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Strategies for Enhancing the Synergy between Principals and Mathematics Teachers in Secondary Schools in Adamawa State (Nigeria)

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Abstract : *This study examined probable causes of friction between Principals and Mathematics teachers in secondary schools and the consequences of the friction on students' achievements in mathematics. The study also sought to identify the strategies that could be adopted to reduce friction so as to enhance the synergy between principals and mathematics teachers in secondary schools. A survey was conducted on one hundred and three (103) mathematics teachers and thirty –seven (37) principals using stratified sampling method from the five educational zones in Adamawa State. Questionnaire was the instrument used to collect data from the respondents. Mean, standard deviation and t-test were used to analyze the data generated from the instrument. The study revealed that causes of friction included; lackadaisical attitude of principals to mathematics teachers' request, domineering attitude of principals , incompetence and mal administration among principals, non-recommendation of in service training for mathematics teachers, mathematics teachers' involvement in examination malpractice, organizing private lessons for fees without the knowledge of school authority and class evading. It was also found that establishment of democratic relationships with teachers, counseling problem mathematics teachers, impartiality in allocation of responsibility to mathematics teachers by the schools' principals are among the strategies that could be adopted to reduce friction between principals and mathematics teachers. The researcher recommended that principals and mathematics teachers should be tolerant of one another and that they should make conscious efforts to ensure that their school is peaceful and conducive for teaching and learning.*

Keywords *–friction, mathematics teachers, principals, strategies, synergy.*

I. Introduction

Synergy is a word formed from the Greek syn-ergo, meaning working together. It refers to the phenomenon in which two or more discrete influences or agents acting together create van effect greater than that predicted by knowing only the separate effects of the individual agents. It is originally a scientific term. The opposite of synergy is antagonism. The phenomenon where two agents in combination have an overall effect that is less than that predicted from their individual effects.

Synergy can also mean a mutually advantageous conjunction where the whole is greater than the sum of the parts. It is dynamic state in which combined action is favoured over sum of individual component actions. Human synergy relates to interacting humans. For example, say person A alone is too short to reach an apple on a tree and person B is too short as well. Once person B sits on shoulders of person A, they are more than tall enough to reach the apple. In this example, the product of their snergy would be one apple. Another case would be two policians if each is to gather one million votes on their own, but together they were able to appeal to 2.5 million voters, their synergy would have produced 500,000 more than had they each worked independently.

Synergy usually arises when two persons with different complementary skills cooperate. The fundamental example is cooperation of a man and a woman as a couple. In business cooperation of people with organizational and technical skills happens very often. In general, the most common reasons why people cooperate is that it brings a synergy.

In secondary school setting, the principal is the executive, the key stone in the arch of school administration, he is the hub of the educational effort [1]. The character of the school reflects and proclaims the character of the principal. The principal is in the strategic center of a web of instructional relationships- teacher-student, teacher-parent, teacher-teacher. It is the principal that arranges their co-ordinated efforts. It is he who evaluates to get at the reason for failure or success; it is he who keeps the public as well as the authorities informed through record, research and inspection as to what is going on in the school. He is responsible for supervision of special services in the school.

In view of the enormous responsibilities of the principal, he needs the cooperation of staff most especially the mathematics teachers. Teachers are vital components in the educational process and without teachers whatever is planned in education cannot be achieved. Research has shown that teachers have the greatest potential to influence students' achievements. For instance, [2] reported that students' achievement is

related to teachers' competence in teaching and students achieve more when teachers employ systematic teaching procedures.

Mathematics teachers' competency in teaching the subject is a result of subject matter mastery and use of good teaching methods [3]. Consequently, they need professional training, instructional facilities and the right motivation to perform their duties effectively. In some schools, the principals who are supposed to facilitate these motivational requirements of mathematics teachers are not willing to do so.

Reports from schools reveal that some principals make themselves thin gods. They are in-accessible, they are authocratic, and they play domineering roles in all school activities. Some deliberately refuse to pay mathematics teachers' allowances approved by the ministry of education [4]. There are allegations that some principals prevent mathematics teachers from attending workshops and seminars aimed at enhancing their effectiveness in classroom for them to save cost. In some schools where the principals give approval, there is the problem of non-payments of claims and night allowances for many years. Some principals do not allow their mathematics teachers to partyicipate in WAEC/NECO marking exercises. All these attitudes dampen the morale and commitment of the teachers to the job.

In this era of technological advancement, the need to learn, understand and apply mathematics by all and sundry cannot be over emphasized (Adamu, 2006). Consequently efforts should be made to address the issue of failure in mathematics in secondary schools; one probable area, which has received little or no attention, is strengthening the synergy between the principals and mathematics teachers in secondary schools to improve achievement of students in mathematics. Against this background, this paper discussed some strategies that are believed to contribute in enhancing the synergy between school principals and mathematics teachers.

PURPOSE OF THE STUDY

The main purpose of this study is to identify strategies for enhancing the synergy between principals and mathematics teachers in secondary schools in Adamawa State (Nigeria). The specific purposes of the study are;

i) To identify probable causes of friction between principals and mathematics teachers in secondary schools.
ii) To ascertain the consequences of friction between principals and mathematics teachers in secondary schools.
iii) To identify strategies that could be employed to enhance the synergy between principals and mathematics teachers.

Research Questions

The following research questions guided the direction of the study

i) What are the probable causes of friction between principals and mathematics teachers in secondary schools?
ii) What are the consequences of the friction between principals and mathematics teachers on students' achievements in mathematics?
iii) What are the strategies that could be adopted to promote the synergy between principals and mathematics teachers?

Hypothesis

One hypothesis was formulated tested at 0.05 level of significance.

There is no significance difference between the mean responses of principals and mathematics teachers on the probable causes of friction between principals and mathematics teachers.

II. Methodology

Research Design: Survey method was used for this study. This method involved collection of data about a target population from a sample from a sample and generalizing the findings obtained from the analysis to entire population [6].

Significance of the Study : The outcome of this study will benefit principals of secondary schools in their administrative work as managers, because it will shed light on strategies the principals should be equipped with to handle rifts to the advantage of the schools. Also, when the principals adopt strategies highlighted in this study, the teachers, the students and the principals themselves will benefit, as teachers would be recommended for in service trainings and promotion and staff-principals relationship will become cordial, thus teachers would work harder and students will benefit through learning.

It will equally be useful to the government in its organization of seminars and workshops on leadership training for principals. In addition, the study will aid the principals to create positively super ordinate goals that will always be to the advantage of all the stakeholders of the school system. For instance, the students, teachers, principals and the communities will have serene school environment with sustained harmonious relationships to teach and learn.

Sample and Sampling Technique: The stratified sampling technique was used in this study. The stratification parameter used was educational zones. The duration of the mathematics teachers' years of employment were also considered. Out of a population of 1032 mathematics teachers spread across the five educational zones in Adamawa State, 103 were sampled representing 10% of the population of mathematics teachers. 37 principals drawn from the five educational zones were also involved in the study.

Instrumentation: Two questionnaires were used. These were the principals' questionnaire (PRQ) and mathematics teachers questionnaire (MTQ). Both PRQ and MTQ comprised of four sections, A, B, C and D. Section A dealt with respondents personal data, Section B dealt with items on causes of friction between principals and mathematics teachers, Section C consisted of items related to consequences of friction between principals and mathematics teachers on students' achievement in mathematics while section D consisted of items related to strategies for enhancing synergy between principals and mathematics teachers.The questionnaires were both content and face validated by two experts in the School of Technology and Science Education, Federal University of Technology, Yola, Adamawa State. The reliability of reviewed instrument was ascertained through a test-retest method with a reliability coefficient of 0.72 and 0.85 respectively. The questionnaire was based on the 4 point scale which often requires the respondents to agree or disagree with the given statement with a tick (√).

Method of Data Analysis: The data collected were analyzed using mean to determine the extent of agreement or disagreement with each PRQ and MTQ statements. The mean of the four- point scale was 2.5 which lie between two boundaries 2.45-2.55 where 2.45 is the lower boundary and 2.55 is the upper boundary. Based on this, the following decisions were taken. A factor was accepted if the mean score associated with it was equal to or more than 2.55 and a factor was rejected if the mean score associated with it was less than 2.45. A mean rating between 2.45 and 2.55 was an indication that the respondents neither agreed nor disagreed with PRQ and MTQ statements. T-test was used to determine whether differences existed in the mean responses of principals and mathematics teachers.

III. Results

The results of the study are presented in the following tables.

Research Question1: What are the probable causes of friction between principals and mathematics teachers in secondary schools?

Table 1: **Mean scores of Principals and Mathematics teachers' responses on Causes of. Friction between Principals and Mathematics Teachers.**

	Statements	Principals		Mathematics Teachers		Remark
		X	σ	X	σ	
1.	Non-challant attitude of principals to materials needed in maths dept	2.58	0.63	3.50	0.46	Agree
2.	Incompetency and mal-administration among principals	3.11	0.41	3.42	0.58	Agree
3.	Domineering attitude of principals in mathematics club activities	2.60	0.31	3.00	0.64	Agree
4.	Principals non-approval of attendance to workshops and in-service training for mathematics teachers	3.12	0.63	3.31	0.76	Agree
5.	Mathematics teachers involvement in exam mal-practices	3.51	0.98	2.59	0.83	Agree
6.	Outstanding performances not rewarded by the schools' authority	2.57	0.35	3.22	0.72	Agree
7.	Mathematics teachers conducting lessons for fees in the school.	3.63	0.33	2.56	0.51	Agree
8.	Mathematics teachers being habitual late comers and class evaders.	2.86	0.51	2.63	0.62	Agree
9.	Principals dishonesty and partiality in assigning responsibilities.	2.39	0.74	2.37	0.81	Disagree
10.	Communication gap or rumor mongering among other teachers about mathematics teachers	2.12	0.86	2.23	0.75	Disagree

The result presented in table 1 shows that the schools' principals and mathematics teachers have agreed that items 1,2,3,4,5,6,7,8 are probable causes of conflict between principals and he p teachers in secondary schools. They did not show agreement with items 9 and 10 with mean ranging between 2.12 to 2.39.

Research Question 2: What are the Consequences of the Friction between Principals and Mathematics Teachers on Students Achievement in Mathematics.

Table 2: Mean Scores and Standard Deviation of Principals and Mathematics Teachers' Responses on Consequences of the Friction between Principals and Mathematics teachers on Students' Achievement in Mathematics

	Statements	Principals		Mathematics Teachers		Remark
		X	σ	X	σ	
1.	Non coverage of mathematics syllabus by mathematics teachers due to lack of commitment	2.58	0.63	3.50	0.46	Agree
2.	Indiscriminate transfer of mathematics teachers by principals leading to under staffing and students' poor result.	3.11	0.41	3.42	0.58	Agree
3.	Students' learning ability becomes distorted due to change of mathematics teachers by the principals	2.60	0.31	3.00	0.64	Agree
4.	The conflict could culminate into cases of examination mal practices in mathematics	3.12	0.63	3.31	0.76	Agree
5.	Mathematics teachers may be conservative in their approach to teaching of mathematics since they are denied the attendance of workshops and in-service training.	3.51	0.98	2.59	0.83	Agree
6.	Principals may decide not to purchase teaching aids and necessary instructional materials for mathematics department. Students thus learn mathematics in abstract	2.57	0.35	3.22	0.72	Agree

Table 2 shows the mean responses of both the principals and mathematics teachers ranging from 2.60 to 3.45 which is above the acceptable level of acceptance hence there is ample evidence to show that items 1,2,3,4,5 and 6 are consequences of frictions between principals and mathematics teachers in secondary schools.

Research Question 3 : What are the strategies that could be adopted to promote the synergy between principals and mathematics teachers in secondary schools?

Table 3 : Mean Scores and Standard Deviation of Principals and Mathematics Teachers' responses on Strategies that could be Adopted to Promote their Synergy.

	Statements	Principals		Mathematics Teachers		Remark
		X	σ	X	σ	
1.	Principals should facilitate mathematics teachers' professional training.	3.01	0.72	3.23	0.75	Agree
2.	Mathematics teachers should be made to feel been consulted in developing maths curriculum and choice of text books.	2.89	0.58	3.12	0.61	Agree
3.	Principals should make themselves accessible at all times and be ready to listen sympathetically to requests and complaints from mathematics teachers.	3.45	0.64	3.10	0.58	Agree
4.	Mathematics teachers should abide by school rules and regulation and should not challenge principals 'authority unnecessarily.	3.13	0.78	2.82	0.83	Agree
5.	Principals should not dominate mathematics club activities; mathematics teachers should be giving free hands to run the club.	2.69	0.66	3.11	0.91	Agree
6.	Mathematics teachers should not be reprimanded in the presence of students by the principal.	2.98	0.92	3.13	0.93	Agree
7.	Principals should be honest and impartial in the allocation of responsibilities to mathematics teachers.	2.57	0.61	2.72	0.98	Agree
8.	Mathematics teachers should not organize private lessons for fees without principals ' consent.	3.32	0.88	2.89	0.68	Agree
9.	Mathematics teachers should not engage themselves in examination mal practices which could smear the image of the school.	3.41	0.72	3.32	0.82	Agree
10.	Government can organize leadership training workshops for principals to enhance their conflict management strategies in schools.	3.30	0.72	3.12	0.81	Agree

In Table 3, both principals and mathematics teachers indicate strong agreement for strategies like principals' facilitation of mathematics teachers in-service training, principals' accessibility, principals non-domineering attitude in mathematics club, his/her honesty and impartiality in allocation of responsibility for mathematics teachers, mathematics teachers non engagement in remunerative activities during official hours and mathematics teachers non involvement in examination malpractices as some of the strategies that could be adopted to promote synergy between principals and mathematics teachers in secondary schools. This is evident in items 1,2,3,4,5,6,7,8,9 and 10 with mean values ranging between (2.57 to 3.41) for principals and (2.72 to 3.32) for mathematics teachers. These values are above the defined level of acceptance.

Hypothesis: There is no significant difference between the mean responses of principals and mathematics teachers on the probable causes of frictions between principals and mathematics teachers in secondary schools**.**

Table 4 : t-Test Difference between the Mean responses of Principals and Mathematics teachers on the Causes of Frictions between Principals and Mathematics teachers

Variable	n	mean		SE	t_{cal}	t_{crit}	df	Remark
Principals	37	2.74	0.61	0.10	0.16	1.96	138	
Teachers	103	2.76	0.67	0.07				

In Table 4, the calculated t-value of 0.16 is less than the critical value of 1.96 at 0.05 level of significance. The null hypothesis is thereby upheld. That is, there is no significant difference between the mean responses of principals and mathematics teachers on the probable causes of friction between principals and mathematics teachers in secondary schools.

IV. Discussion And Recommendation

This study indicated that principals and mathematics teachers do have conflict. This is observed from the responses of principals and mathematics teachers on items presented in Table 1. The major causes of the friction are non-challant attitude of principals to prompt response to needed teaching aids in mathematics department, principals domineering attitude in mathematics club activities, principals non-approval of attendance to seminars and workshops and in-service training for mathematics teachers. Other causes are mathematics teachers involvement in examination mal-practices, classes evading, habitual late coming and organization of private lessons for fees in the school compound. These findings corroborates the findings of Ogunyinka [7] who opined that poverty and lack of commitment to duty are responsible for conflicts in organizations. Mathematics teachers organize private lessons in schools probably due to poverty. They should desist from such arrangement because it is against the ethics of teaching profession.

Results from this study also indicated that conflict between principals and mathematics teachers could lead to serious consequences like mathematics teachers seeking for transfer thus leaving students half-baked in mathematics; mathematics teachers non completion of syllabus in mathematics due to absenteeism and class evading. Students learning ability could be affected by frequent change of mathematics teachers by principals. The conflict could lead to Examination Malpractice as students could organize for mercenary to write examinations for them if they lack mathematics teachers to coach them properly. These findings have been observed by previous researchers like [8] and [9] who opined that if there is any quarrelling among the teachers, or a lack of cooperation with the head teacher, it will affect the efficiency of the school. The students will find out about it because they are very sensitive to such things and some of them will lose confidence in the school and become in-disciplined.

Furthermore, this study revealed that principal's accessibility, non-authoritarian attitude to mathematics teachers, principal's encouragement and facilitator of in service training and attendance of workshops and seminars are some of the strategies that could be adopted to promote synergy between principals and mathematics teachers. Other strategies are ensuring that mathematics teachers are involved in producing curriculum and in deciding choice of text books for students, minimizing mathematics teachers' workload, ensuring mathematics teachers are not reprimanded in the presence of their students and mathematics teachers not organizing private lessons in schools for fee without principals' knowledge.

These findings agreed with the earlier views of [10] who pointed out that marginalization of subordinates in any organization could lead to conflict and mis-understanding. Therefore, for principals to enjoy the cooperation of their staff, they must establish a democratic working relationship by involving staff in the actual day-to-day administration of school. Mathematics teachers should not be marginalized in decisions

concerning teaching and learning mathematics in schools especially in formation and design of curriculum for mathematics.

Perhaps, the most baffling result of this study is the finding that, principals and mathematics teachers do not differ significantly in their mean responses to probable causes of conflict between principals and mathematics teachers. This lays credence to the deduction that principals and mathematics teachers of some schools are not having a cordial relationship that could promote synergy between them hence this study is timely.

V. Recommendations

The key to Nigeria's development lies in her ability to harness and develop scientific and technological manpower, which could be achieved by promoting teaching and learning of mathematics in secondary schools. Mathematics teachers are expected to play a key role in this regard. However, as long as mathematics teachers are not properly trained and provided with the right atmosphere to operate, the dream of Nigeria becoming great nation technologically may just remain a mirage since mathematics is a core subject for any technological development.

Therefore, concerted efforts must be made to promote synergy between mathematics teachers and their principals in schools to have positive impact on students' achievements in mathematics. The following suggestions may be a good starting point;

(i) Principals and mathematics teachers should be tolerant of one another and if necessary, they should make a conscious effort to ensure that their school is a happy place in which to work and learn. An unhappy mathematics teacher is very rarely a good teacher.
(ii) Principals should be sympathetic as far as the limitations of mathematics teachers are concerned. He\she should be objective in his\her outlook and must involve them in taking decisions.
(iii) Principals should be friendly. Most mathematics teachers are more loyal to a friendly leader than to an austere one. Commendations at staff meetings, smiles jokes and informal language in appropriate situations help.
(iv) Mathematics teachers should desist from activities\behaviors not in line with school rules such as organizing lessons for fees, class evading, absenteeism and belonging to mischievous groups out to challenge principals' authority unnecessarily.
(v) Mathematics teachers should not involve themselves in examination malpractices or other acts capable of dragging the good name of the school into mud. The principal will vehemently dislike such act.
(vi) Government should provide leadership workshop training for principals to educate them on how to handle problem teachers and reclaim them.
(vii) Mathematics teachers should be motivated through better conditions of service so as to boost their morale and in no circumstance should school principals reprimand them in the presence of students.

VI. Conclusion

The mathematics teacher is confronted with numerous problems that affect his performance. Principals' negative attitude should not be allowed to be one of them. The principal must establish democratic working relationship with teachers and help his staff build a sense of purposeful group solidarity. Thus, mathematics teachers must be properly trained and retrained to be able to bring up secondary school students in mathematics for our technological development. This could be achieved by promoting the synergy between mathematics teachers and principals of secondary schools. Since secondary school mathematics forms the gateway to choice of career in mathematics in our tertiary institutions, we must develop it now.

References

[1]. B. Adhiambo, and R. Samatwa, Assessment of conflict management and resolution in public secondary schools in Kenya: A case study of Nyakach District International Research Journal, (4), 2011, 1074-1088.
[2]. R. A. Gorton, School leadership and administration Durban: Labrown; 2012
[3]. J. Makaye , A. P. Ndofirepi, Conflict resolution between heads and teachers in schools, Greener Journals of Educational Research, 10 (3), 2012, 120-125.
[4]. E .Mushayikwa, F. Lubben, Selfdirected professional development — Hope for Teachers working in deprived environments? Teaching and Teacher Education, 25(3), 2009, 375-382.
[5]. H. Adamu, Impact of science Education on Nigeria Economy, International Journal of Research in Education,3(1), 2006, 26-40.
[6]. Anderson , Research in education . Sydney: Allen Unwin, 2009.
[7]. K. Wilhelm, J. Dewhurst-Savellis, G. Parker, Teacher stress? An analysis of why teachers leave and why they stay.Teachers and Teaching: theory and practice, 6(3), 2000, 291-304.
[8]. P. Jin, A.S. Yeung, T. Tang, and R. Low, Identifying teachers at risk in Hong Kong: Psychosomatic symptoms and sources of stress. Journal of Psychosomatic Research, 65(4), 2008, 357-362
[9]. B.O . Abdu-Raheem . "Conflict management by principals in Ekiti State public secondary schools" Unpublished M. Ed Thesis, University of Ado-Ekiti, Nigeria (2004), 73-85.
[10]. J.L Grayson, and H.K. Alvarez, School climate factors relating to teacher burnout: Amediator model. Teaching and Teacher Education, 24(5), 2007, 1349-1363.