Assessing the Success of School Cluster Zoning System in Senior Secondary Schools of Adamawa State, Nigeria

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Abstract: This study assessed the success of school cluster zoning System in Senior Secondary Schools in Adamawa State. Education systems in most states in Nigeria are facing severe economic pressures which hinder achievement of both qualitative and quantitative goals of education. This has forced state governments to seek innovative ways to achieve their goals. A school cluster zoning system is one of such innovations introduced by Adamawa State Government of Nigeria in 1991. The purpose of the study was to assess the economic, pedagogic, administrative and political success of cluster zoning system in Senior Secondary Schools in Adamawa State. Four research questions and four hypotheses guided the study. The study adopted a survey design. The population of the study comprises of 37 Inspectors, 593 principals, and 5010 teachers. A sample size of 381 principals and 1,743 teachers was stratifiably determined through zonal inspectorate clusters and all inspectors were utilized for the study. Data was collected using researcher instrument titled "success of school cluster zoning system assessment questionnaire (SSCZSAQ). The instrument was validated by two experts with one director from Adamawa State Ministry of Education and a Senior Lecturer in Science Education Department, Modibbo Adama University of Technology, Yola. The reliability coefficient of the instrument using Cronbach coefficient Alpha was 0.90. The study revealed that the economic, pedagogic, administrative and political purpose of school cluster zoning system was not successful. The study also concluded that economic, pedagogic, administrative and political objectives of school cluster zoning system were not achieved in Adamawa State. This study recommended among others that policy makers should pay careful attention to pedagogic objectives through the design of school cluster zoning system in senior secondary schools of Adamawa State.

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1. Introduction:

Most states in Nigeria suffer severe economic pressures which hinder achievement of both quantitative and qualitative goals of education. The Federal Government allocation for education is dwindling in real terms (Nwabara,2014). The educational system suffers from financial stringency, caused by domestic and global economic depression. On the other, it has to satisfy constantly rising demand for education, caused by rapid population growth, by general desires for higher qualifications and by a continuous concern for improved quality (Nwagbara,2014). The need for quantitative and qualitative advances within a framework of financial austerity has forced state governments in Nigeria to seek innovative ways to achieve educational goals. Adamawa is among states that introduced school zoning clustering to improve educational quality. School clustering is a grouping of schools that are grouped into one geographically close and accessible to each other into clusters for economic pedagogic, administrative and political educational purposes (Chikoko,2007). Some common objectives of school clustering may be to help use scarce resources. Clusters are usually called zones in Nigeria. More efficiently, decentralize decision making help disadvantaged communities increase participation in development support for isolated teachers and improve social equity. It is determined by focusing on structures (Dittmar, Mandelsohn & Ward, 2001).

The school is made a core or central institution and is the leader of several satellite institutions. The head of the core school coordinates the work of the cluster. He usually pays particular attention to sharing of resources and staff development (Apinge, 2007). The cluster may be entire of primary schools, entirely of secondary schools and of both primary and secondary schools.

In 1991, Adamawa State Ministry of Education introduced entirely senior secondary school cluster by

zoning the state into five Inspectorate Zones – Ganye, Numan, Yola, Gombi, Mubi with 109,149.110,183 and 173 senior secondary schools respectively. These zones are headed by Chief Inspectors of Education (Adamawa State Post Primary Schools Management Board,1991). The initiating principal who is the head of core school or cluster centre coordinates the work of the group of schools in the zone. He usually pays attention to important issues affecting schools in the zone. The most common prominent objectives of school cluster are grouped into economic pedagogic, administrative and political success (Bray, 1987).

The cluster concept has partly grown from developments in micro planning. Micro-planners point out that even in small states within Nigeria like Adamawa, it is impossible for the State Ministries of education to know the specific circumstances of every school and community. It is of course essential to upgrade all state plans into a national framework, but it is also essential to treat each state as an entirety in itself. Micro-planning, which implies a degree of decentralization, can also permit a stronger local participation in decision making. School maps are a particularly valuable instrument for microplanning, for they help identify the existing distribution of resources and major development goals (Mynth,1992). The benefits of zoning arose from school mapping exercises and as a way to improve the use of scarce resources and to upgrade educational quality in secondary schools. Such benefits range from improved quality of teaching and learning, management applications and improved efficiency in secondary schools.

1.1. Statement of the Problem:

Economic pressures on the educational system have hindered the achievement of both quantitative and qualitative goals of education. Some studies (Kunarak and Saranyajaya, 1985) indicated the failure in pupil achievements tests, enrolment participation and repetition rates on the failure of the cluster system. The centralization of educational administration has failed to achieve the purposes of the education system. Poor implementation of zoning cluster systems can result in incapacity of teachers, lack of professional support and poor teaching in senior secondary schools (Mandelsohn,2001). This is the more reason why secondary schools zoning cluster system was assessed in terms of economic, pedagogic, administrative and political success in Adamawa State.

1.2. The purpose of the Study:

The purpose of the study was to assess the success of school cluster zoning system of senior secondary schools in Adamawa State. Specifically, the objectives of the study were to assess: The economic success of school cluster zoning system in senior secondary schools in Adamawa State, the pedagogic success of school cluster zoning system in senior secondary schools in Adamawa State, the administrative success of school cluster zoning system in senior secondary schools in Adamawa State, and the political success of school cluster zoning system in secondary schools in Adamawa State.

1.3. Research Questions:

This study intends to answer the following research questions.

(i) To what extent is the economic success of school cluster zoning system of senior secondary schools in Adamawa State?

(ii) To what extent is the pedagogic success of school cluster zoning scheme of senior secondary schools in Adamawa State?

(iii) To what extent is the administrative success of school cluster zoning system of senior secondary schools in Adamawa State?

(iv) To what extent is the political success of cluster zoning system of senior secondary schools in Adamawa State?

1.4. Hypotheses:

$H_0$1: There is no significant difference in the views of principals and teachers on the economic success of school cluster zoning system in senior secondary schools in Adamawa State.

$H_0$2: There is no significant difference in the views of principals and inspectors on the pedagogic success of school cluster zoning system of senior secondary schools in Adamawa State.

$H_0$3: There is no significant difference in the views of inspectors and teachers on the administrative success of cluster zoning system of secondary schools in Adamawa State.

$H_0$4: There is no significant difference among the views of principals, teachers, and inspectors on political success of school cluster zoning system of senior secondary schools in Adamawa State.

2.Conceptual Model and Literature Review:

This study is based on Bray (1987) conceptual model for cluster formation of intermediate cluster design where schools are formally grouped together by higher authorities but the controlling committees have much less extensive powers. The coverage embraces secondary schools only and the geographical areas that they cover. The cluster size is determined by the number of secondary schools in a cluster. Appointment of leaders is carried out by the government and hold the post permanently. Government allocates administrative staff without an extra budget but they are expected to subsist on existing resources.

In a survey to compare size allocation per pupil expenditure which include 376 schools, Kunarak and Saranyajaya (1985) had to average per pupil expenditures of B5,000, combining recurrent and material allocations per cluster were B6,400 i.e. just over the cost of one pupil. The findings reveal that this is not a very large allocation especially since many clusters had over 11 schools and each school could have handover 350 pupils. In another survey of 623 schools to confirm that clusters perform a useful role by Kunarak and Saranyajaya ((1985), teachers rated the work of clusters as follows: -

Academic Affairs……Good
Facilities……..Outstanding
Personnel……Fair
Pupil Activities……Good
Management and Finance ……Outstanding
School – Community Relations …….Fair

The researchers (Kunarak and Saranyajayan, 1985) also observed a positive correlation between cluster activity and academic achievement. They noted that many cluster committees had arranged for circulation of staff within clusters, which had acted as a form of in-service training and had helped prevent teachers from getting stale.

In a circulation of the library project, Sudtasan (1983) highlighted weakness in the cluster system. He suggested that few clusters were able to effectively recommend teachers for promotion. Most people felt that recommendations for promotion were the work of the supervisors (inspectors) and that the roles of the cluster committees were not clear. Similar comments were made by Kunarak and Saranyajaya (1986). They found out that the main problems arise from attitudes, resources and cluster size.

In evaluating school complexes, in Haryana (India) Singihal (1983) states that in complexes headed by weak heads and dominated by aggressive unions, the teachers misuse the platform by making disparaging references and fritter away their energy in hurling fantastic and motivated charges against the headmasters and officers and bring the meeting perilously close to chaos. He adds that there are quite a good number of enthusiastic heads with imagination and academic interest who feel that this is an important and useful activity.

Haryana State Institute (1979), evaluated the impact of the school cluster scheme and concluded the overall assessment as very positive. Singhal (1983) presented figures suggesting that, at least in some cases, the scheme had strongly beneficial results. He indicated improvements in school facilities, pupil attendance and pupil performance in India.

Ruiz – Duran (1983) states that community participation was especially marked on the newly populated areas around the cities and in the remote rural areas of Peru. In the villa, EL Salvador, which is mainly a shanty town providing labour for Lima, major programmes of curriculum reform and of education for out of school youth were embarked upon. Likewise, in the remote area, community participation facilitated the construction of 61 educational Centres. He further states that feasibility studies have shown conclusively that the adoption of the service centre cuts down the spending of two or three-fold in comparison with permanently equipping all nucleo education centers. Bizot (1965) described the Iseuchacaucleo as an excellent illustration of the way in which non-formal activities are conducted in a remote rural area. The nucleo had 31 educational centers and a very active team of promoters. He further pointed out that it led the people to see that discussion of their individual and communal problems and the possession of a certain level of literacy are just the steps towards escaping from a destiny which they are no longer ready to accept.

Olivera (1983) stated that at present practically nothing remains of the nuclearization program in Costa Rica. As usual, in such areas, no official provision has ever put an end to it but it was simply left to die.

Samaranayake (1985) and Perera (1985) reported that Sri Lanka school cluster experiences have been encouraging. Many small schools have obtained an injection of resources and small classes were rationalized. Teachers deployed more effectively and clusters formed with schools serving different racial, religious and language groups have promoted a slow but healthy process of integration. Perera (1983) reported several constraints in terms of appointment of good core heads, roles of principals within the cluster and skills coordination at higher levels.

Chikoko (2007) conducted a study on school cluster system as an innovation through the perception of Zimbwaean teachers and school heads. The research used a multisite case study of five schools, using a questionnaire and interviews with teachers and school heads. The study found out that the nature of cluster model adopted, the centralization tendency of an educational system, the dual ownership of schools, résistance to change and underutilization of resources prevented the cluster system from achieving its goals.

3. Methodology:

The study used survey design. The population of the study comprises of 37 inspectors, 593 principals and 5010 teachers in the five inspectorate zones of Adamawa State. The sample size was stratifiably determined along the five inspectorate zones and simple random sampling adopted within the five strata. Three hundred and eighty-one principals and 1,743 teachers were sampled and all 37 inspectors were utilized for the study. A researcher developed a close ended

questionnaire with sixteen (16) items tagged "success of school cluster zoning system in senior secondary schools' assessment questionnaire" (SSCZSSSSAQ), with a Likert response scale of "very successful", "successful", "moderately successful", "slightly successful" and "unsuccessful" was used to collect relevant data. The questionnaire was generated from the four successes of school cluster zoning system which include economic, pedagogic, administrative and political as adopted from Bray (1987). A total of 16 items were developed with four (4) from each success of school cluster zoning system. Content and face validity was established by two experts with one senior lecturer from Science Education Department, Modibbo Adama University of Technology, Yola and a director from Adamawa State Ministry of Education, Yola.

A pilot study was conducted to determine the reliability of the instrument which gave a Cronbach Alpha reliability coefficient of 0.90. All the questionnaire administered were retrieved representing one hundred percent (100%). Mean and standard deviation were used to answer the research questions. The decision point for the research questions was that when the mean is 2.5 and above, it shows successful and below 2.5 indicates unsuccessful.

4. Results:

Results of the data analysis followed the order in which the research questions and hypotheses were raised.

Research Question 1: To what extent is the economic success of school cluster zoning system in Senior Secondary Schools in Adamawa State?

Table 1: *Mean and Standard Deviation of Principals and Teachers Responses on* Economic *Success of School Cluster Zoning System in Senior Secondary Schools in Adamawa State.*

		X_1 N=381		X_2 N=1743			
S/No.	Economic Success of school Cluster Zoning System	$\bar{X}_1$	∂_1	$\bar{X}_2$	∂_2	μ	Remarks
1.	Sharing of facilities	3.46	0.50	3.28	0.90	0.53	Unsuccessful
2.	Sharing of staff	2.76	0.85	2.68	1.07	2.72	Unsuccessful
3.	Bulk ordering of materials	1.87	1.13	3.00	0.93	0.32	Unsuccessful
4.	Fostering community financial support.	3.00	0.99	2.65	1.01	2.05	Unsuccessful
	Overall Mean					1.39	

X_1 = for principals, X_2= for teachers

The data in table 1 above shows that the overall mean (1.39) indicates unsuccessful by both groups of respondents. This means that economic school cluster zoning system was unsuccessful in senior secondary schools.

Research Question 2: To what extent is the pedagogic success of school cluster zoning system in senior secondary schools?

Table 2: *Mean and Standard deviation on the opinions of principals and inspectors on the pedagogic success of school cluster zoning system in senior secondary schools.*

		X_1 N=381		X_2 N=37			
S/No	Pedagogic Success of School Cluster Zoning System	$\bar{X}_1$	∂_1	$\bar{X}_2$	∂_2	μ	Remarks
1.	Allowing students to gain access to extra resources.	2.38	0.75	2.71	1.07	2.55	Unsuccessful
2.	Encouraging teacher development	2.78	0.87	2.67	0.97	2.72	Unsuccessful
3.	Promoting curriculum development	3.35	1.37	3.04	1.29	3.19	Unsuccessful
4.	Providing an environment for innovation.	2.49	1.11	2.78	0.98	2.64	Unsuccessful
	Overall Mean					2.78	Unsuccessful

X_1 = for principals, X_2 = for inspectors

The data in table 2 indicated that the overall mean (2.78) was successful by both respondents. This shows that pedagogic school cluster zoning system was successful in senior secondary schools.

Research Question 3: To what extent is the administrative success of school cluster zoning system in senior secondary schools in Adamawa State?

Table 3: *Mean and standard Deviation on the opinions of Inspectors and Teachers on Administrative Success of school Cluster Zoning System in senior Secondary Schools.*

		X_1 N=381		X_2 N=1743			
S/No.	Administrative Success of school Cluster Zoning System	$\bar{X}1$	$\partial 1$	$\bar{X}2$	$\partial 2$	μ	Remarks
1.	Acting as a focal to when instructions from higher levels of hierarchy may be sent.	1.87	1.13	3.00	0.93	2.44	Successful
2.	Acting as a centre for the collection of information on	2.23	0.55	1.66	0.88	1.95	Unsuccessful
3.	environments and staff. Local decision making on teachers posting and leave arrangement.	2.07	0.94	2.44	1.16	2.26	Successful
4.	Providing a better framework for teacher's inspections.	1.70	0.62	2.04	0.78	1.87	Unsuccessful
	Overall mean					2.13	Unsuccessful

X_1 = for principals, X_2= for teachers

The data in table 3 shows that the overall mean (2.13) of all items indicated unsuccessful by both respondents. This shows that the administrative school cluster zoning system was un successful in senior secondary schools.

Research Question 4: To what extent is the political success of school cluster zoning system in senior secondary schools in Adamawa State?

Table 4: *Mean and Standard Deviation on the Opinions of Principals, Teachers, and inspectors on political success of cluster zoning scheme in Secondary Schools in Adamawa State.*

		X_1 N=381		X_2 N=1743		X_3 N=37			
S/No.	Political Success of School cluster zoning system	$\bar{X}_1$	∂_1	$\bar{X}_2$	∂_2	$\bar{X}_3$	∂_3	μ	Remarks
1.	Raising consciousness about the causes of under-development and of the actions that can be taken by individuals and communities.	2.84	.89	2.92	1.02	2.13	0.88	1.89	Unsuccessful
2.	Increased community participation in decision making	1.73	0.77	1.83	0.95	1.28	0.57	1.61	Unsuccessful
3.	Reduced regional inequalities	2.02	1.00	1.32	0.52	2.13	1.00	1.82	Unsuccessful
4.	Reduced social inequalitie	1.87	0.96	1.75	0.85	1.81	0.992	1.81	
	Overall mean							1.78	Unsuccessful

X_1 = for principals, X_2 = for teachers, X_3 = for inspectors

The data in table 4 indicated overall mean (1.78) which show unsuccessful by all respondents. This shows that political school cluster zoning system was unsuccessful in senior secondary schools.

Hypotheses 1: There is no significant difference in the views of principals and teachers on the economic success of school cluster zoning system in senior secondary schools in Adamawa State.

Table 5: *Z-test difference in the views of principals and teachers on the economic success of cluster zoning system in senior secondary schools in Adamawa State.*

	$\bar{X}$	σ	N	Df	Standard error	Z-cal	Z-critical	Remark
X_1	7.40	5.28	381	1.97	1.184	6.81	1.98	S
X_2	15.22	7.195	1743					

X_1 = for principals, X_2 = for teachers

The data in table 5 shows the Z-calculated (6.81) was greater than the critical value (1.98). Therefore, this hypothesis which states that there is no significant difference in the views of principals and teachers on the economic success of school cluster zoning system in senior secondary schools was rejected.

Hypotheses 2: There is no significant difference on the views of principals and inspectors on the pedagogic success of school cluster zoning system in secondary schools in Adamawa State.

Table 6: *Z-test Difference in the opinions of principals and inspectors on the pedagogic success of cluster zoning system in secondary schools in Adamawa State.*

	$\bar{X}$	σ	N	Df	Standard error	Z-cal	Z-critical	Remark
X_1	76.20	108.613	381	60	63.128	4.315	2.000	S
X_2	348.60	455.407	37					

X_1 = principals, X_2 = inspectors

In table 6, the z-calculated was (4.315) while z-critical was 2.000. Since z-calculated was higher than z-critical, the null hypothesis was rejected. It indicated a significant difference in the views of principals and inspectors on the pedagogic success of school cluster zoning system in senior secondary schools.

Hypotheses 3: There is no significant difference in the views of inspectors and teachers on the administrative success of school cluster zoning system in senior secondary schools in Adamawa State.

Table 7: *Z-test difference in the opinions of inspectors and teachers on the administrative success of cluster zoning system in secondary schools in Adamawa State.*

	$\bar{X}$	σ	N	Df	Standard error	Z-cal	Z-critical	Remark
X_1	65.22	7.195	37	60	1.184	4.315	6.61	S
X_2	76.20	108,613	1743					

X_1 =inspectors, X_2 = teachers

The data in table 7 shows that z-calculated (4.315) while z-critical (6.616). Since z-calculated was lower, the hypothesis was not rejected. It indicated no significant difference in the views of inspectors and teachers on the administrative success of school cluster zoning system in senior secondary schools in Adamawa State.

Hypotheses 4: There is a significant difference among the views of principals, teachers, and inspectors on political success of school cluster zoning system in senior secondary schools in Adamawa State.

Table 8: *ANOVA Result comparing the opinions of principals, teachers, and inspectors on political success of cluster zoning system in secondary schools in Adamawa State.*

Source of variation	Df	SS	MS	F-Cal	F-critical	Remark
Between groups	2	3,112.886	1,556,442.988	40.798	19.49	S
Within groups	162	1,220,617	75346.783			
Total	164	15,819,065				

The result of table 8 indicates that F-calculated of 40.798 was recorded, while F-critical was 19.49. Since the F-calculated was higher than the F-critical, the null hypothesis was rejected. The result yielded significant difference among and between the views of three groups on political success of school cluster zoning system in senior secondary schools.

5. Discussion:

The findings of this study were discussed in relation to the four successes of school cluster zoning system raised in the purpose of the study. The first success is economic. The finding from table 1 revealed that economic cluster zoning system was unsuccessful in senior secondary schools. The overall mean show unsuccessful. This is consistent with Kunarak and Saranyajaya (1985) who reported that average per pupil expenditure combining recurrent and material allocation per cluster was not very large since many clusters had over 11 schools and each school could have over 350 pupils. This was also supported by the data in table 5 which rejected the null hypotheses that there is no significant difference in the views of principals and teachers on the economic success of school cluster zoning system in senior secondary schools.

The findings from table 2 show that pedagogic school cluster zoning system in secondary schools was successful. This did not concur with Sudtasan (1983) which highlighted weakness in the system. He explained that few clusters were able to effectively recommend teachers for promotion. Most people believe that recommendations for promotion were the work of the supervisors (inspectors) and that roles of the cluster committees were not clear. Similar comments were made by Kunarak and Saranyajaya (1986). They found out that the main problems arise from attitudes, resources and cluster size. The data in table 6 differ from table 2 which rejected the null hypotheses that there is no significant difference in the views of principals and inspectors on the pedagogic success of school cluster zoning system in senior secondary schools. It indicated that pedagogic school cluster zoning system was unsuccessful. The findings in table 3 revealed that the administrative school cluster zoning system was unsuccessful. This is consistent with Singhal (1983) who reported that in complexes, headed by weak heads and dominated by aggressive unions, the teachers misuse the platform by making disparaging references and fritter away their energy in hurling fantastic and motivated cleavages against the headmasters and officers and bring the meetings perilously close to chaos. This was also supported by the data in table 7 which rejected the null hypotheses that there is significant difference in the views of inspectors and teachers on administrative success of school cluster zoning system in senior secondary schools; which was consistent with Perera (1983) (1985) who reported that school cluster system has achieved the deployment of teachers more effectively and many small schools have obtained an injection of resources and small classes were rationalized.

The findings of the study with regard to the political cluster zoning system were unsuccessful. This finding was not supported by the assertion of Ruiz-Duran (1983) who stated that community participation was especially marked in the newly populated areas around the cities and in the remote/rural areas of Peru.

In the villa, El-Salvador, community participation facilitated the construction of 61 educational centers. The finding in hypotheses 4 table 8 which states that there is no significant difference in the views of principals, teachers, and inspectors on political success of school cluster zoning system in senior secondary schools. Samaranaya (1985) and Perera (1985) differently reported that Sri Lanka school cluster experiences have been encouraging, many small schools have obtained an injection of resources and small classes were rationalized. Teachers deployed more effectively and clusters formed with schools serving different racial, religious and language groups have promoted a slow but healthy process of integration.

6. Conclusion:

This study concluded that the economic, pedagogic, administrative and political school cluster zoning system was unsuccessful in senior secondary schools. The research questions 1, 3and 4 was highlighted unsuccessful through the cut off overall mean of below 2.5 response scale on each item of the questionnaire and hypotheses 1, 2 and 4 were also rejected on 0.05 level of significance. Research question 2 and hypotheses 3 also indicated the pedagogic and administrative success of school cluster zoning system in senior secondary schools.

7. Recommendations:

The following recommendations came out of the findings of the study.

(i) The economic success of school cluster zoning system should be achieved in senior secondary schools through realistic aims from policy makers of Adamawa State.
(ii) Policy-makers should pay careful attention to pedagogic success through the design of school cluster zoning system in senior secondary schools of Adamawa State.
(iii) The implementation of school cluster zoning system should adopt administrative measurement to improve the operation of the school and strengthen educational management in Adamawa State.
(iv) The implication of political issues should be considered for further school cluster zoning policies and programmes in senior secondary schools in Adamawa State.

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