

Effects of Motivation on Secondary School Students Attitude and Academic Achievement in Quantitative Economics, Plateau State, Nigeria

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Abstract

The study investigates the effects of motivation on economics students' attitude and achievement in quantitative aspect of economics, Plateau State, Nigeria. The study adopted quasi experimental research design, specifically the pre-test posttest control group designed. Simple random sampling was used in selecting the schools for the study and a sample of 66 SSII students made up of 33 from the experimental group and 32 from the control group were used for the study. The experimental group was exposed to motivation strategy while the control group was exposed to lecture method. The instruments used for data collection were achievement test in quantitative aspect of economics and a questionnaire on students' attitude towards quantitative aspect of economics. The two instruments were administered on the two groups before and after exposure of the two groups to different treatment. Three research questions were raised and three hypotheses were formulated and tested at 0.05 level of significance. The mean and standard deviation was used in answering the research questions while t-test for unrelated sample was used in testing all the hypotheses that were formulated to guide the study. The study found that students who were exposed to motivation did better in quantitative economics than their counterparts who were not exposed to motivation. Also students with positive attitude towards quantitative economics achieved better whether in the experimental or control group than students with negative attitudes towards the subject. On the basis of the findings, it was recommended that teachers of economics should apply motivation strategies in the teaching and learning of quantitative economics in order to enhance students' achievement in the subject while students with negative attitude should be motivated to improve on their attitude towards the subject

Keywords: Motivation, Attitude, Achievement, Quantitative Economics

Introduction

Quantitative aspect of economics curriculum includes differential and integral calculus, matrix algebra, simple linear equation theory of cost, theory of consumer behaviour

demand and supply among others which are used in analysing economic problems of the society. This aspect allows economists to form meaningful testable preparations about wide-ranging and complex subjects which could less easily be expressed informally. Much of economics theory is currently presented in terms of mathematical economics which includes optimization, equilibrium among others. (Chief Examiners Report (2016). Has it that students performance in both WAEC and NECO examinations was low including quantitative aspect of economics. Quantitative aspect of economics stands as a compulsory aspect which each student must answer one question out of two. The one question is usually awarded 30 marks. Apart from the fact that the student has to answer one compulsory quantitative question, the objective aspect usually has quantitative questions which the student has to answer. Hence, for any student to perform well in either of the examinations, he/she has to do well in quantitative economics as observed by (Chidi, 2010). This therefore shows that teachers need to be efficient in the technique of motivating students so as to improve their performance in quantitative aspect of economics.

Motivation is seen as students willing, need, desire and compulsion to participate in and be successful in learning. (Domyei, 2008). The term motivation is concerned with the direction and magnitude of human behaviour that is, the choice of a particular action, the persistence with it and the effort expended on it. Motivation is one of the most important route to self-improvement. It is something we need on a daily basis without motivation, our thoughts of self-improvement will dissipate and fade quite rapidly. Motivation is the inner drive that enables an individual to work harder to enable him/her produce the desired results. Apart from the usual class work and take home assignments, some students go the extra mile to read on their own and this enables them to be ahead of others (Mickelson, 2009). In the study conducted by Rabideau (2010) it was found that students who were motivated performed better than those that were not motivated. Similarly, findings by Alan and Farid, (2011) showed that lack of rewards, incentives and self-confidence of students affected their performance. Findings by (chidi 2010) showed a high correlation between parental influence and academic achievement of students. However, there was a high correlation between motivation and academic achievement in mathematics. Findings by Natalie (2011) showed that students' motivation is one of the most important components of leaning in both formal and informal settings.

Attitude is referred to as a tendency to respond positively or negatively towards a certain idea, persons or situations. Attitude influences an individual's choice of actions and responses to challenges incentives and rewards (Yara 2009). Attitude is one of the most important factors in helping people get through the high and low level of life since attitude spells how a person copes. Whatever perspective an individual holds will invariably have effect on his/her performance and the way he/she handle rejection. Review of literature depicts varying opinions and findings on students' attitude towards economics. Yara (2009) revealed that attitude of students can be influenced by attitude of the teacher and methods of teaching. Yara further found that teachers' method of teaching and personality greatly accounted for the students' positive attitude towards the subject. Findings by (Olatoye, 2011) showed that students attitude towards economics have significant direct effect on students achievement in the subject similarly. Findings by (Adesokan, 2002) showed that in spite of the recognition given to economics among the social science subjects, it is evident that students still show negative attitudes towards the subject when they are not doing well.

Another variable of interest in this study is students' gender. Daniel (2007) found that if the right method of teaching is applied, student achievement is not affected by gender.

Hence, both male and female students will achieve equally the same. (Domyei, 2007) found a significant gender difference in achievement in statistics proofs between male and female students. Finding by Daniel (2007) showed that male achieved higher than female in mathematics, however Nash (2003) found that female students performed significantly higher in economics than their male counterpart. This controversy calls for the need to investigate the effect of motivation on students' achievement in quantitative aspect of economics

There are several empirical studies on students' motivation, attitude and achievement, these includes Eurasia (2007) al-Hakami (2002), Olatoya (2009), Sukor (2017). Who argued that there is a significant relationship between motivation on attitude and achievement in learning mathematics in male and female students? Al-Hakami (2002) conducted a study to investigate students' achievement towards economics and found that the students' scores were low without motivation. Olatoye (2009) investigated the relative and combine influences of test anxiety and motivation on science achievement of selected junior secondary school students in Ogun State and findings revealed that gender difference were significant on test anxiety and motivation on academic achievement compared to male and female students. After reviewing the literature, there are two limitations from the past studies which include the fact that most of the studies are restricted to mathematics which is different from economics. Secondly the studies were done in other state which is different from Plateau State. These therefore, call for a study on the effect of motivation on economics students' attitude and achievement in quantitative aspect of economics in Plateau State?

Research Questions

1. What is the achievement mean scores of students in quantitative aspects of economics before and after exposure to motivation strategy?
2. How does students' gender affect students' achievement in quantitative aspects of economics after exposure to motivation strategy?
3. What is the attitude mean scores of students in the experimental and control groups before and after exposure to motivation strategy?

Null Hypotheses

1. There is no significant difference in the achievement mean scores between the experimental and control group before exposure to treatment
2. There is no significant difference in the achievement mean scores between the experimental and control groups after exposure to treatment.
3. There is no significant difference in the achievement mean scores based on students' gender after exposure to treatment.
4. There is no significant difference in the attitude mean scores between the experimental and control groups after exposure to treatment.

Methodology

The study adopted a quasi-experimental research design. Specifically, the pretest – posttest control group design. The design enables the researcher to determine the difference among the two or more variables. It is also useful in making intelligent prediction. This is also in agreement with the views of Chidi (2010). The population of the study consisted of senior secondary II economics students in Government owned senior secondary schools in Jos-North Local Government Area of Plateau State with a population of 601. A sample of 65 economics students made up of 33 in the experimental group and 32 in the control group made up 18 male and 15 female in the experimental group and 15 male and 17 female in the

control group were used for the study. Simple random sampling technique was used in selecting the school for the study and government secondary school Chwelnyp and government secondary school Tudun Wada were selected and used as experimental and control groups, The choice of this technique was to ensure equal and independent probability of selecting the school. This is also in agreement with the views of Awotunde and Ugodulunwa (2004) that one of the conditions for using simple random sampling is that every element in the population has equal chance of being selected. Two instruments were used for data collection. The instruments are: Economics Quantitative Test (EQT) and Economics Attitude Questionnaire (EAQ). The instruments were developed by the researchers and validated by two experts in economics education and two from research, measurement and evaluation unit all of the University of Jos. A reliability coefficient 0.74 and 0.82 respectively were establishing using Cornbach alpha method of estimating the reliability of instrument.

Results

Research Question 1: What is the achievement mean scores of the experimental and control group before and after exposure to motivation strategy?

Table 1: The results of the analysis of experimental and control group before and after exposure to treatment.

Groups		N	\bar{X}	SD	\bar{X}_d
Control group	Pre-test	33	28.78	8.71	0.28
	Post-test	33	29.06	8.37	
Experimental group	Pre-test	32	28.84	7.99	33.25
	Post-test	32	62.09	10.96	

The results of the analysis in Table 1 shows the achievement of students in quantitative aspects of economics. The control group had a mean of 28.78 and standard derivation of 8.71 before treatment and a mean of 29.6 and standard deviation of 8.37 after treatment while the experimental group had a mean of 28.84 and standard deviation of 7.99 before treatment and a mean of 62.09 and standard deviation of 10.96 after treatment. From the results, it is evident that the experimental group achieved higher than the control group after exposure of the two groups to different treatments. This shows that motivation of students improved students' achievement in quantitative economics

Research Question 2: What is the achievement mean scores of male and female students in the experimental and control group in quantitative aspects of economics after exposure to treatment

Table 2: The results of the analysis of students performed based on gender.

Groups	N	\bar{X}	SD
Male	18	61.66	9.83
Female	15	62.60	12.52

The results of the analysis in Table 2 shows the achievement mean scores of male and female after exposure to treatment; from the analysis, it is evident that male had a mean of 61.66 with a standard deviation of 9.83 while female had a mean of 62.60 with a standard

deviation of 12.52 from the results, it shows that female achieved higher than male after exposure to motivation strategy

Research Question 3: What is the attitude mean scores of students in the experimental and control groups towards quantitative aspects of economics before and after exposure to treatment

Table 3: The results of the analysis on student’s attitude towards quantitative aspects of economics

Group		N	\bar{X}	SD	\bar{X}_d
Experimental	pretest	33	28.84	8.71	11.06
	Posttest	33	39.90	7.96	
Control	pretest	32	28.78	7.99	0.37
	posttest	32	29.15	5.36	

The results of the analysis on students attitude reveals that the experimental group had a mean of 28.84 and standard deviation 8.71 before exposure to treatment and a mean of 39.90 and standard deviation 7.96 after exposure to treatment while the control group had a mean of 28.78 and standard deviation 7.99 before exposure to treatment and a mean of 29.15 and standard deviation of 5.36 after exposure to treatment. The result shows that the mean of the two groups increased after exposure to treatment with the mean of the experimental group increasing higher than that of the control. This implies that the attitude of the two groups increased as results of exposure of the two groups to two different treatments but the group that was exposed to motivation performed better than the other group.

Null Hypothesis 1: There is no significant difference in the achievement mean scores between the experimental and control groups before exposure to motivation strategy and lecture method

Table 4: The results of the t-test analysis of the experimental and control groups before exposure to motivation and lecture method.

Groups	N	\bar{X}	SD	df	p-value	Sig
Experimental	33	28.78	8.71	64	0.971	0.05
Control	33	28.84	7.99			

The result of the analysis on Table 4 shows the t-test analysis of the experimental and control group in quantitative aspect of economics before exposure to motivation and lecture method. The results showed that the p-value of 0.97 (df 64,) is higher than the significance level of 0.05. This therefore shows that the null hypothesis was retained which implies that there is no significant differences in the achievement mean scores between the experimental and control groups before the exposure of students to motivation strategy and lecture method. This implies that the experimental and control groups were of the same ability before exposure to two different treatment.

Null Hypothesis 2: There is no significant difference in the achievement mean scores between the experimental and control groups after exposure to treatment.

Table 5: The result of the posttest analysis on students’ achievement in quantitative economics after exposure to motivation and lecture method

Group	N	\bar{X}	SD	df	p-value	Sig
Experimental	33	29.06	8.37	64	0.00	0.05
Control	33	62.09	10.96			

The result of the analysis in Table 5 shows the posttest t-test analysis of students’ achievement in quantitative economics after exposure to motivation and lecture methods. From the result, it is evident that the p-value of 0.00 (df 64,) is less than the significance level of 0.05. This therefore shows that the null hypothesis was rejected in favour of the alternative hypothesis. This implies that there is a significant difference in the performance mean scores between the experimental and control groups after exposure to motivation strategy and lecture method in favour of the experimental group

Null Hypothesis 3: There is no significant difference in the achievement mean scores between male and female students after expose to treatment.

Table 6: The Results of the t-test Analysis Based on Students Gender after Exposure to Treatment

Group	N	\bar{X}	SD	df	p-value	Sig.
Male	18	61.00	10.16	31	0.767	0.05
Female	15	62.60	12.52			

The result of the analysis in Table 6 revealed the analysis of male and female students and their achievement in quantitative aspects of economics. From the results, it shows that the p-value of 0.767 (df 31,) is higher than the significance level of 0.05. This therefore shows that there is no significant difference in the achievement means scores between male and female students after exposure to treatment. This shows that students’ gender does not affect students’ achievement in quantitative aspect of economics

Null Hypothesis 4: There is no significant difference in the attitude mean scores between the experimental and control groups after exposure to treatment.

Table 7: Results of t-test analysis of the Experimental and Control group on their Attitude towards Quantitative Aspect of Economics.

Groups	N	\bar{X}	SD	df	p-value	Sig
Experimental	33	29.15	7.96	64	0.000	0.05
Control	33	39.90	5.36			

The result of the analysis in Table 7 revealed the t-test analysis of the experimental and control groups after exposure to treatment. From the results, it is evident that the p-value of 0.000 (df 64,) is less than the significance of 0.05. This therefore implies that there is a significant difference in the attitude means scores between the experimental and control groups after exposure to treatment. This shows that motivation affects the attitude of the experimental group positively

Discussion of Findings

The result of the analysis from Table 1 revealed that the experimental group achieved higher than the control group after exposure of the two groups to different treatments. This is in agreement with Sukor (2017) who found that students who were exposed to treatment with motivation did better in economics than their counterparts who were not exposed to treatment with motivation. The implication of this findings is that motivation improves students' achievement hence the need for teachers, to adopt motivation strategy in teaching quantitative aspect of economics. The findings from table 2 reveals that female achieved higher than male after exposure to treatment. This confirmed the views of Adesokan (2002) who found that female students achieved significantly higher than male students in mathematics, the implication of this findings is that both gender needs to be given equal opportunity to enable them do their best.

The result of analysis from Table 3 shows that the mean of the two groups increased after exposure to treatment. This is in agreement with Yara (2009) who found that attitude influences individuals' choice of action and responses to challenges, incentives and rewards, positive attitude leads to high confidence level and is an indication of achievement in economics. In the same vain, findings from Table 4 shows that there is no significant difference in the achievement mean scores between the experimental and control groups before exposure to treatment. However, Table 5 shows that there is a significant difference in the achievement mean scores between experimental and control group after exposure to treatment. This is in agreement with Awotunde and Ugodulunwa (2004) who confirmed that it is ideal so as to attribute the achievement gain of the experimental group to difference in the ability of the students before exposure to treatment.

The analysis in Table 6 revealed that there is no significant differences in the achievement mean scores between male and female students after exposure to treatment. This is in agreement with Eurasia (2017) who found that female students achieve higher than male. Again, the result in hypothesis four showed that there is a significant difference in attitude mean scores between the experimental and control groups after exposure to treatment. This is confirmed by Olatoye (2009) who found that students attitude towards mathematics have significant direct effect on students' achievement in economics.

Conclusion

Based on the findings of this study it was concluded that students should be motivated as well as encouraged to improve on their attitude towards quantitative aspects of economics so as to improve their performance in the subject. This can go a long way in improving their performance in external examinations like West African Examination Council (WAEC) and National Examination Council (NECO)

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Economics teachers should apply motivational strategies in the teaching and learning quantitative economics in order to enhance students' achievement in the subject.
2. Students with negative attitude should be encouraged through motivation as this will improve achievement in the economics.
3. More qualified economic teachers should be employed to teach economics in secondary schools so as to improved students performance.

4. Motivational strategy should also be extended to teachers for enhanced performance

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