Guidance Services as Predictors of Students' Academic Achievement in Mathematics in Eket Education Zone Akwa Ibom State, Nigeria.

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Abstract: **This study examined guidance service as a predictor of students' academic achievement in Mathematics in Eket, Akwa Ibom State, Nigeria. The research design used was the ex-post facto design. A total of 1,000 selected by stratified random sampling were studied. Data collection instruments were a structured questionnaire and mathematics achievement tests. Reliability of the instruments determined by Cronbach Alpha reliability estimate and Kuder Richardson formula K-R20 respectively, ranged from 0.85 to 0.89 for the Questionnaire and 0.76 for Mathematics achievement test. The results of analysis using linear regression showed that educational guidance services and vocational guidance services significantly predicted students' academic achievement in Mathematics. It was therefore recommended that guidance programmes should consistently be embedded in the curriculum of schools as part of the efforts to enhance students' academic achievement in Mathematics.**

Keywords: **Educational guidance service; Mathematics; Students' academic achievement; Vocational guidance service.**

I. INTRODUCTION

The knowledge of Mathematics is essential for the economic and technological development of any nation (Ukeje, 2005). Mathematics has remained a compulsory subject for all students at the Primary and Secondary School levels in Nigeria for several decades because of its importance for national development (Federal Republic of Nigeria, 2014). Good performance in Mathematics offers a wide range of academic and career opportunities to students (Akinsola & Tella, 2003). The attainment of national aspiration for technological development will, among other factors, depend on the effectiveness of teaching and learning Mathematics in schools. Provision of guidance services in Mathematics has become an important component of educational reform in recent times (Blank, Alas, & Smith, 2007). Even though guidance and counselling are offered to children at home and the schools misconduct and indiscipline remain common among students, and these are known to negatively influence their academic performance. Guidance has been identified as one of the effective strategies to prevent or mitigate the effects of indiscipline among students, yet some public and private schools have tended to lag in guidance services. The main objective of guidance and counselling at this level of education is to make available the psychological process of helping an individual to achieve the self-realization, self-decision, understanding and mental balance necessary to make the maximum adjustment in school. It is believed that effective application of guidance and counselling services will enhance learning outcomes across most school subjects including mathematics.

In addition to the expected academic benefits, Guidance and counselling services in schools could be of additional psycho-social benefits to students that are exposed to diverse forms challenging social circumstances. (Gatua, 2014). It has been observed that students who affected by diverse forms challenging academic, social, and emotional circumstances may develop behavioural anomalies that could adversely affect their performance in mathematics and other subjects (Ifelunni, 2003). School guidance and counselling programmes when appropriately applied could help to mitigate or prevent likely adverse consequences of such social and emotional challenges that may occur as a result of their experiences at home or in school, thus improving their academic performance, including Mathematics. With wide differences in quality, scope and depth, most countries have developed systems and guidelines for delivery counselling and guidance services at all levels of the educational system for the purpose of addressing or preventing behavioural problems among students, and improving their academic achievement (Gatua, 2014)

Guidance refers to the process of assisting an individual to understand, accept and make use of his or her skills, abilities, aptitudes, interests, and attitudinal patterns to boost ones potential to attain his or her aspirations (Kituyi, 2014). The process is developmental. Appropriate application guidance could help an individual to achieve desired goals and objectives. Guidance may be offered by parents, teachers, or other individuals, such as private tutors. Guidance is not limited to academic aspirations, but includes such other activities as sports, handicrafts, music, and dancing. In the school setting, guidance from teachers is a continuous process that runs throughout the academic session to enhance students' performances. Guidance helps students to adjust to

their environment and to set realistic goals for improved educational achievements. Several studies had shown that guidance services influence students' achievement (Mehmood, Rashid & Azeem,2011; Ezeji 2001, Ajah,2001, Okeke, 2003). Olayinka (2001) described guidance as a process through which an individual can solve his/her problems and pursue his/her abilities and aspirations. Guidance helps the student to identify where to go, what to do and how to do that which is needed for the accomplishment of their goals or overcome academic and other life challenges. Okobiah and Okorodulo (2014) have described guidance as an educational programme that helps students to adjust to a given situation, and to make best use of their abilities to address and social needs.

Educational guidance assists students to select subject areas and adjust appropriately to the curriculum, instructional methods, teachers, and fellow students (Kituyi, 2014). Egbule (2006) has similarly described educational guidance as process that assists the student to function better in the learning environment thus enhancing his or potential achieve more in his areas aspiration or subject of interest.

Kingsley (2017) examined the impact of guidance services on secondary school students' academic performance in Mathematics and science subjects in Okitipupa Local Government Area of Ondo State Nigeria and found among others, educational guidance services significantly related to students' academic achievement in Mathematics. Eremie and Susan (2017) conducted a study on the influence of guidance and counselling services on the academic performance of secondary school students in science subjects in another Nigerian State and found that educational guidance significantly influences students' academic performance in science subjects which is also applicable to Mathematics. Graham and Fabea (2015) researched to ascertain the impact of guidance and counselling on the academic performance of secondary school students in Dormaa Senior High School in the Dorma Central Municipality of the Brong-Ahafo Region of Ghana. The results revealed that there was no significant difference in the pre-test scores of the experimental and control groups. However, significant differences were realized between post-test scores of experimental and control groups concerning academic performance in Science Subjects and Mathematics.

Bolu-Steve and Oredugba (2017) examined the influence of guidance and counselling services on the perceived academic performance of secondary school students in Ikorodu Local Government Area of Lagos State Nigeria and found a significant influence of students' educational guidance services on their academic achievement. Allis and Kame (1999) and Franken, (1998) in their separate studies found guidance services to be related to students' academic achievement.

Vocational guidance service is the guidance service that involves assistance rendered by an individual to another in solving problems related to vocational selection with

viewed of individual ability and their relations with occupational opportunity (Kituyi, 2014). Chireshe (2011) and Iwunde (2001) believe that guidance services are designed to aid an individual to select and utilize opportunities within the school and in the labour market. According to Arowolo, (2013), "the reasons for vocational guidance and counselling in the school system include: helping students understand themselves in terms of their abilities, aptitudes, and interests, providing students with broader views about the world of work and enhancing students' awareness of the various options open to them and to give them the confidence so that they make a reasonable choice from the various options available". Njeri (2007) examined the influence of guidance and counselling programmes on the academic performance of secondary school students in the Bahati division of Nakuru district. Kenya and found that the guidance programme has a positive impact on the academic performance of students. Musa (2014) in research undertaken to justify the effectiveness of guidance services in Secondary schools in Sokoto Metropolis found a significant influence of vocational guidance services on students' academic achievement. Odhiambo (2014) examined the influence of guidance and programme on the academic performance of students in secondary schools s in Molo Sub County, Nakuru County Kenya and found a positive impact of effective vocational guidance services on the academic performance of students. Ajah, (2004) and Alemu (2013) viewed educational and vocational information guidance services as the assistance given to an individual to match his attributes and background with suitable jobs and employment opportunities.

Conceptual framework: The general belief that the use of guidance services portends immense educational benefits as shown in the foregoing review of literature is premised on the assumption that the principles of guidance are reasonably well observed in each context. A recent systematic review (quasi-)experimental research on the learning effects of differently designed guidance in simulation-based inquiry learning in the past decade (2011-2020) identified the top three major factors related to optimization of inquiry learning guidance in simulation-based environments to be the learner factor, the pedagogical factor, and the technological factor (Sun, Yan, and Wu, 2022).

This study sought to explore the interaction between the students' perception of the effectiveness of guidance and educational achievement. The study relates the individual student's perception of guidance with his or her performance in mathematics. The conception and hypothesis of this study have been premised on two principles of guidance which relate to the expression of the uniqueness of the individual in his perception, need for and acceptance of guidance.

The first is the *principle of human uniqueness* which states that guidance services must recognize differences in physical, mental, social and emotional development, and should be provided to individuals according to their respective specific needs. The second is the *principle of individual needs* which considers individual freedom, worth, respect and dignity as

the hallmark of guidance. This principle states that the individual's need and freedom to make choices and take decisions should be respected and encouraged in the provision of guidance. The interplay of these principles among several others which have evolved through the decades is believed to have contributed to the diversity in the outcome of the sampling of empirical studies that provide proof of the impact of guidance and counselling programs as presented in a major review by Gysbers (2004).

The conceptual framework and hypothesis for this study derive from these principles of guidance which posit that the uniqueness of the person, needs and preference of the individual student regarding guidance services could influence their use of guidance and how guidance would in turn influence achievements in the subject of Mathematics,

Statement of hypotheses

The following null hypotheses were formed to direct the study.

1. Students' attitude to educational guidance services does not significantly predict their academic achievement in Mathematics.
2. Students' attitude to vocational guidance services does not significantly predict their academic achievement in Mathematics.

II. MATERIALS AND METHODS

The study area was the Eket Education Zone of Akwa Ibom State Nigeria. The research design used is Ex-post facto design. Ex-post facto research design seeks to test possible antecedents of events that have happened and cannot, therefore, be manipulated. The data were collected from the sample through a questionnaire, quantified, and analyzed using appropriate statistical techniques, which allowed for valid generalizations.

The population for the study consisted of all the SS 1 Students in public mixed secondary schools in Akwa Ibom State which comprises Uyo, Eket, and Ikot Ekpene Education Zone. There are ten thousand and nine (10009) SS I students including males and females. A multi-stage sampling technique involving stratified, proportionate, and simple random techniques was adopted in selecting students for the study. The schools were stratified based on gender and local government area. A total of 48 public secondary schools and 24 (50%) schools were randomly selected for the study. From each selected school in each local government area, 10% of the total number of students were selected using the proportional random sampling technique giving a total sample of 1000 students for the study.

Two instruments were used, a structured four-point Likert Scale questionnaire titled "teachers' guidance service" and a Mathematics achievement test constructed by the researchers. The questionnaire consisted of two sections (A&B). Section A described the bio-data of the respondents while section B dwelt on the main variables which include educational guidance service and vocational guidance service. Six questions were constructed for each variable while the mathematics achievement test consisted of 40 items derived from the SS I scheme of work. The questionnaire was based on a four-point Likert scale that assessed respondents' level of agreement or disagreement, namely, Strongly agreed, Agreed, Disagreed and Strongly disagreed. The instrument was face validated by two experts in measurement and evaluation. The reliability estimate of the questionnaire was established through Cronbach Alpha reliability which ranged from .85 to .89 while students' achievement test in Mathematics and Physics was established through the Kuder Richardson formula K-R20 which gives .76.

III. RESULTS

The statistics package for social sciences (SPSS) computer programme was used to analyze the data collected. The hypotheses were tested using Simple Linear Regression and the results of the analysis are presented in tables 1 and 2. The hypotheses were tested at a .05 significance level.

Hypothesis One

Students' attitude to educational guidance service does not significantly predict their academic achievement in Mathematics

The independent variable in this hypothesis is educational guidance service while the dependent variable is students' academic achievement in Mathematics. Linear regression was used in testing this hypothesis. The result of the analysis is presented in Table 1.

Table 1: Simple linear regression Analysis of the student's educational guidance service as a predictor of their academic achievement in Mathematics

Variables		R	R^2	Adj R^2	Std. Error
Educational guidance service		.297	.088	.086	4.05102
Source of variations	Sum of Squares	Df	Mean Square	F	Sig.
Regression (Mathematics)	3,947.222	1	3,947.222	94.837	.000
Residual	41,537.342	998	41.621		
Total	45,484.564	999			

Significant at 0.05 level of alpha

The result of simple regression analysis showed the correlation coefficient of the variable of .297 for Mathematics which implied that there is a positive relationship between students' attitude to educational guidance service and their academic achievement in Mathematics. More so, the result as presented in Table 1 showed that Adj R^2 = .086 for Mathematics achievement which implies that 8.6% of students' academic achievement in Mathematics in the study area may be accounted for or predicted by educational guidance service. This means that the more educational

guidance service they have, the better their academic achievement in Mathematics would be. Also, the lesser educational guidance service they have, the poorer their academic achievement in Mathematics would be. A cursory look at the table also showed an analysis of the variance result of (F=94.837: p=.000) for Mathematics achievement. This implies that even though the percentage contribution is small, the result also showed that there is a significant influence of positive students' attitudes to educational guidance services on their academic achievement in Mathematics. Hence the null hypothesis is rejected at a 0.05 level of significance.

Hypothesis two

Students' attitude to vocational guidance service does not significantly predict their academic achievement in Mathematics.

The independent variable in this hypothesis is vocational guidance service while the dependent variable is students' academic achievement in Mathematics. Linear regression was used to test this hypothesis. The result of the analysis is presented in Table 2.

Table 2: Simple Linear Regression Analysis of the student's attitude to vocational guidance service as a predictor of their academic achievement in Mathematics

Variables	R	R^2	Adj R^2	Std. Error
Vocational guidance service	.305	.093	.091	4.05102
Source of variations	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Regression (Mathematics)	4,223.341	1	4,223.341	102.151	.000
Residual	41,261.223	998	41.344		
Total	45,484.564	999			

Significant at 0.05 level of alpha

The result of simple regression analysis showed the correlation coefficient of the variable .305 for Mathematics achievement which implied that there is a positive relationship between students' attitude to vocational guidance service and their academic achievement in Mathematics. The result as presented in Table 2 also showed that Adj R^2 = .091 of Mathematics achievement which implies that 9.1% and 10.1% of students' academic achievement in Mathematics in the study area may be accounted for or predicted by their attitude to vocational guidance service. This means that the more vocational guidance service they have, the better their academic achievement in Mathematics; the lesser vocational guidance service they have, the poorer their academic achievement in Mathematics would be. Table two also shows an analysis of variance results with F statistic =102.151 (p=.000) for Mathematics achievement. This implies that although the percentage contribution is small, students' attitude to vocational guidance services has a significant influence on their academic achievement in Mathematics.

Hence the null hypothesis is rejected at a 0.05 level of significance.

IV. DISCUSSION

The result of the test of the first hypothesis indicated that educational guidance service significantly predicts students' academic achievement in Mathematics. The finding is in line with the studies conducted by Kingsley (2017) on the impact of guidance services on secondary school students' academic performance in Science Subject in Okitipupa Local Government Area of Ondo State Nigeria and found educational guidance service to be significantly related to students' academic achievement in Mathematics. Also, Bolu-Steve and Oredugba (2017) examined the influence of guidance and counselling services on the Perceived Academic Performance of Secondary School Students in Ikorodu Local Government Area in Lagos State Nigeria and found a significant influence of students' educational guidance services on their academic achievement in Science Subjects and Mathematics. This current study, therefore, corroborates the research findings on the beneficial effects of educational guidance, hence the observation that students' lack of or inadequate access to educational guidance services may account significantly for their poor academic achievement in Mathematics in the study area.

The result of s second hypothesis testing indicated that vocational guidance services were significantly associated with students' academic achievement in Mathematics. This finding agrees with Musa (2014) who conducted a study on the effectiveness of guidance services in Secondary schools in Sokoto Nigeria and found a significant influence of vocational guidance services on students' academic achievement. In the same vein, Odhiambo (2014) examined the influence of guidance programmes on the academic achievement of students in secondary schools in Molo Sub County, Nakuru County Kenya and found a positive impact of effective vocational guidance services on the academic achievement e of students. It follows that students' lack or inadequate vocational guidance service may account significantly for their poor academic achievement in Mathematics in the study area and setting with similar constraints in access to vocational guidance services.

V. CONCLUSION

Guidance helps to aid the development of effective study habits, and, motivation, figuring out learning or situation-associated problems, assisting students to see the relevance of school years in lifestyles and for the destiny, and growing capabilities, and the right mind-set and interests to help them choose a career. Based on the results of the study, it was concluded that educational and vocational guidance services significantly predict students' academic achievement in Mathematics. Therefore, students' educational and vocational guidance services are very important factors and should be supported by educational authorities among other strategies to enhance students' academic performance in Mathematics.

Since educational and vocational guidance services positively impact students' academic achievement, guidance programmes should be embedded in the school curriculum. Also, school administrators should solicit the active cooperation of teachers, students and parents towards improving guidance services as a strategy to enhance their academic achievement in schools.

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