnormal
Atiba	20,954	(50)(737)(119)	23:1	Sub-normal
Atisbo	21,727	(23)(450)(108)	37:1	Abnormal
Egbeda	19,165	(-)(998)(76)	18:1	Sub-normal
Ibadan North	49,659	(103)(1,572)(108)	28:1	Sub-normal
Ibadan N. East	39,923	(67)(1,574)(96)	23:1	Sub-normal
Ibadan N. West	27,520	(64)(828)(91)	28:1	Sub-normal
Ibadan S. East	34,995	(42)(1,436)(89)	22:1	Sub-normal
Ibadan S. West	29,846	(83)(1,503)(36)	18:1	Sub-normal
Ibarapa Central	17,349	(10)(527)(196)	24:1	Sub-normal
Ibarapa East	13,112	(54)(439)(107)	22:1	Sub-normal
Ibarapa North	17,959	(27)(297)(146)	38:1	Abnormal
Ido	25,367	(24)(579)(92)	36:1	Abnormal
Irepo	34,494	(19)(320)(45)	90:1	Abnormal
Iseyin	30,987	(75)(825)(176)	29:1	Sub-normal
Itesiwaju	17,443	(12)(277)(123)	42:1	Abnormal
Iwajowa	19,899	(13)(306)(193)	39:1	Abnormal
Kajola	30,912	(34)(530)(109)	46:1	Abnormal
Lagelu	19,223	(36)(820)(147)	19:1	Sub-normal
Ogbomoso North	26,147	(83)(654)(64)	33:1	Abnormal
Ogbomoso South	16,315	(73)(596)(31)	23:1	Sub-normal

Ogo- Oluwa	13,993	(63)(366)(88)	27:1	Sub-norm
Olorunsogo	21,783	(03)(271)(34)	71:1	Abnorm
Oluyole	28,191	(38)(640)(83)	37:1	Abnorm
Ona Ara	34,895	(12)(774)(95)	40:1	Abnorm
Oorelope	14,696	(14)(363)(74)	33:1	Abnorm
Oriire	35,304	(31)(480)(128)	55:1	Abnorm
Oyo East	18,275	(56)(679)(96)	22:1	Sub-norm
Oyo West	18,858	(66)(608)(97)	24:1	Sub-norm
Saki East	18,899	(23)(410)(72)	37:1	Abnorm
Saki West	28,084	(39)(867)(155)	26:1	Sub-norm
Surulere	25,820	(137)(721)(119)	26:1	Sub-norm
Total	830,130	(1,457)(23,121)(3,418)	30:1	Normal

18 (55%) Subnormal/Normal and 15 (45%) abnormal

Table 6 describes the teachers' qualifications across the 33 local governments with 1457 first-degree holders, 23121 NCE holders and 3418 TC II teachers. Some local governments had considerable pupils-teacher ratio as normal classroom pupils' population, some had below normal while others had the overpopulation that could not be effectively managed by one teacher to enrich learning. However, the overall pupils-teacher ratios revealed normal classroom situation, which might not be unconnected with the current political dispensation of the prevailing government policy of 30 pupils in a class. Most of the overpopulated areas were the rural areas where the numbers of teachers has been found to be grossly inadequate to cope with the pupils.

Discussions of the Findings

According to TRC (2006) a teacher is a person who has acquired the requisite knowledge and pedagogical skills with appropriate value system that is in consonance with the Nigerian education system and is thereby qualified to teach at the appropriate level of education in Nigeria in accordance with article 72 of the National Policy on Education which require teachers at all levels to be professionally trained. Findings have shown that there were four different shortages of the teachers at the public primary schools in the state. Such shortages include overt which refers to the actual vacancies of teachers to fill such shortage, taken into consideration the specialization needed as well as the number of quality desired which are however in short supply. A good number of public primary schools teachers were not Mathematically inclined based on their qualifications and the premise that they had to teach all subjects at the elementary level. Apart, from that there was hidden shortage, which refers to the required number to satisfactorily man teaching in the school system i.e. dedicated and diligent teachers. Furthermore, there was modernized shortage, which refers to teachers who are formally qualified but are already out of touch with current developments in their fields of study. This could be found among those that have acquired additional qualifications but no longer in close contact with pupils due to their administrative functions. It came as a result of lack of orientation, seminars workshops, conferences etc. to update them educationally so that their primary function of teaching should no be left to suffer. This is in corroboration with the study of Ukeje (1991) that asserted shortages of teachers into 4 categories as identified above. Also, Afe (2002) pointed that no meaningful social, economic and political developments can occur in any society without teachers. The view that was in line with the NPE (2004) affirms that no educational system might rise above the quality of its teachers. Major problem facing the quality delivery of education in Nigeria is the low quality of teachers. (Olu – Aderounmu, 1991; Fafunwa, 1992; Okeke, 2001; Afe, 2002). Furthermore, the idea of Jatto (1991) that in-service training be provided as short term measure to increase the knowledge and skill that reduce the complexity of teaching be complemented so as to reduce brain drain at the lower level of education. In conclusion, for any nation to be relevant in the stream of events in the 21st century, its educational system especially at the primary and secondary school levels need to be well developed (Haralambos, Holborn & Heald, 2004). Teachers and teacher education no doubt are vital determining factors. The issue of embargo on employment should not be a policy that affect the recruitment of qualified trained teachers whose numbers are insufficient to go round the pupils' population.

CONCLUSION

Since the preparation of teachers is not same as that of machines in which millions could be produced within short period, it is suggested that capacity-building programme be upheld in order to increase the available

manpower needs of the existing primary schools. Moreover, improved financial rewards and job security with adequate aids to enhance teaching be provided to retain qualified and dynamic teachers in service. Removing embargo on the employment rate for the professionally trained teachers be adopted in order to fulfill 'Education For All' as dictated in the present dispensation.

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