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THE MEDIATING EFFECT OF SCHOOL-BASED MANAGEMENT ON SCHOOL CLIMATE, BUREAUCRACY AND EFFECTIVENESS IN SECONDARY SCHOOLS

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ABSTRACT

School effectiveness is a global issue among education stakeholders particularly in developing countries where difficulties in delivering quality education is widespread. However, internal and external factors in schools make school outcomes unpredictable, thus making bureaucracy an effective managerial and analytical tool which can be used to examine and direct organizational structure. This study examined the mediating effect of school-based management on school climate, bureaucracy and effectiveness in secondary schools. A quantitative research of cross-sectional survey with population of 7,533 teachers was employed. Four sets of instruments were adapted and administered on sample of 350 teachers in Nigeria secondary schools through stratified random sampling of the proportionate method. Structural Equation Modelling (SEM) analysis was employed to test the fitness of data in relation to constructs in the model and further confirm hypotheses generated for this study. The findings of revealed that underlying predictors were true measure of their respective constructs. There is a mediation effect of school-based management on bureaucracy and school effectiveness while other path analysis revealed that school-based management did not mediate between school climate and school effectiveness. This study expands theory on bureaucracy as bright side and validates the assertion that, bureaucracy is required in public schools.

Keywords: Bureaucracy, School Based Management, School Climate, School Effectiveness, Secondary schools, Nigeria



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INTRODUCTION

The pursuit for development of effective school operations is one of the foremost education reform initiatives taking place in many countries of the world today (Petty & Green, 2007). Globally, there has been noteworthy progress in expanding the capacity of secondary education following the increased number of students flowing from primary to secondary level of education (UNESCO Global Education Digest, 2011; Sahlberg, 2007). This is evident in the report of UNESCO (2011) where it was stated that within the period of 10 years (1999-2009), teachers deployed to secondary schools have significantly increased (30,430,000) as compared to that of primary school which accounted for 28,322,000. Meanwhile, in this report, Sub-Saharan African experienced an incessant growth from 79% to 157% between 1990 and 2009 whereby Nigeria accounts for the largest absolute increase (The Africa-America Institute, 2015; UNESCO, 2011). Thus far, the above is in line with earlier submission of Grisay and Mahlck (1991) that, the expansion of education system is invariably marked by concerns of decline in its quality due to unprecedented growth of systems in practically developing countries. By implication, Nigeria secondary schools have become more complex in her responsibilities in sustaining quality educational system.

A common issue associated with education is the organizational structure, that is, the ability to manage school for progressive improvement and overall goal achievement. The issue of effectiveness has been a concern to stakeholders in the education sector particularly government, teachers, parents and members of the society. Thus, considerable attention has been given towards effectiveness of school system due to the significant role it plays in educational development and improvement. However, Nigerian public secondary schools which are established and managed by government and predominantly occupied by citizens of lower socio-economic status in the society are facing problem of educational sub-standard; posing unending challenges which affects human modifications, innovations, social placement and overall management of school system (Inuwa & Yusof, 2012; Nwagwu, 2008; Fafunwa, 2004). Evidently, researchers (Ajegbelen, 2016; Ifedeli, 2015; Olaniyan & Obadara, 2008; Olawale, 2015; Ololube, 2013) declared that, there are underlying issues relating to instability in the management of schools which seriously affect the school system and governance structure as faced by many government owned schools in Nigeria. These often resulted to low operational quality (Abinboye, 2011), lack of productive teaching (Okopi, 2011) and continuous decline in productivity of many students in Senior Secondary School Certificate (SSCE) results of the last ten years (Adamolekun, 2013; Ademola-Olateju, 2014; Adesulu, 2014; Bene, 2016; Olanrewaju, 2016). Unarguably, the difficulties in managing school productive standard are posing serious threats to Nigeria secondary school teachers towards delivery of quality education to students.

However, the growing body of research evidences has shown that school effectiveness and supportive school environment greatly improve and facilitate positive relationship necessary for production, contribution and satisfaction among school teachers (Rahmatullah, 2016; Ranson et al., 2005; Uline & Tscannen-Moran, 2008). Studies have also established the connection between a positive school outcome with students' behavioural and educational outcome, socio-emotional wellbeing, healthy social interaction, leadership behaviour, safety, teacher engagement and retention (Bradshaw, Waasdorp, Debnam, & Johnson, 2014; Wang, et al., 2014). Similarly, some common issues that makes a good school especially those affecting student learning outcome in social development and academic pursuit were discussed in some studies which specified that, effectiveness is a function of organisation and management of schools, leadership, and the entire learning environment (Ranson, Farrell, Peim, & Smith, 2005; Reynolds, et al., 2014). This implies that, several issues like learning environment, governance, school structure, formal and informal organizations all encompasses a wide range of factors that contribute to the effectiveness of school.

In the same vein, administrative practices and leadership can influence performances of student or teacher and the overall outcome of the school (Beatriz, Deborah, & Hunter, 2008; Organization for Economic Cooperation and Development, 2001). Correspondingly, an effective school administration is crucial to the attainment of educational goals, since the outcome of education is significantly influenced by the organizational characteristics of



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the school such as leadership, level of management and developmental plans. It is therefore important to improve necessary skills towards the management of human and material resources in the school system for a sustainable development and effective school administration. The considerable literature connecting the factors surrounding effectiveness in schools is accessible. Theories acclaim several characteristics responsible for effectiveness varies across schools. Undoubtedly, more research is needed especially in the areas of school effectiveness. Studies (Ogaz, 2016; Punch, 1972; Thapa et al., 2013) have therefore suggested further investigations with multiple variables mediated and moderated linking them to examining factors responsible for different school outcomes. Attempting this would develop the understanding of and advance knowledge on effects of certain factors on school outcomes. To have a better understanding of conditions influencing effectiveness in Nigeria secondary schools, the following objectives were formulated to guide this study.

1. To examine if bureaucracy significantly predicts school-based management in Nigeria secondary schools;
2. To examine if school climate significantly predicts school-based management in Nigeria secondary schools;
3. To examine if bureaucracy significantly predicts school effectiveness in Nigeria secondary schools;
4. To examine if school climate significantly predicts school effectiveness in Nigeria secondary schools;
5. To examine if school-based management significantly predicts school effectiveness in Nigeria secondary schools;
6. To examine if school-based management functions as a mediating factor in relationship between bureaucracy and school effectiveness in Nigeria secondary schools;
7. To examine if school-based management functions as a mediating factor in relationship between school climate and school effectiveness in Nigeria secondary schools.

THEORY AND HYPOTHESES DEVELOPMENT

Generally, organizational effectiveness is known for its wide-ranging view especially in terms of theory. This study on mediating effect of school-based management on school climate, bureaucracy and effectiveness draws primarily on the general system theory. The general system conception has been a comprehensive viewpoint to explain the working of schools. The theory stresses that institutions with their organizational norms and processes are deeply embedded in structures and practices as a reflection of formal rules of institutions which is meant to shape the actions of those acting within them. In relating systems theory to educational system, Parson (1961) defines key facets of organizational functioning such as structure, culture, human resources, adaptation and subsequently indicates what represents good and bad organization. Specifically, four functional approaches were used to describe organizational effectiveness, they include: level of school teacher and student goal attainment in terms of productivity; the extent to which teachers and principals adapt to change and their degree of tolerance of innovation; teachers' cooperation and collaboration with one another; and their level of commitment to the school. The theory as used in this study provided a structured background through which all issues were discussed and examined and also provides general explanations in understanding some aspect of a phenomenon in educational organizations. However, the underpinning theories of Taguiri (1968), Weber (1947), Gamage (1996) and Hoy and Ferguson (1985) were all integrated to thoroughly study the effects of bureaucracy, climate, school-based management on school effectiveness. The collection of these theories adopted guided the research variables and enabled the researcher tested the hypotheses in this study.



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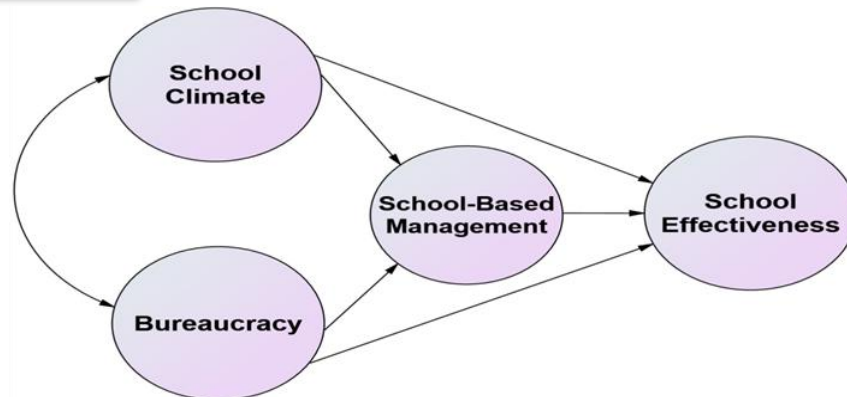


Figure 1. Conceptual Framework for the mediating effect of school-based management on school climate, bureaucracy and school effectiveness

Philosophers understood the usefulness of studying climate in relation to employee productivity, thus delineating organizational climate necessitates a more detailed and precise specification of the theory. This has been established with the taxonomy of climate-related terms developed by Tagiuri (1968) which provides an effective sort system for categorizing the school climate literature. This classification has become dominant view in organizational climate research as many studies reflect on it. In Tagiuri's assessment of school climate, the environment is measured by how members of an organization perceived certain qualities to which they are sensitive to and which, in turn, influences their attitudes and enthusiasm. That is, summary of thoughts associated with the total environmental quality within an organization. Accordingly, four elements were enumerated to constitute climate, as much as a conformation of personal characteristics constitute a personality. This include ecology (Physical/material variables in the school that are external), its milieu (the variables that represents individual characteristics concerned with the presence of persons and groups), its social system (the social dimension concerned with the patterned relationships of persons and groups), and its culture (the social dimension concerned with belief systems, values, cognitive structures, and meaning). Nevertheless, none of the studies of school climate have given due consideration to all the elements classified by Tagiuri (Anderson, 1982); thus, this study used Tagiuri's taxonomy to guide this study.

Bureaucracy is an important structure of a social setting that has people at the top level where decisions are made, and specific functions carried out. The theory of bureaucracy was initially developed by Weber (1947) with a comparative study on various organizations and developed the principles of formal system of administration in order to ensure efficiency and effectiveness. A contemporary analysis of bureaucracy in an idealized model is characterized by division of labour, hierarchical-rules, impersonality and competences. These features were structured in schools and described by Koybasi, Ugurlu, and Bakir (2017) as the establishment of division of labour based on competence in the distribution of responsibilities; delegation of responsibilities to teachers towards school administrators with binding regulations; demonstration of impartiality and coherence based on expertise or technical know-how. However, the conception of bureaucracy has fascinated many to investigate its relevance in contemporary organizational studies. Hence, researchers of educational management inclined that a bureaucratic institution like school operates in a complex environment whereby standardized rules and procedures are required to be formulated in order to shape organizational behaviour and direct member behaviour (Kiliç, Koşar, Er, & Öğdem, 2016; Smith & Larimer, 2004).

Similarly, reviewed school-based management of Gamage (1996) specified the need for voluntary participation of community members, delegation of authority and transfer of responsibility, parents as well as students' representatives in policy formulation and implementation, school governance, management and administration for motivation and active involvement of all stakeholders towards improving the quality of education. In the same



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vein, Hoy and Ferguson (1985) hypothesized that, for a system like school to subsist and make progress, it must find solutions to problems of adaptability, productivity, cohesiveness and commitment.

School Climate and Effectiveness

Ogaz (2016) suggested that school climate should be theorized as diverse social related effects functioning in a complex setting with multiple variables mediated and moderated linking them in order to specify theory driven-models of different school outcomes. This implies that, climate is an elusive concept used to precisely express the enduring situation of an organization with several approaches. In the school context, climate was described by Cohen, McCabe, Michelli and Pickeral (2009) and Thapa, Cohen, Higgins-D'Alessandro and Guffey (2012) to be grounded by different forms of school experiences which reflects norms, values, interpersonal relationships, teaching and learning practices and organizational structures as perceived by people within the environment. It is the core heart that brings about virtuous learning in a school; whereby both teachers and students are motivated to be part of the school and always looking forward to being there each day (Freiberg & Stein, 1999).

It is worthy to acknowledge that many studies affirmed that climate is an interesting variable to be observed by educational practitioners and researchers in the areas of school administration and management, especially in the study of student academic achievement and teacher productivity (Adeogun & Olisaemeka, 2011; Cohen & Geier, 2010; Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Thapa, Cohen, Guffey, & Higgins-D 'alessandro, 2013). Variables of school system like management, community participation, working environment, governance and supportive school climate are attributed as determining factors that have highly essential contributions towards effectiveness (Duze & Ogbah, 2013), some of which were used to elucidate effectiveness by Hofman, Hofman, Gray, & Wendy Pan (2015); Ranson, Farrell, Peim, and Smith, (2005). This is because, climate is instrumental to improving motivation and commitment among teacher and in achieving positive school outcome (Tagoe, 2014; Thapa et al., 2013; Thapa et al., 2012; Werang, 2014; Yusof, 2012). Moreover, researchers like Adejumobi and Ojikutu (2013), Dagneu (2014) and Zahid (2014) have considered school climate as an essential factor in school improvement, teacher job performance and student academic performance. Hence, this study formulates the hypothesis to examine the effect of school climate on school effectiveness in Nigeria secondary schools.

Bureaucracy and Effectiveness

Punch (1972) postulated that, once school priorities are acknowledged, certain levels of bureaucratization in the organizational structure would be appropriate in the realization of the school goals. Besides, one of the significant components of bureaucracy is some well-devised operating procedures that prescribed the behaviour of teacher and student in school (Saltman, 2016). Several questions relating to school choice has been raised by Bohte (2001), Krueathep (2011), Smith and Larimer (2004); there exist a wide-ranging opinion on the impact of bureaucracy on student and school performance. There are two convincing arguments on the study of bureaucracy in school. Advocates of school choice like John Chubb and Moe (1994) claimed that, deficient performance in public schools is due to extensive bureaucracy which restrict teachers' choice to recommend and implement innovative ideas and solutions to school problems.

On the contrary; the opponents, Smith and Meier (1995) contended that, bureaucracy is a positive force required in managing and solving public school problems. Essentially, it responds to multifaceted problems like administrative burden faced by schools especially the poor performing ones (Bohte, 2001; Krueathep, 2011), therefore, it should have a positive impact on student performance at secondary level where there are more administrative tasks for the school heads to do. The relationship between bureaucracy and effectiveness have been examined in previous research studies, such as school performance (Smith & Larimer, 2004), teacher efficacy (Kilinç et al., 2016), job alienation (Alizadeh, Ali, & Hosseini, 2013) and student achievement (Bohte, 2001). These



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studies offered useful information on the associations between bureaucracy and school effectiveness showing unpredictability in the concept of school effectiveness results. For instance, in an exploratory study by Hofman, et.al., (2015) on effectiveness among 250 Dutch primary schools using teachers; school and governance with focus on bureaucratic structure of public schools as indicators of effectiveness, thus, the study found a positive impact of school governance on student achievement in mathematics. Thus, this study tends to examine the effect of bureaucracy on effectiveness in Nigeria secondary schools.

School-Based Management and Effectiveness

In spite of the enormous responsibilities and functions of a school principal, research studies conducted in some developed nations like Australia, United States and United Kingdom unravels numerous challenges faced by principals in school management (Kitavi, 1997). Part of the problems experienced by the school head are related to instructional programme, student academic performance, teacher, financial resources and community participation (Goldring, Porter, Murphy, Stephen, & Cravens, 2006; Hale & Moorman, 2003). Similar researches done in developing countries like Kenya and Nigeria revealed that principals' role as the school head is enormous and as a result, they are often confronted with challenges in terms of management of instructional programmes and personnel within the environment for a positive transformation (Aja-Okorie, 2010; Evans, Bosire, & Ajowi, 2016).

However, in order to cope with these challenges, Gamage (1996) suggested the need to establish an effective communication network among education stakeholders to create an improved administrative structure that will enhance a collaborative working arrangement. Additionally, supports received from stakeholders can transform the climate of the school depending on the existing features which include school history, available resources and staff (Smith et al., 2014). Even though research had been done on the relationships among these variables, more researches are required to develop a model to address the gap in knowledge particularly in Nigeria.

Therefore, the study followed the hypothetical-deductive method where seven hypotheses were formulated to examine the effect of one variable on the others. Firstly, the direct effect of bureaucracy on school-based management were analysed to investigate whether has significantly influenced school based management; school climate has significantly influenced school based management; bureaucracy has significantly influenced effectiveness; school climate has significantly influenced effectiveness; school based management has significantly influence effectiveness; whether school based management functions as a mediating factor in relationship between school climate and effectiveness; and school based management does function as a mediating factor in relationship between bureaucracy and effectiveness. Structural equation modelling was considered suitable for this study to analyse, confirm or disprove the hypotheses formulated and further examine the effects and relationships among variables.

METHOD

Research Design

The research design was survey of the cross-sectional type. The design was considered appropriate because it made it possible to gain basic insights about issues and also obtain information from a group of samples drawn from the population to know their opinion towards a phenomenon using structured questionnaire. This followed the hypothetical-deductive method where hypotheses were formulated based on a review of literature.

Sampling

This study employed the quantitative design for both data collection and analysis. Quantitative research involves study whose findings are mainly the product of statistical summary and analysis. Quantitative study of the survey



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type provided a numeric description of portion of the population. This cross-sectional study was conducted in public secondary schools in Kwara State, Nigeria. The population therefore consisted of all the existing public secondary schools in Kwara State with a total of 7,533 teachers.

In determining sample size, there is no exact answer to how many respondents required when using SEM due to the differences in research objectives, population characteristics and number of constructs to be employed in a model. There is therefore no consensus on the appropriate number of sample size for SEM as the properties of all samples varies. However, a low sample size may result to instability in the covariance matrix which may cause sampling error, therefore, statistical indices will perform adequately and yield significant result with interpretable value when the sample size is more than 200 participants. Hence, the rule of thumb thus recommended a minimum of 300 to have a proper representation of the population, higher factor loadings and proper convergent as a small sample size is unreliable. For this study, an established formula provided by Yamane (1967) and used by Israel (1992) was adopted in selecting sample size. The guidelines followed as illustrated thus:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n refers to the sample size
- N is the population size
- e refers to the level of precision.

Applying this formula to this study give the equation below:

$$379 \quad n = \frac{7,533}{1 + 7,533 (0.05)^2} =$$

In the equation above, the sample for the population of 7, 533 as suggested by Yamane (1967) sample size formula is 380. This is also in line with the population and sample size as suggested in the sampling table. The study adopted a stratified random sampling of the proportionate method. The population was divided into sub-population in order to ensure that all segments are appropriately represented. The proportionate quota sampling was employed to be able to divide the population into a smaller group so that samples can be captured from each stratum for proper representation (Central, North and South) in the State. The sample size was divided by percentage of each stratum specified as; 13% of 987 teachers from the north constitutes 50 respondents, 56% of 4,242 teachers from the central constitutes 214, while 31% of 2302 teachers from the south constitutes 116 of the sample. This will make up a total of 380 respondents.

Research Instruments

This study adapted Saskatchewan School Climate Scale (SSCS), School Organization Inventory (SOI) and School Effectiveness Index (SEI) initially designed in five sections consisting of question items related to each construct on a 7-point Likert scale which was slightly different from the initial scales of 5 and 4 Likert scales. These instruments consisted of 67 questions in all for the participants to answer. Out of the 380 questionnaires distributed, 30 questions were not returned thus leaving the rate of return at 92%.

Saskatchewan School Climate Scale: School Climate Questionnaire was specifically designed for the study of school climate by the researcher as adapted from Saskatchewan School Climate Scale (SSCS) developed by Ruane (1995)



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based on Taguiri's (1968) organizational climate framework. The questionnaires captured the comprehensive review of school climate research as found within the framework which constitutes fundamental elements of school environment (Ecology, Milieu, Social System and Culture) as other instruments developed especially by Croft and Halphin (1962) which has been used most frequently only to measure characteristics of the social system and culture dimension in Taguiri's classification. This instrument initially contained an item of twenty-five questions in four subscales which was developed to describe a school. The SSCS questionnaire was modified to fit the Nigerian context; all factors were same as the original scale except for sub-scale items, some of which were removed ("there are enough computers and computer software, parents help out by volunteering for school jobs, gender stereotyping is evident" among others), as they were adjudged not to be applicable to Nigerian teachers.

School Organization Inventory: This instrument was originally developed by Hall (1963) to measure degree of bureaucracy in organizations, it was adapted by MacKay and Robinson (1966) to measure the bureaucratic structure in schools. Originally, it consisted of thirty-eight Likert-type items which provide for measures of Weber dimensions of bureaucracy under investigation. All factors were same as the original, however, some items in the sub-scales were removed from the final instrument as they do not fit the context of this study. The questionnaire after modification comprised of four factors (division of labour, hierarchical rules, impersonality and competence) having 20 items statement.

School-based management: The questionnaire was adapted from the work of Bandur (2008) who studied the state school system in the New South Wales. The questionnaire was however revised to appropriately suit the context of this study and was designed to be completed by teachers only.

School Effectiveness Index (SEI): SEI was originally developed by Mott as a measure of effectiveness in hospitals. The validity of the instrument has been ascertained through studying of comprehensive high schools with several factors of school effectiveness by Hoy and Ferguson (1985). The components of School Effectiveness Index were suitable for measuring productivity and adaptation to environment, while items constructed under as a measure of committed teacher behaviour and spirit of faculty were found to reflect the extent to which teachers enjoy sense of satisfaction and accomplishment in their work and therefore suit the constructs of cohesiveness and commitment under school effectiveness.

Validity and Reliability

The pilot study was carried out to ascertain the validity and reliability before conducting the final survey. The methods used in the validation of the instruments include; content, face and construct validity. All data collected were subjected to assessment through measurement model to further validate the underlying constructs and further assess the consistency of its measures. The statistical analysis was done through Statistical Package for the Social Sciences (SPSS) version 23 while the measurements and structural model were tested using Structural Equation Modelling (AMOS) version 23.



Table1
Reliability of Scales and Sub-scales

Construct	Sub-Scale	Alpha Coefficient	No of Items
School climate	Ecology	.854	4
	Milieu	.896	5
	Social System	.849	5
	Culture	.801	4
Total Scale		.935	18
Bureaucracy	Division of Labour	.792	4
	Hierarchical Rules	.913	7
	Impersonality	.894	5
	Competence	.899	4
Total Scale		.936	20
School-Based Management		.848	10
School effectiveness	Productivity	.920	6
	Adaptation	.842	4
	Cohesiveness	.772	4
	Commitment	.926	5
Total Scale		.953	19

Data Collection

The data collection tools are questionnaire surveys derived from two sources; a sample survey and pilot testing. Data collection for this study was done through two sources: first, it sorted for statistical information on teachers in secondary schools; secondly, the study utilized four (4) standardized questionnaires divided into four sections to measure school climate, bureaucracy, school-based management, and effectiveness in secondary schools. The instrument was personally administered to respondents with the help of two research assistance. The questionnaire was distributed among 400 teachers in secondary schools across Kwara State, Nigeria in order to be able to generalize the findings on the entire population.

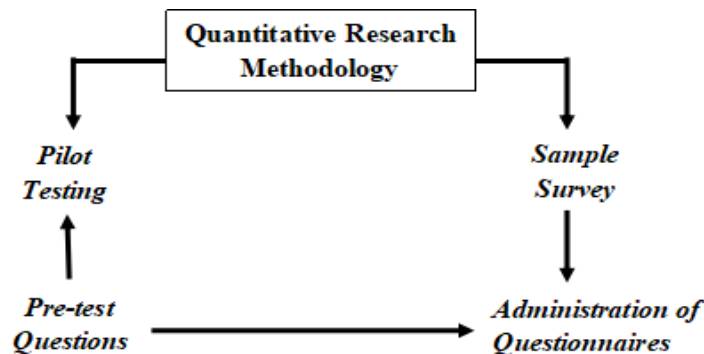


Figure 2. Data Collection Techniques



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Statistical Analysis Technique

In conducting SEM, there are certain techniques to be followed in testing theoretical model hypothesized in a study. Anderson and Gerbing (1988) recommended the need to develop a measurement model first followed by a confirmatory factor analysis and testing of the structural model which shows the hypothesized relationships. This allows various theoretical models to be tested in SEM to understand how sets of variables define constructs and how these constructs are related to each other (Schumacker & Lomax, 2004). In this regard, Awang (2015), DeVon et al. (2007) and Jayasinghe-Mudalige et al. (2012) submitted that construct validity be achieved for constructs to be able to attain the Fitness Indexes in the model.

FINDINGS

In order to provide evidence for construct validity of latent variables (school climate, bureaucracy and effectiveness), three separate Confirmatory Factor Analyses (CFA) were evaluated for the measurement model of all the thirteen constructs of School Based Management (SBM), Hierarchical-rule (Hier), Division of Labour (Div), Competence (Comp), and Impersonality (Imp), ecology (Eco), Mileu (Mil), Social System (SoS), Culture (Cut), Productivity (Prd), Commitment (Com), Adaptability (Adp), Cohesiveness (Coh). A model was extracted for each variable with items selected from the initial principal component analysis done. The CFA in this study focused on four latent variables which are: school climate, bureaucracy, school effectiveness and school-based management with their observed variables by ascertaining the squared loading factor greater than 0.50 (Holmes-Smith, 2001). This is to allow for verifying the underlying factors of each construct and further substantiates the extent to which the underlying latent variables measures the constructs.

Measurement Models

Although, all values of factor loadings for the initial model of school climate is $> .50$, the fitness indexes indicated that the model was unacceptable (CMIN = 518.1; $df = 84$; $\chi^2/df = 6.1$; GFI=0.84; AGFI= 0.77; CFI= 0.87; TLI=0.84; NFI = .85, RMSEA=0.12) and there was need for modification by reducing four items from the initial model. The results however yield a moderate fit and acceptable indexes ($\chi^2/df = 3.3$, GFI=0.94; AGFI= 0.89; CFI= 0.96; TLI=0.94; NFI = .94, RMSEA = 0.083), chi-square of 126.4 with 38 degrees of freedom was statistically significant at $p < 0.05$. However, the redundant items were correlated in order to set the two measurement errors as free parameters, measurement error of e7 – e9 having a modification index value of 23.50 which is greater than 15.0 is considered high. Therefore, correlating (e7 - ML3 and e9 - CT4) would statistically improve the model fit. The final model of school climate has 11 observed variables with factor loading ranging from 0.65 - 0.90. The results yielded a good fit between the model and the data. The chi-square of 101.6 with 37 degrees of freedom was statistically significant at $p < 0.005$. All other fitness indexes indicated an acceptable model with good fit ($\chi^2/df = 2.75$, GFI = 0.95, AGFI = 0.91, CFI = .097, TLI = 0.95, NFI = 0.95, RMSEA = 0.07). This confirmed that the last model was a good fit of the data. The values obtained are in line with the thresholds of Hu and Bentler (1999) and Hair et al. (2010).



Table 2
Measures for Model fit

Category of Measure	Index	Observed Scores After Modification				Recommended Value (Hu & Bentler, 1999; Hair et al., 2010)
		SC	BRY	SE	SBM	
Absolute fit	χ^2	101.6	208.17	73.0	11.98	Near to degree of freedom
	Df	37	57	38	5	The greater, the better
	(χ^2 /df)	2.75	3.6	1.9	2.3	<3; or <5
	GFI	0.95	0.92	0.96	0.98	>0.90; >0.80
Incremental fit	RMSEA	0.07	0.08	0.05	0.06	<0.05 to 0.10
	CFI	0.97	0.94	0.98	0.99	>0.90
	NFI	0.95	0.92	0.97	0.98	>0.90
Parsimonious fit	AGFI	0.91	0.92	0.93	0.96	>0.90; >0.80
	PNFI	0.63	0.67	.67	.50	The higher, the better

Bureaucracy was measured with seven scales of instrument developed based on the hierarchical rule, competence, impersonality and division of labour comprising of 18 observed variables. Although all the output indicated that all observed variables were having good reliabilities with squared factor loadings greater than 0.50, yet there is poor fitness of the measurement model for the constructs (CMIN = 609.09; df = 129; χ^2 /df = 4.7; GFI=0.84; AGFI= 0.79; CFI= 0.89; TLI=0.87; NFI=0.87 RMSEA= 0.103), hence, there is need for modification of the model. There are two sets of redundant items found in the correlated measurement error of e5 - e8 having a Modification Index (MI) value of 16.532 and e4-e9 having MI value of 23.458 which are > 15.0 and its therefore considered high. Modification index suggested that a correlation of the error terms between IP2 - DL3; and HR3 - DL2 would statistically improve the model fit. The redundant items were correlated, and model was re-estimated. The school-based management had 8 observed variables. The initial measurement estimation of school-based management revealed that the chi-square of 165.9 with 20 degrees of freedom was statistically significant at $p < 0.05$. Other fit statistics showed an unacceptable value for the model (χ^2 /df = 8.2; GFI=0.90; AGFI = 0.82; CFI= 0.94; TLI = .91; NFI = .93), thus, there is a need for modification of the model. Reducing the items in the model from 8 to 5 seems to be acceptable and statistically improve the fit of the model. Results indicated that the model was acceptable (χ^2 /df = 2.3; GFI=0.98; AGFI= 0.96; CFI= 0.99; NFI = 0.98; TLI = 0.98; RMSEA= 0.06).

Finally, school effectiveness was a four-factor model comprising of seventeen observed variables. The results of the initial model indicated that all observed variables have good factor loadings greater than 0.60, yet the fitness indexes are not good. Thus, there is a need for model modification. In achieving a good fit, some items having poor loading were removed from the model and estimation was done again. The final model yielded a good fitness index, chi-square of 73.0 with 38 degrees of freedom was statistically significant at $p < 0.05$. The other fit indexes indicated that the model was acceptable (χ^2 /df = 1.9; GFI=0.96; AGFI= 0.93; CFI= 0.98; TLI = 0.98; NFI = 0.97, RMSEA = 0.05).

Construct Validity of the Model

In assessing convergent validity, Hair et al. (2010) stated that indicators of a specific construct should converge or share high proportion of variance in common. However, there are sufficient evidences in this study to confirm the convergent validity of constructs as squared multiple correlation values (ranges from .39 to .90) revealed the amount of variance explained having high loading to latent constructs. Furthermore, the standardized factor loadings for all items is >.50, squared loading >.35 and AVE is >0.50 (see table 1), indicating a good convergent validity and model fit (Hair et al., 1995; Hair et al., 2013; Holmes-Smith, 2001, Awang, 2015).



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Table 3
Construct Validity

Variable	Constructs	AVE	Composite Reliability
School Climate	Milieu	0.726	0.888
	Ecology	0.589	0.810
	Social System	0.699	0.822
	Culture	0.557	0.790
Bureaucracy	Hierarchical Rule	0.623	0.869
	Impersonality	0.569	0.798
	Competence	0.677	0.862
	Division of Labour	0.566	0.796
School Effectiveness	Productivity	0.708	0.879
	Commitment	0.731	0.916
	Adaptation	0.862	0.844
	Cohesiveness	0.862	0.925
School Based Management		0.655	0.904

Structural Model

The present study formulates hypotheses to examine school-based management as a mediator between bureaucracy, school climate and school effectiveness and school effectiveness to ascertain direct, indirect and total effect on all variables through application of path analysis technique following the suggestion of Cheung and Lau (2008) to interpret the effect of the exogenous variable on the endogenous variable using the regression weights in the path. Path analysis is a subsection of SEM which gives systematic representations of models by providing a visual representation and examination of causal relationships hypothesized between exogenous and endogenous variables in a study (Bryne, 2010; Hair et al., 2010; Tabachnick & Fidell, 2007). To allow for tests of constructs and ensure that the model is the true representation of data, there is a need to build a path diagram of structural model to allow the path to be drawn between hypothetical constructs that are unobserved through its corresponding measured variables. Each path in the model represents hypothesized underlying links and its empirical associations. In doing so, the first step was to conceptualize the model as expressed in the hypotheses formulated to illustrate the relationships existing among the unobserved and their effects on the other variable followed by the specification of the model.

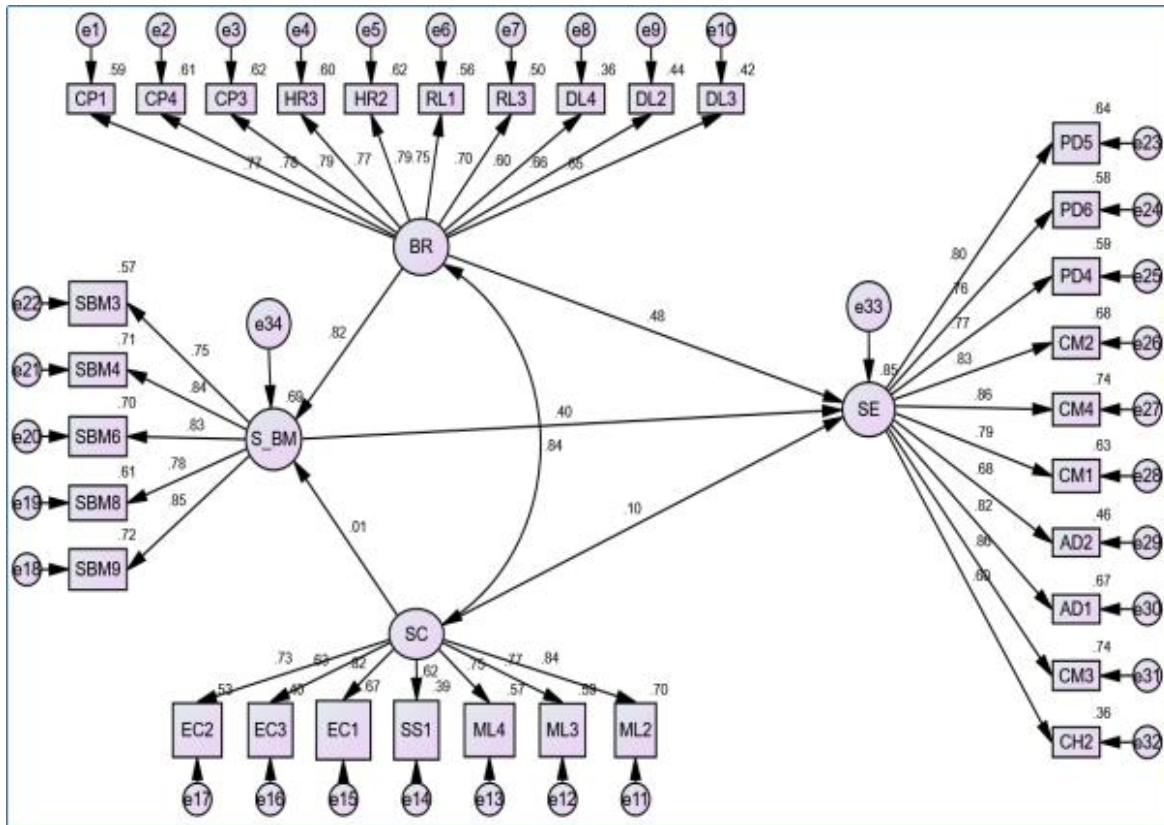


Figure 3. Structural Equation Modelling for School Climate, Bureaucracy, School-Based Management and School Effectiveness in Nigeria secondary schools.

This study integrated five direct and two indirect hypotheses to predict effect of the endogenous variable on the exogenous variable in the proposed model. Figure 3 presented the actual regression coefficient (β) value for each path and strength of relationship between variables. The output revealed the value of the regression coefficient and their effects. The strength of relationship between the two latent constructs/exogenous variables of school climate and bureaucracy is less than 0.85, hence, the two constructs can be treated independently.



Table 4

Standardized effect of school climate, bureaucracy, school-based management and school effectiveness in Nigeria secondary schools.

	Hypotheses	Paths	Standardized (β)	S.E.	T Value	P Value
1	There is no significant effect of bureaucracy on school-based management in Nigeria secondary schools.	BRY-SBM	1.064	0.123	8.656	***
2	There is no significant effect of school climate on school-based management in Nigeria secondary schools.	SC- SBM	0.015	0.103	0.149	0.882
3	There is no significant effect of bureaucracy on school effectiveness in Nigeria secondary schools.	BRY- SE	0.525	0.097	5.402	***
4	There is no significant effect of school climate on school effectiveness in Nigeria secondary schools.	SC – SE	0.098	0.063	1.556	.120
5	There is no significant effect of school-based management on school effectiveness in Nigeria secondary schools.	SBM - SE	0.342	0.054	6.382	***

Mediation Analysis

A mediation analysis according to Hair et al. (2010) would be done when a third construct intervened between exogenous and endogenous variables. In order to examine the mediation model, it is important to test the full mediation by analysing the direct and indirect effects in the model. The presence of the mediator would be accepted if the full mediation model was better fitted than the indirect model. In this model, the direct effect of bureaucracy on school effectiveness is estimated at $\beta = 0.48$, the indirect effect which is the multiplication of both indirect paths is $(0.82 \times 0.40) = 0.33$ leaving the total effect (indirect + direct) at 0.81. Although, the direct path of bureaucracy and school effectiveness is supported, the two indirect paths (bureaucracy - school-based management - school effectiveness) are also significant. Although, the indirect effect of 0.33 is less than the direct effect of 0.48, all the paths were significant ($p < 0.05$), therefore, a partial mediation occurs since both direct and indirect effects are still significant after mediation. The results of analysis shown in table 4 shows all relations in both models.



Table 5

Summary of Direct, Indirect and Total Effects of Hypotheses for the Model

Path	Estimate (β)			P-Value	Effect	Decision
	DE	IE	TE			
BR \rightarrow SE	0.48	-	0.48	***	Direct	Rejected
BR \rightarrow SBM	-	0.82	0.82	***	Indirect	Rejected
SBM \rightarrow SE	-	0.40	0.40	***	Indirect	Rejected
BR \rightarrow SBM \rightarrow SE	0.48	0.33	0.81	***	Mediation	Partial Mediation
SC \rightarrow SE	0.10	-	-	.120	Direct	Failed to reject
SC \rightarrow SBM	-	0.01	-	.882	Indirect	Failed to reject
SC \rightarrow SBM \rightarrow SE	0.10	0.00	0.10	.865	Mediation	No Mediation

DISCUSSION

Towards achieving the objectives of this study, seven hypotheses were formulated based on the purposes, hence this study presented a systematic analytical method in fulfilling the objectives of this study. Basically, the result of the findings was presented using comprehensive stages of analysis. The data was subjected to factor analysis through principal component analysis in SPSS in order to reduce and eliminate redundant items from the questionnaire, reduce the questionnaire items and select the best items having higher loading from all the instruments using principal component analysis. The measurement model was established through confirmatory factor analysis to ascertain how fit the model is with the sampled data. Although there are no unanimously agreed fitness indexes to report in a study, hence, fitness indices alone may not probably enclose the usefulness and adequacy of a model fits to its sample data, rather assessing model fit should be based on multiple criteria that reflects theoretical, statistical and practical considerations which the study systematically followed. The confirmatory factor analysis for the specified models of school climate - ecology, milieu, social system, culture; bureaucracy- division of labour, hierarchical rule, impersonality, competence; school-based management and school effectiveness - productivity, adaptation, cohesiveness, commitment was carried out to ascertain that all dimensions of constructs are true measure of the endogenous variables. These were carried out on each construct to confirm the dimensions are true measure of the variables. The final model was developed, and the conclusive results yielded a good fitness index between the data and model (χ^2/df , CFI, GFI, AGFI, TLI, NFI, and RMSEA). Subsequently, the SEM was conducted to test the hypothesized model designed for this study through path analysis. The final result from the hypotheses revealed that from the seven hypotheses, four were supported by the findings and the other three were not supported.

The first objective which examined if bureaucracy significantly influence school-based management; hence it was hypothesized that bureaucracy has no effect on school-based management in Nigeria secondary schools. The results of the SEM showed a positive significant effect as the estimate of regression path for standardized β value on the effect of bureaucracy on school-based management is 0.82 while the critical ratio and probability score (p -value ≤ 0.05 is 0.00) for hypothesis one. Since the standardized path coefficient of 0.82 is significant, the probability of getting a critical ratio as large as 8.65 in absolute value is less than 0.05. In other words, the regression weight for bureaucracy in the prediction of school-based management is significantly different from zero at the 0.05 level of significance. This indicates that bureaucracy predicts school based-management in Nigeria



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secondary schools. This finding is consistent with the study of Pomuti and Weber (2012) on decentralization and school management in Namibia, where education ideologies were categorized as bureaucratic, managerial, and authoritarian; bureaucracy was found to play a significant role in Namibia Cluster-based school management. Also, Kalkan (2016) concluded that there is a relationship between learning environment and bureaucratic structure with a partial mediating effect of organizational trust. Similarly, findings of Hanifi and Ramazan (2017) in a study on effect of bureaucratic school structure on teacher leadership culture supports that, effectiveness of bureaucracy in school had positive significant relationships with occupational cooperation, school administrator's support and supportive working environment. The hypothesis which established the effect of school climate on school-based management have an estimated value of 0.10 with p-value 0.88 which is >0.05 ($P < 0.05$) signifying that the hypothesis is not supported. Since the standardized path coefficient of 0.10 and Critical ratio of 0.149 is not significant, the probability of getting a critical ratio as large as 5.718 in absolute value 0.94 which is < 0.05 . In other words, the regression weight for school climate in prediction of school-based management is significantly different from zero at the 0.05 level of significance. Therefore, the result is not supportive of the study's hypothesis.

The study has examined the effect of bureaucracy on school effectiveness and revealed a standardized path coefficient of 0.48, thus, the probability of getting a critical ratio as large as 5.40 in absolute value is less than 0.05. In other words, the estimated β value for bureaucracy in the prediction of school effectiveness is significantly different from zero at the 0.05 level of significance, therefore, the result is supportive of the hypothesis. The outcomes revealed that bureaucracy had a significant positive effect on school effectiveness in Nigeria secondary schools. This is in line with the findings of a study of the effect of bureaucracy on the relationship between principals' leadership practices and teacher Commitment in Malaysia secondary schools using adapted Hall's Organizational Inventory (1968), perception of teachers revealed that, bureaucracy was being practiced in secondary schools, particularly on the component of impersonality when dealing with school staff and other outside members to be able to minimize conflicts or tension within their schools (Kean, Kannan & Piaw, 2017). The findings of the study give a clearer focus on procedural specifications towards ensuring smooth running of schools in Malaysia. Similarly, the finding is consistent with the submission of Hoy and Sweetland (2001); Ravitch (2010); Saltman (2016); Smith and Larimer (2004) that, enabling bureaucratic school structure support teachers, encourages openness and proficiency, positive school outcome and allow them to solve problems affecting them. Additionally, the objective which examined whether school climate significantly influence school effectiveness was tested and revealed value of 0.10, thus, the probability of getting a critical ratio as large as 1.55 in absolute value is 0.120. In other words, the regression weight for school climate in predicting school effectiveness is not significantly different from zero at the 0.05 level. Therefore, the result is not supportive of the hypothesis. Although, this finding negates the assertion of previous studies of Adeogun and Olisaemeka (2011); Othman and Kasuma (2016); Thapa et al. (2013), this may be due to some unpredictability in the context of this research. The objective that predicts the effect of school-based management and school effectiveness revealed a standardized path coefficient of 0.40 and critical ratio of 6.38, thus, the probability of getting a critical ratio as large as 6.38 in absolute value is .000. In other words, the regression weight for school climate in the prediction of school effectiveness is significantly different from zero at the 0.05 level of significance. Therefore, the result is supportive of the hypothesis. This is in support of the submission of Gaziel (1998) and Cheng (1996) that school based-management is a crucial factor in determining teacher motivation, commitment and effectiveness in school. Encouraging good working environment, interpersonal relationship and pattern of experiences have been recognized by Duze and Ogbah (2013) to be predictors of school performance. More so, Caldwell (2008) declared that, the decentralized decision making to schools have connected with the immediate environment and society at large. Involving SBM committee in management of school promotes substantial value driven system, sustainable relationship between school and host community, and support towards ensuring quality and standard (Ayeni & Ibukun, 2013). Camminatiello, Paletta, and Speziale (2012) and Nir (2002) acknowledged the existence of a relationship between SBM and school effectiveness as well as teacher commitment and student achievement.



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Similarly, it was found in the model (see Figure 2) that the direct effect of school climate on school effectiveness is estimated at $\beta = 0.10$, the indirect effect which is the multiplication of both indirect paths (school climate school-based management - school effectiveness) is $0.01 \times -0.40 = 0.004$ leaving the total effect (direct + indirect effect) at 0.10. Although, the direct path of school climate - school effectiveness is not supported, one of the two indirect paths (school-based management - school effectiveness) is significant while the other path is insignificant. However, the indirect effect of 0.004 is less than the direct effect of 0.10 and one path of the indirect effect is not significant (school climate - school-based management), therefore no mediation occurs since the direct effect is still insignificant after mediation. This finding disproves the submission of Thapa et al (2012) that school climate is an imperious feature in the implementation of school reform and improvement; hence, teachers' perception of school climate positively influences the successful implementation of school-based management and school developmental programs. Also, Ho (2005) examined the role of school climate as a mediating variable between decentralization and performance using students' morale and behaviour, sense of belonging and disciplinary climate. The findings revealed that school autonomy has no effect on student performance, but a significant impact exists on teacher participation on school governance and students' performance in mathematics.

The estimate of regression path for standardized β value on the effect of bureaucracy on school-based management is 0.82 while the critical ratio and probability score (p -value ≤ 0.05 is 0.00) for hypothesis one. Since the standardized path coefficient of 0.82 is significant, the probability of getting a critical ratio as large as 8.65 in absolute value is <0.05 . The findings suggested that there is a positive significant effect of bureaucracy on school-based management. However, the finding is consistent with the study of Pomuti and Weber (2012) on decentralization and school management in Namibia, where education ideologies were categorized as bureaucratic, managerial, and authoritarian; bureaucracy was found to play a significant role in Namibia Cluster-based school management. Studies in educational administration have provided evidences for the associations among the variables under review. Similarly, findings of this study have shown that, bureaucracy has positive and significant effect on school-based management and school effectiveness in Nigeria secondary schools as it gives a clearer focus on procedural specifications towards ensuring smooth running of secondary schools in Malaysia. Further findings of early studies supported the results of these findings. It could therefore be said that school effectiveness could be fostered when there is a positive bureaucratic atmosphere in schools.

IMPLICATION

Theoretical Implication

Fundamentally, schools are established by the society to educate its citizens, and the system is characterized by clear operating rules and regulations. This study offers a substantial evidence for the application of system as the supporting theory, specifically in the context of secondary school settings. Thus, providing a suitable and appropriate framework in describing the exogenous variables. Likewise, it offers a precise background in relating the mediating and endogenous variables. Theoretically, this research provided an impetus into the theory of school climate and bureaucracy in prediction of school effectiveness in Nigeria secondary schools, Thus, this research study contributes to the existing body of knowledge by confirming the variables as an entire attribute of the school system. It has further proven that, even though climate is important, composition and structure of school differs across schools within the community. The findings of this study are significantly different compared to previous research findings; in some developing country perspectives, this may be due to variances in terms of cultural background, context and level of development and experience. Although, there has been a disparity in the outcome of previous researches conducted in this area, none of the studies have been able to link the variables under study together, especially in the Nigeria context. Additionally, considering past research studies, disagreeing literatures emerged on the study of bureaucracy in school as its consequences was perceived to have two sides: 'the dark and bright sides'. That is, the dark side is perceived to hinder creativity and brings dissatisfaction among workers while the bright side alleged that bureaucracy clarifies responsibilities and in turn gives guide to workers to be more effective in their jobs. The contribution of this research study has given a clearer understanding and



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expanded the theory on bureaucracy as a bright side in schools. This supports the submission of Krueathep (2011) that, jettisoning school bureaucracy may not bring positive outcomes as many advocates argued. The findings of this study have validated the need for bureaucracy in public secondary schools and equally reveal the underlying activities in the school which can help evaluate the strategies to be used for positive outcome.

Practical Implication

This research offered a new approach into the determinants of effectiveness in secondary schools. Primarily, the findings of this current study attested to the importance of bureaucracy among secondary school teachers. In the school settings, some studies disprove that bureaucracy contribute to effectiveness. The findings of this study negate this belief as results supported the view of bright side of bureaucracy and thus imply that, an enabling bureaucracy is required among employees in a formal setting like secondary school to strengthen administrative practices and attain school goals; thus, separation of bureaucracy from a formal setting may be impossible or problematic. On the same note, jettisoning school bureaucracy may not bring positive outcomes as many advocates argued, rather, it would give a clearer view to educational administrators on better ways of coordinating the secondary school system to enhance efficiency and effectiveness, that is, it would contribute significantly to the smooth operation of secondary schools in Nigeria.

Similarly, it would give a clearer direction to teaching staff on the need for conformity, equal participation, maintaining and sustaining orderliness in school as bureaucracy bring about stability in the system. Additionally, much emphasis was placed on climate as a predictor of effectiveness from previous studies, however, finding of this current study is divergent to the previous ones. By implication, even though it is important to set the pace for smooth operation in school, there are good reasons to expect positive outcomes especially under certain circumstances. Therefore, secondary school teachers should not see bureaucracy as an infringement on their professional autonomy but a means to promote and strengthen best practices that will reflect the existing procedure and further facilitates their job performances.

CONCLUSION

This study offered new perceptions and approaches into the determinants of effectiveness in secondary schools. While studies view bureaucracy as a contributory factor to shortfalls in schools; others perceive it as beneficial in the management of wide range of problems making it easier for teachers to focus more on teaching, therefore, negative and positive bureaucracy is associated with school effectiveness. This study was aimed to determine the effect of school climate, bureaucracy and school-based management on school effectiveness which is thought to be important variables in fostering school performance and improvement. Towards accomplishing the purpose of this research study, seven hypotheses were proposed and quantitatively tested as anticipated in the theoretical background. Fundamentally, social systems theory and several other suitable theories were explored to evaluate the internal aspect of the school and to support this study. The instrument was administered on 400 teachers in secondary schools across Kwara State, Nigeria. The analyses which were related to the anticipated hypotheses were presented with further discussions and obtained results were further presented. This study does not support the notions that school climate is a significant feature in the process of successful implementation of school reforms and improvement as earlier revealed that teachers' perspicacity of school climate has a great impact on their ability to implement school-based management and other developmental programs.

In this study, the findings indicate that a significant impact exists in teacher participation and school effectiveness whereby fostering a positive climate where stakeholders can be successfully involved in the process of decision making. This has helped to establish a basis for the ongoing debate on bureaucracy in school as it gives empirical evidences to expect bureaucracy to have positive relationships with school outcome. This implies that, leaders who are major stakeholders in the administration of secondary school will appreciate the need for proper coordination of academic and administrative activities for smooth operation of the school, since they serve as the chief



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administrator who set the stage for all other concerned members in the school. Thus, enabling bureaucracy is required among secondary school teachers to strengthen practices and attainment of school goals. In turn, this signifies that, separation of bureaucracy from secondary schools may be impossible or problematic in Nigeria schools.

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