

THE UNIVERSITY OF ZAMBIA



**THE RELATIONSHIP BETWEEN LITERACY AND
NEUROPSYCHOLOGICAL TEST PERFORMANCE AMONG
ADULTS IN ZAMBIA**

by

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**A dissertation submitted to the University of Zambia in partial
fulfilment of the requirements for the degree of Master of Science
in Clinical Neuropsychology**

The University of Zambia

Lusaka

May, 2011

DECLARATION

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ABSTRACT

The influence of demographic factors such as education, age and gender on neuropsychological test performance has received a great deal of attention in literature. Even if there is a general consensus with regard to the importance of education's influence on cognitive functioning measured by the neuropsychological test battery, the extent to which self-reported years of education corresponds to real acquisition of literacy skills remains largely opaque, especially in Zambia, where the past access of adults to education is very unevenly distributed. Several investigators have suggested that literacy may serve as a quantitative estimate of true education experience. Among African-Americans, research has revealed that self-reported years of education repeatedly over predicts estimated literacy level. The current study examined the relationship between literacy and cognitive test performance in a sample of 324 neurologically normal rural and urban, Zambian adults, ranging in age between 20 and 65 years with 5 to above 13 years of education. The data was collected through self-administered questionnaires and neuropsychological assessment. Results of the bivariate correlation analyses revealed a moderate positive association ($r=.219, n=324, p<.01$) between literacy and cognitive test performance however this relationship was not as strong as that found between education ($r=.65, n=324, p<.01$) and cognitive test performance. Education predicted neurocognitive test scores better than literacy. There are several reasons for these findings. First, reported years of education serves as a proxy for cognitive reserve, such that the more educated one is, the greater their cognitive power. Those who are educated use more efficient processing mechanisms than their uneducated counterparts. The point is simply that a person with more cognitive reserve might be able to identify a larger collection of alternate brain networks for solving the problem at hand. Second, the experience of going through the process of education may not only be limited to acquisition of writing and reading skills but also other broader skills such as test-taking, scanning, processing speed, concentration and task switching skills acquired through incidental learning rather than being taught directly in educational environments which may influence optimal neuropsychological performance. The results of this study suggest that the use of education rather than literacy, as an estimate of the educational experience will serve as a more meaningful alternative in neuropsychological test interpretation.

DEDICATION

I dedicate this dissertation to Jehovah God the almighty, our son, Thumelo and my dear wife, Violet, my caring mom, Mrs. Mary Walubita and to the thousands of people around the world who are committed to enriching their and others' lives through improving their literacy skills to maximize their inner potential.

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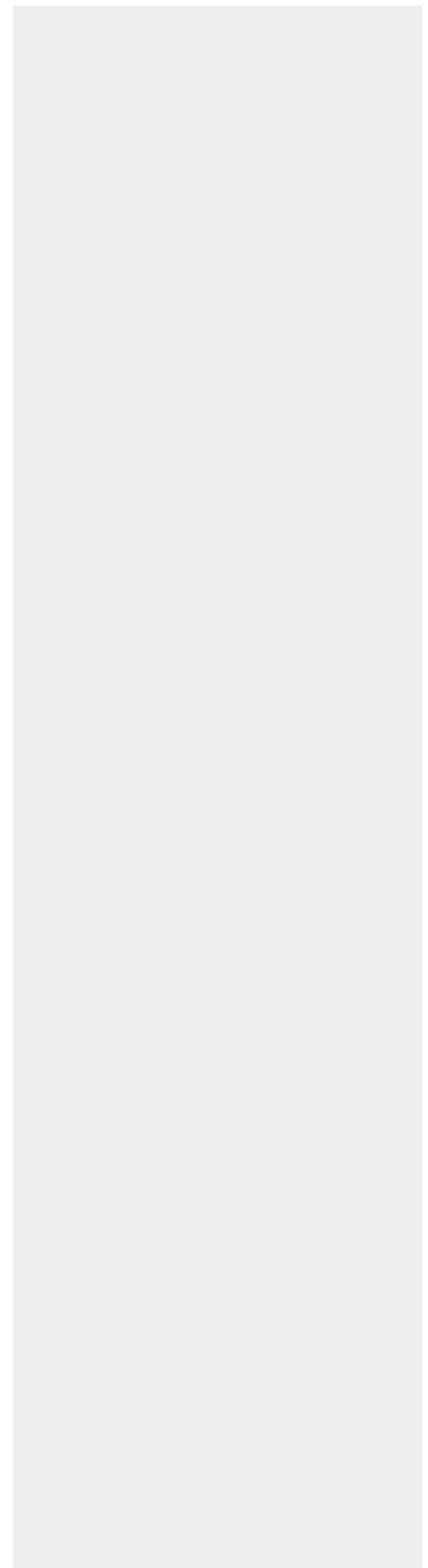
TABLE OF CONTENTS

Declaration	
Notice of Copyright	
Certificate of Approval form	
Abstract.....	iv
Dedication.....	v
Acknowledgements.....	vi
Table of Contents.....	vii
List of Figures.....	x
List of Tables.....	xi
List of Abbreviations and Acronyms.....	xii
CHAPTER ONE: INTRODUCTION.....	1
1.0 Background.....	1
1.1.Statement of the Problem.....	3
1.2.Purpose of the Study.....	3
1.3.Research Questions.....	3
1.4.Research Objectives.....	4
1.5.Research Hypotheses.....	4
1.6.Significance.....	5
CHAPTER TWO: LITERATURE REVIEW.....	6
2.0. Literacy and Neuropsychological test performance.....	6
2.1. Education and Neuropsychological test performance	7
2.2. Literacy and Neuropsychological test Domains	8
2.3. Educational attainment and Neuropsychological test performance.....	9
2.4. Theoretical perspectives.....	11
2.4.1. Literacy as a Torch.....	11
2.4.2. Literacy as a Hinge.....	12
2.4.3. Literacy as a Resource.....	12
2.5. Operational definitions.....	13

CHAPTER THREE: METHODOLOGY	14
3.1. Design.....	14
3.2. Population.....	14
3.3. Sample and Sampling procedures.....	14
3.4. Participants Demographics.....	15
3.5. Inclusion/Exclusion Criteria.....	15
3.6. Data Collection procedures.....	16
3.6.1. Self-administered questionnaires.....	16
3.6.2. Test Battery administration.....	16
3.7. Central instruments.....	17
3.8. Data analysis.....	26
3.9. Ethical considerations.....	26
 CHAPTER FOUR: RESULTS	 28
4.1. Hypothesis 1: Literacy and Neuropsychological test performance.....	28
4.2. Hypothesis 2: Literacy, Education and Neuropsychological test performance...	28
4.3. Hypothesis 3: Literacy, Education and Word fluency measures.....	32
4.4. Hypothesis 4: Performance of different educational attainment groups.....	32
4.5. Hypothesis 5: Relationship between literacy and ZAT.....	33
4.6. Correlations of literacy subscales.....	34
4.7. Correlations of literacy subscales and demographics.....	35
 CHAPTER FIVE: DISCUSSION	 36
5.1. Relationship between Literacy and Neuropsychological test.....	36
5.2. The variance accounted for by education and literacy.....	38
5.3. Neuropsychological measures most related to literacy and education.....	39
5.4. Performance of different educational attainment groups.....	40
5.5. Relationship between literacy and ZAT.....	40

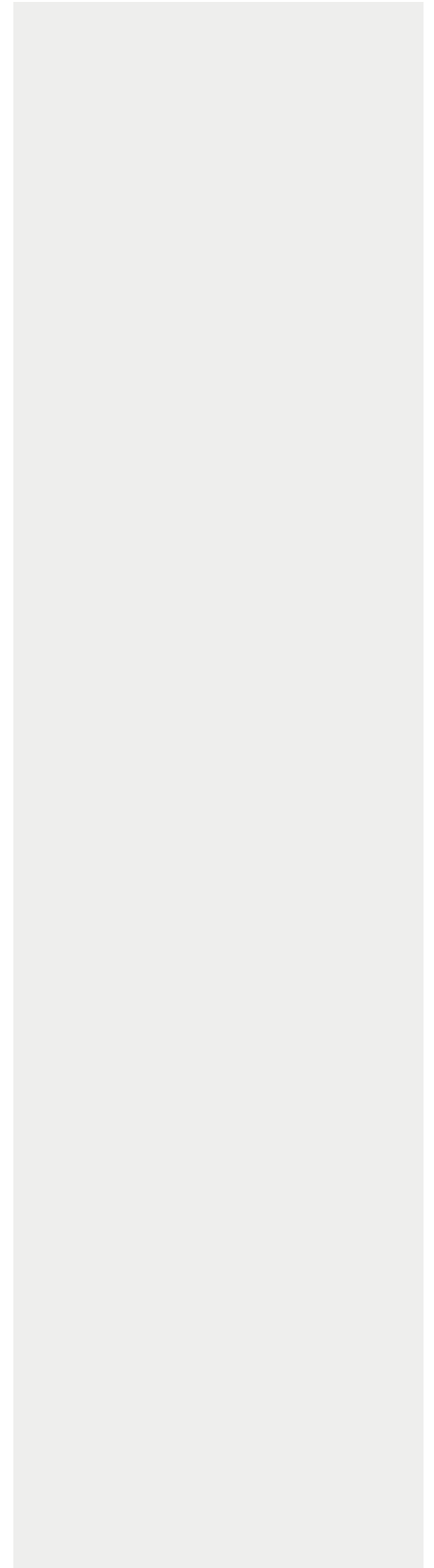
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS.....	41
6.1. Conclusion.....	41
6.2. Summary of main findings.....	41
6.3. Recommendations.....	44
6.4. Limitations.....	45
References.....	46
Appendices.....	53
Appendix A: Informed Consent Form.....	54
Appendix B1: Functional adult literacy scale.....	56
Appendix B2: Rationale for the Functional Adult Literacy Scale.....	58
Appendix C: Ministry of Health approval letter	59
Appendix D: Biomedical Ethics approval letter	60
Appendix E: Central Instruments.....	61
Handout: Beck Depression Inventory-II (CH3).....	
Handout: Patient's Assessment of Own Functioning (NP6).....	
Handout: Activities of Daily Living (NC2).....	
Handout: Substance Use (CH13A).....	
Handout: Substance Use History (CH13D).....	
Handout: Use of Academic Skills Questionnaire (CN18).....	
NMS : Neurobehavioral Medical Screen (CH42).....	
BN : Behavioral Notes (NP31).....	
HDMT: Hiscock Digit Memory Test (NC3).....	
HVLT : Hopkins Verbal Learning Test - (TB15Z).....	
BVMT: Brief Visuospatial Memory Test - Revised (TB16).....	
WDS : WAIS-III Digit Symbol (ND16).....	
WSS : WAIS-III Symbol Search (ND18).....	
GPB : Grooved Pegboard Test (TB31).....	
TMT : Trail Making Test A (NP19A).....	
CT : Color Trails 1 (NP41A).....	

CT : Color Trails 2(NP41B).....
WSS : WMS-III Spatial Span (ND30).....
WCST: Wisconsin Card Sorting Test - Computerized 64 Items.....
COWAT: Controlled Oral Word Association Test - FAS (NP23A).....
CFT : Category Fluency Test (NP27).....
PASAT: Paced Auditory Serial Addition Task (NP17B).....
SCWT: Stroop Color and Word Test (NC6-N).....
HCT : Halstead Category Test (NP12).....



LIST OF FIGURES, MAPS, ILLUSTRATIONS

Figure 1: Test performance and educational attainment33



LIST OF TABLES

Table 1: Total variance in cognitive test scores explained by education, age, gender and literacy.....	29
Table 2: Analysis of Variance values showing the statistical Significance of the literacy, gender, age and education	30
Table 3: Coefficients of Education, Literacy, age and gender.....	30
Table 4: Total variance in Neuropsychological test scores explained by education and literacy.....	31
Table 5: Coefficients of correlation between Literacy and various Test Domains.....	32
Table 6: Coefficients of correlation between the various Literacy subtests and ZAT.....	34
Table 7: Correlation Matrix of the Literacy subscales.....	34
Table 8: Correlations between sub scales demographic factors.....	35

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LIST OF ABBREVIATIONS AND ACRONYMS

ZNTB.....	Zambia Neurobehavioral Test Battery.
WRAT.....	Wide Range Achievement Test.
ZAT.....	Zambian Achievement Test.
TRR.....	Test Retest Reliability.
VCT.....	Voluntary Counseling and Testing.
BREC.....	Biomedical Research Ethics Committee.
UNZA.....	University of Zambia.
CR.....	Cognitive Reserve.
HDMT.....	Hiscock Digit Memory Test.
HVLT.....	Hopkins Verbal Learning Test.
BVMT.....	Brief Visuospatial Memory Test – Revised.
WCST.....	Wisconsin Card Sorting Test - Computerized 64 Items.
COWAT.....	Controlled Oral Word Association Test - FAS.
PASAT.....	Paced Auditory Serial Addition Task.
NPS.....	Neuropsychological test scores.