THE EFFECTS OF AN INTENSIVE READING PROGRAMME ON THE ACADEMIC PERFORMANCE OF POST-MATRIC ENGLISH SECOND LANGUAGE STUDENTS IN SCIENCE

by

SUSAN PHILLIPS

submitted in part fulfilment of the requirements for the degree of

MASTER OF ARTS

in the subject

APPLIED LINGUISTICS

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: DR E.J. PRETORIUS

DECEMBER 2004
ABSTRACT

Reading is considered to be a vital skill for academic success, yet it is seldom taught to or practised with students. Students begin to ‘read to learn’ during primary and secondary schooling. However, at tertiary level the academic demands are much greater than before and involve more extensive reading of conceptually more complex texts. This study investigates the implementation of an intensive reading programme for post-matric English Second Language Science students, based on the assumption that reading improves reading. In addition, this study investigates the effect that reading ability has on academic performance in Science, which relies inter alia, on the ability to read, comprehend and interpret word problems. An intervention group and a control group were used to ascertain the effects of an intensive reading programme and the findings suggest that any reading (intensive or extensive) improves reading and language skills. This in turn impacts on academic performance in Science, if students have an ability in Science to begin with.

Key terms: Reading, reading intervention programme, academic performance in Science, intensive reading, extensive reading, ESL students, bridging course, vocabulary strategies, reading strategies.
ACKNOWLEDGEMENTS

Any endeavour, such as this research study, inevitably involves the help and support of a number of people – and I thank them all. However, a few people were especially instrumental in helping me complete this study and they deserve special mention. I would therefore like to thank the following people:

• Dr Lilli Pretorius, my supervisor, whose invaluable help, support and encouragement sustained me throughout. Her painstaking correction of my rough drafts and her sense of humour were greatly appreciated;

• Neville Melville, CEO at our College, who supported the whole concept of this research and who willingly acted as liaison with our sister College;

• Gail Carreira, my colleague at our sister College, who graciously stepped in to offer me a control class when all seemed lost;

• My long-suffering family: my husband, Wayne, and our son and daughter, Dean and Roxanne, who all helped and encouraged me when and where they could;

• Special thanks to Dean, whose skill with a computer saved this study from obliteration by that ornery machine on many occasions;

• Debbie Channer, who so kindly and efficiently helped me with the production of this document;

• Finally, all the students of 2002 and 2003, at both Colleges, who worked long and hard to produce the results that are reported in this research study – I wish them the very best of luck with their studies at tertiary level.
# TABLE OF CONTENTS

## CHAPTER ONE

### SCIENCE, READING AND ACADEMIC PERFORMANCE

1.0 INTRODUCTION 1
1.1 BACKGROUND TO THE RESEARCH PROBLEM 1
1.2 FACTORS CONTRIBUTING TO THE PROBLEMS WITH LANGUAGE AND THE NATURAL SCIENCES IN EDUCATION 3
1.3 READING 4
1.4 THE IMPORTANCE OF READING 6
1.4.1 READING AND TEXTBOOKS 7
1.4.2 READING, VOCABULARY AND SCIENCE TEXTS 8
1.5 THE RESEARCH CONTEXT OF THE CURRENT STUDY 8
1.5.1 ADMISSION TO THE COLLEGE 9
1.5.2 LEARNING PROBLEMS EXPERIENCED BY THE STUDENTS 10
1.5.2.1 LANGUAGE PROBLEMS IN SCIENCE TEXTS 10
1.5.2.2 READING PROBLEMS 11
1.6 SUMMARY OF THE PRECEDING DISCUSSION 12
1.7 RESEARCH AIMS 12
1.8 RESEARCH QUESTIONS AND HYPOTHESES 13
1.9 CONCLUSION 14

## CHAPTER TWO

### REVIEW OF THE LITERATURE

2.0 INTRODUCTION 15
2.1 READING AND ACADEMIC SUCCESS 15
2.1.1 READING AND VOCABULARY 18
2.2 READING AND ADMISSION TESTING 20
2.3 READING AND SCIENCE 23
2.4 READING INTERVENTION RESEARCH 26
2.4.1 THE DURATION EFFECT 37
2.4.2 CONCLUSION ABOUT READING INTERVENTION PROGRAMMES 38
2.5 RESEARCH DESIGN 38
2.5.1 READING ASSESSMENT 39
2.6 CONCLUSION 42
CHAPTER THREE

RESEARCH FRAMEWORK AND PROCEDURES

3.0 INTRODUCTION
3.1 RESEARCH DESIGN
3.2 STATISTICAL ANALYSIS OF DATA
3.3 PARTICIPANTS
3.4 ASSESSMENT MATERIALS
  3.4.1 READING RATE
  3.4.2 READING COMPREHENSION
  3.4.3 ANAPHORIC RESOLUTION
  3.4.4 SEMANTIC RELATIONS
  3.4.5 VOCABULARY
  3.4.6 SPELLING
  3.4.7 LANGUAGE PROFILE
  3.4.8 SCORES
3.5 INTERVENTION MATERIALS
3.6 PROCEDURES
3.7 PILOT STUDY
  3.7.1 PARTICIPANTS
  3.7.2 ASSESSMENT MATERIALS
  3.7.3 PROCEDURES
  3.7.4 REVISION OF TEST MATERIALS
  3.7.5 RESULTS
  3.7.6 DISCUSSION OF THE RESULTS
3.8 THE MAIN STUDY
  3.8.1 PARTICIPANTS
  3.8.2 INTERVENTION PROCEDURES
  3.8.3 ASSESSMENT PROCEDURES
3.9 CONCLUSION
LIST OF TABLES AND FIGURES

CHAPTER 3

TABLES

3.1 Reading scores, English and Science scores for 2003. The SD is given in brackets 56
3.2 Correlation results \((r)\) between the posttest reading averages and the final Science results for the control and intervention groups 57

FIGURES

3.3 Graph showing the results for all the tests and the standard deviations for control and intervention groups 58

CHAPTER 4

TABLES

4.1 Frequency of reading 70
4.2 Responses to the questionnaire regarding preferences with regard to reading material 71
4.3 The averages of the reading and vocabulary pre- and posttests 76
4.4 The range of results in percentages for the two groups in pre- and posttest reading results 76
4.5 Difference between the mean reading and vocabulary posttest scores of Treatment Group 1 and Treatment Group 2 77
4.6 Differences between pre- and posttest scores of Treatment Group 1 and Treatment Group 2 respectively 78
4.7 Results of the reading rate assessment 79
4.8 The mean reading, vocabulary Science and English scores in 2003 of Treatment Group 1 and Treatment Group 2 84
4.9 Ranges (in percentages) of the reading, vocabulary, English and Science scores of The two groups for initial and final scores 85
4.10 Correlations ($r$) for the final overall averages, vocabulary and Science for the two groups

4.11 Difference in performance in Science and reading according to reading groups

4.12 Differences in performance in Science and reading according to academic groups

4.13 Spelling averages for Treatment Group 1 and Treatment Group 2. The SD is presented in brackets

4.14 Differences between pre- and posttest spelling scores for the two groups

4.15 Correlations ($r$) for reading averages and spelling for Treatment Group 1 and Treatment Group 2

BIBLIOGRAPHY

APPENDIX A  SAMPLE OF READING RATE TEST
APPENDIX B  SAMPLE OF COMPREHENSION TEST
APPENDIX C  SAMPLE OF ANAPHRORIC RESOLUTION TEST
APPENDIX D  SAMPLE OF SEMANTIC RELATIONS TEST
APPENDIX E  SAMPLE OF VOCABULARY TEST
APPENDIX F  SAMPLE OF SPELLING TEST
APPENDIX G  SAMPLE OF COMPLETED QUESTIONNAIRE
APPENDIX H  EXAMPLE OF S*T*A*R*T SCIENCE UNIT
APPENDIX I  STUDENTS’ OPINIONS OF READING COURSE
APPENDIX J  LETTERS OF PERMISSION FROM COLLEGES