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**Role of Principal Supervision on the Relationship between Students'
Personnel Services and Academic Achievement in Secondary Schools: A
Preliminary Report**

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Abstract

This study investigates the role principal supervision on the relationship between students' personnel services and academic achievement in secondary school via mixed-method approaches (quantitative and qualitative). Sample size of 100 students in one of the secondary schools formed the respondents for the quantitative study, while principals (junior and senior section) of the selected school formed the informants for the qualitative study. Questionnaire tagged "Students' Personnel Services and Supervision Questionnaire (SPSPQ)" was used to elicit data from students while interview protocol tagged "Principal Supervision, Students' Personnel Services and Academic Achievement (PSA)" was used to collect relevant data from the principals. Data collected through quantitative study was analysed using Statistical Package for Social Sciences (SPSS) and Partial Least Square (PLS software) were used to assess the psychometric properties of the constructs, an Nvivo software (version 10) was used for coding and thematic analysis of the data collected. Quantitative findings revealed that the individual item reliability of the constructs had loadings between .709 and .956 while the composite reliability coefficients of the latent constructs had loadings between .81 and .98. Similarly, the average variance explained of showed high loadings (minimum of .68 and maximum of .78) on their respective constructs. In addition, qualitative findings showed that services are provided for students in secondary schools. Conclusively, the preliminary results from the two studies are reliable , therefore it demonstrates the potency for the conduct of the main study on the role of principal supervision on the relationship between students' personnel services and academic achievement in secondary schools.

Keywords: Principal supervision, Students' personnel services, Preliminary report, Partial least square, Nvivo software

1. Introduction

Universally, education is described as a process of transferring knowledge, values and norms from one generation to another. It is often seen as a tool for fighting hunger and poverty in the society (Egbo, 2011). School is a place for teaching and learning activities. The implementation of the school programmes are carried out in four-wall of the classroom. The effective implementation of the aforesaid programmes rest on adequate school facilities and, the inadequate or lack of these facilities could affect the school in achieving its goals and objectives.

Results released by the two examination bodies in Nigeria indicate a dismal academic performance of students in recent years. Particularly, in year 2014, the results revealed that the percentage of students who obtained five credits and above stood at 31%. This made the stakeholders in the education sector to raise some fundamental questions to why the failure of students in schools. They concurred that the poor performance could be as a result of lack of provision of school facilities, which often hinder the process of curriculum implementation in the school. Also, they opined that this trend needs to be corrected so as to make the Nigerian education system a toast to other countries in Africa and the world in general (Alexander, Sunday & Aina, 2014).

Furthermore, there are of ample definitions regarding the concept of students' personnel services, according to Lewis (2010), students' personnel have to do with the services that are provided to enhance students' learning process. Hyde and More (1998) opined that students' personnel services, which is also known as school services, encompasses numerous services that are designed for the betterment of students in school. Likewise, Dukes and Lamar-Dukes sees students' personnel services as an essential services that are provided for students' development. Concerning the component of students' services, Holcomb-McCoy (2007) is of the view that there are a variety of school services, they include admission service, health services, transportation service, library service, academic service, orientation service, extracurricular service, guidance and counselling service, and bursary service. Lewis (2010) is of the view that these foregoing services are crucial to the attainment of the school success.

Mores so, supervision is the process of guiding and directing the subordinates to carry out the tasks assigned to them. It can also be described as a systematic way of ensuring that specific tasks are carried out in school with a view to actualize the objectives of the school (Powell, 1993). Concerning the essence of principal's supervision, Ayeni 2012 submitted that the importance of supervision cannot be over-emphasized, hence the need for supervision for the judicious utilization of the resources allocated to the school. In the light of the foregoing, therefore, principal supervision is needed to ensure efficiency and effectiveness in the school system.

2.0 LITERATURE REVIEW

Admission Services and Academic Achievement

A number of studies have investigated the essence of admission services in the school system. Specifically, those studies opined that admission services is an essential service just like other important services that are provided for students in school (Sacket et al., 2009). Concerning the link between admission services and students' academic achievement, Juradja and Munich (2010) researched on the nexus between admission services and academic achievement, the outcome of their study revealed that students who underwent admission processes (i.e., entrance examination and interview) perform well in their academic pursuits. They agreed that providing admission services for students is one of the core functions the school management. The provision of the aforesaid services often plays a significant role in selecting the best candidates to be admitted in schools. Similarly, Sacket et al., (2009) focused their study on the relationship between admission services and academic performance. Their study found that admission service is positively related to students' academic performance. To them, admission service is positively synonymous with students' academic performance. In the same vein, Albanesse et al., (2003) carried out a study on the influence of admission services on students' academic achievement in secondary schools. The outcome of their study found a positive relationship between the two variables of the study. They concurred that a comprehensive provision of admission services influences the academic achievement in the classroom. Contrary to the foregoing findings, Fan et al., (2013) studied on the link between admission services and academic achievement. The study found a negative relationship between the variables. They posit that to some extent, academic success does not necessarily depend on the process of admission services that they went through. In view of this, this study hypothesize that:

H1: There is a positive relationship between admission services and academic achievement

Extracurricular Services and Academic Achievement

Bradley et al., (2012) explained that the school curriculum is categorized into three main branches of learning, namely, affective, cognitive and pshychomotor. The activities of the psychomotor domain of learning are basically based on the various extracurricular activities that are line-up for students in the school. According to Pitts (2013), he explained that extracurricular activities for students in school are meant for the complete social development of the students. However, regarding the relationship between the two variables, Donnelly (2013) studied on the influence of extracurricular services on students' academic achievement. His study found that constant participation of students in various extracurricular activities tends to enhance the academic achievement in the classroom. He opined that their involvement in social activities like debate and quiz competitions often makes students to be confident and this helps them in their examinations. Also, Bozkus (2013) in his own study, investigated the association between extracurricular services and students' academic success. He found a positive relationship between students who are involved in the various activities such as football, quiz completion and other social and physical activities that are related to students' cognitive, affective psychomotor development. In support of the this, Trail (2006) confirmed in his study that extracurricular activities is akin to the academic success in the school system. In the light of the foregoing findings, therefore, this study asserts that:

H2: There is a positive relationship between extracurricular services and academic achievement.

Guidance and Counselling Services and Academic Achievement

Guidance and counselling services, according to MODO et al., (2013) and Parsad et al., (2003), are an essential services that are needed to confront the fundamental challenges that may likely affect students in the school. The implementation of the school programmes is incomplete without adequate attention on guidance and counselling services. The establishment of a guidance and counselling unit is important to achieving school goals and objectives. Edmonson (1998) opined that counselling unit in the school requires a qualified counselor to man the unit so as to ensure effective delivery of counselling services to the students in the school. Meanwhile, several studies have carried out on the link between the impact of guidance and counselling services on students' academic achievement. For instance, MODO et al., (2013) based their study on the relationship between school counselling services and students' academic achievement. Their study found a positive relationship between counselling services and students' academic achievement. They stated that the availability of guidance and counselling services help to guide students in career choice. Constant counselling services to students are very essential to the attainment of success on one hand, and the moulding of students' character on the other hand. Lapan and Gysber (2001) focused their study on the relationship between availability of counselling services and students' academic performance. They found that adequate provision of counselling services for students are necessary for correcting defects in students in the school system. They submitted while the school as a whole is a mini-society, counselling services serves as one of the component structures that forms the mini-society. Furthermore, Nyamwangne (2012) and White and Edmonson (1998) found a positive relationship between school guidance and counselling services and students' academic achievement. Contrary to the findings discussed, there are studies conducted that found a negative relationship between counselling services and students' academic achievement. For instance, Troop and Tyson (2008) researched on the nexus between counselling strategies and students' academic achievement. Their study found that availability of counselling services to students do not really predict the success of students in their examinations. In the light of this, this study proposes that:

H3: There is a positive relationship between relationship between guidance and counselling services and academic achievement.

Health Services and Academic Achievement

Universally, there is a general believe that health is wealth in any given society (Wayne et al., 2013). Health can be defined as the one of the needed services that are needed for the implementation of the school programmes with a view to achieve certain goals. According to Walsh and Murphy (2003), establishment of the school clinic is needed to attend them health related challenges that might be facing students. However, there are several studies conducted on the significance of health services services on students' academic success in the education system. To start with, Cooper (2005) carried out an empirical study on the relationship between school-based health services and students' academic achievement. The study found a significant relationship between health services and students' academic achievement. He opined that the presence of health services in the school ensures the well-being of students, thus, makes them to withstand the academic rigor in the classroom. Aside this, the study also revealed that health services help to eradicate diseases (i.e., communicable and non-communicable) in the school. Likewise, Loken and Neilson (2013) found a positive relationship between school-based health services and academic achievement in secondary schools. They concurred that the availability of the services is meant to take care of health

challenges of the students, it is important cannot be compromised in the school setting. In support of the foregoing findings of health services, Wayne et al., (2013) investigated the relationship between school health services and academic achievement. They are of the view that health services are a necessity that needs utmost attention, because it is considered as an important input in the school. Beside the findings discussed earlier, there are other studies that found a negative relationship between the two variables. According to the study conducted by Valdez, Lambert and Lalongo (2012), they found that the provision of health services is important in the school system, but that does not automatically mean that it will positively influence the students' academic achievement in the classroom. Welk et al., (2010) also found similar finding in their study that the provision of health services does not translate to students' academic success in the classroom. In the light of the foregoing, this study proposes that:

H4: There is a positive relationship between health services and academic achievement.

Library Services and Academic Achievement

The school library is considered as an important service that is needed for the actualization of the school programmes (Owate, 2013; Vent, 2102). According to Farmer (2006), the presence of library in school is to ensure intellectual development of students. The school library is not meant for students only, it is also meant to update school teachers and the entire staff of the school. The school is a mini society and needs a functional library for the students use. The school cannot function without the provision of library, thus, the need for a decent school library. Regarding regarding the nexus between library services and students' academic achievement, efforts have been made by the researchers to examine the nexus school library and students' academic achievement in secondary schools. Stone and Ramsden (2013) investigated the relationship between library use and students' academic achievement. Their finding revealed that indeed the school library is synonymous with the students' academic success. They opined that library serves as a place for self-development. Specifically, it is also a place for where materials in all disciplines can be consulted for use. Stone and Plourde examined the impact of the library services on the academic achievement of students. Similarly, Goodall and Pattern (2011) found a significant relationship between the two. On the other side, study conducted by Anderson and Mathews (2010) found a non positive significant relationship between the two, thus, . Based on this, this study hypothesize that:

H5: There would be a relationship between school library services and academic achievement.

2.1 Principal Supervision as a Potential Moderator on the Relationship between Students' Personnel Services and Academic Achievement

According to Baron and Kenny (1986), moderating variable plays a role that can be used to increase or decrease the relationship between independent and dependent variables in research. It is a variable that can be introduced to moderate the existing link between an independent and dependent variable based on prior conflicting findings discovered in the literature. Bormman (2015) and Onuma (2015) described supervision as the process which involved guiding and directing subordinates towards achieving success. Concerning the importance of principal's supervision in the school, several studies have been done in the past to justify the potentiality of principal's supervision (Ayeni, 2012; Ilgan, 2015; Kotirde, 2015; Usman, (2015). Ayeni (2012) investigated the relationship between supervision and academic achievement. He found that supervision is necessary in the school to achieve school objectives. He explained that the implementation of the school programmes rests in the hand

of the school principal. Corroborating this fact, Bormman (2015) asserts that supervision is one of the fundamental functions of the school principal. In the same vein, Onuman (2015) is of the view that supervision remains an essential function to actualize the aims and objectives in which the school sets to achieve. Since the principal's function is needed, supervision remains one of the most popular functions of the principal. It helps to ensure efficiency and effectiveness of the resources that are available in the school. Langa (2015) and Iigan (2015) equally found a significant relationship between supervision and academic achievement. Furthermore, the potentiality of principal's supervision can be explained from the theoretical point of view. Theories such as leadership theory and the agency model theory of supervision explained the theoretical basis of supervision. Specifically, leadership theory is based on the premise that leadership comprises of two styles (democratic and autocratic), and these styles can be applied to dealing with the subordinates to get the desired results depending on the style in which the manager considers as suitable to achieve his desire results from the subordinates (Hersey, Paul, Blanchard, & Johnson, 1998). For the agency model theory of supervision, this theory is based on the premise that internal supervision by the school principal is based on certain mutual respect between the school principal and his subordinates so as to ensure effective supervision as well as to achieve school goals (Powell, 1993).

Therefore, based on the potentiality of the principal's supervision, the purpose of moderator in this present study is to strengthen the nexus between students' personnel services (admission, extracurricular, guidance and counselling, health and library services) and students' academic achievement in secondary schools in Kwara State, Nigeria. Thus, in the light of the foregoing, the following moderating hypotheses are formulated to guide study:

- H6:** Principal supervision will moderate the relationship between admission services and academic achievement in secondary school.
- H7:** Principal supervision will moderate the relationship between extracurricular services and academic achievement in secondary schools.
- H8:** Principal supervision will moderate the relationship between guidance and counselling services and academic achievement in secondary schools.
- H9:** Principal supervision will moderate the relationship between health services and academic achievement in secondary schools.
- H10:** Principal supervision will moderate the relationship between library services and academic achievement in secondary schools.

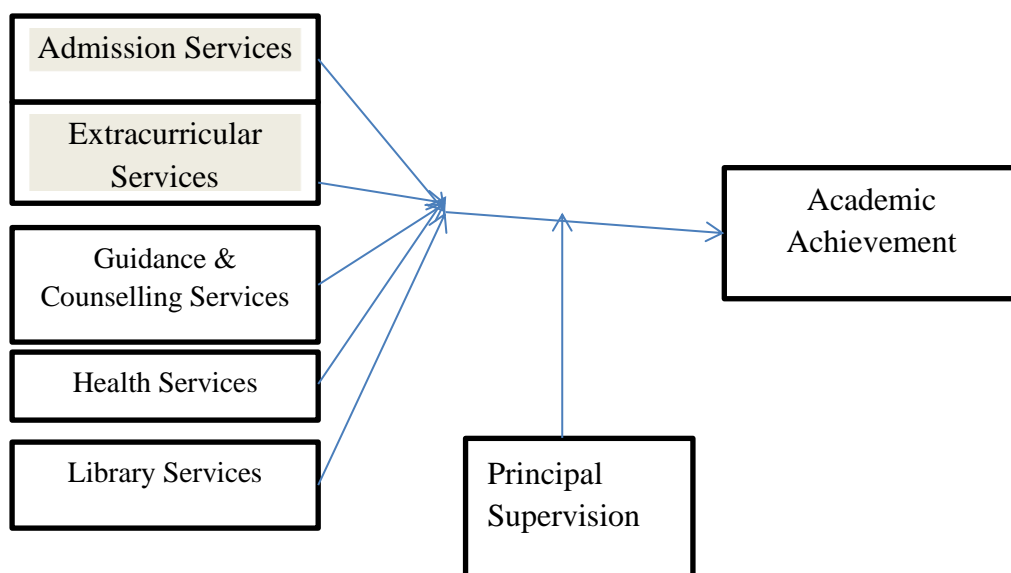


Figure 1 Conceptual framework of the study

3.0 MATERIALS AND METHODS

Rationale for Mixed-Methods Approach

This study adopts a mixed method approaches (Quantitative and Qualitative) with a view to know the preliminary reports of the study before going for the main study. Specifically, the mixed-methods was used to ensure generalizability. The type of mixed-methods approach adopted for the study is the sequential approach in which the quantitative pilot study was first conducted while the qualitative study was conducted thereafter (Cresswell, 2003; Cresswell, 2007). Thus, this section is divided into two studies. Study 1 is quantitative in nature while study 2 is qualitative in nature.

3.1 Study 1: Quantitative Approach

The importance of pilot test in research cannot be underestimated. Conducting a pilot test in a research is one of the indices of a good and reliable research. According to Lui Abel and Li (2012) and Sekaran and Bougie (2013), pilot test can be best explained as the small scale report or version. It also encompasses a trial run study that aimed at preparing for the main study in research. Also, it is frequently used as try out or pre-test of an instrument. Pilot test addresses logistical issues on an instrument designed. It is of the view that though conducting a pilot test does not assure a success in the major study, the likelihood only increases. In view of the foregoing, the main purpose of conducting a pilot test in research, according to Gay, Mills and Airasian (2006) Johnson, Turner, Foldes, Brooks, Kronk and Wiggs (2013), is stated as follows:

1. To know the validity as well as the reliability of the designed instrument for the research study.
2. To make sure that the wording of the survey is good.
3. To check whether the statistical analysis processes will be suitable for the main study or not.
4. To ensure that instructions are understandable and logical.
5. To assist the researcher in establishing relationship or contact with the respondents before embarking on the main data collection for the study.

Furthermore, one of the advantages of the pilot test is that it gives advance notice as regards to the shortcomings or weaknesses of the proposed study. This might be whether the research procedures or protocols are not followed or to know whether the proposed designed instruments are complicated or inappropriate (Liu, Abel & Li, 2012).

Research Design/Sampling Techniques

The pilot test sample size often depends on the rationale of the pilot study. Johnson et al. (2013) explained that the sample size of 10-20% of the sample size of the major study is good and reasonable for the pilot study. In view of the foregoing, 100 respondents (students) were selected from one of the secondary schools for the pilot study. The pilot study was carried out

in one of the secondary schools situated in Kwara State, Nigeria. In the selected school, 100 students were chosen for the study as suggested by Sekaran, Robert & Brain (2001).

Instrumentation

Two sources of data were adopted for this study namely primary (questionnaire) data, and secondary (results) data. Specifically, for primary data, questionnaire titled: Students' Personnel Services and Supervision Questionnaire (SPSPQ) was designed to elicit relevant information for the independent and moderating variables (i.e., students' personnel services and principal supervision) while secondary data (i.e., students' results in 7 subjects) were used to measure the dependent variable (academic achievement).

Table 1 Variable measurement and sources

S/N	Constructs	Sources	Remarks
1	Academic Achievement	Students' results obtained from selected school	
2	Admission Services	Adnett et al., (2011)	Adapted
3	Extracurricular Services	Mc Caughn (1999)	Adapted
4	Guidance and Counselling Services	Parsad et al., (2003) & Nyamwanget al., (2012)	Adapted
5	Health services	Toma et al., (2014)	Adapted
6	Library services	Arinde (2010)	Adapted
	Principal Supervision	Ayeni (2012)	Adapted

3.4 Validity of the Instrument

According to Klassen et al., (2008) content validity refers to a measure of how well a test measures what it supposed to measure. It can also be defined as the accuracy or otherwise the significance of inferences which are based on investigation. Therefore, the content validity of the adapted instrument was accomplished by the use of non-statistical method. The content of the instrument was validated by experts in the field of the study. The experts' corrections and observations were noted and effected as directed (Creswell, 2009).

Data Collection and Analysis Procedures

In this study, all the questionnaires were administered to students selected from the chosen school for pilot study. Data collection lasted for five days. After data collection, Statistical Package for Social Sciences (SPSS) was used to scree the data while PLS-SEM software was further employed to assess the psychometric properties of the adapted instrument (Hair et al., 2014; Pallant, 2010). Specifically, the individual item reliability, composite reliability, average variance explained (AVE) and discriminant validity of the instrument were assessed (Hair et al., 2014).

3.2 Study 2: Qualitative Approach

Selection of Informant

In this section, the two principals (junior section and senior section principals) of the selected secondary school for the study were chosen as the informants for the study two. Basically, the main reason for choosing the school principals is to explore the perception of the principals on the impact of principal supervision on the relationship between students' personnel services and academic achievement in secondary school. Since they are the managers of the school, thus their views on how supervision influence the relationship between students' personnel services and academic achievement becomes necessary.

Study Instrument

In order to get sufficient information on the role of principal supervision on the relationship between students' personnel services and academic achievement, an interview protocol tagged "Principal Supervision, Students' Personnel Services and Academic Achievement (PSA)" was adapted from the questionnaire used to collect data in quantitative study. Also, observation method was used to support interviews finding. Specifically, we used observation to complement the findings obtained through the interview as recommended by Creswell (2009). We have three reasons for the use of interview method to collect data. Firstly, interview method is a universally used method of getting vital information from the participants based on a particular subject matter. Secondly, interview method comprises vital information that investigator will use as a guide to elicit relevant data from the participants. Thirdly, interview method covers important questions to be asked. It encompasses semi-structured and open-ended questions (Creswell, 2013).

Ethical Consideration/Data Collection and Analysis Methods

Ethical consideration is seen as an important issue to be followed in qualitative research. It is regarded as an essential step that researchers must consider when dealing with human beings (Creswell, 2009). Likewise, the study suggests that participant's privacy must be considered so as to allow the researchers to get the required information needed to investigate a study. In light of the foregoing, in this study, we sought the principals' consent, and the aim of the study was explained to them. The principals were assured on the confidentiality of the information to be gotten from them. In addition, we gave the interview protocol to experts in the field of the study with a view to check the quality and relevance of the questions contained. After that, experts' corrections and observations were effected in the interview guide before the pilot study. Other materials used to collect data include digital audio tape, laptop, camera, hearing piece, iPad phone, biro, pencil, eraser and jotter. Immediately after the permission was granted by the principals, the interview was conducted and it lasted for 3 hours. Data collected were analysed with the use of Nvivo software (version 10).

4.0 PRELIMINARY ANALYSIS OF DATA AND RESULTS

4.1 Study 1: Quantitative Approach

At the beginning of the study, the main aim of the study was to assess the psychometric properties of the adapted questionnaires that were used for the study with a view to use them

for the main study. After the collection and coding of the administered questionnaires, we used Statistical Package for Social Sciences (SPSS) to screen the data with a view to detect the missing values as suggested by (Pallant, 2010). In addition, Partial Least Square (PLS-SEM) software was used to examine the psychometric properties of the seven constructs (Hair et al., 2014). Specifically, we assessed the individual item reliability, average variance explained (AVE) and composite reliability of the constructs (academic achievement, admission services, extracurricular services, guidance and counselling services, health services, library services and principal supervision).

Assessing the Individual reliability of the Constructs

Assessing the individual reliability of the constructs is the step to taken when analysing data via PLS software. Duarte and Raposo (2010) and Hair et al. (2014) opined that individual item reliability can be assessed by examining the outer loadings of each construct's measure. In order to achieve that, the individual items of the study was assessed by examining the outer loadings of the construct's measure. In consonance with rule of thumb for retaining items with loadings between .40 and .70 as suggested by Hair et al., (2014), therefore the items in this study had loadings between .709 and .956 (see the Table below).

Table 2 Item Loadings

Variable	Code	Loadings
Academic Achievement (AA)	AA1	.891
	AA2	.834
	AA3	.710
	AA4	.878
	AA5	.837
	AA6	.856
	AA7	.797
Admission Services (AS)	AS10	.821
	AS1	.716
	AS7	.812
	AS12	.766
	AS2	.717
	AS3	.871
	AS4	.728
	AS5	.896
	AS6	.727
	AS8	.758
	AS9	.719
Extracurricular Services (ES)	ES1	.736

	ES3	.810
	ES4	.744
	ES6	.891
	ES7	.772
	ES8	.802
	ES9	.846
	ES10	.893
	ES11	.811
	ES12	.784
	ES13	.781
	ES14	.789
	ES15	.935
	ES16	.852
	ES17	.709
Guidance and Counselling Services (GS)		
	GS1	.779
	GS6	.822
	GS5	.877
	GS3	.719
	GS2	.881
	GS8	.931
	GS9	.988
	GS10	.725
	GS11	.756
	GS12	.889
	GS13	.904
	GS14	.891
Health Services (HS)		
	HS2	.918
	HS3	.745
	HS4	.922
	HS5	.866
	HS6	.717
	H7	.731
	HS8	.845
	HS9	.743
	HS10	.822
	HS11	.874
	HS12	.891
Library Services (LS)		
	LS8	.814
	LS1	.783

	LS2	.801
	LS3	.911
	LS4	.884
	LS5	.871
	LS6	.794
	LS7	.708
	LS8	.842
	LS9	.872
	LS10	.904
	LS11	.925
	LS12	.846
	LS13	.791
	LS19	.956
	LS18	.826
Principal Supervision (PS)		
	PS5	.771
	PS2	.922
	PS1	.849
	PS4	.928
	PS6	.774
	PS7	.832
	PS8	.911
	PS9	.786
	PS10	.881
	PS11	.914
	PS12	.858
	PS13	.921
	PS14	.892
	PS15	.948

Assessing the Composite Reliability of the Constructs

According to Bijttebier et al., (2000), internal consistency reliability means the extent to which all items on a particular sub-scale measure the same concept. Two parameters, cronbach's alpha coefficient and composite reliability used to be the common estimators of the internal consistency reliability of an instrument in empirical research (Peterson & Kim, 2013). Thus, in this study, composite reliability coefficient was used to determine the internal consistency reliability of measure adapted for this study. We have two valid reasons for the use of composite reliability coefficient. Firstly, the composite reliability usually give a much less biased assessment of reliability than the use of cronbach's alpha because the later assumes all items contributes equally to its construct without taking the actual contribution of individual loadings (Hair et al. 2014; Gotz, Liehr-gobbers, & Krafft, 2010). Secondly, cronabh's alpha may under or overestimate the scale reliability of the constructs. Therefore, the use of composite reliability takes into account that all indicators have different loadings,

which can be easily understood in the same way as cronbach's alpha (Hair et al., 2014). Nevertheless, the understanding of internal consistency reliability by using composite reliability is based on the rule of thumb suggested by Bagozi and Yi (1998) who submit that composite reliability should be loaded at minimum of .70 or more than that. In line with Bagozi and Yi (1998), the Table below shows that the composite reliability coefficients of the latent constructs of the present study ranged from .81 and .95, which is in line with the minimum acceptable level of .70.

Table 3 Composite Reliability

Latent Variables	Composite Reliability
Academic Achievement	.92
Admission Services	.95
Extracurricular Services	.93
Guidance and Counselling Services	.81
Health Services	.94
Library Services	.86
Principal Supervision	.98

Average Variance Explained

According to Hair et al., (2006) convergent validity can be defined as the extent to which items truly represent the intended construct, and truly associated with other measures of the same latent construct. Fornell and Larcker (1981) is of the view that convergent validity is usually assessed by examining the average variance explained (AVE) of each latent construct. In order to get adequate convergent validity, Chin (1998) recommends that the AVE of each latent construct should be loaded at .50 or more. In line with Chin's (1998) recommendation, the AVE of this study revealed high loadings (minimum of .68 and maximum of .78) on their respective constructs, indicating adequate convergent validity.

Table 4 Average Variance Explained (AVE)

Latent Variables	Average Variance Explained
Academic Achievement	.78
Admission Services	.68
Extracurricular Services	.73
Guidance and Counselling Services	.72
Health Services	.71
Library Services	.76
Principal Supervision	.72

Assessment of Discriminant Validity

Discriminant validity is the extent to which a construct is differentiated from other constructs. In this study, discriminant validity was calculated by using AVE. This was calculated by comparing the correlations among the latent constructs with square roots of the AVE as suggested by Fornell and Larcker (1981). Furthermore, discriminant validity was determined in line with Chin's (1998) standard, by comparing the indicator loadings with other reflective indicators in the cross loadings. Also, Fornell and Larcker (1981) suggest the use of AVE which has a score of .50 or more. Thus, to achieve adequate discriminant validity, it is recommended that the square root of the AVE should be more than the correlations among the latent constructs. The table below shows adequate discriminant validity as recommended by Fornell and Larcker (1981).

Table 5 Discriminant validity

Latent Variables	1	2	3	4	5	6	7
Academic Achievement	.75						
Admission Services	.81	.89					
Extracurricular Services	-.17	-.25	.74				
Guidance and Counselling Services	-.23	-.32	.78				
Health Services	.60	.43	-.22	.86			
Library Services	.26	.26	-.06	.24	.91		
Principal Supervision	-.40	-.44	.08	.11	.26	.76	

4.2 Study 2: Qualitative Approach

Data Transcription, Coding and Preliminary Findings

Transcription of data is another step involved in qualitative studies. After the interview session with the school principal, the transcription of data was performed and also, data coding follows. The data were carefully transcribed based on the responses gotten from the principal. In order to ensure that the main points of the data were transcribed, sophisticated headphone was employed to assist in the transcription, this in line with Creswell's (2007) on data transcription in qualitative research. After the transcription of the data, the data were coded for easy identification of the concepts that would form the themes, sub-themes, and sub-sub themes of the study. Furthermore, after the transcription and coding of the data, the Nvivo Software (version 10) was used to analyze the data based on the data coded. The software was used because It has the capacity visualize the themes of the study, which has to do with the modelling. Also, it gives the researcher more time to discover patterns, glean insight and develop meaningful conclusions (Barry, 1998). Another reason for using this software is that, it enables the theoretical ideas that emerged during the coding can be scientifically evidenced in the data, thereby addressing the validity of the data (Hinchliffe, 1997).

Table 6 Detailed thematic coding of the data

<p>Theme One: Perceptions on students' personnel services</p>
<p>Sub-themes:</p> <ol style="list-style-type: none"> 1. Library services <i>Four sub-themes</i> under library services include: meaning, nature, provision and importance 2. Guidance and coun selling services Four sub-themes under guidance and counselling services include: meaning, nature, provision and importance of guidance and counseling services 3. Admission services <i>Four sub-themes</i> under guidance and counselling services include: meaning, nature, provision and importance of admission services 4. Extracurricular services <i>Four sub-themes</i> under guidance and counselling services include: meaning, nature, provision and importance of extracurricular services 5. Health services <i>Four sub-themes</i> under guidance and counselling services include: meaning, nature, provision and importance of health services
<p>Theme Two: Perceptions on supervision</p>
<p>Sub-themes:</p> <ol style="list-style-type: none"> 1. Principal supervision <i>Four sub-themes</i> under principal supervision of services include: meaning of principal supervision, role of principal supervision, importance of supervision and how it influence academic achievement. 2. Challenges of supervision <i>Two sub-themes</i> under challenges of supervision include: staff attitude and student attitude

The above thematic data coding was imported into Nvivo software, whcih produced the general and speicific models reported below.

General Model

The general model focuses on the whole information on the subject matter, in which the school principal granted the interview on. Thus, the coding of the data produced the model below on the perception concerning the role of supervision on the relationship between students' personnel services and academic achievement in school. The general model consists of two main themes and seven sub-themes. The first theme has five sub-sub themes (i.e., admission, extracurricular, guidance and counselling, health and library) while the second theme has two sub-themes (i.e., principal supervision and challenges of supervision).

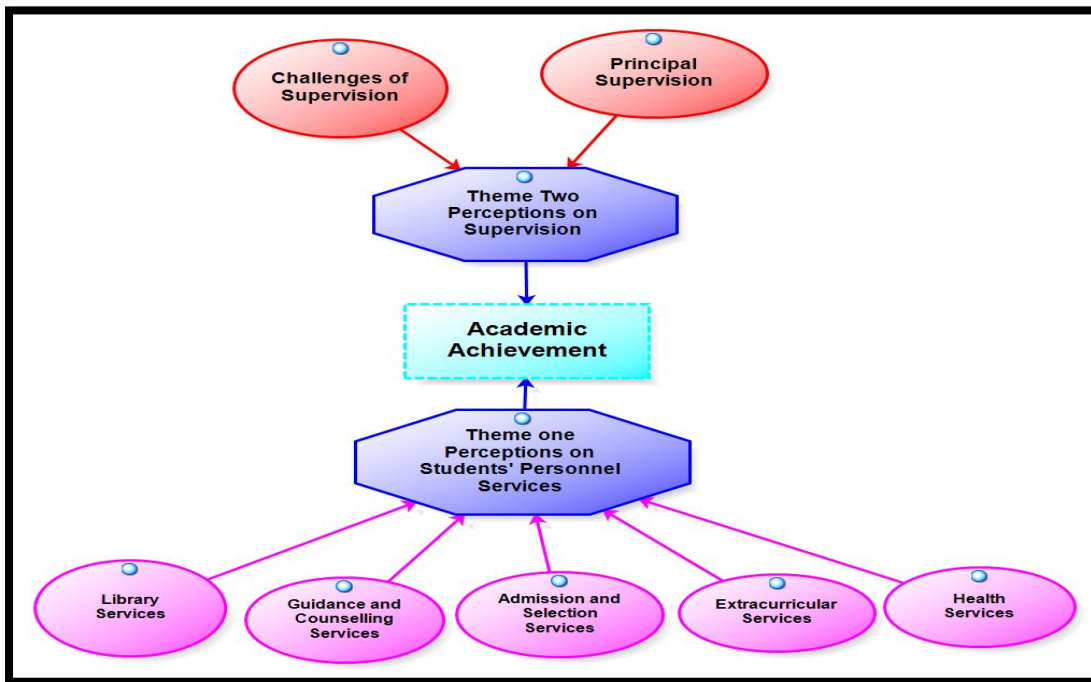


Figure 2: General model on perception of principal supervision on the Relationship between student personnel services and academic achievement in school

Specific Models

Theme one:(Students' Personnel Services)

The theme one has to do with the perception of principal's supervision on the dimensions of students' personnel services in the school system. The five dimensions formed the sub-themes of the main theme. The figure below shows the theme and its five sub-themes. Also, the sub-themes has four sub-sub themes each (i.e., meaning, nature, provision and the importance of the sub-themes).

Views of the school principals based on their perceptions on the five dimensions of students' personnel services indicate thus:

On the existence of library services in the school, they opined that:

We have a standard library in our school. In fact, we'll soon complete our e-library for students use. The library would help students to make use of the

online information for their benefit. We have a librarian and other library personnel who are responsible for the management of the library. The library has relevant materials which students can access.

Concerning guidance and counselling services, they opined that:

Guidance and counselling services are well provided in this school as far as am concerned because we have counselling department and students do go there for counselling needs from time to time... confidently, I can say that counselling services are well provided in our school.

On health services, principals expressed thus:

We have a functional clinic at my school. The school clinic has health personnel who attend to students when they need health services. Sometimes we admit students in the school clinic for 2 to 3 days, depending on the nature of the sickness of the particular students admitted. Also, if we have students whose health challenges are beyond our control, we take such students to the State Civil Service Clinic for medical attention.

On admission services, they submitted that.... *“admission services should be provided at all levels of education (primary, secondary, and higher institution)... we provide admission services in my school”*. Furthermore, on principal’s perception on extracurricular services, he explains that:

We have a football pitch, volleyball, table tennis, etc. Our students engage in both social and physical activities in school. These are provided for students’ use. Also, students in this school participate in quiz competitions, debates, social club, and religion activities. All those above are provided for students in school.

The figure below visualizes the model on theme one to five using Nvivo software.

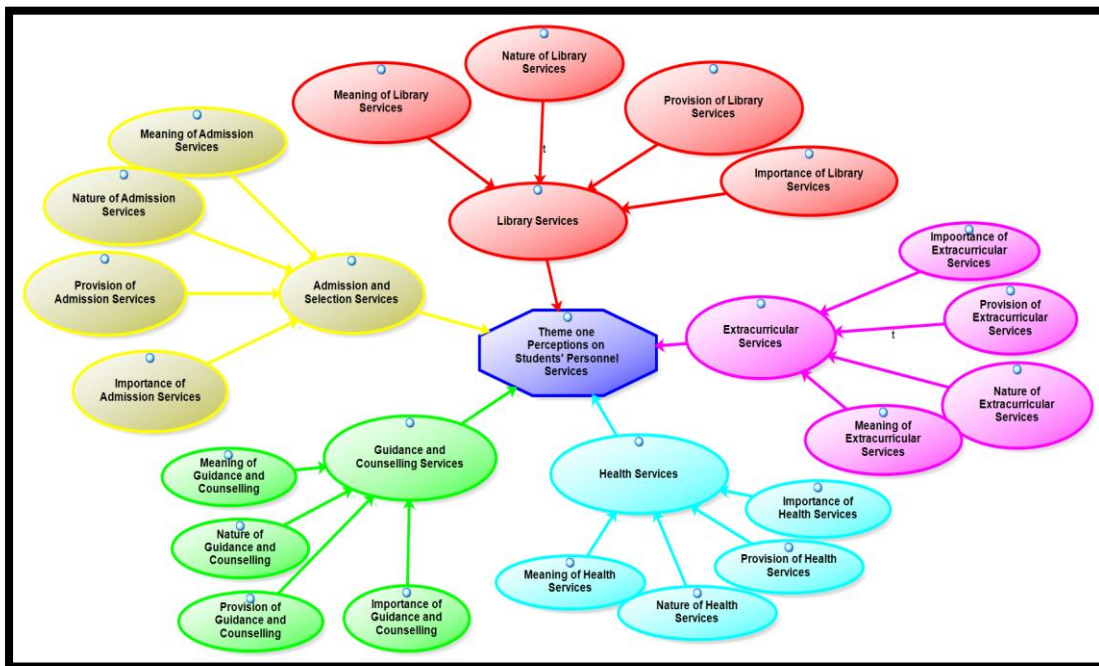


Figure 3: Perception on Students’ Personnel Services

Theme Two: Perceptions on Supervision

The theme two encompasses the principal's perception of supervision in the school system. Specifically, the theme has two sub-themes, namely, principal's supervision and challenges of supervision in school. The first sub-theme, which is principal's supervision, has four sub-sub themes, namely, meaning, role, the importance of principal's supervision, and academic achievement. The second sub-theme, which is challenges of supervision, has two sub-sub themes. The sub-sub themes include staff attitude and student attitude.

Concerning principals' views on supervisory role in the school, they claim that:

We ensure routine check of the services mentioned earlier on in the school. Aside that, we have various committees who report the affairs of their committees to my office. The essence of this is to ensure that things are carried out at the right time for the benefit of students in school. We believe that the provision of these services is vital to their academic success. Thus, supervision is essential because it helps the school to achieve its aims and objectives and it helps to ensure quality assurance.

The figure below visualizes the theme two and its sub and sub-sub themes using Nvivo software.

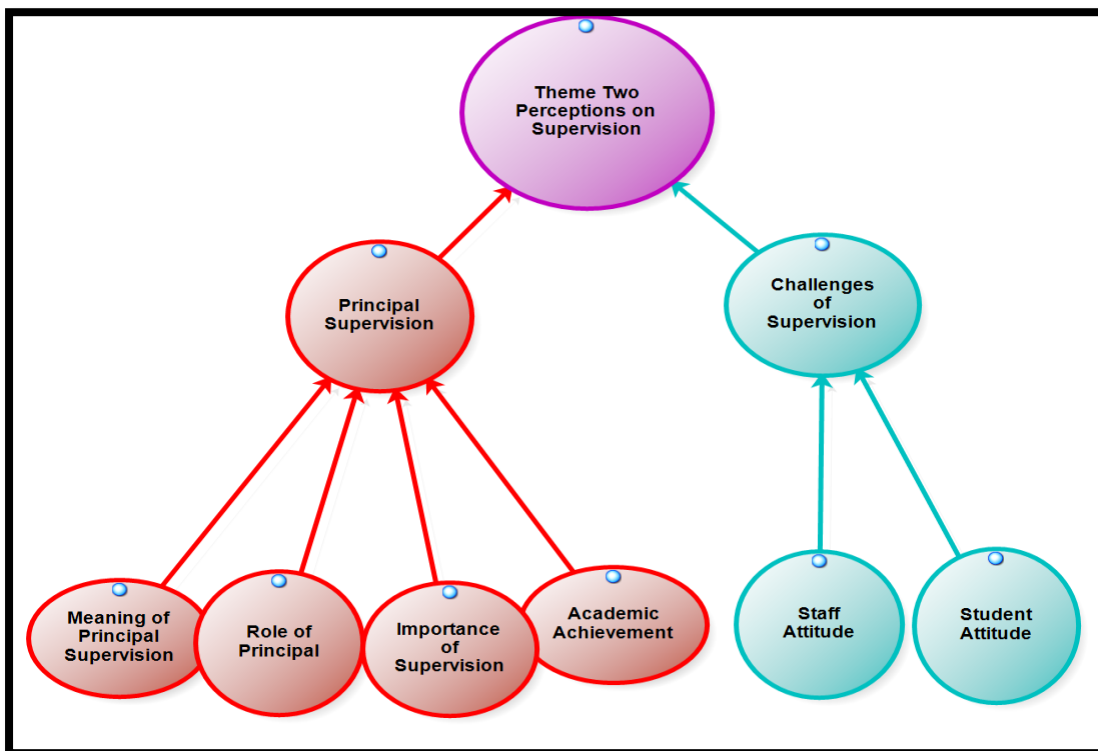


Figure 4: Theme Two: Perception on Supervision

Trustworthiness of the Data

The argument about the usefulness of the concepts of reliability and validity in qualitative studies has been looked at years back (Kelle, 1997). Some scholars are of the view that whilst these terms are not suitable for studies in qualitative research, instead, preferring to use terms such as "rigorousness" and trustworthiness", or it can be called "quality" of the data. Thus, it is nevertheless essential that qualitative research as well as data analysis are carried out in a transparent and thorough manner (Kirk, 1986). In order to ensure trustworthiness of this pilot study in qualitative part, the use of Nvivo software helped to ensure the accuracy, which was achieved via the use of the search facility in the software which is regarded by the product manufacturers as of the important assets facilitating interrogation of the data collected. Thus, this has established that the data collected passed through a rigorous process and this process would be employed after the collection of the main data. Another important point in this section is that, the transcribed work was given to the school principals with a view to check whether the interview they granted was the one that was transcribed by the researchers or not. The principals concur with virtually all the contents of the transcribed interview.

5. DATA MERGING AND CONCLUSION

From quantitative study, findings revealed that the individual item reliability for the seven constructs (academic achievement, admission services, extracurricular services, guidance and counselling services, health services, library services and principal supervision) had loadings between .709 and .956 that conform with Hair et al.'s (2014) recommendation. Our study found that the composite reliability coefficients of the latent constructs of the present study ranged from .81 and .95 (academic achievement: .92; admission services: .95; extracurricular services: .93, guidance and counselling services: .81; health services: .94; library services: .86 and principal supervision: .98) which is in line with the minimum acceptable level of .70 recommended by Bagozi and Yi (1988). Also, quantitative study findings indicate that the AVE of the constructs had loadings that are in congruent with Chin's (1998) recommendation. The AVE of this study revealed high loadings (minimum of .68 and maximum of .78) on their respective constructs, indicating adequate convergent validity. This study achieved adequate discriminant validity of the constructs as suggested by Fornell and Lacker (1981) that the square root of the AVE should be more than the correlations among the latent constructs.

In support of the quantitative findings, our qualitative findings revealed two main themes that formed the study constructs. Theme one encompasses principals' perceptions of school services, while theme two entails perceived supervision of the services provided in school. Theme one has five sub-themes (sub-theme one: library services, sub-theme two: guidance and counselling services, sub-theme three: admission services, sub-theme four: extracurricular services and sub-theme five: health services) while theme two has two sub-themes (sub-theme one: principal supervision and sub-theme two: challenges of supervision). The five sub-themes under theme one has four sub-sub themes each while the two sub-themes under theme two has four and two sub-themes respectively as displayed in figures 3 and 4. Furthermore, excerpts from the informants revealed that the five services (library, guidance and counselling, admission, extracurricular and health) are available for students. Similarly,

they opined that the aforementioned services are adequately supervised to ensure effective service delivery.

Taken together, it can be concluded that this study has successfully assessed the psychometric properties of the constructs quantitatively, while the evidence from the interview supported the goodness of the instrument. Therefore, this study has succeeded in ensuring that the instruments used for both the quantitative and qualitative (Mixed methods) are reliable and can be used for the main study.

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