

Edith Cowan University
Research Online

Theses : Honours

Theses

1992

The relationship between time devoted to independent recreational reading and reading achievement scores

R. Fragomeni
Edith Cowan University

Follow this and additional works at: https://ro.ecu.edu.au/theses_hons



Part of the [Educational Assessment, Evaluation, and Research Commons](#)

Recommended Citation

Fragomeni, R. (1992). *The relationship between time devoted to independent recreational reading and reading achievement scores*. https://ro.ecu.edu.au/theses_hons/414

This Thesis is posted at Research Online.
https://ro.ecu.edu.au/theses_hons/414

Edith Cowan University

Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study.

The University does not authorize you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following:

- Copyright owners are entitled to take legal action against persons who infringe their copyright.
- A reproduction of material that is protected by copyright may be a copyright infringement. Where the reproduction of such material is done without attribution of authorship, with false attribution of authorship or the authorship is treated in a derogatory manner, this may be a breach of the author's moral rights contained in Part IX of the Copyright Act 1968 (Cth).
- Courts have the power to impose a wide range of civil and criminal sanctions for infringement of copyright, infringement of moral rights and other offences under the Copyright Act 1968 (Cth). Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

**THE RELATIONSHIP BETWEEN TIME
DEVOTED TO INDEPENDENT
RECREATIONAL READING AND
READING ACHIEVEMENT SCORES**

BY

R. Fragomeni B. A. (Education)

A Thesis Submitted in Partial Fulfilment of the

Requirements for the Award of

Bachelor of Education (Honours)

at the Faculty of Education, Edith Cowan University

Date of Submission: 13 May 1992

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

Abstract

The purpose of this study was to conduct a preliminary assessment, in the Western Australian context, of the relationship between reading achievement scores and time devoted to independent recreational reading, and the extent to which gender and socio-economic status, affect this relationship.

The data pertaining to time spent in independent recreational reading were collected by means of a questionnaire. The subjects and their teachers were trained by the researcher in the procedure to be followed in the questionnaire completion.

The data relating to reading achievement scores were generated through the administration of the comprehension sub-test of the Progressive Achievement Test (1973).

The sample consisted of 65 Year Seven students chosen from three Perth metropolitan primary schools. The three schools were selected so that each socio-economic status level - high, middle and low was represented.

Measures of socio-economic status were those derived from Ross, Farish and Plunkett (1988) criteria as used by the Western Australian Ministry of Education in identifying schools in the disadvantaged localities (1988).

Pearson's product moment correlation coefficient was used to assess the significance of the relationship between reading achievement scores and time devoted to independent recreational reading.

Simple analyses of variance were used to determine the significance of the differences between the means of the independent recreational reading scores for boys and girls as well as for low, middle and high socio-economic status groups. Likewise, the same procedure was used to determine the significance of the differences between the means of the reading achievement scores for boys and girls and for low, middle and high socio-economic groups.

Arguments based on the hypothetical syllogism were used to infer the influence of gender and socio-economic status on the relationship between reading achievement scores and time devoted to independent recreational reading.

Reading achievement scores were found to be significantly and positively related to time devoted to independent recreational reading. Girls were found to have significantly higher reading achievement scores and to devote significantly more time to independent recreational reading than boys.

Subjects in the high socio-economic status group were found to have significantly higher reading achievement scores and to devote significantly more time to independent recreational reading than the middle socio-economic status group. Similarly, subjects in the middle socio-economic status group were found to have significantly higher reading achievement scores and to

devote significantly more time to independent recreational reading than the low socio-economic group.

It was inferred that there are important gender and socio-economic status effects in the positive relationship between reading achievement scores and time devoted to independent recreational reading.

On the basis of this study, it was concluded that a much more extensive study, into the relationship between reading achievement scores and time devoted to independent recreational reading, using more sophisticated sampling and statistical techniques, is warranted in the Western Australian context.

Declaration

"I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text."

Signed :

A handwritten signature, possibly 'L', written in black ink below a horizontal line.

Acknowledgements

I would like to extend my sincere thanks to my supervisor, Dr Ross Latham for his interest, encouragement and professional assistance throughout this research study. I would also like to thank my parents Peter and Nancy Fragomeni who have made my academic career possible and who have put up with me through trying times. Finally, I would like to sincerely extend my gratitude to a very special friend, Dario Bottega for his continuous encouragement, support and assistance, and for just being there.

Table of Contents

Abstract	i
Declaration	iv
Acknowledgements	v
List of Tables	ix

Chapter

One	Introduction	1
	Statement of Problem and Purpose	3
	General Research Question	3
	Definition of Terms	3
	Significance of the Study	4
	Limitations of the Study	6
Two	Literature Review	8
	Reading Achievement and Leisure Time Activities	8
	Television viewing	9
	Listening to music	10
	Family outings, hobbies and play	10
	Studies Related to the Impact of Independent Recreational Reading (IRK) on Reading Achievement	11

Chapter	Page
The Relationship between Gender, IRR and Reading Achievement	16
The Relationship between Socio Economic Status, Independent Recreational Reading and Reading Achievement	19
Summary	24
Three Specific Research Questions and Hypotheses	26
Specific Research Questions.....	26
Statement of Hypotheses.....	28
Corollaries to Hypotheses 1 to 4B	29
Four Methodology	31
The Design of the Study.....	31
Subjects	31
Target Population.....	32
Instruments.....	32
Data Gathering Procedure	33
Scoring of the Questionnaire	34
Data Analysis	35
Five Findings.....	37
Correlation Analysis.....	37
ANOVA Tests.....	38
Six Discussion of Findings.....	44

Chapter	Page
Seven Conclusion.....	48
Limitations of the Interpretations Placed upon the Findings	48
The Sample.....	48
Socio Economic Status and the Sample.....	48
The Questionnaire	49
Further Research	50
Implications of the Study	51
References.....	52
Appendices.....	55
Appendix A - Comprehension Sub-Test of the PAT	56
Appendix B - The Questionnaire	74

List of Tables

	Page
Table 2.1.....	16
The Relationship between Independent Recreational Reading and Reading Achievement.	
Table 2.2.....	19
The Relationship between Gender and Independent Recreational Reading.	
Table 2.3.....	23
The Relationship between SES, Independent Recreational Reading and Reading Achievement.	
Table 4.1.....	32
Subjects used in the Sample.	
Table 5.1.....	37
Sample Data for IRR and Reading Achievement Scores.	
Table 5.2.....	38
Correlational Analysis for IRR and Reading Achievement Scores.	

Table 5.3.....	39
Duncan's Multiple Range test for IRR on Gender.	
Table 5.4.....	39
Duncan's Multiple Range Test for Comprehension Scores on Gender.	
Table 5.5.....	41
Duncan's Multiple Range Test for IRR on SES.	
Table 5.6	42
Duncan's Multiple Range Test for Comprehension Scores on SES.	

Chapter One

Introduction

There is concern in the general community and in the educational community that present levels of reading achievement are inadequate for the demands of today's society. Reading, like any other skill requires large amounts of practice. Independent Recreational Reading (IRR) is an important source of that practice.

In a rapidly changing society, children are faced with many choices as to how they may spend their leisure time. IRR has to compete with watching television, playing sport, listening to the radio, social interaction, going to the movies and so on. Clearly, these personal and home pursuits occupy time which might be spent in IRR. This may have some influence on reading achievement. The aim of this study, was to ascertain the nature of the relationship between time devoted to IRR and reading achievement scores for a sample of Western Australian Year Seven readers.

The heightened concern about children's reading achievement, referred to above, has motivated the carrying out of a number of research studies aimed at investigating the involvement of factors which may be related to reading achievement. Some of these studies have addressed the question of how children spend their leisure time out of school and whether this is related to reading achievement. IRR is clearly a leisure time activity. In a number of overseas studies attempts have been made to discover the relationship between the time devoted to IRR and reading achievement scores.

Such endeavours to ascertain the nature of the relationship between these two variables have produced inconclusive results. That is, both significant and non-significant relationships between time spent in IRR and reading achievement have been found. Results from studies conducted by Greaney, (1980); Greaney and Hegarty, (1987); Anderson, Wilson and Fielding, (1988) indicate a positive relationship between the variables. However, a recently conducted study found that time spent on reading at home was not related to gains in reading achievement (Taylor, Frye and Maruyama, 1990). Some of the above researchers' have also investigated the involvement of a series of personal and home factors in reading achievement and time devoted to IRR. Gender and socio-economic status (SES) have figured among these factors. Greaney and Hegarty, (1987); Mellon (1987) and among others, Anderson et al. (1988), have all investigated the relationships among gender, time devoted to IRR and reading achievement. The impact of SES upon these variables has also been investigated by other researchers. These include Greaney, (1980); Roberts, Bachen, Hornby and Hernandez-Ramos, (1984); Walberg and Tsai, (1985); Greaney and Hegarty (1987).

As far as can be ascertained, no studies investigating the relationship between time devoted to IRR and reading achievement scores have been conducted in the Western Australian context, and indeed, in the Australian context as this study is. This study investigated the relationship between time devoted to IRR and reading achievement scores. The extent to which gender and SES had impact in this relationship was also examined. The problem and purpose of this study are stated below.

Statement of Problem and Purpose

The problem of concern in this study is the growing belief in the general community and in the educational community that the reading achievement of children in primary school is inadequate for the demands of today's society. It is also a generally held belief that children are engaging in less and less IRR which may affect this reading achievement. The purpose of this study was to establish reading achievement scores and IRR habits of selected groups of low, medium and high SES boys and girls in a sample of Year Seven Western Australian children, and to establish the nature of the relationship among these variables. The purpose is reflected in the general research question stated below.

General Research Question

What is the relationship between reading achievement scores, as measured by the comprehension sub-test of the Progressive Achievement test (PAT), and time devoted to independent recreational reading (IRR), in a sample of Year Seven Western Australia children? (The specific questions for this study are outlined in detail in Chapter Three).

Definition of Terms

Independent Recreational Reading (IRR). Time devoted to individual reading of self chosen materials for pleasure.

Leisure Time. Out of school time which is free for children to participate in their own chosen activities.

Leisure Time Activity. A self-chosen activity engaged in for one's own satisfaction, pleasure or for one's own sake.

Progressive Achievement Test (PAT), (1973). An Australian Council For Educational Research (ACER) standardized test providing scores on reading achievement of which comprehension is a sub-test. In this study, the abbreviation PAT is used to indicate the comprehension sub-test of the Progressive Achievement Test.

Reading Achievement. Performance on the comprehension sub-test of the Progressive Achievement Test. This is also referred to as Reading Proficiency and Reading Achievement Scores.

Socio-Economic Status (SES). For the purpose of this study SES will be determined by geographical location based on the classification by Ross, Farish and Plunkett (1988) in their paper "Indicators of Socio Economic Disadvantages for Australian Schools." The indicators were constructed on the basis of census data pertaining to occupations, ethnicity, education, family characteristics, religion and housing. This ensured that the information gathered from each school could be compared.

Significance of the Study

From an educational point of view outlined in the Statement of Problem and Purpose, there is a need to discover the nature of the relationship which exists

between reading achievement and time devoted to IRR. This study is significant in that it focuses on the nature of this relationship among a sample of Year Seven children in the Perth metropolitan area.

Popular claims have led to the belief that children may prefer to engage in leisure activities other than IRR. If these claims are justified, there may be a decline in the amount of time children devote to IRR and, in turn, this reduced amount of practice in reading may be related to declining standards in children's reading achievement scores. Teachers and parents should be aware of any influences which may be affecting children's educational achievement. Clearly, reading proficiency is involved in a major way with educational achievement. This study will be significant if it can inform parents and teachers of the relationship which does exist between reading achievement scores, and, thus, educational achievement, and the amount of time devoted to IRR.

The findings of studies already conducted in this area are inconsistent. Thus, it is evident that further studies need to be carried out. This study is significant in that it provides additional findings which assist in defining the relationship which does exist between reading achievement scores and time spent on IRR. As has been pointed out above, a number of studies pertaining to the topic for the study outlined here, have been identified, however, none of the researchers involved has collected data in Australia. This study is specific to Western Australian children and is, therefore, significant because it provides results specific to that state.

Limitations of the Study

The following limitations apply to the study.

1. In this study, the claim is made that the 65 Year Seven students who participated in the research probably represent a more general Year Seven population in Western Australia. Although this may be a valid statement, it must be conceded that firm assertions regarding generalisability to a larger population must be made with extreme caution. This is due to the restricted size of the sample and absence of the random selection of subjects upon which genuine representativeness needed to have been based. Because of the essentially pilot or preliminary nature of this study, this is not considered a damaging limitation.
2. The study was concerned with data collection from students regarding the amount of time they engage in IRR at home. No totally reliable means of measuring the students' quality and quantity of reading at home was available to the researcher. Collection of these data relied fully on the student's ability and willingness to record data honestly and accurately.
3. There seems to be no direct means of measuring reading achievement. Reading is a covert behaviour. What has to be measured is always a correlate of the actual process. That is, the results of the PAT may not have been a measure of the reading achievement of the subjects in the study.
4. The study required that classroom teachers be trained to assist in collecting data. The reliability of the data are a function of how diligently the teachers carried out the data collection.

5. This study investigated nine hypotheses. Hypotheses 5A and 5B are, in effect, corollaries of Hypothesis 1 to 4B. This corollary status means that Hypotheses 5A and 5B were tested by means of logical inference rather than strong statistical inference. Whether logical inference is less desirable in an elementary, empirical study such as is reported here, than statistical inference, is a moot point. If, in fact, this is a limitation, it is considered tolerable because of the essentially preliminary nature of the study.

Chapter Two

Literature Review

The review of related literature presented below is organised into the following sections:

1. reading achievement and leisure time activities;
2. the impact of time devoted to IRR on reading achievement;
3. the relationship between gender, IRR and reading achievement; and,
4. the relationship between socio economic status, IRR and reading achievement.

Reading Achievement and Leisure Time Activities

Leisure time activities take up a large portion of children's out of school time. Modern society offers many different ways of spending leisure time. Watching television, attending the movies, engaging in physical activities and games, socialising and spectator sports are all leisure time activities available to children. Few children confine all their leisure time to any one pursuit (Goodman, 1984).

In the past decade there has been an increase in interest in the relationships among particular out of school activities and children's reading proficiency scores. In recent studies the connection between leisure time activities and reading achievement has been examined by Anderson, Wilson and Fielding, (1988); Greaney and Hegarty, (1987); Greaney (1980), and others.

Television viewing. Viewing television is clearly one significant leisure time activity for primary school children. Research in which the relationship between television viewing and reading achievement has been investigated, has produced inconsistent results. Thus, negative, positive and neutral (neither positive nor negative) results have been reported. The studies of Roberts, Bachen, Hornby and Hernandez-Ramoz, (1984); Ritchie, Price and Roberts, (1987); Anderson et al. (1988) indicate a non-significant relationship between time spent viewing television and reading achievement. That is, these researchers concluded that time spent viewing television is not a reliable predictor of reading achievement.

Contrary to the results found by Roberts et al, (1984); Ritchie et al, (1987) and Anderson et al. (1988), positive influences were found by Morgan in 1980 (cited in Reinking and Wu, 1990). Morgan discovered that students who spend more time viewing television when they are younger are likely to read more as they get older. Felter (1984) and Neuman (1988) found that television viewing produced variable effects on reading achievement. They concluded that moderate levels of television viewing, up to three hours per day, are associated with higher reading achievement scores.

In the study conducted by Felter (1984), it was found that low school achievement scores were associated with television viewing in excess of six hours per day. Similar outcomes were found in the study conducted by Neuman (1988). She concluded that more than four hours of viewing television per day produces negative effects on children's reading scores.

Williams, Haertel, Haertel and Walberg's (1982) study suggests that television viewing and reading achievement scores may have a curvilinear relationship. They found that school achievement rises slightly up to approximately ten hours a week of viewing television then decreases dramatically and levels off as the hours per week of viewing increase.

Listening to music. Listening to music is also a leisure time activity in which children engage. In the study conducted by Anderson et al. (1988), it was found that listening to music is a very poor predictor of reading proficiency. In Greaney's (1980) study, it was found that students did not engage in listening to radio music for long periods of time. Time spent listening to the radio "was neither directly nor indirectly related to time devoted to leisure reading" (p.354).

Family outings, hobbies and play. Apart from viewing television and listening to the radio, both Anderson et al. (1988) and Greaney (1987) investigated various other leisure time activities and the correlation of each with reading achievement scores. Greaney (1987) found that family outings correlate positively with recreational reading. However, negative correlations were found between recreational reading and play. Both organised and unorganised play correlated negatively with reading. Anderson et al. (1988) found low, positive correlations between reading proficiency and playing games or working on a hobby. Thus, Anderson et al. concluded that these leisure time activities are poor predictors of reading proficiency.

In summary, it can be seen that results from studies concerning the relationship of leisure time activities on reading achievement scores are inconsistent. That is, the research reviewed indicates that there is not a simple relationship between reading achievement scores and the pursuit of leisure time activities. One leisure time activity which seems to have some connection with reading achievement scores is the amount of time devoted to independent recreational reading (IRR). This relationship is discussed in the next section.

Studies Related to the Impact of Independent Recreational Reading (IRR) on Reading Achievement

Evidence from a number of studies indicates that there is not a clear and predictable relationship between time devoted to independent recreational reading (IRR) and reading achievement scores. Anderson et al. (1988); Greaney, (1980); Neuman and Prowda (1982, cited in Sisson 1986); Greaney and Hegarty, (1987) and Taylor, Frye and Maruyama, (1990) all conducted studies which examined the relationship between time devoted to IRR and reading achievement.

Greaney (1980) investigated the relationship between the amount of time devoted to IRR and a number of personal, home and school variables. The study took place in Ireland with a sample of 920 fifth grade students from Irish primary schools. Each student was required to complete a brief questionnaire in order to elicit information regarding personal and home background. The subjects were also required to complete diary forms for three nominated days (Tuesday, Thursday and Sunday) in which they described how they spent their leisure time. The diaries were filled in at school on the following day. From these diaries, Greaney calculated the amount of time spent by the subjects in

IRR. In addition to the completion of a questionnaire and diary writing, a standardised reading attainment test was administered to the subjects.

Greaney's (1980) results indicated that, of the total time devoted to IRR, 62% was devoted to the reading of books, 31% to the reading of comics and 7% to the reading of newspapers. He reported that overall, subjects spent an average 5.4% of their leisure time engaging in IRR. Greaney found that the time devoted to recreational book and comic reading was also positively related to reading attainment.

Cited in Sisson 1986, Neuman and Prowda (1982) found that students who engage in recreational reading for significant amounts of time have higher reading achievement scores than students who do not. That is, they found that time devoted to IRR is positively related to reading achievement.

Studies indicating the relationship between IRR and reading achievement were also conducted by Greaney and Hegarty, (1987); Anderson et al. (1988). These studies all indicate that IRR is a positive correlate of reading achievement. The studies are discussed below.

Greaney and Hegarty (1987) conducted a study which was also designed to extend the understanding of the impact of the leisure reading phenomenon on reading achievement. They set out to investigate the inter-relationships among particular correlates of leisure reading. Among these correlates was reading achievement. The study involved a total of 138 fifth-grade Dublin students. Data pertaining to the amount of time children engaged in recreational reading

were collected through the use of daily diary entries. From the diary entries, the data were collated and the amount of time children devoted to IRR was calculated.

Over the four day period from which the data were collected, Greaney and Hegarty (1987) found that children devoted an average of 125.5 minutes of their leisure time to reading. The correlation between time children engaged in leisure reading and reading achievement was investigated. A significant, positive correlation was found. Although no causal connection can be inferred from these correlational data, it is clear that there was strong positive relationship between the two variables.

The relationship between the amount of time children engage in IRR with reading achievement has also been researched by Anderson et al (1988). This study involved 155 fifth-grade students in east central Illinois. Seventy girls and 85 boys comprised the total sample. In order to collect the required data, students were taught how to fill in activity sheets. Data pertaining to the out-of-school activities which the children engaged in the previous day, were recorded on these sheets. From the activity sheets and after a battery of three reading tests, Anderson et al. concluded that among variables such as listening to music, watching television, working on a hobby and talking on the telephone, time spent reading books is the best predictor of children's reading proficiency. They concluded that,

... the amount of time a child spends reading books is related to the child's reading level in fifth grade and growth in reading proficiency from second to fifth grade. The case can be made that reading books is

a cause, not merely a reflection of reading proficiency (Anderson, et al. 1988, p.302).

A more recent study was that conducted by Taylor, Frye and Maruyama (1990). This study contradicts the results of the studies reviewed above. That is, the assertion that the amount of time engaged in recreational reading is positively related to gains in reading achievement, was not supported. This study indicates that few studies have actually found significant relationships between time devoted to IRR and reading gains. Taylor et al. (1990), therefore, attempted to provide data to indicate whether time devoted to silent reading at home or at school, is worthwhile.

The Taylor et al. (1990) study involved 195 Grade Five and Six students who were placed in a reading class according to their ability. There were 11 classes in total. Three of the classes formed the above average readers, six of the classes formed the average readers, and two classes constituted the below average readers.

In order to collect the data, students were required to keep daily reading logs from the middle of January until the middle of May. These log sheets were completed Monday through to Friday each week. Students filled in the logs each day at the completion of their reading class. Prior to the study, students had also participated in an achievement test in which reading comprehension was a sub-test. At the end of the study, students completed another comprehension test. These tests, in conjunction with the logs kept by the students, allowed the relationship between reading achievement scores and the

amount of time spent reading, i.e., both in school and at home, to be investigated.

In order to determine the relationship between reading achievement scores and time spent reading, Taylor et al, analysed these data using stepwise multiple regression. Results of the study supported the belief that silent reading at school is beneficial to children in the intermediate grades. That is, improvements in students' reading achievement were significantly related to time engaged in reading at school. However, results pertaining to the relationship between time engaged in out-of-school recreational reading and reading achievement scores were disappointing. Taylor et al. (1990), indicated that a possible explanation for this lack of significant results may be that poor teacher scrutiny allowed children to misrepresent the actual time they recorded in their diaries as the amount of time they engaged in reading at home. These types of difficulties, stemming from doubts in the control method used, suggest that further, tightly controlled research must be conducted if definitive answers regarding the connection between reading achievement scores and time devoted to IRR are to be found.

Although only a few studies have been carried out pertaining to the relationship between reading achievement scores and time devoted to IRR, the results of the studies are varied. These are summarised in Table 2.1 below.

Table 2.1

The Relationship between Independent Recreational Reading
and Reading Achievement

Authors		Results
Greaney	1980	Found positive relationship between IRR and reading achievement.
Greaney and Hegarty	1987	
Anderson, Wilson and Fielding	1988	
Taylor, Frye and Maruyama	1990	IRR not significantly related to reading achievement.

The table above indicates that the past 10 years of research pertaining to the relationship between time devoted to IRR and reading achievement scores have not produced consistent results. Clearly, further, carefully controlled studies need to be conducted.

The Relationship between Gender, IRR and Reading Achievement

Past studies conducted on the relationship between time devoted to IRR and reading achievement scores have also investigated gender effects. These effects are discussed below.

In a review of literature conducted by Ross and Simone (1982), studies from the past 30 years indicate varying results concerning the relationship among gender, time devoted to IRR and reading achievement scores. Most studies indicate that female students engage in more IRR than male students do. Witty

(1961) was among one of the researchers who found that girls read more than boys.

Contrary to this general trend the results of the study conducted by De Boer (1958) (cited by Ross and Simone 1982), indicate that the amount of time devoted to IRR by boys is the same as that devoted to IRR by girls.

In Greaney's (1980) study in which the relationship between the amount of time children engaged in IRR and each of a number of personal, home and school variables was investigated, gender was amongst the personal variables and proved to be a very strong discriminator. The findings of the study indicated that girls devote more time to reading books and boys devote more time to reading comics.

Greaney and Hegarty (1987) also examined the variable of gender as a correlate of time devoted to IRR. Their study showed that female students engage in more IRR than male students. It is noted that the IRR referred to here is the recreational reading of books. Greaney and Hegarty state that the more favourable attitudes of female students towards reading was the probable reason why they did engage in more IRR.

The results of Greaney and Hegarty's work in 1987 strengthened previous findings of studies conducted in similar reading and school achievement areas. Many of the findings in these areas support the notion that girls tend to spend more time reading books than boys (Witty, 1961; Greaney, 1980; Ross and Simone, 1982; Mellon, 1987) and that the amount of time devoted to IRR is

significantly correlated with reading achievement. Mellon's (1987) findings also indicate that girls engage in more IRR than boys. Her study, which focussed on the amount of leisure-time reading, was designed to find out whether students did read in their leisure time, which materials teenagers enjoyed reading, where they did their reading, and how they obtained their reading materials. The findings which were related to gender revealed that twice the number of female teenagers engaged in reading during their leisure time than did male teenagers. It is clear from Mellon's analysis that not only did females engage in more IRR but they also constituted the majority of the better readers. Mellon did not examine the connection between IRR and reading achievement but the fact that such a relationship did obtain among the subjects in her sample is clear from her data.

The study conducted by Anderson et al. (1988), examined relationships among various measures of reading proficiency and their relationship to the time spent in activities out of school. The findings of their study were consistent with results from previous research. These revealed that girls devoted more time to reading than boys did. They also explain how the best predictor of children's reading proficiency from the second to the fifth grade was the amount of time children engaged in reading books. The findings of the above studies are summarised in Table 2.2 below.

Table 2.2

The Relationship between Gender and Independent Recreational Reading

Researcher/s	Year	Results
De Boer	1958	Time reading is approximately the same for males and females.
Witty	1961	Females spend more time reading than males.
Greaney	1980	Females devote more time to reading books. Males devote more time to reading comics.
Ross and Simone	1982	Females spend more time reading than males.
Greaney and Hegarty	1987	Females read more than males.
McLennan	1987	Females read more than males.
Anderson, Wilson and Fielding	1988	Females spend more time reading than males.

The Relationship between Socio Economic Status, IRR and Reading Achievement

Some studies, concerned with the relationship between time devoted to IRR and reading achievement scores, have also investigated the relationship between socio-economic (SES) with these two variables.

In their study, Long and Henderson (1973) were interested in the amount of time students devote to IRR. Over a two week period, students completed time records indicating their daily activities. The out-of-school activities recorded were placed into seven categories. Reading was among the categories.

The amount of time students engaged in particular activities was calculated and related to various school, home and personal factors. SES was one of the personal factors. In assessing SES, the occupation of the chief earner in the home was considered. Families were placed on a scale ranging from one through to seven in which one represented major professionals and executives through to seven which represented people who were unskilled or unemployed.

Long and Henderson's (1973) findings indicated a positive correlation between time spent reading and SES. These findings also suggested that time spent reading is associated with higher SES as well as with ability and achievement scores.

Greaney (1980) also investigated data on the relationship between time devoted to IRR and a number of personal, home and school variables. Among the home variables was SES. Greaney found that the relationship of SES with time devoted to IRR is positive and significant.

Greaney (1980) concluded that the students who did engage in a significant amount of IRR, e.g., book reading, were more likely to attend an all girls school in a rural area and have a high reading attainment level. He also found that the students who did read more books were more likely to come from the

middle and upper SES levels and from a small family. Students who were classed as indifferent independent recreational readers e.g., comic readers, were more likely to be male, attend an urban school, have a low reading attainment score and come from a family of low SES.

Greaney's results are similar to those of Long and Henderson (1973), Maxwell (1977) and Whitehead, Capey and Maddren (1975), (all cited in Greaney 1980) who noticed that children who did not read very much came from working class families. Children from families in high SES levels were found to engage in more IRR.

Similar results were also found by Guthrie and Seifert (1984) and Himmelweit and Swift (1976). These researchers found that SES and recreational reading are positively related (cited in Greaney 1980). The findings of these investigations suggest that low SES students do little or no IRR.

Roberts, Bachen, Hornby, and Hernandez-Ramos (1984) found that different predictors operated at different ages. SES was found to be a significant positive correlate with reading achievement at the third grade level. That is, at the third grade level SES did predict reading achievement. However, amongst the sixth graders, SES was found to have almost no relationship with reading achievement. Cited in Roberts et al. (1984), White (1982) supports the notion that SES differences in IRR are stronger amongst the lower primary aged children.

Walberg and Tsai (1985) conducted a study concerned with reading achievement and attitudes. Data were collected by the National Assessment of Educational Progress (NAEP). Many variables, including SES, were assessed in the study. SES was determined by the parents' level of education. The findings of their study indicate that SES is significantly correlated with reading achievement.

In contrast to the findings of Walberg and Tsai (1985), Greaney and Hegarty's (1987) study failed to identify a positive correlation between SES and time devoted to IRR. Greaney explains that this may have been due to the restricted nature of his sample where 82% of students belonged to families of intermediate, professional and managerial parents, i.e., high SES.

From the findings outlined above, it is evident that some inconsistent results have been reported. Thus, the need for further research is indicated. The findings of studies concerned with time devoted to IRR, SES and reading achievement scores are summarised in Table 2.3 below.

Table 2.3The Relationship between SES, Independent Recreational Reading and Reading Achievement.

Authors	Year	Results
Long and Henderson	1972 - 1973	Positive correlation between time spent reading and SES.
Himmelweit and Swift	1976	SES and leisure reading are positively related.
Maxwell - (Cited in Greaney 1980)	1977	SES is related to IRR.
Whitehead, Capey and Maddren- (Cited in Greaney 1980)	1975	SES is related to IRR.
Greaney	1980	Significant positive relationship between SES and IRR.
Guthrie and Seifert (Cited in Greaney 1987)	1984	SES and leisure reading are positively related.
Roberts, Bachen, Hornby and Hernandez-Ramos	1984	Significant positive relationship between reading achievement and SES.
Walberg and Tsai	1985	Significant relationship between SES and reading achievement.
Greaney and Hegarty	1987	No correlation found between SES with IRR.

Summary

From the literature reviewed above, it is clear that varied results were obtained. In the studies related to reading achievement and time spent in IRR, the majority of the studies reviewed produced findings which indicated that reading achievement is positively and significantly related to IRR. While many studies indicated a positive relationship between time devoted to IRR and reading achievement scores, (Greaney, 1980; Greaney and Hegarty, 1987; Anderson et al. 1988) the most recent study, that conducted by Taylor et al. (1990), produced different findings. Taylor et al. did not find a significant relationship between time devoted to IRR and reading achievement scores.

Gender was also a variable which most of the researches considered in their studies. The majority of these studies produced consistent results. That is, it was found that females devote more time to IRR than males. However, in the study conducted by De Boer (1958), the findings indicated that time spent reading is approximately the same for males and females.

SES was also a common variable considered by many of the researchers. Most of the studies produced findings which clearly indicated that SES is related to the amount of time students engage in IRR. However, the study conducted by Greaney and Hegarty (1987) failed to correlate SES with IRR.

In conclusion, it is evident that studies concerned with the relationship between time devoted to IRR, reading achievement scores, gender and SES, have produced inconsistent results. Thus, it is evident that further studies need to be carried out.

The discrepancies among the studies reviewed above have motivated the study which is reported here. The research questions and the hypotheses derived from them have been formulated in an attempt to eliminate, where possible, some of these discrepancies, and to make a preliminary assessment of the Western Australian situation. The research questions and hypotheses which were investigated in this study are set out in the next chapter.

Chapter Three

Specific Research Questions and Hypotheses

The primary aim of this study was to examine the relationship between time devoted to IRR and reading achievement scores. Also of interest in the study was the effect of gender and SES on the time devoted to IRR and the level of reading achievement. Thus, the relationship between reading achievement scores, time devoted to IRR and gender, and the relationship between reading achievement scores, time devoted to IRR and the level of SES can be inferred. These points of interest promote nine specific questions of investigation which are outlined below.

Specific Research Questions

1. For the subjects in the sample, what is the relationship between time devoted to IRR and reading achievement scores?

2. For the subjects in the sample, do girls devote more time to IRR than boys?

3. For the subjects in the sample, are the girls' reading achievement scores higher than the boys'?

4. For the subjects in the sample, do high SES subjects devote more time to IRR than middle SES subjects?

5. Do high SES subjects in the sample score higher in reading achievement than middle SES subjects?
6. For the subjects in the sample, do the middle SES subjects devote more time to IRR than low SES students?
7. Do middle SES subjects in the sample score higher in reading achievement than low SES subjects?
8. What is the influence of IRR which can be inferred on the relationship between reading achievement and time spent in IRR when the sample is partitioned on the basis of gender?
9. What is the influence of IRR which can be inferred on the relationship between reading achievement and time spent in IRR when the sample is partitioned on the basis of each of the three levels of SES?

The inferences referred to in questions eight and nine are based upon the findings generated by the investigation of research questions 1 to 9.

These research questions translate into the hypotheses stated below.

Statement of Hypotheses

The Hypotheses of this study are as follows :

Hypothesis 1. There will be a high positive correlation between time devoted to IRR and reading achievement scores.

Hypothesis 2A. The mean number of minutes devoted by girls to IRR will be significantly higher than the mean number of minutes devoted by boys to IRR.

Hypothesis 2B. The mean of the scores achieved by girls in the comprehension sub-test of the PAT will be significantly higher than the mean of the scores achieved by boys in the comprehension sub-test of the PAT.

Hypothesis 3A. The mean number of minutes devoted by high SES subjects to IRR will be significantly higher than the mean number of minutes devoted by middle SES and low SES subjects to IRR.

Hypothesis 3B. The mean of the scores achieved by high SES subjects in the comprehension sub-test of the PAT will be significantly higher than the mean of the scores achieved by middle SES and low SES subjects in the comprehension sub-test of the PAT.

Hypothesis 4A. The mean number of minutes devoted by middle SES subjects to IRR will be significantly higher than the mean number of minutes devoted by low SES subjects to IRR.

Hypothesis 4B. The mean of the scores achieved by middle SES subjects in the comprehension sub-test of the PAT will be significantly higher than the mean of the scores achieved by low SES subjects in the comprehension sub-test of the PAT.

Hypothesis 5A. Time devoted to IRR will have a positive influence on the relationship between reading achievement scores and time devoted to IRR when the sample is partitioned on the basis gender.

Hypothesis 5B. A positive influence of the time devoted to IRR can be inferred on the relationship between reading achievement and time devoted to IRR when the sample is partitioned on the basis of each of the three levels of SES.

Corollaries to Hypotheses 1 to 4B

The testing of Hypotheses 5A and 5B was contingent upon the findings of Hypotheses 1 to 4B. Because of this contingent connection, Hypotheses 5A and 5B are, in effect corollaries to Hypothesis 1 to 4B. This means that the power of the findings generated by the testing of these two hypotheses may be somewhat less than findings produced by the other seven hypotheses. This corollary status is a limitation of this study. It is asserted, however, that, since this study is essentially pilot and preliminary in nature, this limitation is acceptable in investigating the plausibility of conducting a more extensive study. Such a study would involve a much larger sample of subjects which would permit the application of a more powerful inferential statistical procedure such as three way analysis of variance.

This approach, involving the investigation of the two hypotheses on the basis of the findings of related hypotheses was felt to be justified on the basis of the findings of the studies conducted by Anderson et al. (1988); Greaney, (1980) and Greaney and Hegarty, (1987). All of these studies suggested that the amount of time devoted to IRR is positively related to reading achievement.

The methods used to test these hypotheses are discussed in the following chapter.

Chapter Four

Methodology

The design of the study is outlined in this chapter. The population sample, the instruments used to collect data and the data analysis procedures are described and discussed.

The Design of the Study

The major aim of this study was to discover whether and to what degree a relationship exists between the time devoted to IRR and reading achievement scores. Thus, the study was essentially correlational in nature. Subsidiary aims of the study were to assess the significance of gender and SES in the amount of time children engage in IRR and in reading achievement. To permit these assessments to be carried out, comparative groups based on, firstly, gender and secondly, high, middle and low SES, were set up. These groups were created using intact classes.

Subjects

The students in one Year Seven class from each of three separate schools comprised the sample for this study. The schools were selected from areas representing high, middle and low SES as defined by Ross, Farish, and Plunkett (1988). In the study conducted by Ross et al. a range of census data was used to indicate the different socio-economic levels. Inclusive in this data was information regarding ethnicity, education, occupations, income, family characteristics, housing and religion.

The sample was partitioned into high, medium and low SES groups based on the categories described by Ross et al. A summary of the number of students in the sample used is shown in Table 4.1

Table 4.1
Subjects used in the Sample

School	Males	Females	Total
School 1 High SES group	10	10	20
School 2 Middle SES group	8	9	17
School 3 Low SES group	16	12	28
Total	34	31	65

Target Population

The full socio-economic spectrum is represented in the sample used in this study, thus, it is claimed that the students who participated represent Western Australian Year Seven students in general. Therefore, the potential for cautious generalisation of the results to a larger population exists.

Instruments

Two instruments were used in the study. The first was a questionnaire. The review of related literature indicated that a questionnaire is a standard

procedure used in order to obtain the required data for this type of study. A questionnaire, specifically designed by the researcher, for the study and appropriate for Year Seven primary school children, was administered to the subjects. The questionnaire dealt with leisure time activities and determined the amount of time children devoted to them. Students were required to fill in the blank spaces to determine how many minutes they engaged in each activity.

A questionnaire form was completed daily for the period of one week. The questionnaire was designed to collect sufficient information to allow classification and compilation of data pertaining to the time devoted to IRR and time devoted to other various leisure time activities. This inclusion of other leisure activities provided for all possible responses from the children. Thus, this attempted to ensure that the data from the questionnaire were reliable because these alternatives avoided the subjects being lead into responses they felt were more desirable for the researcher.

The Progressive Achievement Test (PAT) (1973), with Western Australian norms, was administered to determine the students' reading achievement scores. This test required the children to read separate passages and answer related questions. The tests were collected and a key was constructed to mark the multiple choice questions accurately. This was all done by the researcher.

Data Gathering Procedure

The Year Seven class from each of the three schools was used. The subjects in the sample received a period of training from the researcher on the appropriate manner in which to complete the questionnaire. Each classroom teacher was

also trained to assist the students in the completion of the questionnaire forms. With each teacher's assistance, questionnaire forms were completed daily. Students completed the form for each school day for one week indicating the amount of time they engaged in each leisure activity on the previous day. Only week days were used in this preliminary study because of the difficulties of having children record data over two days of the weekend.

The totals for each day were summed for each subject thus providing a total number of minutes devoted to IRR for the period of five school days. The PAT was then administered to each of the three intact classes. This produced a reading achievement score for each child in the sample.

Following the scoring of the questionnaire and PAT, the sample was partitioned on the basis of sex and SES. The procedure used to score the questionnaire is explained below.

Scoring of the Questionnaire

The questionnaires and PATs completed by the subjects were scored by the researcher. The scoring took place immediately after the data-gathering sessions. This procedure ensured maximum consistency in scoring. The scoring procedure for the questionnaire required the researcher to add the total number of minutes engaged in IRR by each individual child, in each socio-economic level and for both genders.

Data Analysis

To test the validity of Hypothesis 1, a Pearson product moment correlation was calculated on the amount of time devoted to IRR and reading achievement scores for the entire sample.

Hypotheses 2A through to 4B were examined using Duncan's multiple-range test following the division of the sample on the basis of gender and SES. This particular analysis of variance test was used because of the unequal cell sizes. From the data, this test determines a critical range. The difference of two means must exceed this critical range for the difference to be considered significant. For example, for Hypothesis 2A, a critical range was calculated at the 0.05 level of significance. For the hypothesis that girls devoted more time to IRR than the boys in the sample, to be accepted, the difference between the time devoted to IRR for girls and boys had to exceed this critical range.

As discussed in Chapter Three, Hypotheses 5A and 5B were inferential in nature. This means that no statistical test of significance was applied to the questionnaire and reading achievement data in order to assess the plausibility of Hypotheses 5A and 5B.

The data pertinent to these hypotheses was analysed in a way which is analogous with the hypothetical syllogism. For example

If Smith is eligible to vote he is a citizen (major premise);

Smith is eligible to vote (minor premise);

Therefore Smith is a citizen (conclusion) (The Macquarie Dictionary, 1981, p.1719).

In the same way, there will be strong inferential evidence for the acceptance or rejection of Hypothesis 5A and 5B if it can be shown that the data support or do not support the following sort of analysis:

If for the subjects in the sample, time devoted to IRR is significantly, positively related to reading achievement and girls devote significantly more time to IRR than boys, and produce significantly higher reading achievement scores than boys, then there is a significant gender factor in the amount of time devoted to IRR which is positively related to reading achievement scores (major premise);

Girls do devote more time to IRR and produce significantly higher reading achievement scores than boys (minor premise);

Therefore, there is a gender factor in time devoted to IRR which is positively related to reading achievement scores (conclusion).

The findings resulting from the above procedures are set out in Chapter Five.

Chapter Five

Findings

As stated in Chapter Four, correlation analysis and analyses of variance tests were performed on the data to obtain the results necessary for this study. Specifically, the two variables which were used in all analyses were time devoted to IRR and reading achievement scores. These results and their implications for the hypotheses are discussed in this chapter. All results have been rounded to two decimal places unless stated otherwise.

Correlation Analysis

A summary of the simple data for the variables indicated above is presented in Table 5.1. Table 5.2 summarises the findings from the Pearson product moment correlation analysis.

Table 5.1

Simple Data for IRR and Reading Achievement Scores.

Variable	N	Mean	Std. Dev.
IRR	65	120.68 (mins.)	77.21
Read. Ach. Scores	65	28.12 (raw score)	14.96

From the table above, it is evident that the sample devoted an average of 120.68 minutes to IRR with a standard deviation of 77.21. This relatively large standard deviation indicates a wide spread of IRR scores. In fact, the time

devoted to IRR by the subjects in the sample ranged from zero minutes to five and one quarter hours in the five day period.

Table 5.2

Correlation Analysis for IRR and Reading Achievement Scores.

	IRR
Read. Ach. Scores	$r = 0.96609$ (5 decimal places)
	$p = 0.00010$ (5 decimal places)

The relationship between the time devoted to IRR and reading achievement scores proved to be significant. Specifically, the coefficient of 0.96609 for the correlation analysis proved to be extremely high. Thus, the times devoted to IRR by the subjects in the sample were directly proportional to the scores achieved in the PAT. Hypothesis 1, therefore, is supported.

ANOVA Tests

The findings of Duncan's multiple range test for the time devoted to IRR for girls and boys are summarised in Table 5.3

Table 5.3

Duncan's Multiple Range Test for IRR by Gender.

Gender	N	Mean (mins.)	Difference in the means	Critical Range
Girls	31	154.52	64.70	35.04
Boys	34	89.82		(p=0.0005 - 4 d.p.)

With the difference between the means for the time devoted to IRR for girls and boys exceeding the critical range, the analysis of variance test indicates a significant difference in these means, ($\alpha = 0.05$, $df = 63$). From these means, it was evident that girls devoted significantly more time to IRR than boys and, therefore, Hypothesis 2A is supported.

The findings of Duncan's multiple range test for the scores achieved by girls and boys on the comprehension sub-test of the PAT are summarised in Table 5.4.

Table 5.4

Duncan's Multiple Range Test for Comprehension Scores by Gender.

Gender	N	Mean Score	Difference in the Means	Critical Range
Girls	31	33.32	9.94	7.06
Boys	34	23.38		(p=0.0065 - 4 d.p.)

With the difference between the means of the comprehension scores achieved by girls and boys exceeding the critical range, the analysis of variance test indicates a significant difference in these means, ($\alpha = 0.05$, $df = 63$). From these means, it was evident that girls achieved higher reading achievement scores than boys, therefore, Hypothesis 2B is supported.

Table 5.5 summarises the findings of Duncan's multiple range test for the time devoted to IRR for each SES.

Table 5.5

Duncan's Multiple Range Test for IRR by SES.

SES	N	Mean (mins.)	Difference in the means	Critical Range
High	20	178.05		
			39.87	38.31
Middle	17	138.18		
			69.11	40.28
Low	28	69.07		(p=0.0001 - 4 d.p.)

The difference between the means for the time devoted to IRR for high SES and middle SES, and, middle SES and low SES both exceeding the critical ranges, the analysis of variance test indicates a significant difference in these means, ($\alpha = 0.05$, $df = 62$). Hypothesis 3A was designed to examine the difference between the means of time devoted to IRR for subjects from high SES and middle SES. This difference proved to be significant and positive, therefore, these data provides support for Hypothesis 3A.

Hypothesis 4A was designed to examine the difference between the means of time devoted to IRR for the subjects from the middle and low SES groups. These data show that subjects from the middle SES group engaged in significantly more IRR than subjects from the low SES group, Hypothesis 4A, thus, is supported.

Table 5.6 summarises the findings of Duncan's multiple range test for the scores achieved in the comprehension sub-test of the PAT by the subjects from each SES group.

Table 5.6

Duncan's Multiple Range Test for Comprehension Scores by SES.

SES	N	Mean Scores	Difference in the means	Critical Range
High	20	39.75	7.46	7.07
Middle	17	32.29	15.00	7.43
Low	28	17.29		(p=0.0001 - 4 d.p.)

With the difference between the means of the comprehension scores achieved by the subjects of the high SES and middle SES, and, middle SES and low SES both exceeding the critical ranges, the analysis of variance test indicates a significant difference in these means, ($\alpha = 0.05$, $df = 62$). Hypothesis 3B was designed to examine the difference between the means of comprehension scores achieved for subjects from high SES and middle SES groups. This difference proved to be significant and positive, therefore, these data provide support for Hypothesis 3B.

Hypothesis 4B was designed to examine the difference between the means of comprehension scores achieved for the subjects from the middle and the low

SES groups. These data show that subjects from the middle SES group engaged in significantly more IRR than subjects from the low SES group, Hypothesis 4B, thus, is supported.

Following the syllogistic analysis set out in Chapter Four, the findings deriving from Hypotheses 1, 2A and 2B can be used to support Hypothesis 5A. That is, it can be inferred that there is a significant gender factor in the time devoted to IRR which is positively related to reading achievement scores.

Again, following the same syllogistic analysis, the findings deriving Hypotheses 1, 3A, 4A, 3B and 4B can be used to infer support for Hypothesis 5B. That is, it can be inferred that there is a significant SES factor in time spent in IRR which is positively related to reading achievement scores.

The above findings are discussed in Chapter Six.

Chapter Six

Discussion of Findings

This study was concerned with the relationship between the amount of time devoted to independent recreational reading (IRR) and reading achievement scores. It was carried out with Year Seven students, the final year of primary school in Western Australia. At this stage children are completing their primary education and the formal teaching of reading skills cease. Students at this age (11 to 12 years) are expected to participate in a substantial amount of reading for enjoyment both at home and at school.

The findings of this study indicate that students do engage in IRR at home, however, the amount of time students devote to IRR varies between genders and levels of SES. After statistical analysis of the data, it was found that this Western Australian study supports the widely held belief that IRR is positively and significantly related to levels of reading achievement. Thus, it is probable that time spent in IRR is related to a student's reading achievement.

Also of interest in the study were the effects of gender and levels of SES in time devoted to IRR and reading achievement scores. From the findings, it was shown that both gender and levels of SES are efficient predictors of the time devoted to IRR and reading achievement. In view of these findings and because it has already been shown that time spent in IRR is positively and significantly related to reading achievement scores, it can be logically inferred that there are important gender and SES influences in IRR scores and their relationship with reading achievement.

In the case of gender, the study indicated that girls devoted more time to IRR than boys. This finding is supported by researchers Witty, (1961); Greaney, (1980); Ross and Simone, (1982); Greaney and Hegarty, (1987); Mellon, (1987); Anderson et al. (1988). Females also produced higher reading achievement scores. Possible explanations for the finding that females engage in more IRR and have higher reading achievement scores than males are outlined below.

1. Females may be more interested in the indoor activities available to them than males. This could be a cultural effect in that the females engage in activities in the home rather than engage in outdoor activities.
2. If it can be argued that interest in and the amount of time devoted to IRR increase with maturity females maturity rate may influence the greater amount of time they devote to IRR. That is, it could be argued that as females mature earlier than males they may become interested in reading earlier than males do. This interest may influence them to devote more time to IRR.

SES was the other variable considered in the study. It proved to be a reliable predictor of reading achievement scores. The study found that high SES subjects read more than, and performed better in the reading achievement test than subjects from middle SES, and subjects in middle SES read more than, and performed better in the reading achievement test than subjects in the low SES. In summary, it is evident that students who come from higher socio-

economic levels engage in more IRR and that this is strongly related to reading achievement scores.

Various reasons which may help to explain the effects of SES on reading achievement and on the amount of time students devote to IRR are discussed below.

1. Because SES, as used in this study, is to some degree based on the chief home earner's income, it is evident that the high SES families are able to afford more reading materials to suit their children's needs than middle and low SES families. Likewise, middle SES families are able to afford more reading materials than families of low SES. If this potential to purchase more reading materials is converted into an increased availability of interesting reading materials, this may significantly influence the amount of time children devote to IRR.
2. It has been pointed out that children learn by imitating significant others (Sloan and Latham, 1981). It could be argued that students from the higher socio-economic levels have more role models whom they can imitate. That is, their parents are likely to engage in IRR at home. These parents are, thus, acting as significant role models for their children who may be inclined to pick up a reading book in order to model the behaviour of their parents.

3. Students from higher socio-economic levels may have the opportunity to engage in regular library visits which in turn may motivate them to engage in more leisure type reading.
4. The value placed on reading may be higher in parents from higher socio-economic levels than in those of lower socio-economic levels. That is, they may hold reading in high esteem and, thus, would provide opportunities for their children to engage in IRR. In addition, higher SES families may pressure their children to achieve, and extensive IRR may be perceived as a way of assisting in this.
5. A more positive educational home environment may be created in families of high SES. This positive, supportive environment may encourage the children to engage in reading at home.

The results of this study provide Western Australian support for previous research conducted in this area, overseas. However, it is evident that some aspects of this study may warrant further examination. These aspects will be discussed in the chapter which follows.

Chapter Seven

Conclusion

On the basis of the data presented in Chapter Five and discussed in Chapter Six, it is evident that time devoted to independent recreational reading (IRR) is positively and significantly related to reading achievement. It is also evident that the time devoted to IRR and reading achievement scores are influenced by a number of other variables. Gender and SES were the specific variables examined in this preliminary piece of research. The findings of this study produced strong, inferential evidence that the positive involvements of gender and SES in time devoted to IRR are influencing factors in reading achievement scores.

Limitations of the Interpretations Placed upon the Findings

The Sample. In Chapter Four it was stated that three separate Year Seven classes, one from each SES level would comprise the sample for the study. Such a sample did participate in the study. However the sample totalled 65 subjects only. This small sample size, therefore, limits the generalisability of the findings to a wider population of Year Seven Western Australian students.

Socio Economic Status and the Sample. Although the criteria set out in the study by Ross, Farish and Plunkett (1988) were used to identify the schools from which the three participating classes were chosen, it cannot be claimed that each socio-economic level was necessarily, exclusively found in the class

nominated to represent that level of SES. That is, although the school may be classified as a high, middle or low SES school, the individual students which comprise the classes may represent a different mix of SES. This possibility is exacerbated by the small sample which was used in the study. Although generalisability was claimed in Chapter Four, extensive generalisation would not be prudent without the same sort of findings being generated from a much larger and clearly more representative sample.

The Questionnaire. In Chapter Four the questionnaire used to collect the data for this study was described. Although this questionnaire was designed to collect sufficient information to allow the classification and compilation of data pertaining to the time devoted to IRR, it cannot be asserted that the students who comprised the sample accurately recorded the precise amount of time devoted to IRR.

As was pointed out in the introduction to this study, the research reported here was conducted as a preliminary and pilot undertaking to establish whether overseas findings are replicated here, thus justifying a more ambitious study. In order to carry out such a preliminary study, it was appropriate to investigate only a small number of subjects. As previously pointed out, this small number of subjects precluded the use of more appropriate and more powerful statistical procedures. The fact of the constrained sample and the resultant use of less powerful techniques of analysis should be seen as a limitation on the interpretation placed on the findings of the study.

In order to overcome the limitations discussed above, it is evident that further tightly controlled research should be undertaken. Suggestions for this further research are outlined below.

Further Research

The discussion above challenges the value of the sample selection and size as well as the questionnaire. It is asserted that a larger sample in which students are chosen on the basis of individual family census data would comprise a more representative sample. The method of selecting individual students on the basis of census data would ensure that each child would faithfully represent the correct SES level to which he/she had been assigned.

In further studies, more tightly controlled data collection should take place in order to ensure students accurately represent the amount of time devoted to IRR. This could be done through the use of diary entries. That is, students would be required to complete daily diary entries filling in each activity in which they engage. To ensure objective data are collected it must be noted the students should not be informed to the nature of the study.

In addition, further research could also investigate why it is that some children do not devote much of their leisure time to IRR. If such an investigation were to take place, measures could then be taken to combat the reasons behind low levels of IRR and action could be taken to increase time devoted to IRR, and, in turn, increase the children's reading achievement levels.

Implications of the Study

In spite of the limitations discussed in this chapter, it is clear from the findings of this study that children who devote more time to IRR do perform better in reading achievement levels. Thus, it can be stated that students who do not perform well in reading could have their performance significantly enhanced by teachers and parents who are prepared to assist children in devoting more time to IRR.

Measures both at home and at school could be taken to instil in low reading achievers, a desire to read for pleasure. To assist the children's desire to read at home, more interesting materials could be made available to them. They could also be introduced to public libraries and book swapping centres where children swap, with their peers, books they have read and enjoyed.

At this stage in the children's lives, where they are preparing to enter secondary school, it is vital that their reading achievement levels are adequate for meeting the demands of higher level schooling. It can be argued from the findings of this study that these better reading levels are more likely to be achieved if children devote more time to IRR. That is, IRR needs to become a more popular leisure time activity.

References

Australian Council for Educational Research. (1973). Progressive achievement tests: Teachers Handbook. Victoria.

Anderson, R. C., Wilson, P.T., & Fielding, L.G. (1988). Growth in reading and how children spend their time out of school. Reading Research Quarterly, 23, 285-303.

Felter, M. (1984). Television viewing and school achievement. Journal of Communication, 34, 104-118.

Goodman, K. S. (1984). Unity in reading. A purves and O. Niles (Eds), Becoming Readers in a Complex Society. 83rd Year book. NSSE, Chicago. Illinois, pp.79-113.

Greaney, V. (1980). Factors related to amount and type of leisure time reading. Reading Research Quarterly, 3, 337-357.

Greaney, V., & Hegarty, M. (1987). Correlates of leisure time reading. Journal of Research in Reading, 10(1), 3-20.

Long, B. H., & Henderson, E. H. (1972). Children's use of time: Some personal and social correlates. The Elementary School Journal, 73, 193-199.

Macquarie University NSW. (1981). The Macquarie dictionary. Dee Why, NSW : Author.

Mellon, C. A. (1987). Teenagers do read: What rural youth say about leisure reading. School Library Journal, 36, 27-30.

Neuman, S. B. (1988). The displacement effect: Assessing the relation between television viewing and reading performance. Reading Research Quarterly, 23(4), 414-440.

Reinking, D., & Wu, J. H. (1990). Reexamining the research on television and reading. Reading Research and Instruction, 29(2), 30-43.

Ritchie, D., Price, V., & Roberts, D.F. (1987). Television, reading and reading achievement: A reappraisal. Communication Research, 14, 292-315.

Roberts, D. F., Bachen, C. M., Hornby, M. C. & Hernandez-Ramos, P. (1984). Reading and television: Predictors of reading achievement at different age levels. Communication Research, 11, 9-49.

Ross, K. N., Farish, S., & Plunkett, M. (1988). Indicators of Socio Economic Disadvantages for Australian Schools. Deakin Institute for Studies in Education. Victoria

Ross, B., & Simone, N. (1982). Reading interest of tenth, eleventh and twelfth grade students. Unpublished masters thesis, Kean College of New Jersey.

Sisson, J. R. (1986, January). The relationship among attitude toward reading, hours spent in recreational reading and reading achievement. Paper presented at the conference of the Guam Council of the International Reading Association. Guam. (E.D. 266427).

Sloan, P., & Latham, R. O. M. (1981). Teaching reading is. Nelson : Australia.

Taylor, B. M., Frye, J. B., & Maruyama, G. M. (1990). Time spent reading and reading growth. American Educational Research Journal, 27(2), 351-362.

Walberg, H. J., & Tsai, S. (1985). Correlates of reading achievement and attitude: A national assessment study. Journal of Educational Research, 78(3), 159-167.

Williams, P. A., Haertel, E. H., Haertel, G. D., & Walberg, H. J. (1982). The impact of leisure-time television on school learning: A research synthesis. American Educational Research Journal, 19, 19-50.

Appendices

Appendix A**Comprehension Sub-Test of the PAT (A)****PART
6**

Many years ago in New Zealand the weka was the constant companion of explorers and bushmen, because it was so interested in their tents and what they contained. Small objects would vanish if left where the weka's sharp eyes could see them.

They are not so plentiful now but it will be an unhappy day for the other native birds if ever the weka disappears. It is the policeman of the forest, waging war on rats and mice which rob the nests of small birds. By night the weka roams the forest and the sand dunes, the scrub, the gorse and the swamplands in its endless search for food. It eats almost anything. Insects, eggs of ground-nesting birds, small fish in shallow water, young rabbits and small fruits are all snapped up by the hungry bird.

The weka does not use its wings for flying, but holds them outstretched when it runs. It is a large bird, coloured brown with mottled black markings and has a shrill cry, often heard at night. It lays four white purple-spotted eggs in a nest usually built near a convenient supply of food.

- 36 Where does the weka look for food?
 A amongst the sand-hills
 B near the swamps
 C in the bush
 D amongst the scrub and gorse
 E in all these places
- 37 Where does the story tell us the nest is built?
 A where food is easily found
 B high up in a tall tree
 C in swampy land
 D close to the ground
 E near the nests of other birds
- 38 Explorers often lost little things because
 A they left their tents open.
 B they had to shift camp a lot.
 C the wekas stole them.
 D rats and mice took them.
 E they had to carry so much.
- 39 Where were early explorers **most** likely to see the weka?
 A along the bush tracks
 B around their camps
 C near the swamps
 D close to its nest
 E among the sand dunes
- 40 In which of these books should you look **first** to read about the weka?
 A "Common New Zealand Birds"
 B "Birds of the Sea-Shore"
 C "Exploring New Zealand"
 D "Flightless Birds of New Zealand"
 E "A Modern Encyclopedia"

**PART
2****OTHER PARTS GO ON**

PART
7

 starts
here

China—merry land of fireworks! Morning and night the joyful noise of fireworks is heard—at weddings and at funerals. Happy indeed is the thought that the Chinese people never, in early times, found it in their hearts to use the gun-powder, which they discovered, to kill other people.

The beginnings of gay little firecrackers are not clear. In ancient times, the people of China believed in small wicked demons called the *chanshao*, which were said to be able to change into a human shape at will, and, when they attacked a man, he was laid low with fits of fever and cold. So there arose the popular practice of crackling bamboos in the fire to drive out the little demons. You may believe that the noise of exploding bamboos is much the same as that of fireworks, and loud enough to frighten away demons. Now, with the discovery of gun-powder by Chinese alchemists, the first firework was invented.

During the rule of the Emperor Sun (about the eleventh century A.D.) a man named Li T'ien thought of the idea of using the report of exploding gun-powder instead of the crackling bamboo. Said the man to himself, "If I can make a report ten times, nay a hundred times, louder than the sound of exploding bamboo, that will surely send the little demons fleeing to the world's end." He carefully rolled some paper around a small quantity of the magic new powder. The two ends he tied tightly with strings, and at one end he fixed a little fuse. This he lighted, and lo, there was a great bang.

The birth of the world's first firework!

- 41 Who invented fireworks?
 A Li T'ien
 B the Emperor Sun
 C Chanshao
 D Chinese alchemists
 E The story does not say.
- 42 The ancient Chinese used fireworks to
 A kill people.
 B drive off demons.
 C celebrate weddings and funerals.
 D frighten enemies.
 E explode bamboo.
- 43 Fireworks were used instead of bamboo because they were
 A louder.
 B easier to obtain.
 C more fun.
 D a new discovery.
 E more colourful.
- 44 The author probably wrote this story to
 A praise the Chinese people.
 B describe ancient Chinese customs.
 C show how fireworks are better than bamboo.
 D tell the reader how to make fireworks.
 E describe the invention of fireworks.
- 45 The **best** name for this story would be
 A "Merry Land of Fireworks".
 B "A Chinese Invention".
 C "The First Fireworks".
 D "The Ancient Chinese".
 E "The Uses of Gun-powder".

White-Wings was circling slowly five hundred metres above the sea off the coast of Chile. Although not a large eagle, he had very broad wings. Most of his plumage was brown, but his wings and his short tail were thickly flecked with white.

High above White-Wings, hidden among rolling storm-clouds, were two great white Arctic gulls. With their long hawk-like wings and curved beaks, they looked more like ghostly birds of prey than gulls. They had migrated from the Canadian Arctic region to spend the summer on the island of Tierra del Fuego. They looked on all the land and sea for hundreds of kilometres about the island as their territory.

Below White-Wings and the gulls the sea was dark, because the storm-clouds were hiding the sun. Suddenly, however, the clouds parted and the sea below was flooded with light. At once White-Wings closed his wings and dropped like a thunderbolt down the sky.

Rippling the surface of the sunlit sea below was a large school of fish. White-Wings whistled down on them; a bare five metres above them, he spread his wings and thrust out his talons. His downward speed was checked; but, even so, he hit the water with explosive force.

The frightened fish darted away in all directions to escape the *danger* that threatened them; but one was doomed, for, when White-Wings rose from the foaming water, a large silver fish was gripped firmly in his powerful talons.

Spreading his wings, White-Wings flew slowly across the sea towards the distant coast. Behind him, the great white gulls had descended to the sea, but the fish had dispersed far and wide. Rising again, the gulls slowly followed White-Wings.

Before long, high cliffs loomed ahead of White-Wings. The sea boomed and broke against the base of the cliffs, but the upper reaches towered hundreds of metres above the waves.

White-Wings flew close to the cliff, then took advantage of strong up-drafts which lifted him swiftly towards a cave high in the cliff's face. As he rose, he uttered a harsh cry which was answered immediately by his mate in the cave.

- 46 Of the following events, which occurred **third**?
- A The fish darted away.
 - B White-Wings dived.
 - C The clouds parted.
 - D White-Wings flew towards the coast.
 - E The gulls flew down to the sea.
- 47 Why did White-Wings fly near the cliff-face?
- A to hide from the following gulls
 - B to avoid the strong winds
 - C to look for schools of fish
 - D to avoid the rough seas
 - E to make use of the wind currents
- 48 In the **fifth** paragraph, *danger* refers to
- A the rough seas.
 - B an explosive force.
 - C the Arctic gulls.
 - D the sea-eagle.
 - E a thunderbolt.
- 49 How did White-Wings catch the fish?
- A He stunned it.
 - B He used his beak.
 - C He used his claws.
 - D He hit it with explosive force.
 - E He dived on it.
- 50 White-Wings probably did not eat the fish immediately because
- A he was afraid the gulls would take it from him.
 - B he was taking it to his family.
 - C he wanted to eat it on the beach.
 - D he was frightened of dropping it.
 - E the fish was too large.

PART
3

stops
here

OTHER PARTS GO ON

PART
8

Mutton-birding is one of the oldest industries in New Zealand. It is today, as it has always been, purely a Maori industry, for the law allows only Maoris and their families to take the mutton-birds. And only Maoris may land any time they wish on the lonely bush-clad islands known as the Titi, or Mutton-Bird Islands, which lie off the coast of Stewart Island. Here the mutton-birds make their nests and rear their young year after year, and here the Maoris come to take the plump young birds when the mutton-birding season opens in April.

Long before the season begins, the Maoris collect bundles of kelp from the sea-shore to make into bags for holding the mutton-birds. They gather only the best kelp leaves, slice off the tops, and slit open the kelp by pushing their hands inside and working down till the kelp is hollow. They then blow up these hollow sections of kelp, which look just like huge, slimy, brown balloons, tie them and hang them out in the sunlight to dry.

When the Maoris decide that the bags are dry enough they allow the air to escape, turn out the necks of the bags, and finally roll them, tie them and throw them into a sack. So hard do these bags become after this treatment that, before they can be used, they have to be dipped in hot water to make them pliable again. Small holes in the kelp-bags are mended in the old Maori fashion. A pebble or a shell covered with cloth is placed inside the bag, forming a knob which is firmly tied, making the bag air-tight.

Then the mutton-birder must go to the bush in search of bark for the covering of his hunting kit. He also gathers flax and weaves it into a neat bag, which he later fits over the lower part of the kelp-bag when it is packed with the cured birds. The finished mutton-bird kit, made from kelp, bark and flax, is a work of art.

- 51 When do the Maoris collect mutton-birds?
 A during the autumn months
 B all the year round
 C during the spring months
 D long before the season begins
 E The writer does not say.
- 52 Why do the Maoris visit the Titi Islands in April?
 A to collect kelp for mutton-bird bags
 B to collect flax for weaving
 C to observe the nesting habits of the mutton-birds
 D to search for young mutton-birds
 E to gather bark for covering kelp-bags
- 53 What is the **last** thing done to the kelp-bag?
 A It is made air-tight.
 B It is soaked in hot water.
 C It is rolled up and tied.
 D It is covered with bark.
 E Its end is covered with a flax-bag.
- 54 The author gives **least** information about
 A the materials the kelp-bag is made of.
 B the trouble taken to make a kelp-bag.
 C how the Maoris judge when the kelp is dry enough.
 D how the Maoris prepare the kelp for drying.
 E how the kelp-bag is finished before being used.
- 55 What is the most important reason for blowing up the hollow pieces of kelp?
 A to make them hard
 B to enable them to dry readily
 C to enable the ends to be tied
 D to make mending any holes easier
 E to fit flax-bags over the ends
- 56 The **main** purpose of the **second** paragraph is to tell you
 A where and when the Maoris gather kelp.
 B what the bags are made of.
 C how the kelp is prepared.
 D how the bags are dried.
 E how long it takes to make kelp-bags.

On the twenty-first day of June, every year, many visitors flock to Stonehenge in England to watch a peculiar occurrence. They go to watch the sun rise exactly over the centre of one of a large group of stones arranged in a crude circle. This monument was built at Stonehenge a very long time ago by men who worshipped the sun. It is believed that the Stonehenge monument and many similar ones found in different parts of England served as places of worship, where people went at certain times of the year to watch the rising sun. Some believe that these structures were also used in making observations for the calendar. Others say that sun-worship was brought into England from Egypt.

The Greeks, too, worshipped the sun as a god. They wondered where the sun disappeared during the night. Marvellous stories were invented to explain what happened when the sun was not visible. According to one story, the sun disappeared through a large gate in the sky leading to a cave. In the cave, the sun battled dragons and other large beasts. Sunrise occurred when he came out of the cave victorious. In other stories the sun was called Apollo, a god who drove a golden chariot across the heavens. These ancient people made gift offerings to the sun.

The Incas of Peru built great sun temples with walls of pure gold and monuments set with precious stones. The east doors of these temples were open at dawn and the sunlight fell with dazzling reflections on the gold and jewels. It is not difficult to see why this impressive sight influenced the minds of the people who lived in those days. Some of them even imagined they could see the sun-god himself.

- 57 Which of the following statements about the Stonehenge monument is **false**?
- A Its stones are placed in a ring.
 - B There were others like it in England.
 - C It was built by ancient sun-worshippers.
 - D The sun always rises over the centre stone.
 - E It is believed to have been of help in making a calendar.
- 58 In the Greek story described here, how did the sun spend the night?
- A It drove a golden chariot across the heavens.
 - B It returned to its luxurious sun temple.
 - C It counted the gifts it had received.
 - D It offered gifts to the other gods.
 - E It fought against strange animals.
- 59 Why did the sun-god seem very real to many of the Incas?
- A They knew of no other gods.
 - B They often saw him in the temple.
 - C They were inspired by the vastness of his temple.
 - D They were impressed by the power of his rays.
 - E They valued gold and jewels so highly.
- 60 The author probably believes that
- A people should not worship the sun.
 - B it is interesting to study ancient beliefs.
 - C the ancient people were foolish and ignorant.
 - D all peoples have worshipped the sun at some time.
 - E expensive gifts were wasted on the sun-god.
- 61 What is this passage **mainly** about?
- A Stonehenge
 - B ancient sun-worshippers
 - C different kinds of sun temples
 - D the strange beliefs of ancient people
 - E the similarity of Greek and English legends

That night I hardly slept at all. I had the trumpet on a chair by my bed and throughout the night I kept picking it up, fondling it and going through the motions of playing. What with one thing and another it wasn't until the next day that I had a chance to blow it.

To be quite frank I did not anticipate any difficulty. After a day and night in contemplation of the trumpet I had acquired the conviction that, from the first, nothing but the most exquisite sound could possibly emerge from an object so beautiful. All I had to do was supply the air and the instrument would play itself! I knew the right pose to strike from the photographs in jazz magazines—head tilted back, trumpet pointed skywards, fingers waving sensuously over the valves.

I checked in the shaving-mirror to see that I had just the right expression on my face, and then I blew. Nothing happened. Not a sound. Never mind, I thought, obviously I hadn't blown hard enough. I had another try, straining until the veins stood out on my forehead. This time there was a noise: a very, very small hiss from the far end of the instrument, like a distant train letting off steam. Something was obviously wrong. Could it be that the salesman in London had pulled a fast one on me and sold me a dud instrument? I anxiously consulted the book of instructions and, to my relief, discovered that I was going about things the wrong way. I had been blowing "as one would inflate a balloon". Instead of this I should have been "sharply withdrawing the tongue from between the lips as though spitting out a fragment of tobacco". After one or two practice spits I took up the trumpet again, drew in a terrific breath and spat viciously into the mouthpiece.

I should like to be able to say that I had blown the first note of my career. But that wouldn't be strictly accurate because, in that first explosion, at least sixteen separate notes must have burst simultaneously from the bell of the trumpet. When the echoes of that first hideous noise had died, I sat still for a moment trying to readjust my mind to the realities of the situation. Then, turning to page 1 of the book, I settled down to learn the hard way.

- 62 The **final** attempt of the author to blow his trumpet produced a sound which was
 A harsh.
 B shrill.
 C feeble.
 D clear.
 E mysterious.
- 63 The writer's experience as a trumpeter must have been limited because he
 A had only just bought the trumpet.
 B was keen to practise playing.
 C had bought a faulty instrument.
 D was very excited about the instrument.
 E thought he had only to blow into the mouthpiece.
- 64 In the **last** paragraph the writer suggests that he
 A would find the trumpet too difficult to play.
 B would not continue to practise.
 C was dismayed at his efforts.
 D would get another trumpet.
 E would make rapid progress.
- 65 This passage has been written **mainly** to
 A arouse sympathy.
 B amuse.
 C persuade.
 D inform.
 E arouse admiration.
- 66 This extract is probably taken from a book which describes
 A how to become a good trumpeter.
 B how to select a suitable musical instrument.
 C why the author did not learn to play the trumpet.
 D how the author became a trumpeter.
 E how the author purchased a trumpet.

GO ON TO NEXT PAGE

The first popular idea about Africa is also the first major misconception. The notion of Africa as the "Dark Continent" is a parochial European idea, which gained currency because Africa was the last of the continents to be opened up to the outside world, and because it was the last to experience that full impact of European people, ideas, and techniques which was so marked a feature of world history from the sixteenth century till the early twentieth.

At the beginning of this period of history, however, Africa was far from the most backward of the continents. The Australians, for example, were still living as hunter-gatherers, and were using stone tools comparable with the Middle Stone Age culture abandoned by most European and African peoples from three to six thousand years before this. Again, the more advanced of the sixteenth-century American Indians were New Stone Age farmers, using polished stone tools. A very few of them were just beginning to learn the use of metals. But many more were still Middle Stone Age hunter-gatherers.

Most of the Africans of the same period, on the other hand, were farmers equipped with tools of iron. Throughout the northern part of the continent most of them belonged to the urbanized civilization of Islam. Even in the southern half of the continent, most of the African peoples were organized into communities powerful enough to deter invaders and migrants until late in the nineteenth century.

True, much of Africa was unhealthy and inaccessible, but not more so than some South American countries. The real reason why the Europeans did not go inland and seize the gold-mines of West Africa, for example, was that the Africans there were already well enough organized to exploit the mines themselves and to keep the overland trade in their own hands. It was largely the progress already made by the Africans in earlier centuries that enabled them to resist the modern age for so long.

- 67 According to the author, what is the most common misunderstanding concerning Africa?
- A Much of Africa was unhealthy and inaccessible.
 - B It was the most backward of all the continents.
 - C Most of its people were hunter-gatherers.
 - D It was the last of the continents to be explored.
 - E The majority of Africans were New Stone Age farmers.
- 68 What gave support to the idea of Africa as the "Dark Continent"?
- A Its peoples were nearly all dark-skinned.
 - B It was the most backward of the continents.
 - C Africans clung to primitive methods of hunting and farming.
 - D Much of it was covered with dense jungle.
 - E It was the last continent to be fully explored.
- 69 What was the major factor which enabled the Africans to resist European invasion for so long?
- A Much of Africa was disease-ridden and inaccessible.
 - B The people were hostile to migrants.
 - C The Africans already had advanced cultures.
 - D The name "Dark Continent" discouraged intruders.
 - E Few Europeans were interested in Africa.
- 70 The gold-mines of West Africa were **not** exploited by the early Europeans because
- A the area was unhealthy and inaccessible.
 - B they were nearly worked out by the late nineteenth century.
 - C the Africans had developed the mines themselves.
 - D their activities were confined to North Africa.
 - E overland routes had not been developed.
- 71 At the beginning of the sixteenth century who were the **least** advanced of the peoples mentioned?
- A the Australians
 - B the Africans
 - C the American Indians
 - D the Islamic peoples of North Africa
 - E the peoples of South America
- 72 The **main** purpose of the author in this passage is to
- A explain why the Europeans did not invade Africa sooner.
 - B describe the state of civilization of the early Africans.
 - C compare the levels of development of the different continents.
 - D expose the mistaken idea that Africa was a backward continent.
 - E describe the conditions in which the Africans used to live.

The wonders of this journey to Nairobi have been described many times, the tens of thousands of animals to be seen from the train, the sense of travelling through some tremendous park full of tame beasts, almost as if one had journeyed through the Garden of Eden before the fall. It would be tedious, therefore, to repeat all this and to dwell upon the great shining herds of zebra and wildebeeste, the close-packed, gracefully-horned gazelle with tails always a-wag, the patchwork giraffe arching their necks to nibble a tree-top, the red lyre-horned impala, the cow-like eland with their dewlaps swaying, the lithe hunting cheetahs and ungainly hyenas and silver-backed jackals.

I searched with hopeful eyes for a lion, or even a pride of lions sloping off into a thick-bushed gully, or sunning themselves on a cluster of rocks. It was always an event if one saw a lion, a small triumph scored. It was not a rare event, but on this occasion lions eluded us. We were lucky enough to see, however, a procession of three rhinos, a father and mother and half-grown child, walking in single file, their insect-like heads weighed down by their long curved horns, like a prehistoric frieze. When the leader heard the train he halted and swung a lowered head around to face it, pawing with one big foot on the ground, searching for something on which to vent his irritation. Rhinos had been known to charge the train itself in sheer outraged fury, and I prayed this family party would not decide to do so, for they could only stub their noses and get themselves shot. They did not realize that all their heavy armour, which for centuries had protected them from every hazard Africa could offer, had become a mere encumbrance in their last and hopeless battle against a *species* infinitely more ruthless, ferocious, and clever than their own.

- 73 The author reports that on this occasion she saw
- A no sign of lions.
 - B lions sunning themselves on rocks.
 - C lions sloping off into the bushes.
 - D a procession of lions.
 - E a pride of lions.
- 74 The rhinos appeared to think that they could protect themselves with their
- A long curved horns.
 - B outraged fury.
 - C heavy armour.
 - D fierce cunning.
 - E sheer weight and size.
- 75 What is the author describing?
- A a journey through the former Garden of Eden
 - B a train trip through a park of tame beasts
 - C a hunting expedition
 - D the countryside surrounding Nairobi
 - E animal life near Nairobi
- 76 What does the word *species* at the end of the passage refer to?
- A lions
 - B rhinos
 - C man
 - D any fierce species
 - E The passage gives no clue.
- 77 This passage is probably taken from
- A a geography textbook.
 - B an encyclopedia.
 - C a travel guide.
 - D a book of travel.
 - E a hunter's guidebook.

Ignatius Donnelly, a Minnesota reformer of dubious reputation, has written a book in which he argues that Atlantis was a huge continent located in the middle of the Atlantic Ocean, over 13,000 years ago. It was here, claims Donnelly, that man developed from barbarism to a civilized state. In fact, the Atlantans are supposed to have boasted a veritable paradise of superior culture, advanced scientific knowledge, and their own distinctive religion. The people of Atlantis are said to have spread their culture by invading and colonizing the Americas, Europe, and parts of Asia. The leaders and heroes of Atlantis became the gods and goddesses of many ancient religions.

Unfortunately, as the story goes, a tremendous earthquake occurred and the whole continent was submerged in a single day and night, beneath the Atlantic Ocean, many years before the first recognized civilizations of the Nile and Mesopotamian valleys. This catastrophe is supported and illustrated by such flood stories as that of Noah and the Ark.

To strengthen his case Donnelly has collected a vast number of questionable facts about similarities observed between civilizations as far apart as ancient Egypt and South America. For instance, in both places we find a knowledge of embalming, the use of a calendar of 365 days, and the building of pyramids. The only way these similarities can be explained, according to Donnelly, is to assume the existence of an earlier culture, situated between the two areas. Such doubtful reasoning has prompted one critic to write that few people have excelled Donnelly in arguing "from a molehill of fact to a mountain of surmise".

- 78 Donnelly believes that the inhabitants of Atlantis
- A were gods and goddesses.
 - B were barbarian invaders.
 - C were mostly leaders and heroes.
 - D became highly civilized.
 - E probably did not exist.
- 79 Donnelly argues for the existence of Atlantis on the grounds that
- A the people of Atlantis spread their culture through colonization.
 - B the Nile and Mesopotamian valleys had similar civilizations.
 - C many aspects of civilization originated in Atlantis.
 - D a tremendous earthquake destroyed the early civilization.
 - E two distant cultures show distinct similarities.
- 80 What does the author of the passage think of Donnelly's theory?
- A He is very impressed with it.
 - B He thinks it explains similarities between civilizations.
 - C He rejects it outright as ridiculous.
 - D He tries not to show what he thinks.
 - E He doubts whether the story is true.
- 81 From your reading of this passage what would you say about Donnelly?
- A He was probably cautious and honest.
 - B He based his argument on too few facts.
 - C He deliberately tried to mislead his readers.
 - D He wanted man to return to a primitive state of nature.
 - E He longed to live in Atlantis.
- 82 How might it be possible to show whether Donnelly's theory were true or false?
- A by comparing Egyptian civilization with that of Atlantis
 - B by studying Donnelly's life in detail
 - C by exploring the bed of the Atlantic Ocean
 - D by reading the manuscripts written by the people of Atlantis
 - E by examining ancient South American culture

Comprehension Sub-Test of the PAT (B)PART
6

Most fish, as we know, cannot live without water. Indeed we often speak of people who are out of their natural element as being like "fish out of water". If a fish is brought out of its natural element it gasps for a time and then dies because, as soon as its gills cease to be wet, it cannot breathe. But there is one strange fish which often leaves the water, travels inland, and actually climbs trees. It is called the climbing perch and lives in Burma and India.

The fish always has a good reason for leaving its watery home. It never thinks of roaming unless it fears that there is a drought at hand. Since it does not want to be stranded, it sets out to look for a deeper pool or river. It has spiny fins which help it to "walk" over the land in search of a new home.

To keep it alive, it has at each side of its head a kind of store-cupboard where it can hoard up supplies of water. This keeps its gills moist, and gives it a chance to breathe until it has reached the safety of another pool.

Perhaps the perch may be a long time in finding a new pool. If this happens the wise little fish knows that there is water to be found in the hollow of a tree. It keeps this as a last hope and, if its store of water is nearly at an end, it begins to climb a tree. It clings to the bark with its gill-covers and uses its spiny fins to help it to climb. The journey is very slow, but at last the perch reaches its goal, and is rewarded by finding the precious water which means new life to it.

- 36 When does the climbing perch leave the water?
- A when it is hungry
 - B when it cannot breathe properly
 - C when it wants to climb a tree
 - D when the water is drying up
 - E when it is tired of its present home
- 37 How does the climbing perch move about on land?
- A It slithers on its stomach.
 - B It uses its fins as legs.
 - C It jumps from pool to pool.
 - D It clings to the ground with its gill-covers.
 - E The author does not tell us.
- 38 How does the climbing perch stay alive out of water?
- A It climbs trees to look for water.
 - B It breathes more like humans.
 - C It stores water to wet its gills.
 - D It always keeps close to water.
 - E It carries water in its mouth.
- 39 The climbing perch is more likely than most fish to
- A stay alive in dry weather.
 - B be eaten by its enemies.
 - C live in running water.
 - D be difficult to catch.
 - E be a very clumsy swimmer.
- 40 What is the **most** suitable name for this story?
- A "How a Fish Climbs a Tree"
 - B "The Life of the Climbing Perch"
 - C "How Fish Stay Alive on Land"
 - D "A Strange Fish"
 - E "Why Fish Need Water"

PART
2

OTHER PARTS GO ON

PART
7

A Chinese proverb tells us that a picture is worth ten thousand words. Have you ever wondered how the illustrations of a book are made?

The earliest books were written on parchment, the scribe using a feather or quill pen. These excellent craftsmen took great pride in their work. They felt that a page of writing, however beautifully done, required some decoration and they made their pages more attractive by adding flourishes with their pens in suitable places. These decorations were often pictorial, representing people, birds, animals, and foliage. Such additions made the book so much more interesting that they took still greater pains with the illustrations, and a favourite practice was to draw the capital letters very large and to paint beautiful pictures inside them. They used brilliant colours, mostly red, blue, green, and gold, which they polished to a high gloss. So thorough were they that some of their work has lasted till now, and is as attractive as it was hundreds of years ago.

No one knows exactly when the first prints were made but, long before Caxton introduced printing into England in 1474, wood-blocks had been in use. Have you ever made a linocut? The idea of the wood-block is just the same, except that the wood takes the place of the linoleum. A sketch is made on the face of the block, and the parts to remain white are cut away with a knife so that the black parts are left standing in relief. The block is inked by painting, dabbing, or rolling with a stiff black ink, and a print is made by pressing paper against it.

After the invention of printing, the wood-block continued to be used for hundreds of years and, except that nowadays metal has replaced wood, the same principle is used today for the illustration of most books.

- 41 In many of the early books, capital letters were made to stand out **mainly** to
- A indicate clearly the beginnings of sentences.
 - B show that the writer was also an artist.
 - C increase the value of the books.
 - D make the books more attractive.
 - E illustrate the story by means of the pictures inside them.
- 42 Over the past 500 years the **most** common method of illustrating books has been by means of the
- A wood-block.
 - B linocut.
 - C quill pen.
 - D metal-block.
 - E paint brush.
- 43 What is the **main** purpose of the **third** paragraph?
- A to describe how linocuts are made
 - B to explain how wood-blocks are made
 - C to tell when the first prints were made
 - D to say how long wood-blocks have been used
 - E to explain how to illustrate a printed book
- 44 The author suggests that the early scribes were
- A foolish, because they took such pains over their work.
 - B to be admired, because they took a pride in their work.
 - C clever, because they invented such original ways of making pictures.
 - D unwise, because they paid more attention to the illustrations than to the writing.
 - E very famous, because many people read their works.
- 45 What is this story **mainly** about?
- A the discovery of printing
 - B the detailed illustration of capital letters
 - C how to make a printer's wood-block
 - D the importance of beautiful pictures
 - E the illustration of books

He knew enough about bears to realize the danger.

Instantly he weighed the odds—the fact that Kodiaks were often short-sighted; the fact that he and Eric were down-wind; the fact that his rifle was not powerful enough to be effective; the difficult ground; the noise of the sea. Then he grabbed Eric. He didn't speak. He raised a finger to his lips and pointed to the shore, and they backed, slowly and soundlessly, away from the sand-hill.

The bear couldn't see them. But he knew they were escaping. He padded after them, his nose lifting this way and that like a radar scanner searching for its target. Jim and Eric worked their way down to the shore, to where the roar of the waves muffled the sound of their steps and the off-shore wind swirled their scent out to sea. Here, on the edge of the water, they waited.

A moment later the Kodiak topped the bank. He was angry and thwarted; balked for the moment of his intended meal. He padded up and down. His partly-blind eyes stared at them sightlessly. His nostrils flared angrily as he searched for their scent. Twice he came lurching down to the water's edge—once within thirty yards of them. But he could neither hear them nor scent them nor see them. And at last he gave up. With an angry disappointed growl he lunched away in the direction of the forest.

- 46 When he had considered their situation, Jim decided that
- A they should retreat.
 - B the rifle was useless.
 - C the bear might smell them.
 - D Kodiaks were short-sighted.
 - E they should run for their lives.
- 47 The **main** reason the bear could not smell the boys was because
- A his sense of smell was too weak.
 - B he was too far away.
 - C the wind was blowing the wrong way.
 - D the smell of the forest was too strong.
 - E the bank was between the boys and the bear.
- 48 Which word **best** describes Jim?
- A over-anxious
 - B calm
 - C brave
 - D confused
 - E cowardly
- 49 What probably happened **immediately** after this?
- A The boys moved towards the forest.
 - B The boys carefully stalked the bear.
 - C The bear chased the boys into the water.
 - D The bear returned to the beach.
 - E The boys moved stealthily along the shore.
- 50 Which title **best** sums up this passage?
- A "A Killer Kodiak Bear"
 - B "Trapped by a Bear"
 - C "The Adventures of Jim and Eric"
 - D "An Escape from a Bear"
 - E "Attacked on the Beach"

PART
3



OTHER PARTS GO ON

PART
8

Until 1945 Ruapehu was known as a dormant, sleeping volcano. In its crater, which is not very deep compared with the size of the mountain, there used to be a warm lake. The fact that there was enough heat left in the old volcano to keep the lake warm showed that it was not extinct. Ruapehu had never been known to have an eruption, so everyone was surprised when it started smoking and sending up big clouds of ash and hot gas.

People climbed the mountain, or went up in aeroplanes to see what was happening. They saw that an island of lava, or molten rock, had been pushed up in the middle of the lake. The lake water had cooled the lava, making the outside solid. But masses of steam, smoke, and ash were pouring out of cracks in the crust of this strange island, and occasionally pieces of rock, thrown into the air by an explosion, splashed down into the lake. Bystanders were in danger of being hit by these burning-hot stones.

The island steadily grew bigger. In a few months the lake had disappeared, and the island was an island no more, but a circular mass of hot rock filling the hollow in the crater. From cracks or vents in this crust of rock, big gushers of steam and ash poured out all the time, and every few minutes stones and heavier ash were blown as high as the rim of the crater from an exploding vent. Less often there was a sudden explosion sounding like a big gun. Ash, blown up by the hot gases into cauliflower-shaped clouds, rose to 2,000 metres above the mountain, and big boulders were thrown right out on to the ice and snow of the mountain-side, where they melted holes and sank in.

- 51 How was it known that Ruapehu was not extinct, even before 1945?
- A It sent up clouds of smoke.
 - B The crater was not very deep compared with the size of the volcano.
 - C It still had a crater.
 - D The crater lake was warm.
 - E There were cracks around the edge of the crater.
- 52 Why were observers on the mountain in danger?
- A Lava was being pushed up in the middle of the lake.
 - B Stones were being thrown up by explosions.
 - C Clouds of ash and hot gas billowed into the sky.
 - D Boiling water was splashing out of the lake.
 - E Steam, smoke, and ash were pouring out of vents.
- 53 The lake was **finally** replaced by
- A an island.
 - B boulders and ash.
 - C a mass of boiling mud.
 - D hot gases and cinders.
 - E a crust of hot rock.
- 54 The boulders, flung into the air by the volcano, struck the mountain-side and
- A shattered into a thousand pieces.
 - B injured the bystanders.
 - C sank into the snow.
 - D rolled down the slope.
 - E exploded with a roar like a big gun.
- 55 Where would you be **most** likely to find this passage?
- A in a history textbook
 - B in an atlas of New Zealand
 - C in a novel
 - D in a geography book
 - E in a mountaineers' guidebook
- 56 Which one of these titles **best** sums up the main idea of this passage?
- A "The Mountain Comes to Life"
 - B "Danger at the Mountain-Top"
 - C "An Adventure on Mount Ruapehu"
 - D "The Sleeping Volcano"
 - E "A Disastrous Eruption"

At various times of the year, colonies of seals can be seen on many of the rocky western coasts of the South Island. These colonies are but a remnant of the vast communities which formerly inhabited these areas, for during the last century, seals were ruthlessly hunted for their oil and skins.

Ships would arrive from America, England or Australia and parties of men would be landed at likely spots along the coast. Each man carried a club and a long knife. When seals were sighted on shore, the attackers crept up until they formed a line between the animals and the water. On being disturbed, the seals, in rushing to safety towards the sea, were violently clubbed by the sealers. The killing was indiscriminate: both males and females were taken, and the seal pups—whose skins were of little value—were left to survive as best they could.

It often happened that more seals were killed than the men could handle before the skins began to spoil and the flesh to rot. Moreover, numbers of skins were hastily collected and many were not properly preserved for the long trip back to England. One ship, the "Pegasus", arrived with a huge load of 100,000 pelts, only to find that they had become so rotten during the trip that they could only be dug out as manure.

With vast profits to be made, companies cared little about conservation. They knew that the next sealing party after theirs would be sure to kill any animals left alive. Consequently, within a short time, the trade had almost died out. Areas such as Cook Strait, which had formerly supported seals in immense numbers, became completely empty.

Eventually, seals were absolutely protected by law. Nevertheless, it is only now, over 150 years after sealing began in New Zealand waters, that seals are beginning to return to their former haunts in any numbers.

- 57 How were the seals attacked?
 A They were surrounded.
 B They were surprised from behind.
 C They were stabbed with a knife.
 D They were cut off from the sea.
 E They were captured alive.
- 58 Why were young seals not killed?
 A Their skins would bring little money.
 B To preserve the seal population.
 C They were more difficult to catch.
 D Their blubber contained insufficient oil.
 E They were protected by law.
- 59 The companies that employed the sealers were **mainly** interested in
 A protecting the young seals.
 B making as much money as possible.
 C prolonging their trade as long as possible.
 D ensuring that the skins were properly preserved.
 E wiping out the seal population.
- 60 The writer's **main** point in the **first** paragraph is that
 A there are a large number of seals in the South Island.
 B seal oil and skins are very valuable.
 C there are far fewer seals than there used to be.
 D several times a year seals come ashore.
 E seals are found only in the South Island.
- 61 The writer gives the example of the "Pegasus" to
 A illustrate the huge capacity of sailing-ships.
 B show that even rotten skins were valuable.
 C indicate that the men were slow in handling the pelts.
 D stress the length of time taken by a ship to get home.
 E emphasize the wastage that occurred.

PART
4



OTHER PARTS GO ON

The last man to try to fly without balloon or aeroplane was probably a German, Ludwig Berblinger. He was a tailor, almost unknown until one day he suddenly announced that he would jump off the cathedral tower and fly over the town.

Naturally everybody became intensely interested, and even King Frederick announced that he intended to be present. The day fixed for the great event was 28th January, 1829. Up till the last moment Berblinger was full of confidence in the strange flying suit he had made, but when everything was ready he suddenly lost heart and wanted to give up.

The King was furious. He had come to see a man fly, and fly he must. So the poor tailor was forced to don his suit, but he did not like the view of the roofs from the top of the cathedral tower. Eventually he agreed to commence his flight from the top of a high wall overlooking the Danube. In making this choice we must admit that he used his discretion, for when he jumped off the wall the spectators saw him fall with a splash into the river! Amid a storm of laughter, he was hauled out. Next day he tried again, with the same result. After that we hear of him no more.

- 62 The townspeople were interested in Berblinger's attempt to fly because
- A the King was going to attend.
 - B Berblinger was an unknown tailor.
 - C he was the last man to try to fly like a bird.
 - D they had never seen a man fly before.
 - E he was one of their countrymen.
- 63 Why did Berblinger dislike the view of the roofs from the cathedral tower?
- A The roofs would block his flight.
 - B The river view was more pleasant.
 - C The roofs were very steep.
 - D More people could watch him at the river.
 - E He thought he might injure himself on them.
- 64 Why did Berblinger finally choose a high wall by a river as a starting point for his attempt?
- A It was just the right height to start from.
 - B Many people could view his flight.
 - C He would not be injured should he fail.
 - D He wanted to amuse the crowd.
 - E He wanted to show he could use his discretion.
- 65 Berblinger's **second** attempt was
- A effective.
 - B unsuccessful.
 - C fatal.
 - D triumphant.
 - E abandoned.
- 66 Why did the crowd laugh at Berblinger?
- A They knew he could not swim.
 - B They thought he looked foolish.
 - C He was trying to amuse them.
 - D Berblinger was so confident of himself.
 - E They applauded his discretion.
- 67 What did the author think of Berblinger's decision to jump off the wall rather than the tower?
- A He thought it wise.
 - B He thought it hasty.
 - C He thought it cowardly.
 - D He thought it foolish.
 - E He gives no clue.

Egyptian civilization was already ancient when the first Greek travellers came to Egypt and discovered, standing at the edge of the desert, the strange limestone beast which they called the Sphinx. This may have been a Greek interpretation of the Egyptian name for the monument. But nothing like the Sphinx had ever been seen in Greece. This gigantic figure crouching in the sand near the modern village of Gizeh has a lion's body measuring 80 metres long and 20 metres high, and a human face more than 3 metres wide.

Ever since this hybrid creature was given its foreign name, the Great Sphinx at Gizeh has represented to strangers all that is mysterious and inscrutable about the civilization of ancient Egypt. Yet, despite the statue's remote origins, a good deal about it has been learned or deduced. Egyptians considered the Sphinx a representation of Harmakhis, their sun god. The human features are believed to be a portrait of Khafre, the King of Egypt when the statue was carved.

Nothing about the great Sphinx is more certain — or harder to comprehend—than its tremendous age. According to an ancient text, a young prince riding in the desert paused to rest in the shade of the Sphinx. As he slept, the Sphinx spoke to him, promising him the throne if he would remove the sand that had piled up around the statue. The prince, Thutmose IV, did clear the sand and the promise was fulfilled 34 centuries ago—and at that time the Sphinx was already 1,100 years old.

- 68 The author suggests that the probable origin of the name "Sphinx" is
- A a Greek word for "lion-bodied".
 - B an Egyptian word for "Harmakhis".
 - C a Greek version of an Egyptian name.
 - D an Egyptian word meaning "Khafre".
 - E a Greek word for "stone beast".
- 69 Who was Egypt's ruler when the Sphinx was constructed?
- A Khafre
 - B Thutmose IV
 - C Gizeh
 - D Harmakhis
 - E We cannot tell from the passage.
- 70 According to the writer, what does the Sphinx symbolize to foreigners?
- A the high quality of ancient Egyptian art
 - B the unknown aspects of ancient Egypt
 - C a source of Egyptian inspiration
 - D the representation of Harmakhis
 - E a monument to slave labour
- 71 Which one of these statements about the Sphinx is **false**?
- A It is made of limestone.
 - B It is on the edge of the desert.
 - C It has a man's face.
 - D It was built by a young prince.
 - E It is thought to represent a god.
- 72 The writer suggests that the **most** difficult thing to understand about the Sphinx is
- A its method of construction.
 - B the name of its builder.
 - C its extreme age.
 - D how it obtained its name.
 - E the nature of its discovery.

PART
5

stops
here

OTHER PARTS GO ON

Now Kino and Juana hauled the canoe down the beach, and when the bow floated Juana climbed in, while Kino pushed the stern in and waded beside it until it floated lightly and trembled on the little breaking waves. Then in coordination Juana and Kino drove their double-bladed paddles into the water, and the canoe creased the surface and hissed with speed. The other pearlers had gone out long since. In a few moments Kino could see them clustered in the haze, riding over the oyster-bed.

Sunlight filtered down through the water to the bed where the frilly pearl-oysters lay fastened to the rubbly bottom, a bottom strewn with shells of broken oysters. This was the bed that had raised the King of Spain to be a great power in Europe in past years, had helped to pay for his conquests, and *had decorated the churches for his soul's sake*. Here were the grey oysters with ruffles like skirts on the shells, the barnacle-cruste d oysters with little tufts of weed clinging to the skirts and small crabs climbing over them. An accident could happen to these oysters. A grain of sand could lie in the folds of muscle and irritate the flesh until in self-protection the flesh coated the grain with a layer of smooth cement. But once started, the flesh continued to coat the *foreign body* until it fell free in some tidal flurry or until the oyster was destroyed. For centuries men had dived down and torn the oysters from their beds and ripped them open, looking for the coated grains of sand. Swarms of fish lived near the bed to live on the oysters thrown back by the searching men and to nibble at the shining inner shells. But the pearls were accidents, and the finding of one was luck, a little pat on the back by God or the gods—or both.

- 73 The oysters were camouflaged by
 A rubble.
 B weed and barnacles.
 C sand.
 D grey ruffled skirts.
 E broken shells.
- 74 The **main** point the author makes in paragraph 2 is that pearls
 A are discovered by good fortune.
 B are treasured by kings.
 C are accidents of Nature.
 D are extremely precious.
 E have been sought after for centuries.
- 75 In using the words, *had decorated the churches for his soul's sake*, the author considers the King of Spain to have been a man who
 A went to church often.
 B was interested in interior decorating.
 C liked to decorate churches.
 D pretended to be what he was not.
 E recently came to power in Europe.
- 76 Why was the sea-bottom covered with broken shells?
 A The pearlers had been there.
 B The fish ate the oysters.
 C There were fierce tidal currents.
 D There had been many accidents.
 E A violent storm had ripped the oysters from the sea-bed.
- 77 The *foreign body* the author refers to in the passage is
 A the King of Spain.
 B a pearl.
 C the folds of muscle.
 D smooth cement.
 E a grain of sand.

Early in October, some twelve weeks after setting sail from Matavai Bay, two things were noted by officers and crew alike. The water over which they were sailing was now generally of a paler colour; and in addition to the sea-birds that had long been accompanying them, there were now land-birds too. The meaning was plain: land, even if not yet in sight, must lie not far beyond the horizon. And it was on 7th October, 1769, one year and six weeks since they had sailed out of Plymouth Sound, that young Nicholas at the mast-head sighted the east coast of New Zealand and descended, filled with pride, to receive his tot of rum when his report had been confirmed: land, "bearing West by North", had been sighted just short of latitude 40° South.

Captain Cook gave orders to stand in towards the bay to the south of the headland—but with care, for this was unknown territory. "The bay", he wrote in his Journal, "appeared to run pretty far inland, so we hauled our wind and stood in for it, but kept plying on and off." There was considerable excitement among his officers, for they were confident that they were now near the eastern coastline of the long-sought Southern Continent, which Tasman was believed to have partly located a century before. There is, however, no evidence in Cook's own Journal to suggest that he himself held this view.

- 78 Why did the crew believe that land was close, even before they sighted it?
- A They could tell from their charts and maps of the area.
 - B They estimated from the numbers of days they had been at sea.
 - C There were changes in the water and the kinds of birds they saw.
 - D They had Tasman's log to guide them.
 - E They noticed a change in the type of weather they experienced.
- 79 When land had been sighted Cook gave the order to
- A sail close to the headland.
 - B sail up the bay.
 - C prepare to lower a boat.
 - D make towards the bay.
 - E sail up the eastern coastline.
- 80 Cook's officers were excited because they believed that
- A they had reached civilization.
 - B they had reached one of the islands of New Zealand.
 - C they would now be able to renew their food supplies.
 - D they had now earned another tot of rum.
 - E they had reached a new continent.
- 81 The writer's purpose is to describe
- A the dangers of travelling unknown waters.
 - B Cook's rediscovery of New Zealand.
 - C the character of Cook.
 - D the land which Cook's ship had reached.
 - E how sailing ships used to approach land.
- 82 This passage shows Captain Cook to be
- A a stern man, strict with his crew.
 - B a happy-go-lucky captain, rather free with the rum.
 - C a cautious person who did not jump to conclusions.
 - D very excited by the discovery.
 - E a tired man after the long voyage.

Appendix B : The Questionnaire

School : _____

Day : _____

Female : _____ Male : _____

Age : _____ years _____ months.

<i>Activity</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wed</i>	<i>Thursday</i>	<i>Friday</i>
1. Had a lesson (eg. piano, guitar, dancing).					
2. Practice of any sort (eg. sport, dance, music)					
3. Spent time listening to radio, records, tapes or CD's.					
4. Spent time reading a book.					
5. Spent time playing with friends or family.					
6. Spent time watching television.					
7. Spent time reading a comic book or comic.					
8. Spent time talking on the telephone.					
9. Spent time reading other materials (eg. newspaper, magazines etc.).					
10. Spent time doing household chores or cleaning.					
11. Spent time eating.					
12. Spent time reading mail.					
13. Spent time writing.					
14. Spent time on another activity.					
Please specify					