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## Development and Validation of Instrument for Measuring Competency of Secondary School Principals in Akwa Ibom State

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**ABSTRACT:** *The need for developing and validating a standardized instrument for measuring educational variables and construct is very important in evaluating educational problems. This study is therefore conducted to develop and standardized an instrument for measuring Competency of Secondary School Principals in Akwa Ibom State. In carrying out this study, three research questions and two hypotheses were formulated to guide the study. The study adopted the instrumentation research design. A total of 1349 teachers were selected from a population of 11,036 teachers to rate their principals in the public secondary schools in Akwa Ibom State. The instrument developed was titled Principal Competency Scale (PCS). A total of 71 items were written initially for the instrument. The instrument was face validated by seven experts; three lecturers in Educational Evaluation from the Department of Educational Foundations, Guidance and Counselling University of Uyo, two secondary school principals and two secondary school teachers in Akwa Ibom State. The two components of the principal competency measured were named; Human Relation Competency and Administrative Competency. The instrument was then administered to 1149 teachers and the scores were subjected to factor analysis to determine the construct validity of the instrument. Two components were extracted from the scree plot of the principal component analysis. Internal consistency reliability was computed for the instrument using Cronbach Alpha, which yielded a coefficient of 0.897. The instrument after the validation was trial tested on a sample of 200 teachers to determine how it functions among gender of principals. Mean was used in answering research questions and independent t-test was used in testing the hypotheses. The result of the analysis indicated a significant difference in principals' human relation competency based on gender and no significant difference in principals' administrative leadership competency based on gender. Based on the findings of the study, it was recommended that the Principal Competency Scale should be used in measuring the competency of principals in secondary schools regardless of gender.*

**KEYWORDS:** development, validation, instrument, secondary school's principals

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### INTRODUCTION

In any school environment, especially the public secondary school setting, there must be a principal who occupies a high status by virtue of his appointment as the school head. The vitality

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of the school rests with his functional leadership traits and he should be capable of stimulating and invigorating the teachers and students to achieve institutional goals and objectives. The principal has the primary functions of exhibiting effective instructional leadership for the improvement of diversified curriculum and quality of instructional programme for effective attainment of set school goals. Pius (2018) identified management of curriculum and instruction, supervision of classroom instruction, monitoring and evaluation of students' progress and achievement, promotion and enhancement of learning environment, establishing and supporting continuous staff development and procuring instructional materials for teaching and learning as major supervisory functions of secondary school principals.

Apart from instructional supervisory functions, the school principal performs some other administrative duties. He is faced with extremely difficult challenges emanating from the school, immediate community and environs, Ministry of Education (MOE) and Secondary Education Board (SEB). Akram (2015) identified administrative practices of the school heads to include managing, administering the curriculum and teaching, staff, personnel, discipline, planning, staff appraisal, relationship with immediate community and use of practical skills for the achievement of the policies of the organization.

The School manager is the principal. He/she is a major determinant of Secondary education system. The tone of the school depends on the principal's competency. This view is well expressed in National Policy on Education (Federal Republic of Nigeria, 2013) which states that government will work towards improving the quality of secondary education by giving supports to measures that will ensure effective administration, especially; it outlined the selection of persons of the right calibre for principal of schools and the mounting of induction courses for newly appointed principals. This noble intention of government presupposes that the appointed of principals of schools should be based not on year of graduation but on administrative competence. Principals control of human and material resources for the achievement of the school's goals and objectives. As one of the major agents in the promotion of school effectiveness, principals are the pillars of the educational system especially at the second tier of educational pyramid. Today, the position of the principal is far more sophisticated and the job is far more complex than in previous decades. This complexity can best be seen in the incredible number of functions that principals are expected to perform daily and often simultaneously. The maintenance of quality and standards in education depend largely on the extent to which they competently carry out their leadership responsibilities. This assessment of the importance of principals is echoed repeatedly by educators, researchers focused on leadership, and organizations concerned with ensuring that all students have access to high-quality schools. For example, a report issued by the Southern Regional Education Board suggests that "a principal can impact the lives of anyone from a few hundred to a few thousand students during a year" (Bottoms, 2018: P15). In today's climate of heightened expectations, principals are in the hot seat to improve teaching and learning. They need to be educational visionaries; instructional and curriculum leaders; assessment experts; disciplinarians; community builders; public relations experts; budget analysts; facility managers; special program administrators; and expert overseers of legal, contractual, and policy mandates and initiatives.

They are expected to broker the often-conflicting interests of parents, teachers, students, district officials, unions, and state and federal agencies, and they need to be sensitive to the widening range of student needs. Although that job description sounds overwhelming, at least it signals that the field has begun to give overdue recognition to the indispensable role of and mounting demands on principals (Uche, 2019).

Considering how challenging and demanding the work of a school principal is, there is a great need to ensure that only competent individuals are left with the responsibility of managing our schools as principals. Also, from time to time, the competency level of each school principal should be determined so that further professional training could be organized for those that are below the expected standard. This can only be done if there is a measurement standard or instrument for measuring each school principals' competency. Surprisingly, there is no instrument at present known to the researcher that is designed for measuring the competency of secondary school principals in Akwa Ibom State. In considering the importance of having a standardized measuring instrument for measuring the competency of secondary school principals, the researcher was motivated to carry out this present study on the development and validation of instrument for measuring competency of secondary school principals.

### **Statement of the Problem**

Principals in secondary schools are charged with the regulation and control of the activities going on in the school. The vitality of the school rests on his/her leadership traits and the principal should be capable of stimulating and invigorating the teachers and students to achieve the goals and objectives of the school. Aside from the instructional functions, the principal is also expected to perform managerial functions such as planning, discipline, staff appraisal, curriculum administration and relationship with immediate community. Looking at the education sector today, reports of poor students' performance and examination malpractice, conflict among staff and the principal, poor attitude of some teachers to work and conflict among students abound. Reports from researchers and others concerned with the promotion of education in the country indicate a system of education in Nigeria that is falling in standard.

The falling standard of education has raised serious concern and many researchers and those concerned with promoting quality education have suggested different measures ranging from varying instructional strategies to identifying different teachers' characteristics that would promote effectiveness in education. But at present, the standard of education in the country still needs improvement. Considering the position and functions of the school principal in secondary schools, the researcher is moved to asked, "Are those promoted to the position of school principals competent? Could the poor standard of education today in the country be as a result of principals' incompetence?"

The promotion of teachers in the Nigerian education system to the post of a school principal is mainly based on years of service and qualification of the teacher. This practice has continued for years and is still in existence at present. Considering the functions expected from a school

principal, one can see that a more careful means of selection should be employed and the principals should be evaluated from time to time to ensure their competency for such a demanding position. The researcher for years now as a teacher has not come across any such instrument for measuring the competency of school principals. Considering the importance of maintaining standard in the school system and ensuring that competent hands are assigned the management of the school system, the researcher was motivated to conduct this present research on the development and validation of instrument for measuring the competency of principals of secondary schools in Akwa Ibom State.

### **Purpose of the Study**

The main purpose of this study was to develop and standardize an instrument for measuring competency of secondary school principals in Akwa Ibom State. Thus, the study aimed at the following specific objectives:

- i. To develop an instrument for measuring principals' intellectual competency in secondary school.
- ii. To determine the construct validity of the instrument.
- iii. To determine the difference in principals' human relationship competency based on gender.
- iv. To determine the difference in principals' administrative leadership competency based on gender.

### **Research Questions**

The study was guided by the following research questions:

- i) What is the construct validity of the instrument?
- ii) How do principals' differ in their human relation competency based on gender?
- iii) How do principals' differ in their administrative leadership competency based on gender?

### **Hypotheses**

- i) There is no significant difference in principals' human relation competency based on gender
- ii) There is no significant difference in principals' administrative leadership competency based on gender.

## **RESEARCH METHOD**

Instrumentation research design was used in this study. Instrumentation research is used for development and validation of a test by establishing unquestionable reliability and validity of the test for effective, efficient, accurate and feasible measurement of a particular variable, construct, trait, attribute, concept or phenomenon in the social or behaviour science (Dankwa, 2021). The area of the study was Akwa Ibom State. The population of the study comprised of all the public secondary schools principals in Akwa Ibom State. There are a total of 237 principals in all the public secondary schools in the State. Teachers in Public Secondary Schools in Akwa Ibom State were used as raters of their principals. According to the Akwa Ibom State Secondary Education

Board, there are 11,036 teachers in the 237 public secondary schools in Akwa Ibom State. The choice of teachers for this study was based on the believed that teachers are working towards assuming the position of school principals in the future; hence, they should be able to judge the performance of the principal.

A sample of 71 principals representing a proportion of 30% of the principals in Akwa Ibom State was used for the study. Simple random sampling technique was used in selecting the principals for the study. Each of the selected principals was rated by 19 teachers in their schools. A total of 1349 teachers was used in the study to rate their principals. The teachers were randomly selected from Public Secondary Schools in Akwa Ibom State. In random sampling, all the subjects are given equal chance of being part of the study hence, any of the 11036 teachers could be part of the sample. A sample of 1149 teachers was used to establish the validity of the instrument. After the validation, simple random sampling technique was used to select a sample of 200 teachers in schools headed by both male and female principals to trial test the functioning of the instrument. The researcher constructed the instrument titled; Principal Competency Scale (PCS) based on an extensive review of literature that provided the most important aspects of principal competency such as; human relation competency and administrative competency. The instrument consisted of two sections. The first section of the instrument was designed for collecting demographic information. This section consisted of two items which are; name of school and gender of principals. The second part of the instrument was designed to measure different aspects of principal competencies such as; human relation and administrative competency. Each section of the instrument contains different number of items depending on the scope of each variable. The instrument was scored using a four point scale as described below; 1= Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree. The judgmental and quantification stage of the instrument began with face validation and establishment of reliability of the instrument. The instrument went through face validation.

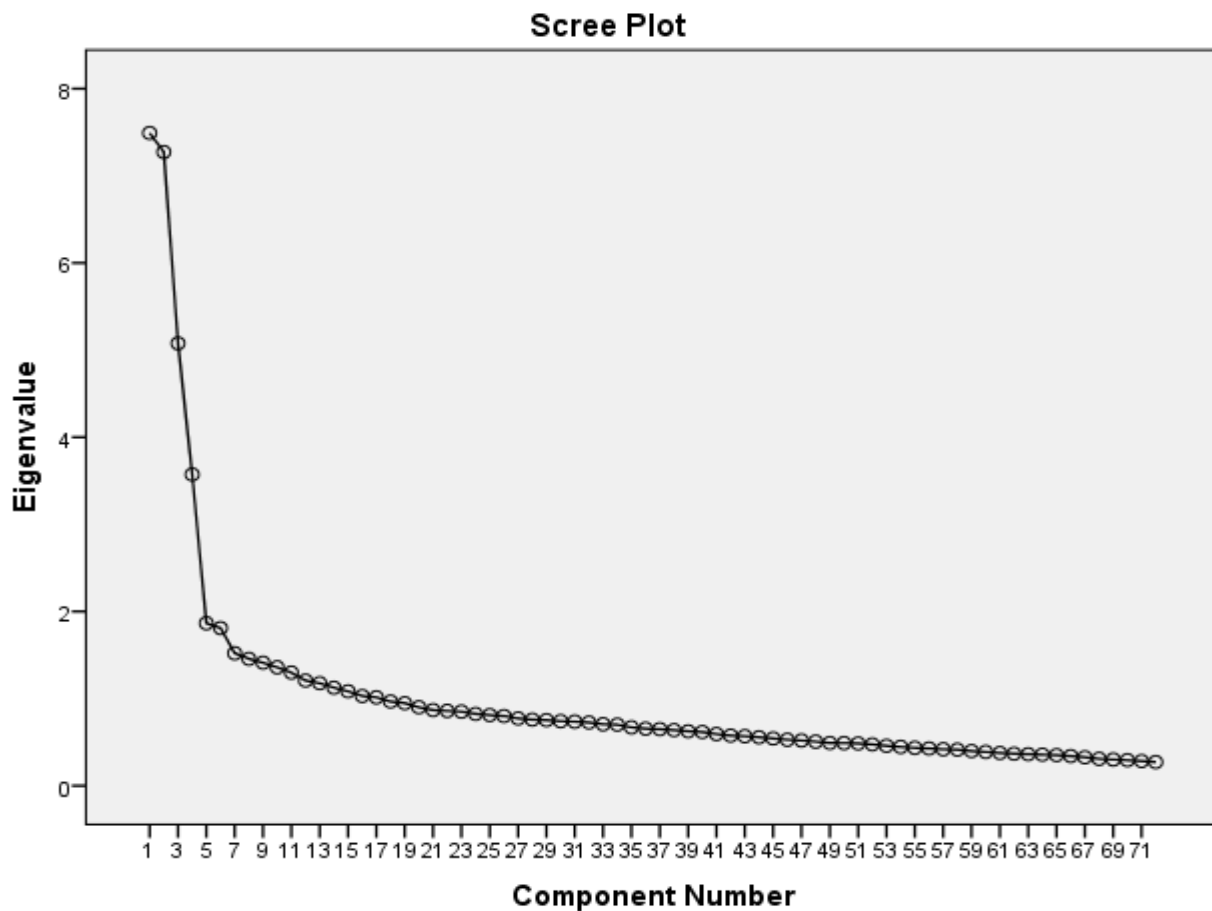
The face validation of the instrument was carried out by seven experts; three lecturers in Educational Evaluation from the Department of Educational Foundations, Guidance and Counselling University of Uyo; two secondary school principals and two Secondary School teachers in Akwa Ibom State. To establish the reliability coefficient of the instrument, an internal consistency approach was adopted. The instrument was administered to the 1349 teachers in Akwa Ibom State which is the sample for the study. Cronbach alpha statistic was used to establish the reliability coefficient of the instrument, which yielded a value of 0.897. According to Nelson (2019) positive coefficient of over 0.7 is considered to be reliable, and the higher the coefficient the more reliable the instrument. Data collected were analyzed using factor analysis to answer research question 1, mean to answer research questions 2 and 3. The two hypotheses were tested at .05 level of significance using independent t-test. The null hypothesis was rejected when the calculated value was less than the tabulated value and the test was significant.

## RESULTS

### Research Question 1:

What is the construct validity of the instrument?

To answer Research Question1, a Principal Component Analysis with Varimax (orthogonal) rotation of the 71 items was conducted on data gathered from the 1149 teachers. An examination of the Kaiser-Meyer Olkin (KMO) measures of sampling adequacy suggested that the sample was factorable (KMO = 0.88). The number of components extracted from KMO was based on the Scree plot as shown in Figure 1 below:



**Fig 4.1: Scree Plot Analysis of the Extracted Components for Principal Rating Scale (Source: Data Analysis Result)**



The scree plot in Figure 1 indicates that two components were extracted for Principal Competency Scale. The summary of the extracted component as shown in the varimax orthogonal rotated component matrix indicates that twenty-six items loaded on component one. The twenty-six items and their loadings are item 25 (.693), item 40 (.688), item 2 (.679), item 7(.664), item, 18 (.662), item 23 (.653), item 1 (.641), item 5 (.640), item 28 (.640), item 32 (.640), item 17 (.632), item 31 (.622), item 14 (.610), item 30 (.560), item 19 (.554), item 24 (.543),item 42 (.632),item 43 (.512), item 44 (.631), item 46 (.511), item 47 (.565), item 51 (.522), item 53 (.612), item 54 (.521), item 55 (.517) and item 62 (.635) These items when compared with what they measured, was named “Human Relation Competency”.

The second component extracted had twenty-eight items loaded on it. The items and their loadings are; item 4 (.690), item 26 (.684), item 15 (.675), item 20 (.669), item 22 (.649), item 34 (.648), item 8 (.617), item 10 (.609), item 13 (.599), item 21 (.591), item 37 (.557), item 39 (.536), item 11 (.621), item 27(.641). and item 35 (.433), item 56 (.633), item 57 (.541), item 59 (.515), item 60 (.615), item 63 (.513), item 65 (.672), item 66 (.552), item 67 (.513) and item 69 (.523). These items related to different aspects of administrative competency of a secondary school principal. Therefore, the second component was named “Administrative Competency”. The result also indicates that seventeen items which included items 3, 6, 7, 12, 16, 29, 33, 36, 38, 41, 45, 52, 58, 61, 64, 68 and 71 did not load on any of the components. Hence, they were deleted from the instrument since where they belong was not identified in the analysis.

**Research Question 2:**

How do principals’ differ in their human relation competency based on gender?

**Table 1: Mean and Standard Deviation of the difference in Principals’ Human Relation Competency based on Gender (N=200)**

<b>Gender</b>	<b>n</b>	<b>Mean</b>	<b>Std. Deviation</b>
Male	117	55.59	3.85
Female	83	49.11	3.57

**Source: Data Analysis Result Output**

The result in Table 1 indicates the mean and standard deviation of principals’ human relation competency based on principals’ gender. As shown in the table, the mean human relation competency of male principals was 55.59, while that of female principals was 49.11. The mean difference between the two groups is 6.48 in favour of male principals. Therefore, male principals were rated to be higher than female principals in their human relation competency.

**Research Question 3**

How do principals’ differ in their administrative leadership competency based on gender?

**Table 2: Mean and Standard Deviation of the Difference in Principals' Administrative Leadership Competency based on Gender (N=200)**

Gender	n	Mean	Std. Deviation
Male	117	34.56	2.71
Female	83	33.99	3.12

**Source: Data Analysis Result Output**

The result in Table 2 indicates the mean and standard deviation of principals' administrative competency. The result in the table indicated that the mean of male teachers is 34.56 while that of female principals is 33.99. The mean of the two groups are equivalent. Therefore, male and female principals do not differ in their administrative competency.

**Hypothesis 1**

There is no significant difference in principals' human relation competency skill based on gender.

**Table 3: Independent t-test Analysis of Principals' Human Relation Competency based on Gender (N=200)**

Gender	n	Mean	S D	t	df	Sig.
Male	117	55.59	3.85	12.08	198	.000
Female	83	49.11	3.57			

**Source: Data Analysis Result Output**

The result in Table 3 indicates that the calculated t-value of 12.08,  $p = .000$ , is significant at 198 degrees of freedom and .05 levels of significance. Therefore, the null hypothesis which stated that there is no significant difference in principals' human relation competency based on gender is rejected. Hence, there is significant difference in principals' human relation competency based on principals' gender.

**Hypothesis 2**

There is no significant difference in principals' administrative leadership competency based on gender.

**Table 4: Independent t-test Analysis of the difference in Principals' Administrative Leadership Competency based on Gender (N=200)**

Gender	n	Mean	S D	t	df	Sig.
Male	117	34.56	2.71	1.392	198	.166
Female	83	33.99	3.12			

**Source: Data Analysis Result Output**

The result in Table 4 indicates that the calculated t-value of 1.392,  $p = .166$  is not significant at 198 degrees of freedom and .05 levels of significance. Therefore, the null hypothesis which stated



that there is no significant difference in principals' administrative leadership competency based on principals' gender is retained.

## **DISCUSSION OF FINDINGS**

Kaiser-Meyer Olkin measures of sampling adequacy of 0.88 indicated that construct validity has been established. The sampling adequacy of below 0.5 does not show the construct validity of the instrument. It was also found out that 54 out of 71 items loaded which is an evidence of establishing construct validity of an instrument using factor analysis. Also the graph itself is evidence that construct validity has been established. Principals differ in human relation competency based on gender. Principals do not differ in administrative competency based on gender. The scree plot of the Principal Competency Scale (PCS) indicated that the instrument is made up of two components. The two components when considered the items that load on them were named; Human Relation Competency and administrative competency. Different number of items loaded on each of the components based on their scope. A total of 54 items were extracted from the 71 items originally written for the instrument and 17 items were deleted.

The finding of hypothesis one indicated that there is a significant difference in human relation competency of male and female principals in public secondary schools in Akwa Ibom State as rated by their teachers. The reason for this result could be the training received by these principals. It could also be as a result of in service training provided for all principals in the state during their service years. This training might have had different effects on the males and females principals and as such this made them to differ in human relation competency. The finding of this study is in lined with the assertion made by Wilson (2019) that male and female secondary school principals do differ in their human relation competency.

The result of hypothesis two indicated that there is no significant difference in the administrative leadership competency of male and female principals in public secondary schools in Akwa Ibom State as rated by their teachers. The reason for this result could be as a result of administrative training they had during their teacher education. It could also be as a result of training they had from their predecessors. The non-significant difference could also be as a result of teachers' perception of their principals as the best administrator ever met. The finding of this study is similar to the assertion made by Eyo (2017) who stated that there is no significant difference in the administrative competency of male and female principals.

## **CONCLUSION**

Based on the findings of the study, it is concluded that the instrument exhibit a high construct validity. The instrument equally indicated a high reliability with a coefficient of 0.897. It is also concluded that there is significant difference in principals' competency in gender based on human relation and administrative competency.

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### Recommendations

Based on the findings of the study, it is recommended that school proprietors, educational administrators and policy makers should use the instrument in evaluating the competency of principals in order to maintain effectiveness on the administrative competency of the principals. Also, principals can equally use the instrument for self-appraisal in order to determine their competency level and make improvement where necessary.

### References

- Akram, B. Y. (2015). Development and validation of a teacher self-assessment instrument. *Journal of Research and Reflection in Education*, 9(2): 134-148.
- Bottoms, S. (2018). Improving construct measurement in management research: Comments and a quantitative approach for assessing the theoretical adequacy of paper-and-pencil survey-type instruments. *Journal of Management*, 19:385-417.
- Dankwa, M. D. (2021). Transformational leadership in colleges of education in Nigeria: Principals perspective. *Journal of Education and Practice*, 13(7): 156-178.
- Eyo, F. M. (2019). *Principals' transformation leadership skills and their teachers' job Satisfaction in Nigeria*. Calabar: Nsa Press.
- Federal Republic of Nigeria, (2013). *National Policy on Education*. Yaba, Lagos.
- Nelson R. (2019). *When an instrument is said to be valid and reliable*. Enugu: Ulya Press.
- Pius, S. B. (2018). Transformational leadership practices and excellence in personnel management by secondary school principals in Enugu State. *Ph.D Thesis in the Department of Educational Foundations*, University of Nigeria Nsukka.
- Uche, H. B. (2019) Development and validation of leadership skills assessment Scale for Secondary Schools Principal., Ebonyi State University.
- Wilson, U. B. (2019). *Investigating into the competency of secondary schools principals*. Calabar: Eyo Press.

**PRINCIPALS' RATING SCALE  
(PRS)**

**SECTION A**

**Demographic Information**

**Sex of Principal:** Male  Female   
**Location:** Urban  Rural

**SECTION B**

This is a rating scale consisting of items about your principal's activities and behaviour in the school. There is no right or wrong answer. You are please requested to read each statement and respond appropriately on what you know about your principal. The rating stands for the following: SA = Strongly Disagree, A = Agree, D = Disagree and SD = Strongly Agree.

S/N	Human Relation Competency	SA	A	D	SD
1	The principal interacts freely with staff.				
2	The principal knows how to communicate with all community members in varied educational context.				
3	The principal has established partnership with parents to strengthen programmes that support the school goals.				
4	The principal communicates new ideas to parents in a convincing way.				
5	The principal regularly ensures clarity concerning the responsibilities of teachers in implementing the curriculum.				
6	My principal gives constructive criticism in my works.				
7	My principal defines goals to be accomplished by each staff of the school regularly.				
8	My principal encourages team work among staff members				
9	My principal demonstrates a good knowledge of the community in which the school is located.				
10	The principal develops cooperation between the school and the community.				
11	The principal do get assistance from the community when necessary.				
12	The principal always involve all stakeholders in the school planning.				
13	My principal ensures that PTA general meetings is held regularly in the school.				
14	The principal do inform the community about the achievement of the school.				
15	The principal accepts innovative suggestions from within the community members.				
16	My principal do celebrates contribution of community members towards the realization of the school vision.				
17	The principal knows how to communicate with all members of the community.				
18	The principal knows how to respond to diverse interest in the school community.				
19	The principal always involve all stakeholders in the school planning.				
20	My principal ensures that PTA general meetings is held regularly in the school.				
21	My interaction with the principal has helped me to develop trust in him/her				
22	The principal organises workshop in the school for teachers.				
23	My principal encourages teachers to share ideas during workshop.				
24	The principal encourages teachers to further their studies.				
26	The principal inform teachers about the possibilities of updating their knowledge and skills.				
	<b>Administrative Competency</b>				

1	The principal always enforce discipline among staff.				
2	The principal supervises the use of all administrative documents regularly.				
3	The principal organises staffs' meetings regularly.				
4	The principal checks the time book regularly to ensure staff attendance and punctuality.				
5	The principal checks movement book frequently to discourage random movement of staff.				
6	The principal uses log book for administrative purposes.				
7	The principal always ensure that everyone sticks to school rules.				
8	The principal always carry all members of staff along in discharging his duties.				
9	My principal always displays an acceptable leadership style.				
10	The principal always give a listening ear to all members of staff.				
11	The principal checks class attendance by teachers regularly.				
12	The principal frequently provides resources to aid instruction.				
13	The principal always give feedback to teachers after inspection.				
14	The principal always check to make sure that corrections during inspection are implemented.				
15	The principal checks my notes of lesson regularly.				
16	The principal carry out a routine supervision of continuous assessment test for students.				
17	The principal evaluates teachers teaching quality frequently.				
18	The principal always facilitate the use of appropriate assessments to measure student learning.				
19	The principal do show respect to staff by treating them as professionals.				
20	The principal keeps proper records of staff activities in the school to monitor behaviours.				
21	The principal always give offenders fair hearing to defend themselves before the management.				
22	The principal met out impartial judgment to offender without fear.				
23	My principal uses positive, reinforcement to strengthen good behaviour.				
24	The principal always use constructive words when correcting teachers.				
25	My principal does not make hasty decisions.				
26	The principal makes teachers take responsibility for their own decision.				
27	The principal acts without consulting others.				
28	The principal allows for the teachers high degree of initiative and creativity.				