

## Supervisor Personal Variables as Determinants Postgraduates Science Education Students Attitude towards Research Skills in Tertiary Institutions in South-South Nigeria

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### Abstract

Supervisors are the engine room of student's academic success in the research undertakings in tertiary institutions of higher learning. This is because they are vested with high level of intellectual capacity to facilitate the student's academic development either in terms of coursework or research project. This paper addressed supervisor personal variables as determinants Science Education postgraduates' students' attitude towards research skills in tertiary institutions in south-south Nigeria. The study utilized the ex-post-facto design. Kelinger, (1973) explained ex-post-facto as. The population of the study comprised all senior lectures, lecturer one, associate professors and professors in tertiary institutions and postgraduate students' in Science Education in south-south, Nigeria numbering 1,673 lecturers and 2789 post graduate students. Stratified and purposive samplings were adopted for this study. The sample consisted of 809 supervisors and 910 post graduate students in the zones. The research instrument; is supervisor and students' variable questionnaire (SSVQ). The reliability ranges from .78 to .91 respectively. The data was analysed with population t-test and one-way ANOVA and the finding revealed that: Supervisor's attitude towards research skills of science education postgraduate students is significant positive. There is a significant influence of supervisors' level of educational status of science education postgraduate students' attitude towards research skills. There is also a significant influence of years of teaching experience on science education postgraduate students' attitude towards research skills. Recommendations were also dawn from the study.

### Keywords:

Supervisor personal variables,  
Determinants,  
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### **Background to the Study**

Research is an indispensable tool for national growth and development; this is because all inventions have been possible with the help of research. With the help of research human beings were able to find the cure for malaria, polio and many other deadly diseases. Research is the systematic process of collecting and analyzing information to increase our understanding of the phenomenon under study (Ellis, 2001). The aim of the research is to contribute towards the understanding of the phenomenon and then to communicate that understanding to others. It gives rewarding learning experiences for students, producing graduates capable of high personal and professional achievement (Golde & Dore, 2001). Most post graduate students are faced with one problem or the other. The general complaint of most post graduate students is how to start and complete their thesis work within the stipulated time given to them to finish their course work. Experience and personal interaction with some students in university of Calabar reveals that for every programme, the number of students who complete their course work and are able to complete their research work (thesis) is about 70 percent (admission list from Faculty of Education University of Calabar 2004). Most of them deliberately contract their thesis work to experts to do it for them, thereby spending huge sums of money that would have been used to solve other problems. This may be due to a number of probable causes. The researcher is then faced with the problem of the probable cause of this ugly scenario.

The attitude displayed by supervisors is very paramount to students' success in research activities. This means a detailed study of thinking, feeling and the person's behavior towards research. Golde (2000) informed that it is important to identify the attitudes of supervisors towards postgraduate students so that a positive attitude can be developed among students and hence their learning can be facilitated in turn. A number of researches have been conducted to explore the attitude towards research and the results showed that attitudes towards research are generally not positive. Students think that it is tough and dry to study the research (Jacobs, 2004). Efforts have been made to ensure that students' educational researchers are supervised by supervisors with requisite academic qualification. Also there has been provision to assign a fewer number of students to a supervisor. The need therefore to properly equip students to enable them acquire a positive attitude towards research has been the major background for this research study.

Supervision is an activity undertaken by someone occupying a formal role within an organization that has (more or less) explicit expectations. The supervisor's role can be defined as a complex, professional one, which requires much more than good will and spare time. It is an intensive form of teaching, and guidance, in a much broader sense than just the transfer of information (Jacobs, 2004). The role is a supportive one where the supervisor may be a mentor, coach, guide, model and manager, with the goal of preparing graduate students for careers both within and outside academia.

Research reveals that the relationship between a student and a supervisor is so crucial that students cannot afford to leave it to chance. Phillips and Pugh (2000, p. 193) maintains that if students are to develop appropriate skills in research then their supervisor must show positive attitude towards their practice of research activities. They must understand what their supervisors expect of them. Once they have this 'inside information' they will be in a

better position to develop the skills necessary to reduce any communication barriers and sustain the relationship for mutual benefit. Postgraduate prospectuses imply that research students will be supervised by leading scholars who provide direction and monitoring of students' work. Phillips and Pugh (2000, p. 193) maintains that the supervisor is responsible for providing all the assistance that the student needs in discipline content, research methodology and topic development, as well as inculcating professional standards and providing personal support. This can maximally be achieved if they develop a positive attitude with their supervisees. However, Ellis (2001) revealed that this is not always the case as most of them develop negative attitude due to inexperience in their chosen area of knowledge.

Supervisors' years of experience are very important to students' effective conduct in research activities. This has been reported by various studies in relationship to interpersonal relationships between graduate students and their supervisors as a determinant of student success in their research activities (Lessing & Schulze, 2002). Malfroy (2005) reports that graduate students often experience frustration as a result of a perceived lack of experience and support or what is referred to as a disjunction in expectations between the student and the supervisor. Lessing and Schulze (2002) describe the supervisory role as a balancing act between various factors: expertise in the area of research, support for the student, critique, and creativity. Ives and Rowley (2005) emphasize the importance of matching supervisors to graduate students in terms of both topic expertise and working relationships. These authors also note the changing needs of graduate students, which may necessitate a change in supervisory practices as students' progress through a graduate program. Malfroy (2005) adds that an open approach to supervision and a collaborative approach to learning may achieve more in terms of developing a community of scholars than more traditional approaches to supervision.

Lessing and Schulze (2002) furthermore recommend that supervisors receive training in order to meet their graduate students' needs effectively. Lessing and Schulze (2002) determined that a varied pattern of supervisory involvement in the research process produces the best results. This pattern involves a significant initial investment in time and effort in formulating the research question, followed by less interaction and more monitoring during the implementation phase, and finally increased input during the eventual writing of the research report. These findings indicate that a differentiated approach to providing information and support to graduate students may be necessary. Lessing and Lessing (2004) add that there needs to be a balance between supervisor input and student independence. Moses (1992) argues that at each stage of the research progress, students are likely to need different forms of guidance. They need particular guidance on when to stop data collection and analysis, when to start drafting the thesis and how to structure it (Moses 1992).

### **Statement of the Problem**

Over the years the issue of poor quality research among graduate students has been quite alarming. This is because most graduate students exhibit negative attitude towards research. Most of these students feel they were not taught the course adequately while at first degree; a few of these students are of the opinion that their supervisors do not give them adequate attention as to effect necessary correction on their thesis. This issue of negative attitude

towards research practice has over the years made educators, research scholars and concerned citizens very disappointed. The fact that graduate students are exposed to advanced research methods, educational statistics and graduate seminar in education and are taught these courses by experts in the subject areas have not improve their attitude in research delivery.

Concerned by post graduate students inadequacies and poor attitude towards research and the attendant consequences, most universities has strengthen it admission policy to make student undergo an oral interview on areas they intend to carry out their research work. This welcome development is to help the students build a solid foundation before commencement of their thesis/dissertation work. Also, most schools has tried to encourage lecturers/supervisors through the provision of special allowance for student supervision task. Seminars and conferences have been organized by educational administrators to help promote a positive attitude towards graduate research as a way forward.

Disappointingly, despite all these unending efforts observations reveal that most graduate students are still manifesting negative attitude towards research. Some of them resort to fraudulent research practice such as plagiarism, duplicating research done by others in an attempt to fulfill the partial requirement for the award of academic certificates. Quite annoying, many fail to defend the knowledge acquired through research work or conduct a research that will end up not contributing anything to knowledge advancement. There is therefore, the urgent need for educators, scholars and the researchers to come to terms with the problem posed by graduate students' negative attitude towards research and to help the society which is the ultimate consumer of research output. The problem of this research study put in a sentence is; to what extent does supervisor level of qualification, students self-concept, students knowledge of subject matter, students perception of their supervisor and supervisor competence influence attitude towards research?

### **Purpose of the Study**

The purpose of this study was to examine supervisor personal variables as determinants of graduates science education students attitude towards research skills in south-south Nigeria. Specifically, the study seeks to:

1. Examine supervisor's attitude towards research skills of science education postgraduate students.
2. Find out the influence of supervisors' level of educational status on science education postgraduate students towards research skills.
3. Determine the influence of years of teaching experience on science education postgraduate students' attitude towards research skills

### **Research Questions**

The following questions were formulated to direct this study.

1. How does supervisors' attitude influence science education postgraduate students' research skills?
2. To what extent does supervisors' level of educational status influence science education postgraduate students' attitude towards research skills?
3. How does supervisors years of teaching experience influence science education postgraduate students' attitude towards research skills?

### **Statement of Hypotheses**

The following null hypotheses were formulated and tested at 0.05 levels of significance to guide this study.

1. Supervisor's attitude towards research skills of science education postgraduate students is not significant positive.
2. There is no significant influence of supervisors' level of educational status of science education postgraduate students' attitude towards research skills.
3. There is no significant influence of years of teaching experience on science education postgraduate students' attitude towards research skills.

### **Methodology**

This section provides a general framework of the study through indicating the procedures and techniques adopted in data collection and analysis. The study utilized the ex-post-facto design. Kelinger, (1973) explained ex-post-facto as, that in which independent variable or variables had already occurred and in which the researcher started with the observation of the dependent variables and then study the independent variable or variables in retrospect for their possible influence to, and effects on the dependent variable or variables. The population of the study comprised all senior lectures, lecturer one, associate professors and professors in tertiary institutions and postgraduate students' in Science Education in south-south, Nigeria numbering 1,673 lecturers and 2789 post graduate students. Stratified and purposive sampling techniques were adopted for this study. The sample consisted of 809 supervisors and 910 post graduate students in the zones. The research instrument; is supervisor and students' variable questionnaire (SSVQ) Part two elicited information on supervisor and school variables while part three will generate information on attitude towards research skills. It is rated on four point Likert scale type ranging from strongly agree (SA=4points) Agree (A= 3 points) Disagree (D= 2points) and Strongly Disagree (SD=1 Point) and the reverse for negatively worded item. To establish the validity of the instrument, the questionnaire will be subjected to face validation by giving the draft to experts in the field of Research, Measurement and Evaluation for vetting. Their modification and suggestions were incorporated in the final copy of the instruments before administration. The reliability of the instrument; supervisor and students' variable as attributes of graduate students toward research (SSVAATR). Some copies of the instruments were administered to 20 lectures and postgraduate students in Cross River University of Technology who were not part of the main study. After the first administration, the coefficient of internal consistency was calculated for Cronbach alpha reliability and the indices will be presented later. The data were analysed with population t-test and ne-way ANOVA.

### **Result and Discussions**

The results of the data collected are presented hypothesis-by-hypothesis as shown below

#### **Hypothesis One**

Supervisors' attitude towards research skills of science education postgraduate students is not significant negative. The hypothesis involved in this study is supervisors' attitude. To test this hypothesis the population (one sample) t-test statistics was applied. The result of the analysis is presented in Table 1

**TABLE 1**  
**Summary of one sample t-test on supervisors' attitude (N=803)**

S/N	Variables	$\bar{X}$	$\mu$	SD	p-value
1	Supervisors' attitude	12.80	9.02	3.09	.002

\*P<.05 df= 802; t-critical 1.960

Table 1 shows that t with 803 supervisors' of tertiary institution sampled for the study. The sample mean was found to be 12.80 with a cut of mean (population mean) of 9.02 and a corresponding standard deviation and standard of 3.08, the p-value was found to be .002 which is less than the chosen alpha of .05. Thus, the null hypothesis is rejected. This implies that Supervisors' attitude towards research skills of science education postgraduate students is significant positive.

### Hypothesis Two

There is no significant influence of supervisors' level of educational status of science education graduate students attitude towards research skills. The independent variable in this hypothesis is level of educational qualification with three levels namely; senior lecturers to lecturer 1, associate professors and professors dependent variable is attitude of near-retirement clergy which is measured continuously with One-way Analysis of variance. The result of the analysis is presented in Table 2.

**Table 2**  
**One-way Analysis of Variance result with the influence of Supervisors' level of Educational status and Science Education Graduate Students Attitude towards Research skills**

Supervisors Educational Level	N	$\bar{X}$	SD
Senior lecture and lecture 1	217	38.34	12.82
Associate professors	537	48.82	14.12
Professors	47	41.57	11.27
Total	803	42.91	12.74

  

Sources of variance	Sum of squares	df	Mean square	F-value	Sig.
Between Group	4661.33	2	2330.67		
With Groups	147977.09	800	185.44	12.57*	.000
Total	152638.42	802			

\*P<.05 df=2,800, p-value .000

It is obvious from Table 2 with levels of educational status on science education postgraduate students' attitude towards research skills. Senior lectures and lecturer 1 are 217 with mean and standard deviation of 38.34 and 12.82, associate professors are 537 with mean and standard deviation of 48.82 and 14.12 respectively while professors are 47 with 41.57 as mean and 11.27, standard deviation respectively. The One-way Analysis of variance result revealed that the p-value of .000 which is less than the chosen alpha of .05 thus the null hypothesis is rejected. This implies that there is a significant influence of supervisors' level of educational status of science education graduate students attitude towards research skills. The rejection led to a Post-hoc Multiple Comparison with Fisher's Least Significant Difference (LSD) to determine the group that is statistically significant as presented in Table 3.

**Table 3**  
**Post-hoc Comparison with Fisher's Least Significance Different (LSD) of Supervisor level of educational status**

Levels of educational status	N	Senior lecture/lecturer 1	Associate professors	Professors
Senior lecturer/lecture 1	217	38.34	2.48	3.78*
Associate professors	537	1.34	48.82	3.25*
Professors	47	3.09	4.12	41.57
MSW=185.44				

\*. The mean difference is significant at the 0.05 level

\* $<.05$ , critical  $t = 1.960$ ,  $df = 801$ .

a = Group means are placed along the diagonal

b = Difference between group means are placed above diagonal

c = Fisher LSD are placed below the diagonal

The means comparison as presented in Table 3 showed that senior lecturers / lecturer 1 and associate professors has no statistical mean difference as ( $p > .05$ ;  $t = 1.34$ ;  $p = .81$ ,  $X = 2.48$ ). For senior lecturers / lecturer 1 and professors there is a statistically significant as ( $*p < .05$ ;  $t = 3.09$ ;  $p = .001$ ,  $X = 4.97$ ), while for associate professors and professors there is a statistical mean difference as ( $*p < .05$ ;  $t = 4.12$ ;  $p = .002$ ,  $X = 3.25$ ).

### Hypothesis Three

There is no significant influence of years of teaching experience on science education postgraduate students' attitude towards research skills. The independent variable in this hypothesis is years of teaching experience which has three levels below 10 years, 11-15 years

and 16 years and above. The dependent variable is attitude of science education postgraduate students which is measured continuously with one-way Analysis of variance. The result of the analysis is presented in Table 4.

**Table 4**  
**One-way Analysis of Variance result with the Influence of Supervisors' years of Teaching Experience on Science Education Graduate Students attitude towards Research skills**

Years of Teaching Experience	N	$\bar{X}$	SD		
Below 10 years	356	44.57	12.47		
11-15 years	276	41.99	13.84		
Above 16 years	171	45.56	14.02		
Total	803	44.04	13.44		

  

Sources of variance	Sum of squares	df	Mean square	F-value	Sig.
Between Group	1633.90	2	816.95		
Within Groups	141319.31	800	176.65	4.65*	.030
Total	142953.21	802			

\* $P < .05$   $df = 2, 800$ ,  $p$ -value .000

It is obvious from Table 4 with years of teaching experience on science education postgraduate students' attitude towards research skills. Below 10 years are 356 with mean and standard deviation of 44.57 and 12.47, those who have spent 11-15 years as supervisors are 276 with mean and standard deviation of 41.99 and 13.84 while those above 16 years are 171 with mean and standard deviation of 45.56 and 14.02 respectively. The One-way Analysis of variance result revealed that the  $p$ -value of .000 is less than the chosen alpha of .05 thus the null hypothesis is rejected. This implies that there is a significant influence of supervisors' years of teaching experience on science education graduate students attitude towards research skills. To compare the mean differences, Multiple Comparison with Fisher's Least Significant Difference (LSD) to determine the group that is statistically significant as presented in Table 5.



**Table 5**  
**Post-hoc comparison with Fisher's Least Significance Different (LSD) of Influence of supervisors' years of Teaching experience on science Education graduate Students Attitude towards Research Skills**

Level of years of teaching experience	N	Below 10 years	11-15 years	16 and above
Below 10 years	356	44.57	2.58*	3.98*
11-15 years	276	3.09	41.99	4.21*
16 and above	171	3.17	3.00	45.56

MSW=176.65

\*. The mean difference is significant at the 0.05 level

\* $p < .05$ , critical  $t = 1.960$ ,  $df = 801$ .

a = Group means are placed along the diagonal

b = Difference between group means are placed above diagonal

c = Fisher LSD are placed below the diagonal

Table 5 showed that with years of supervisors teaching experience those below 10 years and 11-15 years has no statistical mean difference as ( $*p < .05$ ;  $t = 3.09$ ;  $p = .000$ ,  $X = 2.58$ ). For those below 10 years and 16 years and above there is a statistically significant as ( $*p < .05$ ;  $t = 3.17$ ;  $p = .001$ ,  $X = 3.98$ ), while for supervisors with 11-15 years and 16 years and above there is a statistical mean difference as ( $*p < .05$ ;  $t = 3.00$ ;  $p = .002$ ,  $X = 4.21$ ). This implies that the mean difference lies in the group with below 10 years and 11-15 years, below 10 years and 16 and above, 11-15 years and 16 and above.

### Discussions of Findings

It can be inferred from previous studies conducted that supervisor's attitude towards research skills of science education postgraduate students is significant positive. The attitude displayed by supervisors is very paramount to students success in research activities. This means a detailed study of thinking, feeling and the person's behavior towards The findings agrees with that by Golde (2000) who found that the attitudes of supervisor towards postgraduate students so that a positive attitude can be developed among students and hence their learning can be facilitated in turn. A number of researches have been conducted to explore the attitude towards research and the results showed that attitudes towards research are generally not positive.

### Conclusion

The study also found that there is a significant influence of supervisors' level of educational status of science education postgraduate students' attitude towards research skills. Students think that it is tough and dry to study the research (Jacobs, 2004). Efforts have been made to ensure that students' educational researchers are supervised by supervisors with requisite academic qualification. Also there has been provision to assign a fewer number of students to a supervisor.

The finding also proved that there is a significant influence of years of teaching experience on science education postgraduate students' attitude towards research skills. Supervisors' years of experience are very important to students' effective conduct in research activities. This has been reported by various studies in relationship to interpersonal relationships between graduate students and their supervisors as a determinant of student success in their research activities (Lessing & Schulze, 2002). Malfroy (2005) reports that graduate students often experience frustration as a result of a perceived lack of experience and support or what is referred to as a disjunction in expectations between the student and the supervisor. Lessing and Schulze (2002) describe the supervisory role as a balancing act between various factors: expertise in the area of research, support for the student, critique, and creativity.

Ives and Rowley (2005) emphasize the importance of matching supervisors to graduate students in terms of both topic expertise and working relationships. These authors also note the changing needs of graduate students, which may necessitate a change in supervisory practices as students' progress through a graduate program. Malfroy (2005) adds that an open approach to supervision and a collaborative approach to learning may achieve more in terms of developing a community of scholars than more traditional approaches to supervision. In the same vein Lessing and Schulze (2002) furthermore recommend that supervisors receive training in order to meet their graduate students' needs effectively. Lessing and Schulze (2002) determined that a varied pattern of supervisory involvement in the research process produces the best results.

### **Recommendation**

The following recommendations were drawn

1. Supervisors should be encouraged to develop their research skills by regular attendance to conferencing, seminar and workshops which will help to promote and build the intellectual capacity in their research activities.
2. Students on their own part should also corroborate with their supervisors in order to foster cordial relationship in the course of the research undertakings as studies has shown that most students avoid mentorship by supervisor of tertiary institutions of higher learning

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