Baraton Interdisciplinary Research Journal (2017), 7(Special Issue), pp 82-96

DEVELOPING A SCHOOL CLIMATE MODEL FOR EFFECTIVE PUBLIC SECONDARY SCHOOLS: EVIDENCE FROM NANDI COUNTY, KENYA

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This study intended to develop a school climate model for effective public secondary schools. The study was undertaken in Nandi County in Kenya. The research question that guided the study was; What is the school climate of effective secondary schools in Nandi County in terms of the following dimensions: physical, academic and social dimension? The researcher used questionnaires and in depth interviews with the principals, students' focus groups and members of the school management boards in six public secondary schools of comparable academic performance. Purposive sampling techniques were employed to select the schools and respondents for the study. Data was analyzed using statistical package for social sciences (SPSS) software. Thematic and triangulation techniques were also employed to analyze qualitative data. The main finding of the study was that effective secondary schools have an enduring favorable school climate conducive for learning.

Keywords: School climate, physical and academic performance

Introduction

Schools portray a lot of differences in terms of the feel, atmosphere or ideology, students' behavior and academic performance among other aspects (Yegoh, 2011). The net effect of these differences creates what scholars have defined as the 'ethos' or climate of the school. National School Climate Council (2007) define school climate as the patterns of people's experiences of school life which reflects norms, goals, values, interpersonal relationships, teaching and learning practices and organizational structures. Cohen, McCabe, Michelli, and Pickeral (2009) contend that school climate is more than individual experience: It is a group phenomenon that is larger than any one person's experience. When these internal qualities of a school yield high performance among the students in National examinations, the school can be described as effective and of high quality (Yegoh, 2011). A positive or quality school climate is associated with a robust and encouraging outcomes such as better staff morale (Bryk & Driscoll, 1988) and greater student academic achievement (Shindler, Jones, Williams, Taylor, & Cardenas, 2009), while a poor or toxic school climate is associated with higher cases of absenteeism (Reid, 1983), suspension rates (Wu, Pink, Crain, & Moles, 1982) and school dropout rates (Anderson, 1982). Ding, Liu, and Berkowitz (2011) contend that the school climate affects the quality of school life.

The ever-growing body of research on school climate continuously attests to its importance in a variety of overlapping ways, including social, emotional, intellectual, physical and safety; positive youth development, mental health, and healthy relationships; higher graduation rates; school connectedness, engagement; academic achievement; teacher retention and effective school reform (Thapa, Cohen, Alessandro, & Guffey, 2013).

School climate research is gaining momentum in Africa (Kgaile & Morrison, 2006) and particularly Kenya (Makewa, Yegoh, Role, & Role, 2011). A few secondary schools in Kenya have however, made deliberate and systematic approaches to promoting or maintaining the quality of their schools albeit ignorant of the constructs that define and shape these school climates. Those secondary schools with a positive school climate have over the past years recorded high academic performance and have high transition rates to tertiary education, while those with negative and repulsive school climates have consistently posted poor academic results despite their national status. A

thorough and thoughtful study of the constructs that shape school climate was the main motivation of developing a model that will inform teachers and other stakeholders on the best practices in an attempt to spur higher academic achievement of secondary school students not only in Kenya but Africa and the world at large.

Methodology

Research Design

Mixed methods research design was employed in this research where both quantitative and qualitative data collection techniques were used. Creswell (2012) defines mixed methods research design as a procedure for collecting, analyzing, and "mixing" both quantitative and qualitative research and methods in a single study to understand a research problem. Concurrent mixed research design was specifically used in this study where the researcher combined both quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. Information from both methods was integrated during the overall results. Qualitative research techniques were used more than quantitative methods. Qualitative research design aims to investigate a question without attempting to quantifiably measure variables or look to potential relationships between variables (Kara, 2012). He contends that qualitative research technique involves asking a broad question and collecting data in form of words, images and videos then searching for themes. This is also referred to as thematic analysis. Braun and Clarke (2006) define thematic analysis as a method of identifying, analyzing and reporting patterns (themes) within data. Data collected was analyzed and findings integrated and conclusions drawn using both quantitative and qualitative research designs. Quantitative techniques that involved the use of descriptive statistics were used to analyze the demographic profile of respondents and mean ratings of the physical, academic and social dimensions of the school climate on both the students' and the teachers' questionnaires.

Validity and Reliability of Research Instruments

The research instruments that were used in the study were two questionnaires; one designed for students and the other for teachers. This was complemented by three interview schedules; one designed for the principals, the other two for the members of the school board of management and the students' focus group respectively. Thirty questionnaires were distributed randomly to students in one class of form three and four. Twenty questionnaires were given to the teachers in each of the six secondary schools in Nandi County sampled for the study. The researcher modified the original instrument that Halpin and Croft (1963) constructed; the Organizational Climate Descriptive Questionnaire (OCDQ).

The questionnaire comprised of four sections. Section A, dealt with the respondents' demographic profile; section B, the physical dimension; section C; the academic dimension and section D; the social dimension of the school climate. Halpin's and Croft's (1963) pioneering work concentrated mainly on the principal behaviour, but in this study the scope was broadened to include the physical, social and academic dimension of the school climate. Both the students' and teachers' questionnaires contained 49 items.

A pilot study was conducted in two secondary schools comparable to those in the actual study in the neighboring Uasin Gishu County to test for reliability of the research instruments. The reliability coefficients obtained are illustrated below:

Table 1

Reliability Coefficients

		Cronbach's Alpha	No of items
Students	Physical Dimension	.717	14
	Academic Dimension	.831	20
	Social Dimension	.869	15
Teachers	Physical Dimension	.809	17
	Academic Dimension	.872	20
	Social Dimension	.893	12

In all the dimensions under study, the average Cronbach Alpha coefficient was .800, and indication of high reliability.

Results and Discussion

This study was guided by the research question; what is the school climate of effective secondary schools in Nandi County in terms of the physical, academic and social dimensions?

The following scale of interpretation was used by the researcher for gathering quantitative data: 3.50 - 4.00 agree/high rating; 2.50 - 3.49 tend to agree/ average rating; 1.50 - 2.49 tend to disagree/low rating; 1.00 - 1.49 disagree/very low rating

Students' Perception of the Physical Dimension

There were 14 items on the students' questionnaire that addressed the aspect of the schools' physical dimension. Students responded to each item on the scale by putting a check (√) on any one of the following responses; agree (high rating), tend to agree (average rating, tend to disagree (low rating), disagree (very low rating). The students reported that their respective schools had adequate physical facilities such as classrooms recording a mean rating of 3.27 and science laboratories recording a mean rating of 3.13. Students in all the schools studied rated their schools' physical dimension as being favorable, recording an overall mean of 2.94; a fairly average rating on a scale of 4.0.

The physical infrastructure in all the six secondary schools studied was perceived by the students as being favorable and therefore, ideal for learning. These schools were generally neat with beautifully manicured lawns. The hedges were well trimmed. In all the schools studied the compounds were lined with paths and signposts positioned strategically to direct visitors to desired destinations within the school. The walls of most buildings had writings and drawings on academic topics, experiments on subjects such as biology and chemistry, mathematical formulas and quotes from famous personalities to inspire students. The general environment was generally conducive for learning.

The ratings on other aspects of the physical dimensions are illustrated in table 2 below.

Table 2

Students' Mean Rating on the Physical Dimension

		Mean	Std. Dev
1	In this school there are adequate physical facilities such as Classrooms	3.27	1.161
2	In this school there are adequate physical facilities such as Laboratories	3.13	1.184
3	In this school there are adequate physical facilities such as Library	2.52	1.266
4	In this school there are adequate physical facilities such as Games fields	2.47	1.302
5	Repairs and maintenance of school buildings and facilities are undertaken promptly.	3.01	1.184
6	There are adequate desks and chairs for students	3.35	1.085
7	There are adequate numbers of computers in this school.	1.91	1.192
8	There are adequate numbers of science laboratories in this school.	2.92	1.227
9	Vandalism and graffiti on walls and toilets is not a common features in our school (graffiti are abusive writings on walls especially in toilets)	2.79	1.308
10	The school compound is neat, decorated and well organized with beautifully manicured lawns.	2.97	1.197
11	The Lighting system is good and reliable	3.34	.983
12	The buildings are safe and are equipped with fire fighting equipment with clear exit points in case of an emergency.	3.23	1.107
13	The buildings are marked with clear exit points in case of an emergency.	2.90	1.238
14	The school is located in a serene environment away from noise and is conducive for learning.	3.39	1.073
	PHYSICAL DIMENSION (N = 347)	**2.94**	**.55262**

Teachers' Perceptions of the Physical Dimension

The teachers' questionnaire had 16 items measuring the physical dimension of the school climate. Table 3 shows a summary of the teachers' perceptions on the physical dimension of the school climate. The teachers rated their schools' physical dimension highly recording a mean of 3.33.

The physical dimension of the school climate in all effective secondary schools in Nandi County as rated by the teachers was high recording an overall mean rating of 3.33. This rating was higher compared to that of students (2.94). There were two extra questions on the physical dimension on the questionnaire to address issues that only affected the teachers such as teaching materials, resources and availability of apparatus in the laboratory.

Apart from questionnaires, interview schedules were prepared for both teachers and students. This information data on questionnaires was corroborated by responses from the interview schedules.

Table 2

Teachers' Mean Rating on the Physical Dimension

		Mean	Std. Dev
	In this school there are adequate classrooms	3.61	.76436
	In this school there are adequate laboratories	3.15	1.12473
	In this school there are adequate library	3.12	1.05334
	In this school there are adequate games fields	3.01	1.09176
	Repairs and maintenance of school buildings and facilities are undertaken regularly.	3.41	.79398
	There are adequate desks and chairs for students.	3.47	.87810
	There are tables for teachers in classrooms for placing teaching materials.	2.94	1.14210
	The school has adequate number of computers	2.85	1.06904
	Laboratory apparatus are adequately provided by the school.	3.47	.80974
0	Vandalism and graffiti on walls and toilets is not a common feature in our school.	3.25	1.31580
1	The school compound is neat, decorated and well organized with beautifully manicured lawns.	3.43	1.20833
2	The Lighting system is good and reliable in this school	3.63	1.19393
3	Ventilations are available and in good working condition.	3.63	1.28694
4	The buildings are safe and equipped with fire -fighting equipment	3.49	1.40824
5	There are clearly marked exit points in buildings in case of an emergency.	3.12	1.62134
6	The school is located in a serene environment away from noise and is conducive for learning	3.81	1.45959
	PHYSICALDIMENSION (N = 105)	**3.33**	**.73392**

The study found out that schools are ill prepared to deal with fires in case they occur. Out of six secondary schools studied, five studied did not have elaborate fire – fighting tools and skills required. The schools are equipped with fire extinguishers but had not been checked for many years. Two out of six schools had reported outbreak of fires in the past where halls of residence for students were razed down. Despite these past fire experiences, the two schools have not instituted elaborate measures to fight fires save for the few fire extinguishers put at different locations within administration block buildings.

When asked whether staff had been trained on fighting fires one of the respondent whose school had been affected by past fire experiences, responded by saying; "we are planning to train our staff on dealing with emergency situations not only fires". The situation in three other schools studied was the same, 'still planning to train personnel on dealing with emergency situations'. This attests to the fact that most secondary schools in Nandi County are ill prepared to deal with fire emergency situations. Otherwise, all the other aspects of the physical dimension were highly rated by both the students and teachers.

Table 4 illustrates comparisons between the students and teachers on overall rating of the physical dimension of school climate in Nandi County.

Table 4

Descriptive Statistics of Students' and Teachers' Rating of Physical Dimension

Type of respondents	N	Mean	Std. Deviation	Std. Error Mean

PHYSICAL DIMENSION	Teachers	105	3.3333	.73392	.07162
	Students	338	2.9330	.55587	.03024

On Mann-Whitney U and Wilcoxon W test, of the school climate with a p – value of .000 which is there was a significant difference between the students' below .05 as indicated in table 5. and the teachers' perception of the physical dimension

Table 5

Mann-Whitney U and Wilcoxon W Test

Physical dimension	
Mann-Whitney U	10824.500
Wilcoxon W	68115.500
Z	-6.042
Asymp. Sig. (2-tailed)	.000

From these findings it can be concluded that teachers had a more positive perception of the physical dimension of the school climate than the students. Mitchell, Bradshaw, and Leaf (2010) reported that few studies have empirically examined the differences in climate perceptions between teachers and their students. They reported that they were surprised to observe that teacher ratings of the overall climate
were not associated with student ratings of the overall climate.

Students' Mean Ratings on the Academic Dimension

There were twenty items on the students' questionnaire measuring the aspect of the academic dimension of the school climate. Students generally rated highly the academic dimension of the school climate in their respective schools with an overall average mean rating of 3.25. Students expressed a sense of enthusiasm about their school and looked forward to attending lessons recording a mean rating of 3.40. The students also rated favorably the extent to which they felt that teachers were doing enough to help them solve their academic problems recording a mean of 3.54. When the students were asked whether they were pushed by teachers in order to perform academically, they rated this item lowly with a mean of 2.92. However, the teachers reported that they indeed pushed students in order to perform well academically. The students also reported that they expected a lot of assistance from the teachers in order to perform well academically rating this item with a mean of 2.99. Table 6 gives a summary of the students' responses on the academic dimension of the school climate.

Table 7

Students' Perceptions on the Academic Dimension

			Mean	Std. Dev	
	1	Teachers in this school are enthusiastic about their academic work and look forward to attend lessons.	3.81	.521	
1	2	The level of morale to study among students in this school is high.	4.00	3.41	.941
2	3	Students are enthusiastic about their school and look for work in this school.	3.70	3.46	.976
3	4	Students feel that teachers are doing enough to assist them in their school work.	3.75	3.54	.887
4	5	Students in this school are pushed in order to perform well academically.	3.42	1.90	1.209
5	6	Students express satisfaction with the way academic work is conducted in this school.	3.61	3.28	1.037
6	7	Students feel free to talk to teachers about academic matters in this school.	3.71	2.92	1.189
7	8	Students feel free to talk to the principal about academic matters in this school.	3.71	2.50	1.291
8	9	Students help each other in their academic work.	3.66	3.78	.614
9	10	The students' ideas are sought and used by the teachers on academic matters.	3.57	3.09	1.169
10	11	Teachers in this school seek and use students' ideas on academic matters.	3.54	2.92	1.207
11	12	Teachers know the academic problems faced by students and take time to solve them	3.70	2.80	1.210
12	13	Teachers always take appropriate measures to solve students' academic problems promptly	3.74	2.99	1.189
13	14	The principal responds very quickly to students' academic matters	3.65	3.44	1.005
14	15	The principal seeks and uses students' ideas on academic affairs.	3.45	3.13	1.143
15	16	There is a strong tradition of academic success in this school.	3.72	3.65	.791
16	17	Exams and quizzes are administered very frequently in this school	3.16	3.28	1.093
17	18	There is strong peer influence among students to perform academically well in this school.	3.50	3.27	1.075
18	19	The level of expectations by students to perform well in examinations is high in this school	3.75	3.78	.677
19	20	Students experience pressure from their teachers in this school in order to perform well in examinations.	3.52	2.95	1.194
20		Praises and rewards are frequently used to motivate students to perform well in examinations	3.59		.870
		ACADEMIC DIMENSION (N = 347)	**3.57**	**3.25**	**.50702**

Generally, the academic dimension of the school climate as perceived by the students was highly rated. The qualitative data targeting the students' focus groups were in agreement with quantitative data. Focus group three summed it all. "We work as a team and help each other to perform well academically. Any student who does not perform well is assisted by good performers. The teachers are also very supportive. We are free to consult teachers every time we have an academic problem. This has made this school perform well consistently in national examinations over the years".

The teachers rated highly all items in the questionnaire on academic dimension of the school climate recording an overall mean rating of 3.57. However, the teachers reported that students were pushed in order to perform well academically recording a mean rating of 3.16. The qualitative data was consistent with the teachers' assertions. One of the Respondent who was a principal summed it all; "our school takes academic work very seriously. In this school there is team teaching where for instance, if there are four mathematics teachers in a school of four streams like ours, each

Teachers' Perceptions of the Academic Dimension of the School Climate

Table 8

teacher is assigned a stream so that no one teacher can teach two streams of the same class. The four teachers compare notes and assist each other in their teaching. These teachers set examinations and mark together as a team. This has seen the improvement of mathematics performance in our school over the years recording a mean score of at least A- (A – minus) every year for the last three years".

Table 8 below shows the descriptive statistics of teachers' and students perceptions on the academic dimension.

Both teachers and the students had comparable mean ratings on the academic dimension recording a mean rating of 3.57 and 3.24 respectively. The recorded an average mean rating of 2.50. The study found out that the students preferred to channel their academic matters through the teachers recording the highest mean rating of 4.00.

Qualitative data strongly supported this assertion in that during interviews with the students' focus group five, the students had this to say; "we fear meeting and interacting with the principal, we would rather interact with the teachers. Our culture dictates that we respect elders and that we don't pester him with petty issues. There is also the fear of being caught with a mistake by the principal when one never intended. The best we do is to channel our grievances through the prefects or teachers".

Descriptive Statistics of Teachers' and Students' Perceptions on Academic Dimension

	Type of respondents	N	Mean	Std. Deviation	Std. Error Mean
ACADEMIC DIMENSION	Teachers	105	3.57	.45893	.04479
	Students	338	3.24	.51043	.02776

Table 9: Mann – Whitney U and Wilcoxon test

	Academic dimension
Mann-Whitney U	10539.000
Wilcoxon W	67830.000
Z	-6.294
Asymp. Sig. (2-tailed)	.000

students and teachers were in agreement on almost every item on the questionnaire. However, when the students were asked whether they felt free to talk to the principal regarding academic matters they

There was a significant difference between the teachers' and students' perception of the academic dimension of school climate of effective secondary schools in Nandi County. Mann-Whitney U and Wilcoxon W test yielded a p – value of .000 which is below the acceptable error limit of .05 in social sciences. This implies that teachers have a more positive perception of the academic dimension of the school climate than the students. Mitchell et al. (2010) reported that the inverse relationship between the student and teacher ratings of the academic climate where the teachers had a more favorable rating than the students was unexpected.

Table 9 shows Mann – Whitney U and Wilcoxon test on comparison of teachers' and students' perceptions on academic dimension.

Students' Mean Ratings on Social Dimension

The students' overall mean rating on the social dimension was favorable recording a mean of 3.06.

The students reported that communication between them and the principal was good and the principal knew the problems they faced recording a mean rating of 2.90 and 2.83 respectively. They also reported that their principals were consistent in the application of disciplinary rules and that they took appropriate measures to solve their problems recording mean ratings of 3.52 and 3.25 respectively. The students also reported that their principals sought and used students' ideas on non – academic matters recording an average mean rating of 2.65.

During the interview with the students, they reported that they had reservations interacting with their principal. One of them retorted "Every time the principal walks around most students shy away from him. Our culture demands that we respect our elders. We consider our principal to be an elder. We do not fear but actually respect him".

The table 10 below shows the students' means ratings on social dimension.

Teachers' Mean Ratings on Social Dimension

The social dimension was rated favorably by the teachers recording an overall mean rating of 3.40. Concerning their relationship with the principal, the teachers rated this item favorably recording a mean of 3.52. They also reported that communication between them and the principal was good recording a mean rating of 3.59. The teachers also reported that their principals knew the problems they faced recording a mean rating of 3. 36. The teachers also reported that the principal often took appropriate measures to solve their problems promptly recording a mean rating of 3.34. The teachers reported that their principals sought and used teachers' ideas on nonacademic affairs and also respond quickly to their non – academic matters recording mean ratings of 3.22 and 3.21 respectively. The teachers reported that their schools have clearly defined rules and behavior parameters to guide students' behavior recording a mean rating of 3.69. Teachers also reported that they often sought and used students' ideas on non-academic matters recording a mean rating of 3.14.

The teachers also reported that students felt free to talk to them about non-academic matters recording a mean rating of 3.25. Teachers reported that they often sought and used students' ideas on non-academic matters recording a mean rating of 3.14. When asked whether students felt free to talk to them about non-academic matters the teachers rated this item favorably recording a mean rating of 3.25. Teachers also reported that they were given equal opportunity in their schools recording a mean rating of 3.15. Teachers generally reported favorably about the social dimension of the school climate.

In an interview with respondent two, a principal in one of the schools. She had this to say regarding her school; "I have adopted an open door policy in my school. We work together as a team from the biggest to the smallest. I value healthy relationships, students and teachers interacting freely. This made us to realize a mean of over 10.0 (B+) in the recent Kenya Certificate of Secondary Examinations. The best we have ever had".

Table 10

Students' Mean Rating on the Social Dimension

		Mean	Std. Dev.
1	Communication between the students and the principal is good	2.90	1.261
2	The principal knows the		

			problems faced by students	2.83 1.259
	in this school.			
3			The principal is consistent in the application of	3.52 .947
	disciplinary rules.			
4			The principal always takes appropriate measures to	3.25 1.081
			solve students' problems promptly.	
5			The principal seeks and uses students' ideas on non-	2.65 1.300
			academic affairs.	
6			The principal responds quickly to students' non-	2.86 1.229
	academic matters			
7			This school has clearly defined goals and behavior	3.64 .811
			parameters to guide students' behavior.	
8			There is consistency and co-operative effort among	3.55 .934
	the teachers in the application of disciplinary rules.			
9			Communication between students and the teachers	2.93 1.176 is good
10			Teachers in this school seek and use students' ideas	

		2.56	1.276 on non-academic matters.
11			Appropriate measures are always taken by teachers 3.03
		1.151	to solve students' problems.
12			Students feel free to talk to teachers about non-
		2.47	1.268 academic matters in this school.
13			The relationship between the local community and
		3.20	1.171 the school is good.
14			Every student is given equal opportunity in this
		2.78	1.347
	school.		
15		3.77	.688
	There is a strong tradition of success in this school.		
		3.06	**.61354**
	SOCIAL DIMENSION (N = 347)		

Table 11 gives a summary of the teachers' perception of the social dimension.

Table 11

Teachers' Perceptions on Social Dimension

		Mean	**Std. Dev**
1	The relationship between teachers and the principal	3.52	.773 is good and friendly
2	This school has clearly defined goals and behavior students' behavior.	3.69	.640 parameters to guide
3	There is consistency and co-operative effort among principal in the application of	3.70	.587 the teachers and the
4	Communication between the teachers and the	3.59	.743 principal is good.
5	The principal knows the problems faced by teachers	3.36	.833 in this school.
6	The principal always takes appropriate measures to problems promptly.	3.34	.897 solve teachers'

7	The principal seeks and uses teachers' ideas on non-	3.22	.930 academic affairs.
8	The principal responds quickly to non – academic teachers	3.21	.927 matters affecting
9	Teachers in this school seek and use students' ideas matters.	3.14	.975 on non-academic
10	Students feel free to talk to teachers about non- this school.	3.25	.948 academic matters in
11	The relationship between the local community and	3.52	.773 the school is good.
12	All teachers are given equal opportunity in this school.	3.28	.995
		3.4024	**.60870**

SOCIAL DIMENSION (N = 105)

Comparisons between the Perceptions of Teachers and Students on Social Dimension

The perception of teachers and students on the dimension was fairly comparable though teachers had a more positive social climate than the students teachers' recording an overall mean rating of 3.40 and 3.06 respectively. However, when the students were asked whether they were free to talk to teachers about non – academic matters the students recorded a low mean rating of 2.47. On the contrary, the teachers reported that students were free to talk to them on non – acasocial demic matters recording a mean rating of 3.25. Table 12 shows descriptive statistics of the and students' perceptions on the social dimension. Table 12

Descriptive Statistics of Teachers' and Students' Perceptions of the Social Dimension

Social Dimension					
Type of respondents		N	Mean	Std. Deviation	Std. Error Mean
SOCIAL DIMENSION	Teachers	105	3.40	.60870	.05940
	Students	338	3.06	.61539	.03347

There was a significant difference between the students' and teachers' perception on the social dimension of the school climate in effective secondary schools in Nandi County. Mann-Whitney U and Wilcoxon W test yielded a p – value of .000 which is below the allowable error limit of .05.

Table 13 shows Mann-Whitney U and Wilcoxon W test on comparison of social dimension.

Table 13

Mann-Whitney U and Wilcoxon W Test on the Social Dimension

Social Dimension	
Mann-Whitney U	11546.500
Wilcoxon W	68837.500
Z	-5.413
Asymp. Sig. (2- tailed)	.000

The implications of these findings are that teachers had a more positive perception of the social dimension of the school climate than the students. The teachers had an overall rating of 3.40 while the students had 3.06 on the social dimension of the school climate. The findings are almost comparable but teachers had a much more favorable rating compared to the students. Teachers have a more mature and realistic perception of the dimensions that make up a positive school climate.

The School Climate Model

Figure 1 presents a school climate model formulated out of the findings of this study.

An effective school climate has a carefully thought out plan of addressing the physical infrastructure of the school. Maintaining the correct number of classroom is of utmost importance to cater for at least 40 students per class and extra classes to cater for optional subjects. Three science laboratories are mandatory to cater for physics, biology and chemistry. The impact of student learning through science experiments cannot be underestimated. In a National Endowment for Science, Technology and Arts (NESTA, 2005) survey (n= 510), 99% of the sample of UK science teachers believed that inquiry learning had a positive impact (33% - 'very'; 16% -'a little') on student performance and attainment. Lunetta, Hofstein, and Clough (2007) argued that when well-planned and effectively implemented, science education laboratory and simulation experience situate students learning in varying levels of inquiry requiring students to be both mentally and physically engaged in ways that are not possible in other science education experiences.

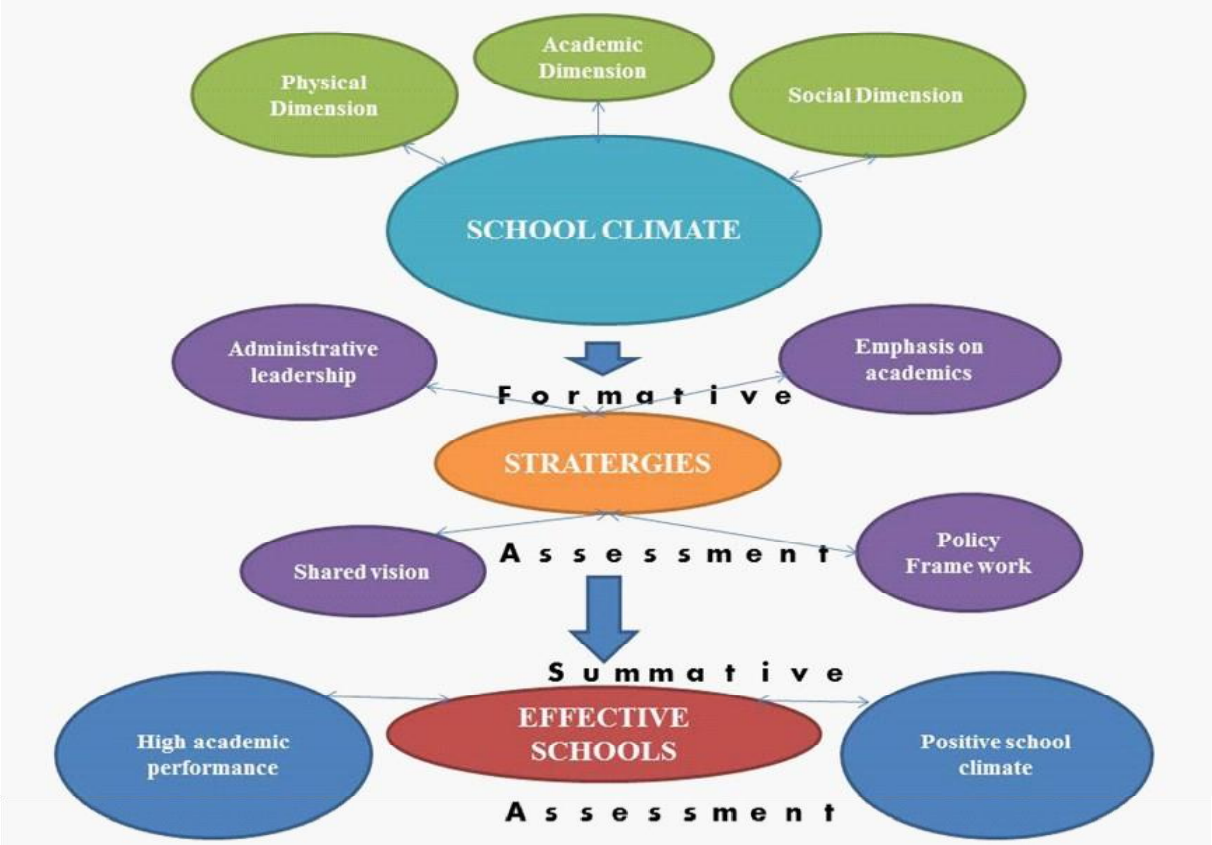

Figure 1. The school climate model.

Dullon (2008) concurs that practical work can increase students' sense of ownership of their learning and can increase their motivation.

Five out of the six secondary schools studied had three science laboratories; biology, chemistry and a physics laboratory with only one school having seven science laboratories. This shows the importance the schools place on the role of science experiments in improving academic performance of students. The study recommends putting in place emergency protocols that should be adhered to such as placing fire extinguishers in strategic and accessible points and marking clearly exit points among other pertinent information. Schools should strive to beautify the environment and create an ambience that stimulates learning.

Conclusion

In conclusion, this study found out that in all the six secondary schools studied, they had a favorable school climate as measured by the physical, academic and the social dimension of the school climate as rated by both the teachers and students together with principals. Both quantitative and qualitative data attests to this fact. The development of a positive school climate takes both time and effort of all stakeholders involved working together towards a common goal of improving academic performance of students. The quest for an effective school climate model is replete with challenges. But when all stakeholders work together they can overcome them.

Acknowledgement

I thank God for the gift of life and ability to undertake this research. I thank Prof. Elizabeth Role for her mentorship and wise counsel in all my academic pursuits. I thank my contemporaries in the school of education, department of educational administration, curriculum and teaching. I thank my wife, Margaret and Children for their prayers and support.

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