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Table of Content

The Challenges Facing Implementation of African Language Programmes at African Universities
Stephen .J. Oluoch ..... 1 - 10

Increasing Female Participation in Educational Leadership of Higher Education in Nigeria: Implications for Development
Konmma E. Ogwuazor ..... 11 - 26

Competition for Recognition and Scarce Resources of University and Government by Tripartite Trade Unions in Nigerian Universities: Implications for Inter-Union Conflicts
F. I. Etadon ..... 27 - 41

Inhabitants' Perception of Factors for Improvement and Sustainability of Environmental Sanitation in Ibadan City
O.A. Adigun & E.A. Okwilagwe ..... 43 - 62

Impact of Outdoor Activities and School Location on Students' Environmental Attitude to Biology
Olagunju A. Morenike & Oloyede, Omolola O. ..... 63 - 80

Utilization of University Research Findings for National Development
Ibode, Osa Felix ..... 81 - 88

Exploring Serial Picture and Direct Word Reading Strategies on Comprehension Abilities of Primary School Children in English Language
Victoria I. Iroegbu ..... 89 - 99

Towards A Redesigned Teacher Education Curriculum in the 21st Century: Challenges, Strategies and Implications
Isah Emmanuel . A ..... 101 - 115

UNIVERSITY OF IBADAN LIBRARY

Education of the Muslim Girl-Child in the North-East of Nigeria: Issues, Challengess and the Way Out
Chiroma Tahir, Jiddere M. Kaibo & Fadmatu Wakili..... 117 – 130

Participatory Planning and Students' Academic Performance in Public Secondary Schools in Ibadan Metropolis of Oyo State, Nigeria
Babalola, J.B., Fabunmi Martins & Awolola, O.I..... 131 – 148

Preferential Treatment, Class Size And Numerical Ability As Correlates Of Achievement In Senior Secondary Economics In Ogun State, Nigeria.
Serifat F. Akorede & Sikirat O. Salami ..... 149 – 161

Supervisory Techniques and Effectiveness of Workplace Training Programmes in Selected Organizations in Lagos State, Nigeria
A.M. Momoh, & G. A. Nwogu..... 163 – 173

Attitude towards Pre-Marital Genetic Screening among Students of Osun State Polytechnics, Nigeria
***Odelola J.O., Akintaro O.A. & Adisa, O.*..... 175 – 188**

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PREFERENTIAL TREATMENT, CLASS SIZE AND NUMERICAL ABILITY AS CORRELATES OF ACHIEVEMENT IN SENIOR SECONDARY ECONOMICS IN OGUN STATE, NIGERIA.

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Abstract

Economics is a core social science subject offered by most science, art and social science students, but the students performance in the subject at final examinations has not been encouraging. This study therefore investigated the relationship of preferential treatment, class size and numerical ability with achievement in Senior Secondary Economics. The study is a survey and a sample of 300 senior secondary school students were selected from two local governments of Ogun East senatorial district, using multi-stage cluster sampling technique. Three valid and reliable instruments were used for data collection and these are: The Student Preferential Treatment Scale (SPTS), Numerical Ability Test (NAT) and Economics Achievement Test (EAT). Four research questions were raised and answered in this study. Data collected were analysed using both descriptive and inferential statistics. The results revealed that all the independent variables were positively correlated to the Economics achievement test in Economics. The findings also revealed that the three predictors jointly correlates positively with students' performance in Economics. Based on the findings of the study, it is recommended that the students-teachers ratio should be improved upon, parents and teachers should assist students to develop their mathematical ability.

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Keywords: *Preferential Treatment, Numerical Ability and Secondary School Economics.*

Introduction

Economics as a core social science subject has been found to attract many students from all fields of study in the secondary schools. This might not be unconnected with its educational and civic values. It was also accepted because of its extensive application to everyday activities. This was why Oliver (1973) cited in Olopoenia (2006) that

one strong case for the teaching of economics in the secondary schools is because it addresses itself to problems relevant directly or indirectly to the students and it is therefore a living subject. To corroborate this, Obemeata (1980) found that 94.4% of the sample for his study indicated that economics as a subject is interesting. The popularity of economics in the secondary schools was also confirmed by Obemeata (1992) who asserted that although economics is not compulsory like English language and mathematics at the secondary school level, it ranks third after these two subjects.

It has been established that many students enrolled for economics in Nigeria and abroad, because economics is interesting and it has high educational and civic values. First and foremost, the learning of economics by any person increases his or her understanding of his daily living in terms of fending for his needs. Such basic needs of life include food, housing, clothing, transportation to and from work, relaxation etc. specifically, students also benefit from learning economics because they will be able to list their school needs in order of preference and therefore be able to manage the resources at their disposal.

In spite of the popularity of economics as a secondary school subject and the emerging trend in the study of the subject is the decline in students' performance in the subject in the school certificate examination. Various researches have therefore been carried out in order to find out the cause(s) of this poor performance in economics. Among these are the works of Olopoenia (2006), Olaoye (2005), Goldaha (2003) and Amadi (1992) who have worked on various factors such as poor comprehension ability in English language, poor teacher quality, lack of materials for libraries and others. Despite the findings and suggestions from these various researchers, the failure rate in economics at the School Certificate Examinations still persists.

This study therefore looked at the causes of poor performance in economics from the angle of high enrolment in the subject. This has led to large classes faced by economics teachers which might have tempted them to make use of preferential treatment during the discharge of their lessons. Also, economics also makes use of some statistics as tools of analysis, which demands some level of numerical ability in the students.

In Nigeria educational system, most school enrolls more students in economics, which makes teacher to student ratio to be

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high. When a teacher is faced with students that are more than what he or she can handle or control, the teacher tends to have preference for some students than others. In many cases, there are laws which discourage employers, landlords and agencies from openly disqualifying applicants because of race, age, ethnicity and other criteria (Michael, 2011). A principal cannot reject a student application for admission based strictly on his or her health, for example HIV patient, epileptic patient, etc. However, there are no such laws against a practice known as preferential treatment as said by Michael (2011). With this, no teacher or principal would be questioned on why a student should be preferred to another.

Preferential treatment is sometimes viewed as reverse of discrimination, occurs whenever a person receives a benefit because he or she is of the correct race, gender, economic status, religious affiliation or other categorization (Michael 2011). Preferential treatment can be very difficult to prove or overcome. It does not often rise to the level of discrimination as in favoring one person or another. It is not illegal in many cases to promote certain students based on a perceived school activity. It could be construed as preferential treatment but not legal discrimination based on participation.

In psychology, preferences had been defined in various ways. It could be conceived of as an individual's attitude towards a set of objects, typically reflected in an explicit decision-making process (Lichtenstein and Slovic 2006). However, it does not mean that a preference is necessarily stable overtime. Preference can be notably modified by decision making processes, such as choices (Sharot, De Martion and Dolan 2009). According to citizens Agaisnt Racism and Discrimination (C.A.R.D, 2006), two teenagers who pulled a stunt left a man physically disabled and his friend brain-damaged, will each spend 60 days in juvenile detention, but not before they finish the upcoming high-school football season. Judge Gary F. Mckinley told a standing-room-only crowd in his courtroom hat he knows his decision to allow standout Kenten High School athletes Dailtn Campbell, 16 and Jesse Havard, 17 to play sports before serving their sentences will be unpopular.

It has been established that there is high enrolment of students in economics in our secondary schools, which brings in high classes been faced by the teachers. Some academics and policy makers have however emphasized the importance of small class size

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(Rivken, Hanushek and Kain 2000). Concerning the advantages of small class sizes, opinion has been consistently divided between those who claim that small classes lead to a better quality of teaching and learning, and those who argue that the effects are likely to be modest at best and that there are more cost-effective initiatives (Blatchford, Basset, Goldstein and Martin 2003). The first view is consistent with the view of many teachers and was given support by the Tennessee STAR research study, which employed a powerful design involving random allocation of pupils and teachers to three classes within school. It was found that children in small classes performed better in literacy and mathematics, and that there were particular benefits for children from ethnic minorities (Finn and Achilles, 1999; Nye, Hedges and Konstantopoulus, 2000).

Some academics have argued in support of smaller classes as a cornerstone of educational policy (Achilles, 1999; Wang and Finn, 2000). This view has led to costly class size reduction initiatives in a number of states in the USA, notably California as well in other countries around the world, Nigeria notably Oyo State. It is also reflected in the UK government's commitment to maximum of 30 students in a class. The second view has found expression in the opinion of politicians and policy makers worried by the enormous costs involved in hiring extra teachers. In the UK, the government agency, the Office for Standards in Education (OFSTED, 1995), on the basis of inspectors' reports, concluded that class size made little difference and this was used by government, ministers of the day to support no change in investment in smaller classes.

Numerical ability is the procedural knowledge and capability to connect, employ and communicate an algorithmic process within problem solving situation. Bolaji 2001, in his study of factors influencing students' attitude towards mathematics in the junior secondary schools asserted that mathematical ability is related to mental perception of individual students. Natural aptitude or knowledge of numbers in various operations is highly important in bringing about good achievement in mathematically related subjects (Ojo, 2003). Hence, any student who will want to be good in these subjects should endeavour to be sound in dealing with number which includes estimation of results to the nearest unit, approximation, significant figures, standard form, rounding off decimal number, manipulation of numbers and applying rules. To succeed in secondary school economics, and even to solve complex

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problems encountered in daily life, students must acquire the knowledge necessary to deal with numbers with ease. Students must master procedures such as addition, subtraction, multiplication and division. They must also understand the problem solving strategies that apply to mathematical economic procedures and concepts.

It is imperative that economics students must be sound in numerical ability because they are expected to answer a compulsory statistically or mathematically structured part of the essay questions in final examinations such as SSCE (Senior Certificate Examination) and NECO (National Examination Council) Examination.

Statement of the Problem

The incidence of poor performance of students in economics has been of much concern to all and sundry. Many studies had been conducted on the likely causes, still no reasonable achievement has been achieved in final SSCE (Senior Secondary Certificate Examination). However, it has been observed that teachers give preferential treatment to students probably because of large enrolment faced by the teacher and because of the varying levels of intelligence of the students.

This study therefore investigated the relationship between preferential treatment, class size and numerical ability on students' academic achievement in economics.

Research Questions

The study provided answers to the following research questions:

1. What is the relationship between preferential treatment and students' achievement in Economics?
2. What is the relationship between class, size and students' achievement in Economics?
3. What is the relationship between students' numerical ability and achievement in Economics?
4. What is the composite effect of preferential treatment, numerical ability and class size on students' achievement in economics?

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Methodology

The Design

The study is a survey research.

The Variables

The Independent variables are preferential treatment, class size and numerical ability. The dependent variable is the academic achievement in Economics.

Sampling Procedures and Sample

All the Senior Secondary School Two (SSS II) students in the nine local government areas of Ogun East Senatorial district of Ogun State constitute the target population. Two local government areas were randomly selected out of the nine local government areas in the Ogun East Senatorial district. Ten senior secondary schools out of the twenty-six public SSS from the selected local government areas in the senatorial district were chosen. Thirty (30) students were sampled in each of the schools, to make up a total of 300 participants.

Instrumentations

The following instruments were used in the study:-

1. Student Preferential Treatment Scale (SPTS).
   The (SPTS) was developed by the researcher. It is a 25 item scale, consisting of two sections A and B. Section A consists of the student bio-data while section B is a likert scale consisting of 25 items designed to elicit information on preferential treatment given to the students by their teachers. The 'SPTS' was validated and the reliability index was 0.85 Cronbach Alpha.
2. Student Numerical Ability Test (SNAT). The instrument was adapted from Amosun (2002). It was a standardized Higher Test by Australian Council for Educational Research and Mental Ability Test, originally developed by Arthur, S. Otis and Roger, T. Lemon. It consists of 40 multiple choice test items with four options lettered A to D. The instrument was administered to determine the students numerical mental ability. It was revalidated by the researcher and the reliability coefficient was 0.81 Cronbach Alpha.

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3. Economics Achievement Test (EAT). This was a 3 item essay test adopted from a pool of WAEC (WASCE) 2005-2007 essay tests. The instrument was revalidated by the researcher, using Scott II and the reliability coefficient was 0.97.

Method of Data Analysis

Analysis of data was done using both descriptive statistics, Pearson moment Correlation and multiple regression. Pearson moment correlation was used to analyse research questions 1, 2 and 3 while multiple regression was used to analyse research question 4.

Results

Research Question 1

What is the relationship between preferential treatments and students' achievement in Economics?

Table 1: Correlation between Preferential Treatment and Students' Achievement in Economics

	N	Mean	Std. Deviation	r	Significant level
Preferential Treatment	300	26.45	10.961		
Economics Achievement	300	24. 24	11.083	.622	.000*
$r^2 = 0.387$					

*Significant at P< 0.05

Table 1 shows that there is statistically significant relationship between preferential treatment and students' achievement in Economics, significant at P<0.05. The coefficient r = 0.622 implies that the higher the preferential treatment given to a student, the higher the achievement in Economics. The r^2 = 0.387 implies that 38.7% of the variation in achievement in Economics can be attributed to the preferential treatment.

Research Question 2

What is the relationship between class size and students' achievement in Economics?

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Table 2: Correlation between class size and students achievement in Economics

	N	Mean	Std. Deviation	r	Significant level
Class Size	300	2.10	.844		
Economics Achievement	300	24. 24	11.083	-.285	.000*
$R^2 = 0.142$					

*Significant at P< 0.05

Table 2 shows that there is statistical significant relationship between class size and students' achievement in Economics, significant at P<0.05.

The negative correlation (r=-0. 285) between class size and students' achievement in economics implies that large class size leads to decrease in students' achievement in Economics and vice versa.

Research Question 3

What is the relationship between numerical ability and students' achievement in Economics?

Table 3: Correlation between Students' Numerical Ability and Achievement in Economics

	N	Mean	Std. Deviation	r	Significant level
Numerical Ability	300	27.68	4.365		
Economics Achievement	300	24. 24	11.083	-.244	.000*
$r^2 = 0.060$					

*Significant at P< 0.05

Table 3 shows that there is significant statistical relationship between the students' numerical ability and achievement in Economics, significant at P<0.05.

The coefficient r =0. 244 between students' numerical ability and achievement in economics shows a weak positive relationship. This implies that when there is positive improvement in the

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students' numerical ability, there will be positive increase in their achievement in Economics. The coefficient r^2= 0.060 implies that 6.0% of the variation in achievement in economics can be attributed to the students' numerical ability.

Research Question 4

What is the composite effect of preferential treatment, class size and numerical ability on students' achievement in Economics?

Table 4: Regression of Preferential Treatment, Class size and Numerical Ability on Students Achievement in Economics

Model		Sum of squares	Df	Mean square	F	Sig.
	Regression	10283.830	3	3427.943	38.369	.000
	Residual	26444.890	296	89.341		
	Total	36728.720	299			
R=.529 R square =.280 Adjusted R. square = . 273						

Table 4 shows that there is significant statistical effect between the preferential treatment, class size and students' numerical ability on students' achievement in economics. The Adjusted R Square = 0. 273 implies that 27.3% of the variance in the students' achievement in Economics can be attributed to the combined effect of the three independent variables. These findings indicate that there is a positive composite effect of preferential treatment, numerical ability and class size on students' achievement in Economics.

Discussion

The findings from this study reveals that there is a significant positive relationship between preferential treatment and achievement of students in Economics. This is corroborated by Fu (2006) and Tuvana (2011). Fu found out that preferential treatment increased the marginal academic benefit of effort from the students. Tuvana stated that when preferential treatment is mild, it reduces

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the expected academic achievement of the disadvantaged (low and moderate students). However, the findings of Espenshade et al (2004) asserted that preferential treatment does not alter the marginal benefit of effort from the students.

The results of this study also revealed that there is a significant negative relationship between class size and students' achievement in Economics. This means that students from a small class size performed better than students from high populated classes. Hence, the higher the class size, the lower the students' achievement and vice versa. This finding is supported by the research evidence from Tennessee's project star, which shows that the students in smaller classes did better when compared with students in larger classes (Fun and Achilled, 1990; Krueger and Whitmore, 2011; Finn et al, 2005). This study however contradicts the studies of (Ogbonna, 2007; Moghu, 2002 and Slate & Jones 2005), that stated that students in larger class did better in academic achievement than student from smaller classes.

Therefore, class size which could affect students' achievement positively or negatively has to be balanced with the teacher's ability to manage a class professionally.

Findings from this study are that there is a significant relationship between numerical ability and achievement in economics. It revealed that the higher the numerical ability, the higher the students' achievement in Economics. This can be supported by the findings of (Adu, 2002; Tremblay et al, 2002; Ishola, 2003; Onadeko, 2006; Yusuf, 2009 and Francis & Tunde, 2009). They all found out and concluded that mathematical ability highly predicts students' achievement in mathematical concepts. Therefore, numerical ability which predicts students' achievement in mathematical concepts also predicts student' achievement in numerical economics.

Finally, the findings of this study revealed that the combination of the independent variables, that is: preferential treatment, numerical ability and class size jointly has a strong prediction on achievement of students in economics. This means that the variation of achievement in economics can be attributed to the influence of these variables.

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Implication and Conclusion

- Economics teachers should have high expectation of their students and frequently communicate the same to the pupils irrespective of their personal characteristics and abilities.
- Economics teachers should treat students equally, irrespective of their gender, race, religion and level of intelligence.
- Parents should make provision for the materials needed by their children in order for them to be actively involved in the class activities, for good outcome.
- Government should endeavour as much as possible to increase the number of classrooms, so as to reduce class size.

In conclusion, the findings of this study show that students that are treated better by their teachers, those in smaller classes and those with high numerical ability performed better than the other students. Hence, students of Economics are bound to perform well if they are treated equally by their teachers and are taught in smaller classes or less populated classes.

Recommendations

1. Teachers should be made to treat all students equally, so that adequate attention should be given to all.
2. Government should try to build more classrooms in our public schools, so that class size would be reduced.
3. Students should take their study seriously so as to improve on their mathematical ability.
4. Parents should provide conducive environment at home, so that their children would be able to study.

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