

# Qualitative Comparative Analysis of Elements of Instructions on Students' Performances in Basic General Mathematics in Colleges of Education in Kano State, Nigeria

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**Abstract-** *The study investigated the elements of instructions relating to both the students and mathematics teachers on students' performances in Basic General Mathematics in Colleges of Education in Kano State, Nigeria. Descriptive survey research design was adopted for the study and to realise the objectives of the study, six research questions and six hypotheses were formulated and tested at 0.05 level of significance. The population for the study consisted of all NCE I students admitted in the 2022/2023 session in Kano State College of Education and Preliminary Studies. The sample of the study consisted of one hundred (100) students drawn from the five School in the College using a cluster, stratified and simple random sampling techniques were used to select twenty (20) students from each comprising of 50 male and 50 female. The instruments used for the study were the Students' Attitude (adopted from Round, 2005), Readiness, Interest (adopted from Snow, 2011) and Teachers Attitude Questionnaires. All the adopted instruments were adapted to suit the peculiarity of the present study. The data for the study were collected through the administration of the questionnaire and by referring to the first and second semester examinations for the 2022/2023 academic session results files. The data collected were analysed using descriptive statistics (frequency, percentage, mean and standard deviation) for research questions and an inferential statistics (Spearman's Rank Order Correlation) for the hypotheses. The study concludes that readiness to academic pursuit positively influence the academic performance of the students and other independent variables cannot be conclusively adjudged as not impacting on the academic performance. The study recommends that*

*Mathematics teachers should endeavour to change the students' attitude towards mathematics so as to improve the students' interest and boost performances.*

## I. INTRODUCTION

The idea of comparison centers on the quest for a better among many in terms of attributes. The rationale of comparison is to ascertain the best among equals and to attribute cause and effect. The whole issue of schooling is about quest for knowledge and knowledge advancement starting from the lower level to the higher. The lower level of schooling is the foundation or basic level which according to the National Policy on Education (2013) comprise of the primary and the junior secondary school levels. This level introduced learners to the formal education until when the first six years of the 9-3-4 is reached, learners were introduced to the common entrance examination, the outcome of which enables transition to the junior secondary education.

The second stage is set to introduce learners to the senior secondary school level at the end of which the Senior Secondary Certificate Examination is sat for. Depending upon the type of school attended, the candidates sit for SSCE for both conventional and science based schools. The examination bodies in this category are the National Examinations Council (NECO) and the West African Examinations Council (WAEC). For commercial and technical schools, the examination body is the National Business and Technical Examinations Board. Other examination bodies include National Board for Arabic and Islamic Studies (NBAIS) and the National Teachers Institute

(NTI). At this level students earned the prerequisites (entry qualifications) for entry into various institutions for higher learning. All the examination bodies conduct examinations to students at the final year of the post basic level of education and the final result were given on a nine points grading viz: -A1, B2, B3, C4, C5, C6, D7, E8 and F9.

The elements of instructions identified by this work related to students include among others students readiness, interest and attitude, background knowledge, parents socio economic status, distance from home to school. On the part of those related to teachers includes experience, qualification, pedagogical and content knowledge, teaching styles, satisfaction, interest of the job. Sa'ad, Adamu and Sadiq (2014) concluded that students' negative attitude towards mathematics, anxiety, fear of mathematics, inadequate qualified teachers, poor teaching method and inadequate teaching materials and overcrowded classrooms are some of the causes of mathematics poor performance among students.

The elements of instructions combined together hypothesize a successful outcome either in the short or long run. It is not by design that students experienced difficulty in comprehending the given contents, but rather, failure of some elements to impact positively. The difficulties, later turned out to be the causes of failures in the final examinations sat by students and to some extent, the trend continue to the higher institutions if not checked immediately.

Sumaila and Bello (2018) viewed interest as a feeling of wanting to know, feel, touch, experience or learn more about something as well as a quality that attracts attention towards phenomena. Therefore, interest in a certain subject is a feeling of wanting to know the subject. Interest can be linked to educational attainment, as students are more likely to pay more attention, and obtain higher scores if interested in a subject. Hidi & Renninger (2006); and Fisher, Dobbs-Oates, Doctoroff, & Arnold (2012) positioned that having interest in a specific subject is an important determinant for successful learning and advanced achievement. But, Köller, Baumert, & Schnabel (2001) found that subject-specific interest in mathematics had no significant influence on the

development of achievement if the previous knowledge was controlled.

Readiness is the ability to prepare self for the challenges ahead either known or unknown. School readiness is mainly perceived to be school preparation and students tasks to face academic learning (Ekundayo, 2010). According to United Nation International Children Education Fund (2012) School readiness is regarded as a holistic way of looking at school preparedness for students learning in the school cognitively and socially for a better learning outcome; and is a strong tool in the enhancement of teaching and learning activities that influences student's learning outcomes. UNICEF (2012) also stated that readiness facilitates continuity and maintains learning expectations where students participate actively in classroom activities so as to have good learning outcomes

According to (Byrne & Flood, 2005), students' self-perceived preparedness and expectations do not only affect their approaches to learning, but also their adjustment to the wider higher education environment. In the words of (Waqas et al., 2013), readiness in psychological perspectives is the child maturational ability (genetic or environmental influence) or age to perform certain skills, activity or actions within a confined stage or period of time. In view of the above, (Pitt, Luger, Bullen, Phillips & Geiger, 2013) put that school readiness is likened to preparing a child to learn and succeed in school, cognitively, socially, physically, morally and emotionally. In support of the forgone, Kafanabo and Habibu (2019) added that readiness influences students' cognitive and social skills needed for effective students learning,

Experience refers to practice, skills and knowledge acquired in the conduct of some certain tasks undertaken over a period of time. Sumaila (2018) refers to teacher experience as the years of service (practice, skills and knowledge acquired) in teaching job and the experience, gained over time, enhances the knowledge, skills, and productivity of workers generally. In education, teacher experience is almost the key factor in personnel policies that prioritize seniority.

Darling-Hammond (2000) states that no noticeable differences was observed, for example, in the effectiveness of a teacher with five years of experience versus a teacher with ten years of experience. Rivkin, Hanushek & Kain, (2000) found that while inexperienced teachers are less effective than more senior teachers, the benefits of experience level off after a few years though, students attain higher levels of achievement when taught by more experienced teachers. Rockoff (2004); Rivkin, Hanushek and Kain, (2005) posited that evidences showed, though, experience matters, most of the gains from experience occur in the first four years of teaching. In this point subsequent years of experience matter inconsiderably. Ilugbusi, Falola and Daramola (2007) showed that teaching experience in schools count significantly in the determination of students' achievement in external examinations. Harris and Sass, (2007) held that the impact of early years of experience is strongest in the subject of math and more consistent at the elementary and middle school levels than at the high school level. In contrast, Ladd (2008) maintain that teachers with more than 20 years of experience are more effective than teachers with no experience, but are not much more effective than those with 5 years of experience. On a more justifiable manner, Akinsolu, (2010) states that there is a positive correlation between teachers' years of experience and students' academic performance.

Basic General Mathematics is a compulsory general studies course embedded in the National Commission of Colleges of Education's National Minimum Standard of the Nigeria Certificate in Education. The course was spread across five semesters each with a code specific to a semester and form part of the core courses that must be passed for certification. The course is housed under the Department of Science Education in the School of General Studies Education.

Students' academic performance can be perceived as the level of accomplishment of school educational goals by students over a stipulated time. In line with the perception above, Adediwura & Taiwo (2007) viewed academic performance as the display of knowledge attained or skills developed in school subjects designated by test and examination scores or marks assigned by the subjects' teachers. Federal Republic of Nigeria (2004) stated that the minimum

qualification for entry into the teaching profession shall be the Nigeria Certificate in Education (NCE).

The Kano State College of Education and Preliminary Studies was established in 1972 and came into being in 1973. In September 9<sup>th</sup>, 2018, via Law No.5 the status of the College was upgraded to a full pledged College of Education and additional mandate of running the Nigeria Certificate in Education (NCE) was added. The Law changes the College's name from Kano State College of Arts Science and Remedial Studies to what is known today acronym as KASCEPS. In 2015, in compliance with Kano State Government's order of stopping all Diploma programmes whose products took up teaching job, the College disaffiliates from all affiliation Universities. In place of the Diploma programmes, the College mount the Nigeria Certificate in Education (NCE) programme in continuation of its teacher training.

## II. STATEMENT OF THE PROBLEM

Every session, the college admits students into various IJMB and NCE programme. Each admission exercise witnessed and recorded students of divergent background and traits. The outcome of the first examination the students sat for in the college (first semester examination) speaks for itself in terms of the quality of students admitted. Academic staff do go for further studies each year and some returned from study leave with a view to developing self and improve the standard of education in the college. This study wants to look into the divergent background, traits and the various variables associated with the teachers in comparison with the students' academic performances in a general course offered (Basic General Mathematics) to establish a relationship.

## III. OBJECTIVES OF THE STUDY

The main objective of the study is to assess students' and teachers' elements of instructions on the academic performance in Basic General Mathematics among NCE students. Specifically, the objectives of this study are to establish whether:-

- 1 Students' attitude predicts students' performance in basic general mathematics
- 2 Students' readiness predicts performance basic general mathematics.

- 3 Students' interest predicts academic performance $H_{06}$  in basic general mathematics.
- 4 Teachers attitude predicts students' academic performance in basic general mathematics.
- 5 Teachers experience predicts students' performance in basic general mathematics.
- 6 Teachers qualification predicts students' academic performance in basic general mathematics.

#### Research Questions

To give direction to the research work the following research questions were formulated:-

- 1 What is the impact of Students' attitude on students' performance in basic general mathematics?
- 2 Do Students' readiness predict academic performance in basic general mathematics?
- 3 Could the Students' interest predict academic performance in basic general mathematics?
- 4 To what extent can the teachers' attitude predicts students' academic performance in basic general mathematics?
- 5 To what extent can teachers experience predicts students' academic performance in basic general mathematics?
- 6 In what respect can Teachers qualification predicts students' academic performance in NCE mathematics?

#### Null Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance.

- $H_{01}$  There is no significant correlation between Students' attitude and performance in basic general mathematics.
- $H_{02}$  There is no significant correlation between Students' readiness and academic performance in basic general mathematics.
- $H_{03}$  There is no significant correlation between Students' interest and academic performance in basic general mathematics.
- $H_{04}$  There is no significant correlation between Teachers attitude and students' academic performance in basic general mathematics.
- $H_{05}$  There is no significant correlation between Teachers experience and students' academic performance in basic general mathematics.

There is no significant correlation between Teachers qualification and students' academic performance in basic general mathematics.

#### Significance of the Study

The findings of the study would provide to the College:

- 1) Plan for the varying traits the students were admitted with
- 2) Database capable of forecasting students' final grades in relation to the traits.
- 3) Source of information as to the planning of the college academic staff training and development particularly in the area of mathematics.
- 4) Reference material for fellow researchers interested in replication of the same study or embark on a fresh one looking at other variables.
- 5) Guide as to the establishment of mentor mentee relationship
- 6) Need for data capture of academic staff in terms of the elements of instructions

#### IV. METHODOLOGY

The study adopted a Descriptive Survey Research Design and the population for the study consisted of all NCE students admitted in the 2022/2023 session. The sample of the study consists of one hundred (100) students drawn from the School of Arts Social Sciences, School of Education, School of Languages, School of Sciences and School of Vocations and Entrepreneurship Education. A cluster, stratified and simple random sampling techniques were used to select twenty (20) students from each of the five schools which comprises of 50 male and 50 female students. The instruments for the study were the Students' Attitude (adopted from Round, 2005), Readiness, Interest (adopted from Snow, 2011) and Teachers Attitude Questionnaires. All the adopted instruments were adapted to suit the peculiarity of the present study. The data for the study were collected through the administration of the research instruments and by referring to the files of the results of the first and second semester examinations for the 2022/2023 academic session. The data collected from the instruments were analysed using descriptive statistics (frequency, percentage, mean and standard deviation) for research questions and an inferential statistics

(Spearman's Rank Order Correlation) for the hypotheses.

#### Data Presentation

The data collected for the study are presented in tables 1 through 7 below.

Table 1: Distribution of Population and Sample of the Study by Schools and Gender

S N	Schools	Populati on	Sample Male	Female	Tot al
1	Arts and Social Sciences	120	10	10	20
2	Education	40	10	10	20
3	Languages	50	10	10	20
4	Sciences	169	10	10	20
5	Vocational and Entrepreneurship Edu.	68	10	10	20
	Total	347	50	50	100

Table 1 presented the distribution of the population and sample of the study across the five schools including distribution by gender. From Table 1, the total number students in each school are one hundred and twenty (120) for Arts and Social Sciences, forty (40) for Education, fifty (50) for Languages, one hundred and sixty nine (169) for Sciences and sixty eight (68) for Vocational and Entrepreneurship Education respectively. From each school, a sample of twenty (20) students on the basis of gender were randomly selected for the study.

Table 2: Distribution of Mathematics Teachers by Qualifications

SN	Qualification	Number of Teachers
1	Ph. D	1
2	MSc/MSc Ed/M. Eng./PGDE/PDE	12
3	BSc/PGDE/PDE	6
4	BSc Ed.	1
	Total	20

Table 2 presented the distribution of mathematics teachers by their respective qualifications. From Table 2, the total number of teachers is twenty (20) and among the total, only one (1) hold Doctor of Philosophy certificate (Ph. D), twelve (12) are holders of Master degree certificate, six (6) hold Bachelor's degree with Professional Diploma in Education and one (1) holds a bachelor degree in Science Education (Mathematics).

Table 3: Distribution of Mathematics Teachers by Teaching Experiences

SN	Experience in Years	Number of Teachers
1	1 – 5	3
2	6 – 10	5
3	11 – 15	6
4	16 – 20	1
5	Above 20 years	5
	Total	20

Table 3 presented the distribution of mathematics teachers by the teaching experience of each. From Table 3, the total number of teachers is twenty (20) out of which three (3) have been teaching mathematics between 1 – 5 years, five (5) between 6 – 10 years, six (6) between 11 – 15 years, one (1) between 16 – 20 years while five (5) have above twenty (20) years of teaching mathematics. From Table 3, it can be depicted that the college has had a reasonable number of mathematics teachers with ten (10) and above years of teaching experiences.

Table 4: Summary of Students' Responses on Attitude towards Basic General Mathematics

Level of Attitude	Range of Responses	Frequency of Responses	Percentage (%)
No attitude	01 – 39	02	2
Low attitude	40 – 49	10	10
Moderate attitude	50 – 59	18	18
High attitude	60 – 69	35	35

Very High attitude	70 – 100	35	35
Total		100	100

From Table 4, 2 (2%), 10(10%), 18(18%) 35(35%) and 35(35%) students from the sample have a range of scores of 1 – 39, 40 – 49, 50 – 59, 60 – 69 and 70 – 100 indicating no attitude low, moderate, high and very high attitude towards basic general mathematics respectively. Also, 10 (10%) have range 40 - 49, 88 (88%) of all the students have moderate, high and very high attitude towards basic general mathematics.

Table 5: Summary of Students' Responses on Readiness towards Basic General Mathematics

Level of Readiness	Range of Responses	Frequency of Responses	Percentage (%)
Not Ready	01 – 39	01	1
Lowly Ready	40 – 49	01	1
Moderately Ready	50 – 59	15	15
Highly Ready	60 – 69	31	31
Very Highly Ready	70 – 100	52	52
Total		100	100

From Table 5, 1 (1%), 1(1%), 15(15%) 31(31%) and 52(52%) students from the sample have a range of scores of 1 – 39, 40 – 49, 50 – 59, 60 – 69 and 70 – 100 indicating not ready, lowly, moderately, highly and very highly ready for the course basic general mathematics respectively.

Table 6: Distribution of Students' Responses on Interest towards Basic General Mathematics

Level of Interest	Range of Responses	Frequency of Responses	Percentage (%)
No Interest	01 – 39	02	2
Low Interest	40 – 49	07	7

Moderate Interest	50 – 59	18	18
High Interest	60 – 69	33	33
Very High Interest	70 – 100	40	40
Total		100	100

From Table 6, 2 (2%), 7(7%), 18(18%) 33(33%) and 40(40%) students from the sample have a range of scores of 1 – 39, 40 – 49, 50 – 59, 60 – 69 and 70 – 100 indicating no interest low, moderate, high and very high interest in basic general mathematics respectively.

Table 7: Means and Standard Deviations of Students' Academic Performance in Basic General Mathematics

Schools	N	GSE 113		GSE 122	
		Mean	SD	Mean	SD
Arts and Social Sciences	20	46.75	7.53	51.05	11.34
Education	20	45.70	12.70	51.45	8.40
Languages	20	48.55	6.00	50.85	7.29
Sciences	20	57.60	15.31	54.85	12.24
Vocational and Entrepreneurship Education	20	46.60	8.29	39.60	11.53
Total	100				

Table 7, presented the Means and Standard Deviations of the students' academic performances in Basic General Mathematics for all the schools. From Table 7, 46.75(7.53), 45.70(8.40), 48.55(6.00), 57.6(15.31) and 46.6(8.29) were the Means and Standard Deviations scored by the students of schools of Arts and Social Sciences, Education, Languages Sciences and Vocational and Entrepreneurship Education for GSE 113 respectively. Also, 51.05(11.34), 51.45(8.40), 50.8(7.29) 54.85(12.24) and 39.6(11.53) were the Means and Standard Deviations scored by the

students of schools of Arts and Social Sciences, Education, Languages Sciences and Vocational and Entrepreneurship Education for GSE 122 respectively. From Table 7, the highest mean performances of 57.6(15.31) and 54.85(12.24) for GSE 113 and 122 were achieved by the students of school of Sciences and the lowest mean performances 45.70(12.77) for GSE 113 and 39.6(11.53) were achieved by the students of schools of Education and Vocational and Entrepreneurship Education respectively.

#### The Result.

The result of the data analysis are presented in Table 8 – 19 as follows:-

#### Research Question One

What is the impact of Students' attitude on students' performance in basic general mathematics?

The necessary data to respond to research question one is contained in Table 8

Table 8: Means and Standard Deviations of Students' Attitude and Academic Performance in Basic General Mathematics

Variable	N	Mean		
		Mean	Difference	SD
Attitude	100	65.30	15.76	.13.10
Performance	100	49.54		9.03

From Table 8, the mean score (65.30) of responses is by far greater than the mean performance 49.54 of the students. The higher mean of response on attitude towards basic general mathematics suffice to presume that attitude will greatly impact on the academic performances in basic general mathematics. To explore the impact of the attitude on academic performance in basic general mathematics, Table 9 shows further.

#### Null Hypothesis One

There is no significant correlation between Students' attitude and performance in basic general mathematics

Table 9: Correlation of Students' Attitude and Academic Performance

Variable	N	Mean	r	p-value	Decision	Significance
Attitude	100	65.30	0.086	0.397	>0.05	Not Significant
Performance	100	49.54				

From Table 9, the calculated Spearman's rho and the p-values at 0.05 level of significance are 0.086 and 0.397. The calculated p-value is found to be greater than the research designated level of significance (0.397>0.05), hence null hypothesis one is accepted. By this, students' attitude does not impact on the performance in Basic General Mathematics.

#### Research Question Two

Do Students' readiness predict academic performance in basic general mathematics?

Table 10: Summary of Students' Responses on Readiness towards Basic General Mathematics

Variable	N	Mean		
		Mean	Difference	SD
Readiness	100	72.13	22.59	.14.18
Performance	100	49.54		9.03

From Table 10, students' readiness was depicted by the large mean difference of 22.59 and this occurrence permits to postulate that readiness will predict the students' academic performances in basic general mathematics. To discover the correlation of the readiness on academic performance in basic general mathematics, Table 11 reveals further.

#### Null Hypothesis Two

There is no significant correlation between Students' readiness and academic performance in basic general mathematics.

Table 11: Correlation of Students' Readiness and Academic Performance

Variable	N	Mean	r	p-value	Decision	Significance
Readiness	100	72.13	0.218*	0.029	0.029 < 0.05	Significant
Performance	100	49.54				

From Table 11, the calculated Spearman's rho and p-values are 0.218 and 0.029 at 0.05 level of significance. The calculated p-value was found to be less than the research designated level of significance ( $0.029 < 0.05$ ), the null hypothesis two is rejected. The students' readiness therefore correlates/impacted on the performance in Basic General Mathematics.

#### Research Question Three

Could the Students' interest predict academic performance in basic general mathematics?

Table 12: Means and Standard Deviations of Students' Responses on Interest towards Basic General Mathematics

Variable	N	Mean	Mean Difference	SD
Interest	100	67.4	17.86	14.41
Performance	100	49.54		9.03

From Table 12, students' interest towards basic general mathematics was informed by the mean difference of 17.86 between the mean response 67.4 (14.41) and mean academic performance 49.54(9.03) hence, the students' interest in Basic General Mathematics can positively correlates with the academic performances in basic general mathematics. To ascertain the extent of the correlation of students' interest on academic performance in basic general mathematics, Table 13 reveals further.

#### Null Hypothesis Three

There is no significant correlation between Students' interest and academic performance in basic general mathematics.

Table 13: Correlation of Students Interest and Academic Performance

Variable	N	Mean	r	p-value	Decision	Significance
Interest	100	67.4	0.075	0.457	0.457 > 0.05	Not Significant
Performance	100	49.54				

Table 13 presented the correlation of students' interest and academic performance in basic general mathematics. From Table 13, the calculated Spearman's rho and p-value are 0.075 and 0.457 at 0.05 level of significance respectively. Since the calculated p-value is greater than the research designated level of significance ( $0.457 > 0.05$ ) the null hypothesis three is accepted, hence the students interest has no impact on the performance of students in basic general mathematics.

#### Research Question Four

To what extent can the teachers' attitude predicts students' academic performance in basic general mathematics?

Table 14: Means and Standard Deviations of Teachers Responses on Attitude towards Basic General Mathematics

Variable	N	Mean	Mean Difference	SD
Attitude	100	65.3	15.76	14.18
Performance	100	49.54		9.03

Table 14 presented the Means and Standard Deviations 65.3(14.18) and 49.54(9.03) of teachers responses to attitude and the students' academic performance respectively. From Table 14, the Mean difference of 15.76 in favour of teachers' attitude shows the predictive ability of teachers' attitude over



the students' academic performances in Basic General Mathematics. Table 15 explains further.

#### Hypothesis Four

There is no significant correlation between Teachers' attitude and students' academic performance in basic general mathematics.

Table 15: Correlation of Teachers' Attitude and Students' Academic Performance

Variable	N	Mean	r	p-value	Decision	Significance
Interest	100	65.3	0.036	0.719	0.719 > 0.05	Not Significant
Performance	100	49.0				

From Table 15, the calculated Spearman's rho and p-value are 0.036 and 0.719 at 0.05 level of significance respectively. It was revealed from the Table 15 that the calculated p-value is greater than the research designated level of significance ( $0.719 > 0.05$ ) as such, teachers attitude do not impact or correlate with students performance in basic general mathematics.

#### Research Question Five

To what extent can teachers experience predicts students' academic performance in basic general mathematics?

Table 16: Teachers Years of Experiences

SN	Experience in Years	Number Of Teachers
1	1 – 5	3
2	6 – 10	5
3	11 – 15	6
4	16 – 20	1
5	Above 20 years	5
	Total	20

From Table 16, twelve (12) mathematics teachers have 11 – 20 years teaching experiences. The more the years

of experience the more productive a teacher is. Even among the remaining eight (8) mathematics teachers, all hold teaching qualification to support the productivity expected. The teachers' years of experiences as in Table 16 can predict students' academic performance, and the extent of the predictive ability is explained in Table 17

#### Null Hypothesis Five

There is no significant correlation between Teachers experience and students' academic performance in basic general mathematics.

Table 17: Correlation of Teachers' Experiences and Academic Performance

Variable	N	Mean	r	p-value	Decision	Significance
Experience	100	67.4	0.166	0.098	$p > 0.05$	Not significant
Performance	100	49.0				

Table 17 presented the calculated correlation coefficient (r) and p-value are 0.166 and 0.098 at 0.05 level of significance. From Table 17, the calculated p-value is by far greater than the research designated value  $0.098 > 0.05$  as such teachers' experiences do not correlate with the students' academic performances in Basic General Mathematics

#### Research Question Six

In what respect can Teachers qualification predicts students' academic performance in basic general mathematics?

Table 18: Means and Standard Deviations of the (Weighted) Teachers' Qualifications and Academic Performance in Basic General Mathematics

Variable	N	Mean	SD
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Teachers Qualification	100	3.75	1.22	0.54
Performance	100	2.53		0.89

From Table 18, the weighted mean of teachers qualification and the weighted students' academic performance in basic general mathematics are 3.75(0.54) and 2.53(0.89) respectively. The mean difference though meager, can turn out to predict students' academic performance in basic general mathematics as in Table 19.

#### Hypothesis Six

There is no significant correlation between Teachers qualification and students' academic performance in basic general mathematics.

Table 19: Correlation of Teachers' Experiences and Academic Performance

Variable	N	Mean	r	p-value	Decision	Significance
Experiences	100	3.75	-0.07	0.968	>0.05	Not significant
Performance	100	2.53				

From Table 19, the calculated Spearman's rho and the p-value are -0.007 and 0.968 respectively. The calculated p-value was found to be greater than the research designated alpha value ( $0.968 > 0.05$ ), hence, the null hypothesis six is accepted. Accepting the null hypothesis six showed that teachers' qualification are not predictors of students' academic performance in basic general mathematics.

#### V. THE FINDINGS

The study was about Qualitative Comparative Analysis of Elements of Instructions on Students' Performances in Basic General Mathematics in Colleges of Education in Kano State, Nigeria. The study adopted the causal comparative design. To realise the objectives of the study, six each of research

questions and hypotheses were formulated and tested at 0.05 level of significance. From the analyses, the followings are findings of the research study:-

1. Students' attitude is not a good predictor of performance in basic general mathematics.
2. Being ready for a challenge encourages brighter outcome as students' readiness is a very good predictor of performance.
3. Despite the fact that being interested in an activity paved the way for success in it, students' interest does not prove a good predictor of performance in basic general mathematics.
4. Upon all the attitude of preparing adequately for every lesson, teachers attitude does not in this respect predict students' academic performance.
5. The experiences the teachers have (years of teaching mathematics) did not provide an avenue for prediction of performance in basic general mathematics
6. Having higher degrees in mathematics in essence provide a wide quantum of knowledge, but, the qualifications obtained by the mathematics teachers are not predictors of performance in basic general mathematics.

#### VI. DISCUSSION

The study investigated some elements of Instructions related to both the students and teachers and ascertain their prediction tendency on Students' Performances in Basic General Mathematics in Colleges of Education in Kano State, Nigeria. To realise the objectives of the study, six research questions and equal number of hypotheses were formulated and tested at 0.05 level of significance.

The findings from this study upheld the earlier works of Sa'ad, Adamu and Sadiq (2014) who concluded that students' negative attitude towards mathematics, anxiety, fear of mathematics, inadequate qualified teachers, poor teaching method and inadequate teaching materials and overcrowded classrooms are some of the causes of mathematics poor performance among students. The study is in tandem with (Byrne & Flood, 2005), (Kafanabo and Habibu, 2019) who asserted that readiness influences students' cognitive and social skills needed for effective students learning and that preparedness and expectations do not only affect their approaches to learning, but also their

adjustment to the wider higher education environment. This study agrees with the position of (Köller, Baumert, & Schnabel, 2001) that subject-specific interest in mathematics had no significant influence on achievement.

This study contradicts Rivkin, Hanushek & Kain (2000) who found that inexperienced teachers are less effective than more senior teachers and that students attain higher levels of achievement when taught by more experienced teachers. In this study teachers with more years of experience exceed those with few. The study is also in contrast with Ilugbusi, Falola and Daramola (2007) who showed that teaching experience in schools count significantly in the determination of students' achievement in external examinations. The study as well supports the works of Rockoff (2004); Rivkin, Hanushek and Kain, (2005) who posited that experience matters, but, most of the gains from experience occur in the first four years of teaching. In a clear contrast to Akinsolu, (2010) who claims that there is a positive correlation between teachers' years of experience and students' academic performance high school level, is the finding of this study where the experience of teachers did not influence the performance.

### CONCLUSION

The study concludes that readiness to academic pursuit positively influence the academic performance of the students. Other independent variables considered in this research study cannot be adjudged as not impacting on the academic performance of the students in basic general mathematics, rather the influence of other prevailing conditions might have played a role.

### RECOMMENDATIONS

The study recommends as follows:

- 1 Mathematics teachers should endeavour to change the students' attitude towards mathematics so as to improve the students' performances.
- 2 Students' morale and interest need to be boosted to accommodate the fact that mathematics performance is a key to higher pursuit in science and technology.

- 3 Mathematics teachers should adopt variety of instructional procedures to modernise the teaching and learning situations inside classrooms.
- 4 Conduct occasional studies on elements of instructions related to the students to ascertain the challenges and address each.
- 5 Soft skills can be adopted in conducting instructions to ascertain the readiness and strength of the learners.
- 6 Replicate the study in different environments to ascertain the strength and/or weakness of its findings.
- 7 Conduct another research study in the same environment using other elements of instructions relating to both the students and the mathematics teachers.

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