



# **Effect of Constructivist Instructional Strategy on Students Achievement in Secondary School Mathematics Curriculum in Rivers State, Nigeria**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

The study examined effect of constructivist strategy on students Achievement in Senior Secondary Mathematics in Rivers State. The research was guided by three research questions and corresponding hypotheses. The population is all the thirty four thousand, one hundred and sixty eight (34,168) of all Senior secondary II (SS11) students in Rivers State during the 2018/2019 Academic year. A sample size of 280 students in four intact classes were selected through purposive sampling technique. Two of each of the classes were used as experimental and control groups. Non randomized pre-test, post test control group design was used for the study. Instrument used for the study was Mathematics Achievement Test (MAT) made up of 25 items drawn from simple statistics and Lesson Packages. The instrument was validated by experts and reliability coefficient of the instrument was obtained through test-retest method. The scores obtained were subjected to Pearson product moment correlation coefficient analysis and the result yielded 0.82. Analysis of Covariance (ANCOVA), Mean and Multiple Classification Analysis (MCA) were used in analyzing the data. Findings reveals that constructivist strategy was more effective in facilitating students achievement in Mathematics than expository method. The result did

not show a significant difference in students' achievement in Mathematics in terms of gender and school type. The study therefore recommended among others the use of constructivist strategy in the teaching and learning of Mathematics in schools.

*Keywords: Constructivist strategy; students; achievement; mathematics.*

## 1. INTRODUCTION

Mathematics as a subject offered in Nigeria school system from nursery to the tertiary level plays a significant role in the life of an individual, group and even Nation. This is because all human activities are guided by mathematical knowledge. For example, a housewife applies the knowledge of volume, shape and even statistics in undertaking her activities at home and the carpenter applies the knowledge of geometry and other components of Mathematics in carrying out his carpentry work. Other professionals such as bankers, teachers, drivers, sailor and even lawyers cannot function effectively without the application of one mathematical knowledge or the other either in form of arithmetic, algebra, calculus, geometry, trigonometry or statistics that utilizes sign symbols or profit to describe relationship. It is in view of this that Odili [1] opined that Mathematics is the study of size, numbers and patterns. Similarly America Association for Advancement of Science [2] described Mathematics as the study of quantities and shapes, the patterns and relationship between quantities or shapes, and operations on either quantities or shapes. The relevance of Mathematics in all human activities underscores the reason why the subject is seen as the core component of the school curriculum in all nations of the world.

Curriculum is very vital in the delivery of educational instruction at any level as it contains the step by step contents to be studied in a particular subject. Jeremiah and Alamina [3] defined core curriculum as those part of the learning process required by all learners at a particular level of education as result of their importance in the overall achievement of the objectives of education at that level. Hence, Mathematics education is crucial in the achievement of the objectives of education at all levels. One of the objectives of secondary education in Nigeria according to the National Policy on Education[4] is to provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development. This objective also speaks volume

of the role of Mathematics in the attainment of the objectives of secondary education in Nigeria.

In spite of the cardinal role of Mathematics in everyday life of individual and national development, it is very sad to observe a downward trend on students' performance in the subject in public examinations and competition as indicated in International Mathematics Olympiad (2021).

Poor performance of senior secondary students in Mathematics and other science subjects in Nigeria have raised a lot of concern on the mind of people relative to the salient roles of Mathematics in nation building. Addressing the above problem, other researchers who conducted studies on the matter attributed the poor performance of students in this key subject of the school curriculum to so many factors. In the views of Jeremiah and Alamina [3], poor supervision, teacher related variables, inadequate instructional materials and ineffective methodology are some of the major problems confronting the implementation of science and Mathematics curriculum geared towards better achievement of students in the subject. Furthermore, Jeremiah [5]; Jeremiah, Etuk and Etuk [6], equally posited that these factors stated above constitute a problem to the implementation of Mathematics education curriculum which invariably influences students' achievement in the subject. Of all the factors that influence students' achievement in Mathematics, the most significant one is the instructional model or strategy employed by the teacher because it is the easiest to manipulate. Eze [7] noted that instructional strategy employed by the teacher seems to be the medium of effective learning and that good teaching helps the learner more quantitatively. Poor teaching on the other hand, leads to poor learning and poor students' achievement. Learners learn Mathematics concept better when the instructional content is presented in an active and interactive manner. Thus, there is a need to adopt instructional approaches and strategies that capable of enhancing students' achievement and subsequently, the development of sound attitude towards the study of Mathematics. Secondary

school Mathematics in Nigeria have been taught with many difficulties resulting in poor performance of students in the subject. Onyeka and Arukoya [8] observed that poor achievement in the subject (Mathematics) was as a result of non application of modern instructional model relevant to contemporary Mathematics education methodology.

In order to provide a more realistic approach to Mathematics teaching, curriculum planners have persistently engaged themselves in designing and reviewing Mathematics education curriculum in order to enhance students' achievement in the subject at secondary school level. However, for this to be effective, there is need for a paradigm shift from the traditional chalk and talk method to a more realistic instructional approach that will enhance the development of critical thinking, which is the hub of Mathematics education. An approach that students will be empowered to find solution to problems by themselves, propose their own methods of investigation and observation to draw their own conclusion. One instructional model that seems to satisfy the above demand and greatly acclaimed as having a positive change in Mathematics teaching is constructivism (Nworgu)[9].

Constructivism is a learning theory which originated from several psychologists and educators and it is divided into two broad namely social and cognitive constructivism. Constructivist argues that human being construct knowledge based on human experience and ideas. Constructivism is not all about accepting what you are told but to use your prior knowledge to assimilate what you are taught and your perception about it. Active involvement of student is also emphasized in constructivism thus knowledge gained, last longer in the memory. Etuk, Jeremiah and Etuk [10] described constructivism as a process where learners actively take knowledge, connect it to previously assimilated knowledge and make it theirs by constructing their own interpretation. In more simple terms, the major theme of constructivism is that "Knowledge is as a result of the reconstruction of previous experience". Teaching from the constructivist perspective

involves guiding students towards more complex thinking and helping them to construct their own knowledge. The role of the teacher therefore becomes that of facilitator, and a co-participant who listen to the learners' current motion, ideas and thinking, helping them deal with misconceptions when it arise. In constructivism, the teacher provides a road map and offers suggestions about how to move the vehicle ahead, the learners are in the driver's seat in the learning process.

Constructivist instructional strategy is considered as a veritable tool that could make the teaching and learning shift from the traditional chalk and talk method, a teacher-centered method to "hand-on" method which is learner- centred as demonstrated by several research works. According to Jeremiah [11], Igbokwe and Ibeneme [12] and Jeremiah and Anderson [13], constructivist instructional strategy brings about significant positive influence on students' achievement in Science. Thus, a study on the effect of constructivist instructional strategy on students achievement in Mathematics becomes necessary.

### 1.1 Statement of the Problem

The Nigerian Mathematics Education Curriculum lays emphasis on the use of good instructional strategies consistent with contemporary science and Mathematics education. Despite this emphasis on good instructional strategies as a means of enhancing achievement in Mathematics, experts who previously conducted studies on related issues indicated that teachers used traditional chalk and talk method in teaching Mathematics concept which hampers students' performance and overall achievements in Mathematics. Furthermore Eze [7], Oladayo and Oladayo[14] noted poor students' achievements in Mathematics adversely affect the scientific and technological advancement of the nation. Thus, the problem of this study is to investigate the effect of constructivist instructional strategy as it affects students' achievement in Senior Secondary School Mathematics.

**Table 1. International Mathematics Olympiad Extract for 2017-2021 showing the Position of Nigeria**

Year	2021	2020	2019	2018	2017
Position of Nigeria	100	86	-	83	87
No of countries that participated	107	105	112	107	111

Source:www.imo-official.org

## 1.2 Purpose of the Study

The purpose of the study was to determine the effect of constructivist instructional strategy on Senior Secondary School Students' Achievement in Mathematics. Specifically, the study was conducted to achieve the following objectives:

1. To determine the difference in students' achievement in Mathematics when taught with constructivist and expository strategies.
2. To determine the difference in public and private school students' achievement in Mathematics when taught with constructivist and expository strategies.
3. To determine the difference in male and female students achievement in Mathematics when taught with constructivist and expository strategies.

## 1.3 Research Questions

The study was guided by the following research questions:

1. What difference exists in students' achievement in Mathematics when taught with constructivist and expository strategies?
2. What difference exists in public and private school student achievement in Mathematics when taught with constructivist and expository strategy?
3. What difference exists in male and female students' achievement in Mathematics when taught with constructivist and expository strategies?

## 1.4 Research Hypotheses

For the purpose of this study, the research questions were converted into corresponding hypothesis as follows:

HO<sub>1</sub> Students achievement in Mathematics will not significantly differ when taught with constructivist and expository strategies.

HO<sub>2</sub> Public and private school students achievement in Mathematics will not significantly differ when taught with constructivist and expository strategies.

HO<sub>3</sub> Male and female students achievement in Mathematics will not significantly differ when taught with constructivist and expository strategies.

## 2. METHODS

The research design adopted for this study was the quasi-experimental pre-test and post test control design. The population is all the thirty four thousand, one hundred and sixty eight (34,168) Senior secondary (SS II) students' in public and private schools of Rivers State, Nigeria during the 2018/2019 academic session. The sample size of 280 students' in four intact classes was selected through purposive sampling technique. Two of the classes were utilized as an experimental and the other two as control groups respectively. The instruments used in the study were lesson package and Mathematics Achievement Test (MAT). The instruments were validated by two experts and the reliability coefficient of the instruments obtained through the test-retest method. The scores obtained were subjected to Pearson Product Moment Correlation coefficient (PPMC) analysis and the result yielded 0.82. The lesson package was used in the delivery of simple statistics lesson to the two different groups in the study. Teacher quality variable was controlled using only Mathematics teachers' in each school who served as research assistant to teach each group. The research assistants were trained for a period of one week and were provided with detailed instructions with well articulated lesson packages on the concept of simple statistics with the two instructional strategies as a major focus. In order to account for possible preexisting differences in the ability of the students' between the experimental and control groups, pre-test was administered to the two groups and the results were used as covariate measure. The experimental and control groups were administered post-test after treatment. The research procedure lasted for a period of six weeks. The obtained pre-test and post test scores in the study were analyzed using both descriptive and inferential statistics. The descriptive statistics utilized are mean and standard deviation to answer the research questions. On the other hand, the inferential statistics used was Analysis of Covariance (ANCOVA) and Multiple Classification Analysis (MCA) for the hypotheses. All hypotheses were tested at 0.05 alpha level.

## 2.1 Analysis and Presentation of Data

**Research Question 1:** What difference exists in students' achievement in Mathematics when taught with constructivist and expository strategies?

The data presented in Table 2 shows that the post-test mean score of students' taught with constructivist instructional strategy (70.67) was greater than the post-test mean score of students' taught with expository instructional strategy (56.94). The table also indicated that the mean gain score of students' taught with constructivist instructional strategy (30.70) was greater than the mean gain score of students' taught with expository instructional strategy (21.54).

This implies that students' taught with constructivist instructional strategy are better than students' taught with expository instructional strategy in Mathematics achievement. To ascertain if there exist significant difference in the instructional strategies, the one way analysis of covariance (ANCOVA) was carried out (Table 4).

**Research Question 2:** What difference exists in public and private school student achievement in Mathematics when taught with constructivist and expository strategy?

The data presented in Table 3 indicates that the post-test mean score of private school students' taught with constructivist instructional strategy is 74.82 and it is greater than the post-test mean score of 66.41 for public school students' taught with constructivist instructional strategy. Also, the mean post-test score of 60.27 for private school students' taught with expository instructional strategy was greater than the mean post-test score of 53.37 for public school students' taught with expository instructional strategy. On the whole, the post test mean score of private school students taught with constructivist instructional strategy is 69.17 while the mean mean post test score of public school students taught with expository instructional strategies is 60.01. Table 3 also reveals that the mean gain score of private school students' taught with constructivist instructional strategy is 31.76 while the mean post-test score of public school students' taught with expository instructional strategy is 32.13. This implies that the achievement in Mathematics of private school students was better than their counterparts in public schools

when taught with constructivist and expository instructional strategies. Consequently, to ascertain if the difference and influence is significant the Analysis of Covariance was carried out and reported in Table 5.

**Research Question 3:** What difference exists in male and female students achievement in Mathematics when taught with constructivist and expository strategies?

The data presented in Table 4 reveals that the mean post-test score of female students' taught with constructivist instructional strategy (74.67) was greater than the mean post-test score of male students' taught with constructivist instructional strategy (66.06). Again, from Table 4 it is observed that, the mean post-test score of female students' taught with expository instructional strategy (60.17) was greater than the mean post-test score of male students' taught with expository instructional strategy (55.31). On the whole, the mean post-test score of female students' taught with constructivist instructional strategy (69.08) was greater than the mean post-test score of male students' taught with expository instructional strategy (59.73). Table 4 also indicates that, the mean gain score of female students taught with constructivist instructional strategy (31.74) was greater than the mean post-test score of male students' taught expository instructional strategy (21.78). This implies that female students achievement in Mathematics were better than their male students when taught with constructivist and expository instructional strategies. The analysis of covariance (ANCOVA) was carried out in order to ascertain if the difference among the male and female students is significant and it is reported in Table 6.

## 2.2 Hypothesis One

Students' achievement in Mathematics will not significantly differ when taught with constructivist and expository instructional strategies.

The data presented in Table 5 indicates that the main effect is significant at  $p < .050$  alpha level because the calculated F-value of 156.982 is greater than the critical F-value of 3.890 at .050 with 1 and 277 degrees of freedom. Therefore, the null hypothesis which states that Students' achievement in Mathematics will not significantly differ when taught with constructivist and expository instructional strategies is rejected.

The alternative hypothesis which states that Students' achievement in Mathematics significantly differs when taught with constructivist and expository instructional strategies is upheld. As a result of the observed difference in the main effect, Multiple

Classification Analysis (MCA) was carried out to determine the index of relationship and also the variance of the dependent variable (achievement in Mathematics) by students that is attributable to the influence of the independent variable (instructional strategies) and reported in Table 6.

**Table 2. Summary of mean and standard deviation of pretest and posttest scores of students' achievement in Mathematics when taught with constructivist and expository strategies**

Instructional Strategies	N	Pre test Scores		Post test Scores		Mean gain Scores
		$\bar{X}$	SD	$\bar{X}$	SD	
Constructivist Strategy	140	39.97	7.472	70.67	8.302	30.70
Expository Strategy	140	35.40	8.542	56.94	9.086	21.54
<b>Total</b>	<b>280</b>	<b>37.69</b>	<b>8.331</b>	<b>63.81</b>	<b>11.080</b>	<b>26.12</b>

**Table 3. Summary of mean and standard deviation of pretest and posttest scores of public and private students' achievement in Mathematics when taught with constructivist and expository strategies**

Instructional Strategies	Types of School	N	Pre test Scores		Post test Scores		Mean gain Scores
			$\bar{X}$	SD	$\bar{X}$	SD	
Constructivist Strategy	Public School	69	40.93	6.656	66.41	7.150	5.482
	Private School	71	39.04	8.127	74.82	7.200	35.78
	<b>Total</b>	<b>140</b>	<b>39.97</b>	<b>7.472</b>	<b>70.67</b>	<b>8.302</b>	<b>30.70</b>
Expository Strategy	Public School	95	35.66	8.881	55.37	9.890	19.71
	Private School	45	34.84	7.845	60.27	5.933	25.43
	<b>Total</b>	<b>140</b>	<b>35.40</b>	<b>8.542</b>	<b>56.94</b>	<b>9.086</b>	<b>21.54</b>
<b>Grand total</b>	Public School	164	37.88	8.412	60.01	10.373	32.13
	Private School	116	37.41	8.244	69.17	9.784	31.76
	<b>Total</b>	<b>280</b>	<b>37.69</b>	<b>8.331</b>	<b>63.81</b>	<b>11.080</b>	<b>26.12</b>

N = 280

**Table 4. Summary of mean and standard deviation of pretest and posttest scores of public and private students' achievement in Mathematics when taught with constructivist and expository strategies**

Instructional Strategies	Types of School	N	Pre test Scores		Post test Scores		Mean gain Scores
			$\bar{X}$	SD	$\bar{X}$	SD	
Constructivist Strategy	Male	65	41.11	6.500	66.06	7.193	24.95
	Female	75	38.99	8.136	74.67	7.062	35.68
	<b>Total</b>	<b>140</b>	<b>39.97</b>	<b>7.742</b>	<b>70.67</b>	<b>8.302</b>	<b>30.70</b>
Expository Strategy	Male	63	35.74	8.882	55.31	9.985	19.57
	Female	47	34.72	7.873	60.17	5.836	25.45
	<b>Total</b>	<b>140</b>	<b>35.40</b>	<b>8.542</b>	<b>56.94</b>	<b>9.086</b>	<b>21.54</b>
<b>Grand total</b>	Male	158	37.34	8.395	59.73	10.377	21.78
	Female	122	37.41	8.270	69.08	9.676	31.74
	<b>Total</b>	<b>280</b>	<b>37.69</b>	<b>8.331</b>	<b>63.81</b>	<b>11.080</b>	<b>26.12</b>

**Table 5. Analysis of Covariance (ANCOVA) of post-test scores of students' achievement in Mathematics when taught with constructivist and expository strategies using pre-test scores as covariates**

Sources of variation	Sum of squares	df	Mean square	F	Significant	Decision at P= 0.05
Covariate Pre test	1292.597	1	1292.597	17.021	0.0000	
Main effects Model	11921.338	1	11921.338	156.982	0.0000	*
Residual	13213.935	1	6606.968	87.001	0.0000	
Total	21035.650	277	75.941			
	34249.586	279	122.578			

\*Significant at 05 level; critical F1, 277=3.890

**Table 6. Multiple classification analysis (MCA) of the post-test scores of students' achievement in Mathematics when taught with constructivist and expository strategies**

Grand mean = 63,810	N	Unadjusted	Adjusted for independent variables and covariates		
Variables + Category		Dev'n	Eta	Dev'n	Beta
Instructional strategy			0.621		0.614
Constructivist stratgy	140	6.864		6.786	
Expository strategy	140	-6.864		-6.786	
Multiple R =621					
Multiple R-squared = .386					

N = 280

**Table 7. Two way Analysis of Covariance (ANCOVA) of post-test scores of Public and Private school students' achievement in Mathematics when taught with constructivist and expository instructional strategies using pre-test scores as covariates**

Sources of variation	Sum of squares	Df	Mean square	F	Significant	Decision at p < 0.5
Covariate pre -test	1292.597	1	1292.597	20.021	0.0000	
Main effects (combined)	14992.192	2	7496.091	116.105	0.0000	*
Instructional strategies	11921.338	1	11921.338	184.646	0.0000	
School type	3070.844	1	3070.844	47.563	0.0000	
2 way interaction strategies	209.959	1	209.959	3.252	0.072	NS
School type						
Model	16494.749	4	4123.685	63.871	0.0000	
Residual	17754.847	275	64.563			
<b>Total</b>	<b>34249.586</b>	<b>279</b>	<b>122.578</b>			

N=280

**Table 8. Two way analysis of covariance (ANCOVA) of post-test scores of Male and female students' achievement in Mathematics when taught with constructivist and expository instructional strategies using pre-test scores as covariates**

Sources of variation	Sum of squares	df	Mean square	F	Significant	Decision at p < 0.5
Covariate pre -test	1292.597	1	1292.597	20.162	0.0000	
Main effects (combined)	15084.928	2	7542.465	117.848	0.0000	*
Instructional	11921.338	1	11921.331	185.950	0.0000	

Sources of variation	Sum of squares	df	Mean square	F	Significant	Decision at p < 0.5
strategies						
School type	3163.590	1	3163.590	49.348	0.0000	
2 way interaction	241.691	1	241.691	3.770	0.053	NS
strategies						
School type						
Model	16619.216	4	4154.804	64.907	0.0000	
Residual	17630.370	275	64.110			
<b>Total</b>	<b>34249.586</b>	<b>279</b>	<b>122.578</b>			

NS = Not Significant at 0.05 alpha level; critical F1, 275 3.890, N = 280

The data presented in Table 6 reveals that instructional strategies (constructivist and expository) has an index of relationship .377 (Beta value of 0.614<sup>2</sup>) with students achievement in Mathematics. The data in Table 6 also shows that the deviation of the adjusted post-test scores of students' taught with constructivist instructional strategy from the grand mean of 63.810 is 6.786, while the deviation of the adjusted post-tests scores of students' taught with expository instructional strategy from the grand mean of 63.810 is -6.786. This implies that students' taught with constructivist instructional strategy are significantly better than students' taught with expository instructional strategy in their achievement in Mathematics. The data in table 6 further shows that a multiple regression index (R) of 6.21 and multiple regression squared index (R<sup>2</sup>) of .386. This implies that 38.600 percent of the total variance of students' achievement in Mathematics is attributable to the influence of instructional strategies.

### 2.3 Hypothesis Two

Public and Private school students' achievement in Mathematics will not significantly differ when taught with constructivist and expository instructional strategies.

The data presented in Table 7 indicates that the interaction effect is not significant at p<0.05 alpha level because the calculated F-value of 3.252 is less than the critical F-value of 3.890 at 0.05 with 1 and 275 degrees of freedom. Hence, the null hypothesis which states that public and private school students' achievement in Mathematics will not significantly differ when taught with constructivist and expository instructional strategies cannot be rejected. This implies that instructional strategies and school type does not have interaction effect on the students' achievement in Mathematics.

### 2.4 Hypothesis Three

Male and female students' achievement in Mathematics will not significantly differ when taught with constructivist and expository instructional strategies.

The data presented in Table 8 indicates that the interaction effect is not significant at p<0.05 alpha level because, the calculated F-value of 3.770 is less than the critical F-value of 3.890 at 0.05 with 1 and 275 degrees of freedom. Hence, the null hypothesis which states that male and female students' achievement in Mathematics will not significantly differ when taught with constructivist and expository instructional strategies is retained. This implies that instructional strategies and gender does not have interaction effect on the students' achievement in Mathematics.

## 3. RESULTS AND DISCUSSION

Students' achievement in Mathematics significantly differs when taught with constructivist and expository instructional strategies. The result in table 5 indicates that students' achievement in Mathematics significantly differ when taught with constructivist and expository strategies. Students taught with constructivist instructional strategy were significantly better than those taught with expository instructional strategy in their achievement in Mathematics and the multiple classification analysis (MCA) indicates 38.60. The total variance in the students' achievement in Mathematics is attributable to the influence of instructional strategies in table 5. The findings could be due to the group participation of the students in the instructional delivery process when the constructivist instructional strategy was used. This study findings is in agreement with the earlier works of Etuk, Jeremiah & Etuk [10], and Jeremiah [11], however the research work of Igbokwe and Ibeneme [12] is at variance with the

findings of this study. Jeremiah [11] noted that constructivism and other educational theories are too elitist and its application is most successful with children from privileged background in Nigeria. Igbokwe and Ibeneme[12] noted that there was no significant difference in students achievement when the constructivist and the expository strategies were used and recommended that more emphasis should be on constructivist approach to unfold its potentials though it is new.

Public and private school students' achievement in Mathematics does not significantly differ when taught with constructivist and expository instructional strategies. The result in Table 6 shows that instructional strategies and school type does not have interactive effect on the students achievement. This means that the application of constructivist strategy does not discriminate between the performance of students relative to school type. This can be attributed to the fact that a good teaching method may not discriminate among students performance based on the type of school. This study therefore is in support of research by Mavromaras and Mahuteau [15] which reported that public - private schooling quality estimated differences are not statistically significant. Jeremiah & Anderson [13] and Jeremiah [11] also noted that there are no significance difference in the academic achievement of students in urban and rural schools and further suggested that if academic performance in schools in the rural area is to improve, government and relevant stakeholders should provide reference materials to both teachers and students for enhanced teaching and learning.

Male and female students' achievement in Mathematics does not significantly differ when taught with constructivist and expository instructional strategies.

The result in Table 7 points out that instructional strategies and gender does not have interactive effect on students achievement in Mathematics. This implies that the application of constructivist instructional strategy does not discriminate in the performance of male and female students in Mathematics. This might be due to the fact that appropriate teaching strategy can help both male and female students learn, remember facts, analyze, comprehend concepts and synthesize principles. The finding of earlier studies such as Jeremiah [4], Jeremiah [11], Eze [16] noted that dominant factor in gender role is culture and that

gender parity is not important in academic achievement.

#### **4. CONCLUSION**

Based on the findings of this study, the following conclusions were provided that students' taught with constructivist instructional strategy were significantly better than those taught with expository instructional strategy in their achievement in Mathematics while school type does not influence students' achievement in Mathematics when taught with constructivist and expository instructional strategies and gender does not affect students' achievement in Mathematics when taught with constructivist and expository instructional strategies.

#### **5. RECOMMENDATIONS**

Based on the findings of the study and the conclusions provided, the following recommendations were put forward.

1. Teachers should utilize more of constructivist instructional strategy in the teaching of Mathematics concept since it enhances students' achievement in Mathematics better than the expository instructional strategy.
2. Students should be taught with constructivist instructional strategy in all private and public schools, since the school type does not influence achievement in Mathematics.
3. Students' should be less depended on their gender when taught with constructivist and expository instructional strategies, because it will not influence their achievement in Mathematics.

#### **CONSENT**

As per international standard or university standard, respondents' written consent has been collected and preserved by the authors.

#### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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