

Effect of Inductive and Deductive Teaching Strategies on Senior Secondary School Students' Academic Achievement in Further Mathematics in Oyo State

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Certification

This is to certify that Tunde Rasheed RAHEEM with matriculation number LCU/PG/003152 carried out this research work titled “Effect of Inductive and Deductive Teaching Strategies on Senior Secondary School Students’ Academic Achievement in Further Mathematics in Oyo State” in the Department of Science Education, Faculty of Education, Lead City University, Ibadan, Oyo State, for the award of Master of Science Education Degree MSc(Ed) in Mathematics Education and that this has not been previously submitted.

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Dedication

This research work is dedicated to God Almighty, to everyone who aspires to learn but is limited by circumstances; there is always hope waiting around the corner. Hold onto the hope and the dream.

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Abstract

The fluctuating performance in May/June West African Examination Council (WAEC) SSCE results percentages revealed in the trend analysis studies has resulted in a decade of reports that the achievement of Oyo state students in having a credit pass or above in Further Mathematics has not been consistent. This study investigates the Effect of Inductive and Deductive Teaching Strategies on Senior Secondary School Students' Academic Achievement in Further Mathematics in Oyo State. Seven (7) hypotheses were formulated and tested at 0.05 level of significance. A pretest–posttest quasi–experimental design was applied. Multi-stage sampling procedure was adopted to purposively select three (3) schools of science for the study from the three (3) senatorial districts in Oyo state. A sample size of one hundred and eight (108) participants comprises fifty (50) male students and fifty-eight (58) female students were involved in the study. Senior Secondary Schools two (SSS II) intact classes were used in each of the three (3) selected schools. Differential and Integral Calculus Achievement Test (DICAT) (KR-20 = 0.84) was used as instrument for data collection. Analysis of Covariance (ANCOVA) was used for data analysis. There was a significant main effect of Deductive Teaching Strategy on Senior Secondary School Students' Academic Achievement in Further Mathematics [$F_{(1, 63)} = 11.321, P < 0.05$]. There was a significant interaction effect of inductive and deductive teaching strategies on senior secondary school students' academic achievement in Further Mathematics [$F_{(2, 104)} = 10.128, P < 0.05$]. From the results, it is concluded that the most effective and preferred teaching strategy is the Deductive Teaching Strategy (DTS). Base on the findings, it is suggested that application of Deductive teaching strategy or combined Inductive and Deductive teaching strategies should be considered to improve students' academic achievement in Further Mathematics.

Keywords: Inductive Teaching Strategy, Deductive Teaching Strategy, Conventional Teaching Strategy, Gender, Academic Achievement.

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Table of Contents

Content	Page
Title Page	i
Certification	ii
Dedication	iii
Acknowledgment	iv
Abstract	v
Table of Contents	vi
List of Tables	ix
List of Figure	xii
List of Acronyms	xiii
Chapter One: Introduction	
1.1 Background to the Study	1
1.2 Statement of the Problem	9
1.3 Aim and Objectives of the Study	10
1.4 Hypotheses	11
1.5 Significance of the study	12
1.6 Scope of the Study	13
1.7 Limitation of the Study	13
1.8 Operational Definition of Terms	14
Endnotes	15
Chapter Two: Literature Review	
2.1 Conceptual Review	19
2.1.1 Academic Achievement	19

2.1.2	Teaching Strategies	25
2.1.2.1	Inductive Teaching Strategy	31
2.1.2.2	Deductive Teaching Strategy	34
2.1.3	Gender	36
2.1.4	Further Mathematics	41
2.1.5	Calculus	44
2.2	Theoretical Framework	47
2.2.1	Social Cognitive Theory	47
2.2.2	Sociocultural Theory	52
2.2.3	Constructivist Theory	55
2.3	Review of Empirical Studies	59
2.3.1	Gender and Academic Achievement in Further Mathematics	59
2.3.2	Teaching Strategies and Academic Achievement in Further Mathematics	62
2.3.3	Teacher Skills and Academic Achievement in Further Mathematics	69
2.3.4	Students' Attitude and Academic Achievement in Further Mathematics	72
2.4	Conceptual Model	81
2.5	Summary of Literature Reviewed	81
	Endnotes	84
Chapter Three: Methodology		
3.1	Research Design	97
3.2	Population of the Study	99
3.3	Sample and Sampling Techniques	100
3.4	Description of the Research Instruments	103
3.4.1	Differential and Integral Calculus Achievement Test (DICAT)	103

3.4.2	Teaching and Learning Instructional Guides (TLIG)	105
3.5	Validity of the Differential and Integral Calculus Achievement Test (DICAT)	107
3.6	Reliability of the Differential and Integral Calculus Achievement Test (DICAT)	107
3.7	Method of Data Collection	108
3.7.1	Data Administration	109
3.8	Method of Data Analysis	110
	Endnotes	111
Chapter Four: Results and Discussion of Findings		
4.1	Demographic Data Analysis	112
4.2	Presentation of Data	112
4.2.1	Hypotheses	112
4.3	Discussion of Findings	126
	Endnotes	131
Chapter Five: Conclusion		
5.1	Summary of Findings	132
5.2	Conclusion	133
5.3	Recommendations	134
5.4	Suggested Area for Further Research	134
	Bibliography	136
	Appendix I	151
	Appendix II	161
	Appendix III	173
	Appendix IV	185
	Bio-data	197

List of Tables

Table	Title	Page
3.1	Factorial Design	98
3.2	Schematic Representation of the $3 \times 2 \times 1$ Factorial Matrix	98
3.3	Population of the Study	100
3.4	Selected Schools of Science for the Study	102
3.5	Study Sample	103
3.6	Differential and Integral Calculus Achievement Test (DICAT) Item Specification	105
4.1.0	Inductive Teaching Strategy, Deductive Teaching Strategy and Gender	112
4.1.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Inductive Teaching Strategy	113
4.1.2	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy	114
4.1.3	Pairwise Comparisons of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy	114
4.2.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Deductive Teaching Strategy	115
4.2.2	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Deductive Teaching Strategy	115
4.3.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Gender	116
4.3.2	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Gender	116
4.3.3	Pairwise Comparisons of Senior Secondary School Students' Academic Achievement in Further Mathematics for Gender	117

4.4.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Inductive Teaching Strategy and Gender (a)	118
4.4.2	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Inductive Teaching Strategy and Gender (b)	118
4.4.3	Pairwise Comparisons of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy and Gender (a)	119
4.4.4	Pairwise Comparisons of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy and Gender (b)	119
4.4.5	Pairwise Comparisons of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy and Gender (c)	119
4.5.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Deductive Teaching Strategy and Gender	120
4.5.2	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Deductive Teaching Strategy and Gender	121
4.5.3	Pairwise Comparisons of Senior Secondary School Students' Academic Achievement in Further Mathematics for Deductive Teaching Strategy and Gender	121
4.6.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Interactive Effect of Inductive and Deductive Teaching Strategies	122
4.6.2	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Interactive Effect of Inductive and Deductive Teaching Strategies (a)	123
4.6.3	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Interactive Effect of Inductive and Deductive Teaching Strategies (b)	123

4.7.1	Summary of Senior Secondary School Students' Academic Achievement in Further Mathematics ANCOVA Result of the Difference in Posttest Mean for Inductive Teaching Strategy, Deductive Teaching Strategy and Gender	124
4.7.2	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy, Deductive Teaching Strategy and Gender	125
4.7.3	Parameter Estimates of Senior Secondary School Students' Academic Achievement in Further Mathematics for Inductive Teaching Strategy, Deductive Teaching Strategy and Gender	125

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List of Figure

Figure	Title	Page
2.1	Conceptual Model of Inductive and Deductive Teaching Strategies on Academic Achievement in Further Mathematics	81

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List of Acronyms

Abbreviation	Meaning
JSS	Junior Secondary School
SSS	Senior Secondary School
WAEC	West African Examination Council
NECO	National Examination Council
NABTEB	National Business and Technical Examination Board
ITS	Inductive Teaching Strategy
DTS	Deductive Teaching Strategy
JAMB	Joint Admission and Matriculation Board
NTI	National Teacher's Institute
WASSCE	West African School Certificate Examination
TCII	Teacher College Grade II
GCE	General Certificate Examination
MKO	More Knowledgeable Other
ZPD	Zone of Proximal Development
CAI	Computer Assisted Instruction
STME	Science, Technology and Mathematics Education
AR	Auto – Regressive
SSCE	Secondary Certificate Examination
MAT	Mathematics Achievement Test
CCTST	California Critical Thinking Skills Test – Form B
CT	Critical Thinking

TSCMCQ	Teachers' Skills of Commitment, Motivation and Communication Questionnaire
MRA	Multiple Regression Analysis
ANOVA	Analysis of Variance
ATMI	Attitude Towards Mathematics Inventory
SPSS	Statistical Package for Social Sciences
DICAT	Differential and Integral Calculus Achievement Test
TLIG	Teaching and Learning Instructional Guides
KR – 20	Kuder – Richardson
ANCOVA	Analysis of Covariance

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