Resource Provision and Utilisation, Mathematical Ability and Learning Environment as Predictors of Achievement in Undergraduate Practical Geography Courses

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Abstract
The study investigated the extent to which resource provision, resource utilistion, mathematical ability, learning environment and use of instructional materials could predict achievement in undergraduate practical geography courses. It used 184 final year geography undergraduates (112 males and 72 females) drawn from three federal universities and a state university. Data collection involved the use of seven valid and reliable instruments, while multiple regression (backward solution) was employed in data analysis. The results indicated that 89.3% of students' variability in achievement in undergraduate practical geography could be attributed to a linear combination of variables such as resources provision and utilization, mathematical ability and learning environment. Mathematical ability, use of instructional materials, gender and learning environment were significant contributors to the prediction. The result raises crucial issues for curriculum development, instructional techniques and evaluation in undergraduate practical geography courses. It concluded that achievement in the courses can be better enhanced if some issues are given utmost consideration as a way of boosting the teaching and evaluation of these courses.

Introduction

The last five decades have seen growing concerns on the need to ensure increased student achievement in established school curricula programmes at all levels of education (primary, secondary and tertiary levels). This is in realization of the fact that improved student achievement is a laudable step towards quality education. In response to this fact, lots of studies have been devoted towards unravelling the various factors that influence student achievement in formal school subjects and courses. These studies have sought to identify certain

critical factors that are central to the determination of the level of student achievements. Factors such as study habits, personal factors (age, gender, psychology, self etc.), locus of control, family background, learning environment, instructional materials, teaching methods etc have been identified as being crucial towards ascertaining the level of student achievement in most school courses or subjects. Worthy of mention are those of Umuioyang (2001), Okwilagwe (1999), Odinko and Adeyemo (1999), Abe (1995), Okpala and Akinsola (2000) etc., all of whom have tried to grapple with examining the issues that determine the level of student achievement in school subjects and courses. It is instructive to note that most of the cited works above have largely concentrated on examining the level of achievement in primary and secondary school subjects. Inspite of their depth, scope and domain, these studies never attempted to examine the relationship between certain factors that affect student achievement particularly self and psychological factors in addition to external ones such as learning environment, resource provision and utilization etc. and their effect on student achievement. In addition, there are few studies that have thoroughly examined courses offered at the university level. This has thus created a knowledge gap to be filled, which this study has addressed.

Indeed there is equally the need to devote substantial resources towards examining the effects of some of the already identified factors on student achievement in undergraduate courses. Hence, the background above provides the rational justification for the present study which looked at the combined and individual effects of factors such as learning environment, mathematical ability, resource provision and utilization on student achievement in undergraduate practical geography courses. This is so, because an understanding on the relationship between these factors and student achievement in undergraduate practical geography course will provide a deep insight into the interactions between these variables and achievement in undergraduate practical geography courses. In recent times, several studies such as Anikweze (1995 & 2000), Onasanya (1985), Okpala (1994), Akande (1982) have all established the need to examine the influence of these factors of achievement in practical geography as a way of deciding how to improve the level of student achievement. It is hoped that with this perception the findings will provide empirical basis

for initiating far-reaching innovations in undergraduate practical geography courses, in order to establish its relevance and benefits in equipping eventual graduates in geography with the requisite and cognate skills required in transforming the Nigerian society into a balanced, just and developed one, where everybody is able to actualize his potentials in enhancing the growth of the country as a whole.

Research Problem

The study sought to investigate the extent to which some factors (resource provision and utilization, mathematical ability, learning environment, gender and use of instructional materials, etc.) predict student achievement in undergraduate practical geography courses.

Specifically, it sought to provide answers to these questions:

i. To what extent would the above-listed independent variables, when taken together, predict student achievement in undergraduate practical geography courses?

ii. What is the relative contribution of the variables to the prediction of student achievement in undergraduate practical geography courses?

Methodology

Sampling Procedure and Sample

The sample was obtained using judgmental sampling procedures, based on universities and students. Four universities (three federal universities and one state university) were selected from twenty-three universities offering undergraduate geography programmes using criteria such as length of period since the inception of the programme, availability of practical geography courses at each level of study, period allotted on the department's time-table in a semester, existence of teaching and learning resources. Students that took part in the study were selected based on their level of study, which is the final year (400 level). The sample consisted of 184 students made up of 112 males and 72 females.

Instruments

Seven (7) reliable and valid instruments were used to collect data for the study. They are:

i. Numerical Ability Test (NAT) with a KR-20 reliability co-efficient of 0.91.
ii. Practical Geography Achievement Test (PGAT) with a KR-20 reliability coefficient of 0.98.
iii. Student Attitude towards Practical Geography Scale (SAPGS) with a Cronbach alpha value of 0.75.
iv Student Attitude to the Use of Instructional Materials in Practical Geography with Cronbach alpha value of 0.51.
v. Academic Environment Factor Questionnaire (AEFQ) with a Cronbach alpha value of 0.92.
vi. Practical Geography Resource Provision Inventory (PGRPI)
vii. Practical Geography Resource Utilisation Scale (PGRUS)

Data Collection and Analysis

The instruments were administered to the students in the four selected universities by the investigator. The Numerical Achievement (NAT) and the Practical Geography Achievement Test were administered first. The other instruments were later administered as a way of protecting against systematic bias due to fatigue from or disinterest in completing the extensive survey. Data collection lasted ten months due to the staggered and crowded academic calendar of the sampled universities. The NAT, PGAT, SAPS, AEFQ and UIMPGQ were administered on the students while the practical geography lecturers' were served with the PGRPI and PGRUS.

Data analysis was done using the Statistical Package for the Social Sciences (SPSS) computer programme for Window Version (6.0) 1993. Data analysis involved the use of multiple regression (backward solution procedure) which examined the relationship between an dependent variables and a set of independent variables. The independent variables include resource provision, resource utilization, mathematical ability, learning environment, gender and use of instructional materials, while the dependent variables are achievement in practical geography and attitude to practical geography. It was also

used in determining the joint and relative contribution of each of the independent variables to the prediction of the dependent variable.

Results

The results of the study are presented in tables 1 and 2. Table 1 shows the joint (composite) contribution of the six independent variables (resource provision, resource utilization, mathematical ability, learning environment, gender and use of instructional materials) to student achievement in undergraduate practical geography courses. It yielded a multiple regression coefficient (R) of 0.945 and co-efficient of determination (R^2) of 0.893. The table also showed that analysis of variance for the multiple regression data yielded an F-ratio of 271.766 which is significant at 0.05 level. From the table, it is evident that the independent variables have a multiple correlation of 0.945 with student achievement in practical geography. This implies that the independent variables effectively predicted student achievement in undergraduate practical geography. Similarly, a coefficient of determination of 0.893 was obtained. The implication of this result is that the combination of the independent variables explained or accounted for 89.3% of the variance in student achievement in practical geography leaving 10.73% of the variance to error and other factors not investigated in this study.

In order to determine the statistical significance of the joint (composite) contributions of these variables to the prediction, analysis of variance was computed as revealed in the ANOVA table. It showed that the correlation value obtained was significant at 0.05 level. The implication of this result is that student achievement in undergraduate practical geography was significantly influenced by a combined contribution of the independent variables. In other words, the independent variables effectively predicted student achievement in undergraduate practical geography. This goes further to confirm that the value of multiple R(i.e. 0.945) obtained was not due to chance.

Table 1: Regression Analysis on Independent Variables Joint Prediction of Student Achievement in Undergraduate Practical Geography

Multiple R	=	0.945
R^2	=	0.893
Adjusted R^2	=	0.889

Standard Error of the Estimate = 6.390

Analysis of Variance

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F	Remarks
Regression	6	59310.66	7885.110	241.766	*Sig at
Residual	174	7144.34	40.887		0.05
		66455.00			

Table 2 showed the contribution of each of the variables to the prediction as reflected in the values of the regression coefficient (ranged from – 2.278 to 9.254), standard errors (ranged from 0.033 to 5.123) and T-values (ranged from 0 to 7.302). In its real sense, the relative or individual contributions of the independent variables are determined by computing the standardized regression coefficients (beta), the standardized weights (b) and the standard error. The estimates above were later tested for significance so as to ascertain whether the independent variables associated with each value is contributing significantly to the variance in the dependent variable. The information is reflected in the columns on **t** values and the significant T. The contributions of each independent variable to the prediction of the dependent variable are largely determined by the standardized regression coefficients. They show the potency or otherwise of the contributions of the various independent variable to the prediction of the dependent variable. The standardized regression coefficient is itself a partial correlation coefficient which is a measure of the relationship between an independent and a dependent variable with the influence of other independent variables being held constant.

Table 2 shows the unstandardised regression coefficients, the standardized regression coefficient, the standard error of the estimate (SeB), significant T and remarks.

Table 2: Relative contribution of the Independent Variables to the Prediction of Student Achievement in Undergraduate Practical Geography

S/N	Variable	Unstandardised coefficient	Standard Error	Standardised Coefficient	T ratio	Sig T	Remarks
	Constant	9.254	5.123		2.215	0.432	S*
1	Mathematical Ability	0.929	0.127	0.440	7.302	0.000	S*
2	Use of Instructional Materials	0.225	0.103	0.183	2.183	0.030	S*
3	Resource Provision	-2.278	2.456	-0.095	-0.00	0.155	NS
4	Resource Utilisation	0.435	0.887	0.047	0.490	0.624	NS
5	Gender	2.177	0.901	0.190	2.147	0.017	S*
6	Learning Environment	6.168	0.033	0.204	1.897	0.060	S**

**Sig at 0.01, *Sig at 0.05

From table 2, it can be seen that only resource provision had a negative beta value of -2.278 while other independent variables have positive values. This implies that as it increases, the dependent variable (student achievement in practical geography) decreases.

The column on the standardized regression coefficient as mentioned earlier on shows the contribution of each of the independent variables to the prediction of student achievement in practical geography which is the dependent variable. The column showed that variable 1 (mathematical ability) with a weight of 0.440 was the most potent contributor followed by variable 6 (learning environment) with a weight of 0.024, variable 5 (gender) with a value of 0.190 and variable 2 (use of instructional materials) having a weight of 0.183 in that order.

As for the extent to which each of the six independent variable contributed significantly to the prediction of student achievement in practical geography, the values of t ratios associated with the

respective variables as shown in table 2 indicate that only variable 1 (mathematical ability), variable 2 (use of instructional materials), variable 5 (gender) and variable 6 (learning environment) each contributed significantly to student achievement in undergraduate practical geography while other variables such as resource provision and resource utilization had no significant contribution.

Discussion

The findings in this study confirmed the influence of certain factors on student achievement in undergraduate practical geography. The concern was to examine both combined (joint) and relative (individual) influence of independent variables such as learning environment, gender, mathematical ability, resource provision, resource utilization and the use of instructional materials on achievement in undergraduate practical geography.

The results of this study revealed that the six independent variables when taken together were effective in predicting achievement in undergraduate practical geography. This was because the observed F-ratio was significant at the 0.05 level an indication that the effective combination of the independent variables in predicting students' achievement in practical geography could not have occurred by chance. Furthermore, the magnitude of the relationship between the students' achievement and a combination of the independent variables was reflected in the values of the coefficients of multiple correlation of 0.945 and multiple R squared of 0.893. Thus it could be said that student achievement in practical geography was accounted for by a linear combination of the six independent variables.

The link between student achievement and mathematical ability in this study was a finding that was entirely new in educational research and indeed the field of geography, especially at the tertiary level given the fact that previous researches have shown that the low mathematical ability of students often resulted in poor performance in practical geography as corroborated by studies like Mabogunje (1969 and 1998), Scripter (1969), Unwin (1997), Robinson, et al (1995), Smith (1977), Ritchic(1988), Rawling and Daugherty (1996), Muehrcke and Muehrcke (1986), Kemp (1989), Dorking and Fairbarn (1997), Cole (1969), Balogun 1983, 1985, 1998, 1999, 2001 and 2003), Ayeni (2001) Anson (1998), Anikweze (2000), Amori (2000, 2003 and 2009), Alao

(1978 and 1986), Akande (1985), Adalemo and Balogun (1989), Aangeenburg (1992), Adeniyi (1985) and Abumere 1997 and 2001). These studies have largely confirmed the fact that mathematical ability is one of the potent factors that affect the overall performance of students in geography courses particularly at the tertiary level. That this study confirmed a relationship between student achievement and mathematical ability implied that with a good mathematical background, students were likely to obtain better performances in practical geography. This assertion if critically examined would be found to be true after all given the dynamic nature of the practical courses that have in recent times included topics in computer-related issues and statistical methods (Goodchild-1985), DeMers (1997), Maguire (1989), Maguire et al (1991).

The indication that the student attitude to the use of instructional materials in practical geography courses was a significant contributor to student achievement in practical geography was quite reasonable considering the fact that an effective use of appropriate instructional materials is bound to boost learning and eventually lead to improved student performance as corroborated by Levacic (1995), Ajaegbu and Faniran (1980), Duru (1985) and Areola (1985). This finding was equally explicable considering that instructional materials are meant to be used in attaining improvement in skills acquisition. Hence, it stands to reason that their availability and effective use was bound to stimulate intensive learning and invariably an improvement in student achievement.

It was rather amazing to observe that resource provision and resource utilization were not significant predictors of student achievement in undergraduate practical geography. This lack of significant positive effect of resource provision and resource utilization in predicting student achievement in practical geography could be attributed to the limited resources (in terms of instructional materials) put in place for the running of the sampled undergraduate geography programmes. As reported in the findings, most of the sampled universities lacked the necessary learning materials required in the teaching of practical geography courses. This equally affected the level of resources utilization since it followed that it was only the available resources that could be utilized for the purpose of teaching and learning at any given moment. Secondly, there was an established fact

from some studies such as Grot (1987 & 1989), Dahlberg (1983 & 1986), Barry and Butcher (1998), Monmonier (1982), Aagenburg (1992), deMeyere (1989), Goodchild (1985) and Fryman (1996) that a successful teaching and learning of undergraduate practical geography courses was premised on the availability of modern instructional materials given the practical, experimental nature and content of these courses.

The reported significant influence of learning environment on student achievement in practical geography did not come as a surprise. This was in view of the fact that a conducive learning environment is considered vital and imperative towards enhancing improved student achievement. Since the respondents were favourably disposed to their learning environment, one would therefore not be surprised to see learning environment coming in as a significant contributor, which also serves as a confirmation of previous findings made from studies such as Winteller (1981), Farombi (1998), Okwilagwe (1999). These studies established that learning environment was a potent contributor to student achievement. That it is also confirmed in the present study is therefore not surprising. For this reason, it behoved that greater attention be placed on it whenever solutions to improve student achievement are being sought or worked out.

Gender was also found to be a good predictor of student achievement in practical geography. This was in view of the fact that both male and female students were known to exhibit the same level of performance in geography courses. This finding was in consonance and full agreement with that of Kitchin (1996), Self (1994) and Anikweze (2000), all of which maintained that there was no significant difference between male and female achievement in practical geography courses.

Conclusion

The results reported in this study underscore the need for lecturers and teachers of undergraduate practical geography courses to examine further the effect of the independent variable (resource provision, resource utilization, mathematical ability, learning environment, gender and use of instructional materials) on student achievement in practical geography courses. There is an urgent need to identify and examine these factors in relation to other ones in ensuring that efforts are targeted at ensuring the realization of this noble objective. In

articulating these objectives, it is appropriate that more teaching/instructional materials be made available, quality control measures be initiated, teachers motivated to write standard textbooks on undergraduate practical geography courses and learning environment made more conducive. Good enough, there is the general desire that student achievement in practical geography courses ought to be improved for the better. All hands have to be on deck to ensure the realisation of this aspiration.

References

Aangeenburg, R.T. (1992). Curricula, Course Outlines and Laboratory Exercises. *International Journal of Geographic Information Systems.* 6(4), 337-340.

Abe, C.V. (1995). *A Casual Model of Some Socio-psychological Variables as Determinants of Achievement in Secondary School Social Studies.* Unpublished Ph.D Thesis, University of Ibadan.

Abumere, S.I. (1997). Some Thought on GIS, Cartography and Sustainable Development in Ikhuoria, I.A. (ed) *Cartography and GIS Sustainable Development.* Lagos: Nigerian Cartographic Association, 1-11.

Abumere, S.I. (2001). *Data Sources, Acquisition and Analysis in Geography.* Being a Lead paper presented at the 44th Annual Conference of the Nigerian Geographical Association held at Conference Centre, University of Ibadan. July 29-1st August, 25pps

Adalemo, I.A. and O.Y. Balogun (1989). Status of Cartography In Rhind, D.W. & D.F.R. Taylor(eds) *Cartography: Past, Present and Future* London: Elsevier Applied Science Publication for ICA, 15-27.

Adeniyi, P.O. (1985). Remote Sensing, Resource Development and Education in Africa In D.R.F. Taylor(ed) *Education and Training in Contemprorary Cartography*. New York: John Wiley. Ch 10 or 189-225

Ajaegbu, H.I. and Faniran, A. (1980). *A New Approach to Practical Work in Geography.* Ibadan: Heinemann Educational Books.

Akande, M.O. (1982). Withdrawal from the Geography Class: A Case Study of the 'Push' and 'Pull' Factors. *Nigerian Geographical Journal.* 25(1&2) 105-118

Alao, N.O. (1978) Geography in Nigerian Universities . *Nigerian Geographical Journal.* 21(1), 31-37.

Alao, N.O. (1986). Spatial Dynamics and the Dynamics of Geography . *Nigerian Geographical Journal.* 28 and 29 (1&2), 31-42.

Amori, A. A. (2000). Cartographic Research in a Changing Society: The

Nigerian Experience In Nsofor, G.N. & Nwagboso, O. (eds) *Census and Census*

Mapping in Nigeria: Principles and Policy Issues. Lagos: Nigerian Cartographic

Association, 96 – 106.

Amori, A.A. (2003). *The Education Officer: Roles, Responsibilities and Challenges of Modern Education*: Paper Presented at the StaffDevelopment Seminars Forum, Ministry of Education, Ibadan, 23rd June, 13pps.

Amori, A.A. (2009). *Effective Teaching and Classroom Management* Being a paper presented at the Staff Development Seminar, Tobi International School, Ibadan. 8th April, 22pps

Anikweze, C.M. (1995). Teaching Aids in Geography Lessons-The Road That Shall Be Taken. *Zaria Journal of Educational Studies*. 1(3).

Anikweze, C.M. (2000). Problems and Difficulties of Reading and Interpreting Topographical Maps in Secondary Schools in Northern Nigeria. *The Nigerian Geographical Journal.* 3&4, 234-242.

Anson R. (ed) (1988). *Basic Cartography* (Vols 1&2). Baking: Elsevier Applied Sciences Publication for ICA.

Areola, O. (1985). *Aerial Photo Interpretation in the African Continent* Ibadan: Evans Publishers.

Ayeni, B. (2001). *Applications of Geographical Information System*. Being a lead paper presented at the 44th Annual Conference of the Nigerian Geographical Association, Conference Centre, University of Ibadan, July 29-1st August, 36pps.

Balogun, O.Y. (1983). Structure and Problems of Cartographic Education in Nigeria. *International Yearbook of Cartography,* 23, 121-133.

Balogun, O.Y. (1985). Surveying and Mapping in Nigeria. *Surveying and Mapping. 45(4), 347-355.*

Balogun, O.Y. and N.O. Uluocha (1998). Fundamental Issues in Sustainable GIS Implementation in Nigeria In O.Y. Balogun & N.O. Uluocha (eds) *Cartography and the Challenges of the 21st*

Century in Nigeria. Lagos: Nigerian Cartographic Association, 109-122

Balogun, O.Y. (1999). The Future of Digital Mapping in Nigeria In O.Y. Balogun (ed) *Developing Cartography in Nigeria.* Lagos: Cartography 8-22

Balogun , O.Y. (2001). Representation of Geographic Data in N.O. Uluocha & G.N. Nsofor (eds) *Cartography and GIS in Nation Building.* Lagos: Nigerian Cartographic Association, 25-48.

Balogun, O.Y. (2003). *Enter into the World of Maps, You will Never Miss Your Way.* Inaugural Lecture. Lagos: University of Lagos Press, 57pps.

Barry, M.S. and Butcher (1998). Implementation of GIS at University of Cape Town: A Model for Tertiary Educational Institutions. *ITC Journal.* 1998-3 and 4, 141-197.

Cole, J.P. (1969). Mathematics and Geography. *Geography,* 54(2), 152-164

Duru, R.C. (1985). *Map Work and Laboratory Geography for West Africa.* Enugu: Fourth Dimension Press. 218pps.

Dahlberg, R. (1983). Structure and Context of Cartographic Education in US Colleges and Universities. *International Yearbook of Cartography*, 23, 151-`69.

Dahlberg R and Jenson, J.R. (1986). Education for Cartography and Remote Sensing in the Service of an Information Society. *American Cartographer*, 13, 15-71.

DeMere, M.N. (1997). *Fundamentals of Geographic Information Systems.* New York: John Wiley.

DeMere, J.C. (1989). Training the GIS Professional. *ITC Journal*. 1989, 12-15.

Fryman, J. (1996). Cartographic Education in the United States and Canada. Cartographica 33(3), 5-13.

Farombi, J.G. (1998). *Resource Concentration, Utilization and Management as Correlates of Student Learning Outcomes: A Study in School Quality in Oyo State.* Unpublished Ph.D Thesis: University of Ibadan.

Goodchild, M.F. (1985). Geographic Information Systems in Undergraduate Geography: A Contemporary Dilemma. *The Operation Geographer.* 8.34-38.

Grot, R.(1989). Meeting Educational Requirements in Geomatic *ITC Journal* 1989-1, 491-507

Kitchin, R.M. (1996). Are There Sex Differences in Geographic Knowledge and Understanding. *Geographical Journal,* 62(3), 273-286

Levacic, R (1995). Linking Resources in Learning Outcomes In. Coleman, M&L. Anderson (eds) *Managing Finance in Education.* London: Sage Publications, 3-7

Mabogunje, A.L. (1969). Quantification and Statistical Methods in Geography Teaching in J.A. Majasan (ed) *New Dimensions in Nigeria* High School Geography. Ibadan: Institute of Education, University of Ibadan, 83-97.

Mabogunje, A.L. (1998). History of the Geography Department in Q. Areola and Okafor, S.I. (eds) *50 Years of Geography in Nigeria: The Ibadan Story.* Ibadan: Ibadan University Press, 1-18.

Maguire, D.T. (1989). *Computers in Geography.* London: Longman

Maguire, D.T. Goodchild, M.F. and Rhind. D.F. (eds) (1991). *GIS: Principles and Applications* (Vols I&II)). London: Longman

Monmonier, M.S. (1982). Cartography, Geographic Information and Public Policy, *Journal of Geography in Higher Education,* 6, 99-107

Odinko, M.O. and Adeyemo, D.A. (1991). Students' Socio-Psychological Factors as Predictors of Achievement in Senior Secondary School English Language. *African Journal of Educational Research.* 5(1), 126-133.

Okpala, P.N. & O. Akinsola (2001). A Survey of Threshold Time for Classroom Interaction Patterns of Mathematics Teacher Trainees in Two Nigerian States. *Evaluation Research*. 1(1), 23-29

Okwilagwe, E.A. (2001). A Casual Model of Undergraduate Students' Academic Achievement. *Evaluation Research* 1(1), 1-13

Rawling, E.M. & Daugherty, R.A. (eds) (1998). *Geography Into The Twenty-First Century*. Chichester: John Wiley.

Ritchie, W. (1998). *Surveying and Mapping for Field Scientists.* Harlow: Longman Press.

Robinson, A.H. Marrison, J.L., Muehrcke, P.C., Kimerling A.J. and Guptil S.C. (1995). *Elements of Cartography* New York: John Wiley (6th Edition).

Self, C.M. and Golledge, R.G. (1994). Sex-Related Difference in Spatial Ability: What Every Geography Educator Should Know. *Journal of Geography,* 93, 234-243.

Scripter, M.W. (1970). Quantitative Methods in the Undergraduate Geography Curriculum. *Journal of Geography.* 69(2), 108-112

Smith, A.C. (1977). A Test Concerning the Relative Readability of Topographic and Ortho-photo maps. *The American Cartographer,* 4(2), 113-133.

Umuioyang, I.E. and P.N. Okpala (2001). Socio-Psychological Factors, Knowledge and Understanding of Mathematics as Correlates of Mathematics Achievement at Cognitive Level of Thinking. *Evaluation Research,* 1(1), 55-62.

Unwin, D.J. (1997). Mathematics in University Geography, Geography 82(1), 75-78.

Winteller, A.(1981). The Academic Department as Environment for Teaching and Learning. *Higher Education,* 10, 25-35.

Marshall, M.L .(2004). *Examining School Climate: Defining Factors and Educational Influences*. Center for Research on School Safety, School Climate and Classroom Management, Georgia State University.

Meyers, S.A; Bender, J; Hill, K; and Thomas, S.Y (2006) How Do Faculty Experience and Respond to Classroom Conflict? *International Journal of Teaching and Learning in Higher Education. 18(3): 180-187.*

National School Climate Center, (2007). *The School Climate Challenge: Narrowing the gap between School Climate Research and School Climate Policy*. Practice Guidelines andTeacher Education Policy. U.S.A.

Okotoni, O. and Okotoni, A. (2003). Conflict Management in Secondary Schools in Osun State, Nigeria. *Nordic Journal of African Studies*, 12(1): 23-38.

Onanuga, P.A.(2003). Institutional Conflict and Academic Performance of Secondary School Students in Lagos, Nigeria. In Babalola, J.B. and Adedeji, S.O.(eds) *Contemporary Issues in Educational Management: A Book of Honour*. Ibadan: Awemark Industrial Printers.

Onye, C.O.(2006). Repackaging Secondary Education for Great and Dynamic Economy. *Journal of Qualitative Education,* 2:89-94.

Rahim, M. A. (2002). Toward a Theory of Managing Organizational Conflict. *The International Journal of Conflict Management,* Vol. 13, No. 3. Pp. 206-235.

Robbins, S.P. (2001). *Organizational Behaviour*. New Jersey: Prentice Hall Inc.

Spring, J.(1993). *Conflict of Interest: The Politics of American Education.* New York: Longman.

Stader, D.L .(2000). Reducing Violence in the High School: The Power of Peers. *The Journal of Risk Issues.* 7 (1): 6-11.

Suping, T. and Jing, W. (2006). Interpersonal Conflict Handling Styles: A Survey of Chinese College Students. *Canadian Social Science. 2(3):44-53.*

Thomas, K. W. (1976). Conflict and Conflict Management. In M. D., Dunnette (ed) *Handbook in Industrial Psychology.* Chicago: Rand McNally.Pp 889-935.

Thomas, K.W. and Schmidt, A.W.H. (1976). A Survey of Management Interest with Respect to Conflict. *Academy of Management Journal,* June 317.

Tonsing, J. T. (2005). *Conflict in Organization*. Mumbal: Better Yourself Books.

Turay, T.M. (n.d*) An Examination of Intra-Secondary School Conflicts in Complex Emergencies: The Case of Sierra Leone*. Coady International Institute, St. Francis Xavier University.

Van de Vliert, E. (1998). Conflict and Conflict Management. In Drenth, P.J.D; Thierry, H; and Wolff de, C.J (eds) *Handbook of Work and Organisational Psychology Development.* London: Sage Publications.

Whitfied, J. (1994). *Conflicts in Construction: Avoiding, Managing, Resolving*. New York: Macmillan.