

University of Warwick institutional repository: <http://go.warwick.ac.uk/wrap>

A Thesis Submitted for the Degree of PhD at the University of Warwick

<http://go.warwick.ac.uk/wrap/51759>

This thesis is made available online and is protected by original copyright.

Please scroll down to view the document itself.

Please refer to the repository record for this item for information to help you to cite it. Our policy information is available from the repository home page.

to my beloved sister
Noor Jasmin Janan



Towards a New Model of Readability

by

Dahlia Janan

A thesis submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy in Education

University of Warwick, Institute of Education

September 2011

Table of Contents

Chapter 1 – Introduction	1
1.1 Background	1
1.2 Personal Interest	3
1.3 Rationale	4
1.4 The Research Aims and Questions	7
1.5 Thesis Structure Overview	8
Chapter 2 – Literature Review	10
2.1 Introduction	10
2.2 Theoretical Framework	11
2.2.1 The Nature of Scientific Paradigms	11
2.2.2 Paradigms in Readability Research	15
2.2.2.1 Introduction	15
2.2.2.2 What does Readability mean?	15
2.2.2.3 The History of the Readability Research	20
2.2.3 Paradigms in Reading Research	28
2.2.3.1 Introduction	28
2.2.3.2 Definition of Reading	29
2.2.3.3 New Perspectives in Reading Definitions, and Reader and Text Relationships	32
2.2.3.4 Models of Reading Process	34
Bottom-Up Model	34
Top-Down Model	35
Interactive Model	35
Transactional Model	36
2.2.3.5 Trends in Reading Research	36
2.2.4 Paradigms in Reading Comprehension	40
2.2.4.1 Introduction	40
2.2.4.2 Historical Perspective on Reading Comprehension	40
2.2.4.3 Assessing Reading Comprehension	45
2.2.5 Conclusion	51
2.3 Factors that Influence the Concept of Readability	53

2.3.1 Introduction.....	53
2.3.2 Text Factors	53
2.3.2.1 Linguistic Difficulties	54
2.3.2.2 Organisation	57
2.3.2.3 Content Structure	58
2.3.2.4 Legibility.....	59
2.3.2.5 Illustration	61
2.3.2.6 Genre	62
2.3.2.7 Physical Feature of the Text	64
2.3.2.8 Author's Style	64
2.3.3 Reader Factors.....	65
2.3.3.1 Reading Ability.....	65
2.3.3.2 Prior Knowledge	67
2.3.3.3 Interest	68
2.3.3.4 Engagement.....	69
2.3.3.5 Motivation	70
2.3.3.6 Attitudes	72
2.3.3.7 Purpose for Reading	72
2.3.3.8 Age	74
2.3.3.9 Gender	74
2.4 Measurement of Readability	75
2.4.1 Introduction.....	75
2.4.2 The History of the Readability Formulae.....	76
2.4.3 Limitations and Criticism of Formulae.....	81
2.5 Summary.....	88
Chapter 3 – Methodology.....	89
3.1 Introduction.....	89
3.2 Theoretical Paradigms.....	89
3.3 Research Methods.....	90
3.3.1 Mixed Methods	91
3.4 Research Design.....	95
3.4.1 Participants.....	96
3.4.2 Text Selection	97

3.4.3 Pilot Study Report.....	98
3.4.4 Data Collection Procedures	101
3.4.4.1 Reading Event One	102
3.4.4.2 Reading Event Two	105
3.4.5 Methods of Data Collections and Analysis Procedures	107
3.4.5.1 Readability Formulae	107
3.4.5.2 Text Feature Analysis.....	120
3.4.5.3 Miscue Analysis	125
3.4.5.4 Retelling	147
3.4.5.5 Interviewing.....	153
3.5 Validity and Reliability	170
3.6 Ethical Issues and Consent	174
3.7 Summary.....	176
Chapter 4 – Findings.....	180
4.1 Introduction.....	180
4.2 Quantitative Findings	181
4.2.1 Introduction.....	181
4.2.2 Readability	181
4.2.2.1 Consistency Estimation of the Formulae.....	183
4.2.2.2 Comparison of the Grade Levels	185
4.2.3 Text Feature.....	188
4.2.3.1 Participants’ Typography Elements Preference	189
4.2.3.2 The Observation of Participants’ Text Features Preference	195
4.3 Qualitative Findings.....	213
4.3.1 Introduction.....	213
4.3.2 Miscue	213
4.3.2.1 Percentages Word Miscued.....	214
4.3.2.2 Grapho-phonetic Cueing System	216
4.3.2.3 Grammatical Relation.....	224
4.3.2.4 Meaning Construction	233
4.3.3 Retelling.....	241
4.3.3.1 Introduction.....	241
4.3.3.1 The Richness of Participants’ Retelling.....	241

4.3.4 Interview.....	249
4.3.4.1 Categories and Themes	249
4.3.4.2 Text Factors	254
3.3.4.3 Readers Factors	263
4.4 Conclusion	273
Chapter 5 – Discussion	276
5.1 Introduction.....	276
5.2 Quantitative Findings Discussion.....	278
5.2.1 Concepts of Readability	278
5.2.2 Text Factors	285
5.2.2.1 Physical Feature of Book	287
5.2.2.2 Content	293
5.2.2.3 Genre	297
5.2.2.4 Author’s Style	298
5.2.2.5 Vocabulary and Syntax	300
5.2.2.6 Legibility.....	303
5.2.2.7 Illustration and Colour	308
5.2.2.8 Organisation	310
5.3 Qualitative Findings Discussion	314
5.3.3 Readers factors.....	314
5.3.3.1 Reader’s Characteristics	316
5.3.3.2 Reader’s Reading Techniques.....	319
5.3.3.3 Reader’s Reason for Reading.....	320
5.3.3.4 Reader’s Definition of Reading.....	322
5.4 Reader and Text Interaction.....	323
5.5 Implications of the Reader and Text Interaction.....	338
5.6 Summary.....	340
Chapter 6 – Conclusion.....	342
6.1 Introduction.....	342
6.2 Overview of Key Research Findings.....	342
6.3 Concept of Readability	344
6.4 The Contributions of the Research.....	345
6.4.1 Theoretical Contribution	345

6.4.2 Methodological Contribution	346
6.5 Implications for Practice	347
6.5.1 Community of Research	347
6.5.2 Community of Education	350
6.5.3 Community of the Public	351
6.6 Limitations of the Research	353
6.7 Recommendations for Future Research	354
References	357
Appendices	388

List of abbreviations

AvgChar	Average characters per word
AvgGrad	Average grade level of words
AvgWord	Words per sentence
ATOS	An open and free readability formula by Accelerated Reader
BERA	Britain Educational Research Association
CRB	Criminal Records Bureau
ER	Expected response
ERIC	Digital library of education literature
FOG	Gunning Fog index measure the readability
FORCAST	Readability formula commissioned by United State military
JSTOR	Online journal storage
Lexile	Readability formula by Lexile Framework for Reading
LMSL	Log of the mean sentence length
Md	Median
MLWF	Mean of the log word frequencies
N	Number of participant
NAEP	National Assessment of Educational Progress Reading Framework Committee
Nvivo	Qualitative data analysis
OR	Observed response
PERCENT	Percentage
PROQUEST	Online database access to dissertations and theses
RAND	Research and development

RE1	Reading event one
RE2	Reading event two
RTF	Rich text format
SMOG	Readability formula created by Harry McLaughlin
<i>sl</i>	Sentence length
SPSS	Statistical package for the social sciences
SYLL	Average number of syllables per 100 words
UFMWDS	Unfamiliar words
UKLA	United Kingdom Literacy Association
TXT file	Text
WDD/SEN	Average number of words per sentence
<i>wl</i>	Word length

List of figures

1.1	Three Major Factors that Influence the Readers' Ability to Read and Understand.....	3
1.2	The Literacy Triangle.....	4
1.3	Readability studies in academic publications.....	6
2.1	Relationships between Research in Reading, Reading Comprehension and Readability.....	11
2.2	The Model of Reader Performance.....	33
2.3	The Intersection of Reader, Text, and Context.....	41
2.4	The Extraction-Assembly Model.....	42
2.5	The Constructive-Integrative Model.....	43
2.6	The Transitional Extension Model.....	44
2.7	Theoretical frames and Corresponding Assessment.....	47
2.8	Reading, comprehension, and readability research paradigms.....	52
2.9	Fry Readability Graph.....	80
3.1	Towards a New Model of Readability Complementary Mixed Methods Research Design.....	95
3.2	Data collection procedures.....	102
3.3	WordsCount website: Uploading the text.....	116
3.4	WordsCount website: Readability indices calculation.....	116
3.5	ATOS Analyzer submission form.....	118
3.6	ATOS Analyzer text confirmation number.....	118
3.7	An example of the ATOS results.....	119
3.8	Language Levels and Cue System in Oral and Written Language (Goodman, 1996, p.65).....	131
3.9	Substitution Diagram.....	142
3.10	Document imported into Nvivo7.....	166
3.11	Responses sorted questions by questions in Nvivo7.....	167

3.12	Filtered responses stored questions by questions in Nvivo7.....	168
3.13	Predetermine and emerging categories in Nvivo7.....	169
3.14	Emerging themes in Nvivo7.....	170
4.1	Richness of the participants retelling in RE1 and RE2.....	243
4.2	Categories and themes of the interview data.....	253
4.3	Text Factors.....	254
4.4	Elements that influence layout.....	255
4.5	Elements that influence genre.....	255
4.6	Elements that influence storyline.....	257
4.7	Elements that influence series of book.....	258
4.8	Elements that influence vocabulary.....	260
4.9	Elements that influence popular / trendy.....	261
4.10	Elements that influence content / topic.....	262
4.11	Readers Factors.....	263
4.12	Elements that influence reader's characteristic.....	264
4.13	Elements that influence reader's reading techniques.....	267
4.14	Elements that influence reader's reasons for reading.....	269
4.15	Reader's definition of reading.....	271
5.1	The New Model of Readability.....	340

List of tables

3.1	Characteristics of mixed method in the present study.....	93
3.2	Breakdown of the participants.....	97
3.3	The similarities and differences of miscue analysis procedures.....	127
3.4	Types of Miscue.....	133
3.5	Methods of data collections and analysis approaches.....	172
4.1	Predictor variables included in the six readability formulae used in this study.....	183
4.2	Spearman's rank correlation coefficient of SMOG, FOG, Flesch-Kincaid, Spache, Dale-Chall (1948) and ATOS formulae.....	184
4.3	The means of the texts grade levels predicted by the six readability formulae.....	186
4.4	Paired-sample T-Test the differences of the mean grade levels of the SMOG, FOG, Flesch-Kincaid, Spache, Dale-Chall (1948), and ATOS formulae.....	187
4.5	Participants' typography preference according to gender.....	189
4.6	Participants' typography preference according to age.....	191
4.7	Participants' typography preference justification.....	192
4.8	Text feature analysis: General features of the books according to gender.....	196
4.9	Text feature analysis: General features of the books according to age.....	198
4.10	Text feature analysis: General feature of the text according to gender.....	204
4.11	Text feature analysis: General features of the texts according to age.....	204
4.12	Text feature analysis: Legibility of print according to gender.....	205
4.13	Text feature analysis: Legibility of print according to age.....	206
4.14	Text feature analysis: Illustrations according to gender.....	207
4.15	Text feature analysis: Illustrations according to age.....	208
4.16	Text feature analysis: Organization according to gender.....	209
4.17	Text feature analysis: Organization according to age.....	210

4.18	Percentage of word miscued in RE1 and RE2.....	215
4.19	Percentage of words miscued in RE1 and RE2 according to gender.....	215
4.20	Percentage of words miscued in RE1 and RE2 according to age.....	216
4.21	Participants' graphophonic cueing system in RE1 and RE2.....	219
4.22	Participants' graphophonic cueing system in RE1 and RE2 according to their gender.....	221
4.23	Participants' graphophonic cueing system in RE1 and RE2 according to their age.....	222
4.24	Participants' grammatical relations patterns in RE1 and RE2.....	220
4.25	Participants' grammatical relations in RE1 and RE2 according to gender.....	230
4.26	Participants' grammatical relations in RE1 and RE2 according to age.....	232
4.27	Participants' meaning construction patterns in RE1 and RE2.....	236
4.28	Participants' meaning construction pattern in RE1 and RE2 according to gender.....	237
4.29	Participants' meaning construction patterns in RE1 and RE2 according to their age.....	239
4.30	Richness of the participants' retelling according to their gender in RE1 and RE2.....	246
4.31	Richness of the participants' retelling according to their age in RE1 and RE2.....	248

Acknowledgements

Many people have contributed in helping me to accomplish my study. I am indebted to all of them, and may God bless them and reward them with supreme rewards. Above all, I am deeply indebted to my supervisor, Professor David Wray for his excellent, brilliant and inspirational supervision. His understanding, constant support and encouragement throughout my difficult times in this study are really appreciated. May God bless him.

I wish to express my gratitude to my employer, Universiti Pendidikan Sultan Idris (UPSI) and the Malaysian Ministry of Higher Education for giving me the chance to further my study and for funding this research. It would have been impossible for me to pursue a PhD at the University of Warwick without this generous financial support.

I wish to express my sincere appreciation to the headteacher, teachers, staff and parents of the participants for their support during my data collection. My deepest thanks also go to all the participants who took part in this study. This study would never have been possible without their enormous contribution.

I must express my sincere thanks to Dr. Melanie Pope, Professor Dr. Steve Strand and Dr. Gerard Sharpling for their own special way of helping me to get through writing this thesis. Many thanks are also extended towards all the staff in Warwick Institute of Education for their support throughout my time in the institute.

I wish to express my sincere gratitude to my external and internal examiners, Professor Christine Hall of the University of Nottingham and Dr. Jane Medwell of the University of Warwick for kindly agreeing to be my examiners and for their valuable comments for the betterment of this thesis.

I owe sincere gratitude to many friends and colleagues for their time in helping me to validate my analytical tools and their support and encouragement over the duration of this study. My special thanks go to Professor Emeritus Dr. Abdullah Hassan, Suhaida Omar, Azizah Atan Abdullah, Tan Wee Hoe, Hee Siew Wan, Mazura Mastura Muhammad, Kamsilawati Kamlun, Ling Wu, Khairul Azam Bahari, Husna Faredza Mohamed, Intan Safinas Mohd Arif Albakri and Mrs. Jennie Warren.

My special thanks to a special friend, Maria Avraamidou. Thank you for always being there for me and helping me through the writing of this thesis.

I offer my gratitude and blessings to all of those who supported me in any way for their involvement in this research.

Finally, I take this opportunity to express my profound gratitude to my beloved late parents, Janan Abdul Manan and Asiah Abdullah. Although they are no longer here, this special gratitude still goes to them. To my siblings Noor Jasmin Janan, Jamil Janan and family, Khairuddin Janan and family, and my cousin Asnah Nazaruddin thank you for the love, patience and prayers. God bless us all!

Declaration

I hereby declare that this thesis is entirely my original work, except where due acknowledgement is made. This thesis has not been submitted for any higher degree in another university.

Abstract

This thesis attempts to develop a new model for a renewed concept of readability. The thesis begins by discussing the rationale for carrying out this research. Next, the extensive literature around the topic of readability is reviewed. The literature suggests that most research into readability has stemmed from a positivist paradigm, and has used quantitative methods to assess text comprehensibility. This approach has been widely criticised and, recently, more qualitative methods stemming from an interpretive paradigm have been employed. It seems that both quantitative and qualitative methods have strengths and limitations. Therefore, the research I have carried out has explored the concept of readability by combining these two research approaches. The data collection methods include readability formulae; text feature analyses; miscue analyses; retellings and interviews. This research has been conducted in the United Kingdom and involved 16 male and 16 female pupils with an age range from 6 to 11 years old. All the participants were fluent readers. Data were analysed using; (1) six online readability formulae - *ATOS* (1997); *Dale-Chall* (1948); *Flesch-Kincaid* (1948); *FOG* (1952); *SMOG* (1969); and *Spache* (1953); (2) *Reading Miscue Inventory* (Goodman, Watson & Burke, 2005); (3) *Judging Richness of Retellings* (Irwin & Mitchell, 1983); (4) text feature analysis forms; and (5) a cross-interview analysis approach. Two computer software programmes i.e. *Statistical Package for the Social Sciences* (SPSS 17) and *Qualitative Data Analysis* (Nvivo 7) were used to organise and analyse the quantitative and qualitative data. The findings suggest that the concept of readability is influenced by both reader and text factors. The reader factors involve a complex relationship of nine embedded elements within the reader, namely interest, prior knowledge, attitude, reading ability, motivation, purpose of reading, engagement, age and gender. The text factors include eight elements, these being the physical features of the text, genre, content, author, linguistic difficulties, legibility, illustrations and organization of the text. This research comes to the conclusion that the concept of readability is a complex matching process involving the dynamic interaction between both reader and text factors and bound by certain contexts.

Chapter 1 – Introduction

‘Problems arise when reading does not match with readers’ experience’

Margaret Mackey, UKLA, Chester, 16th July 2011

1.1 Background

Reading has become one of the most researched topics in education and the primary focus of instruction at elementary level. Most societies believe that reading is essential to educational success. The ability to read is important for social and economic advancement. Reading is also of great intellectual importance because it is related to the issues of intelligence and academic achievement. Most students learn to read fairly well. In fact, a small number of us learn to do it with no formal instruction, before going to school. Successes in reading depend on many factors such as reader characteristics, text features and instructional strategies. Among these many factors, the most neglected in research terms has been the features of text.

The dimension of text has been much more neglected in work on literacy yet it is at the very centre of the learning process. Children read and write texts, teachers teach reading and writing with and through texts, and texts provides a context for understanding, creating and responding to themselves and other texts (Wray, 1993, p.8)

Nevertheless, at a recent UKLA conference at the University of Chester, 15th -17th July, 2011, researchers were aware of, and interested in carrying out research related to text. Among the presentations were: Rethinking Text (Cary Bazalgette); Texts that Teach (Debs Bragard & Jane Creed); Picturebooks Shape Our Thoughts and our Futures (Janet

Evans) and many more. Apart from this, it is also the case that the range of text types has expanded from traditional forms to the diverse forms of multimodal text.

A recent report regarding the importance of book ownership to reading enjoyment, attitudes, behaviour and attainment (Clark & Poulton, 2011) claims that the child who does not own books (Clark & Poulton, 2011, p.16):

- enjoys reading less;
- reads fewer books;
- reads less frequently;
- reads for shorter lengths of time when they do read;
- has less books in the home;
- reads less of every kind of material, not just books;
- is less likely to have been bought a book as a present;
- is less likely to have ever visited a library or bookshop;
- has more negative attitudes to reading;
- finds it harder to find books that interest them;
- is twice as likely to agree they only read when they have to;
- has lower attainment.

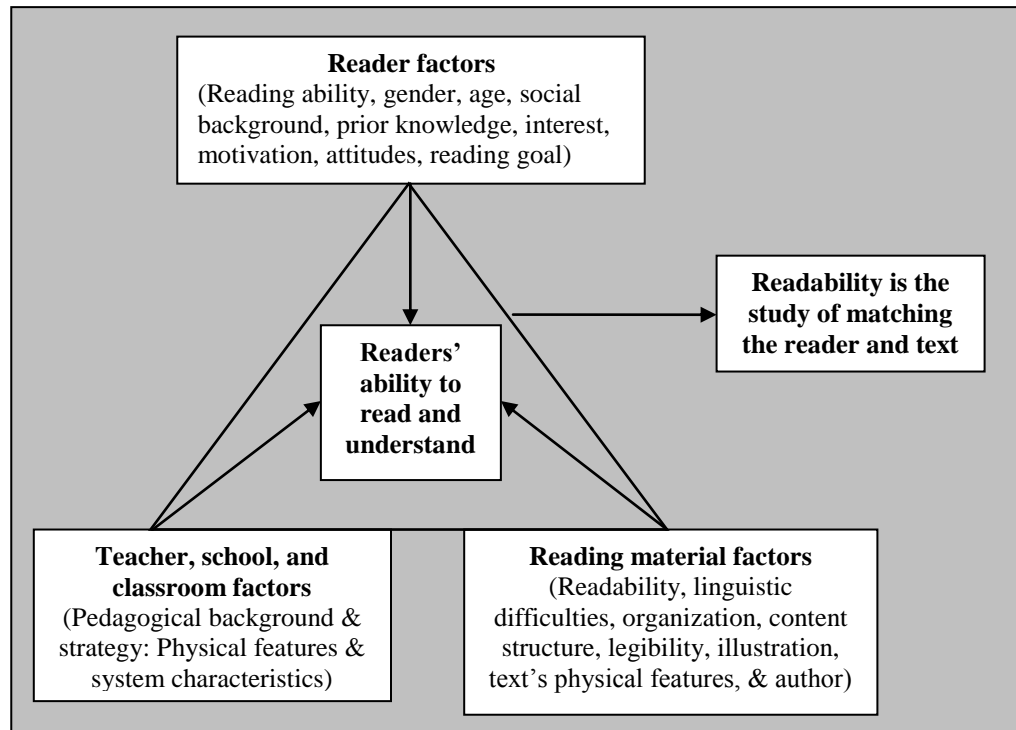
Clark and Poulton's (2011) report confirms my curiosity that problems in reading are related to text. Wray's (1993) earlier statement regarding the neglect of research regarding text has also served to increase my curiosity to explore this topic further.

1.2 Personal Interest

Throughout my own personal and teaching experience I have come to realise that the ability to read and comprehend can sometimes be a problem. The ability to read and understand does not depend merely on the reader, but on other factors, such as the readers' background and environment, the teachers' and schools' environment, and the resources and materials (McKenna, Kear & Ellsworth, 1995; Samuels, 1983; Wu & Hu, 2007).

Figure 1.1 below demonstrates the three factors that influence the readers' ability to read and understand.

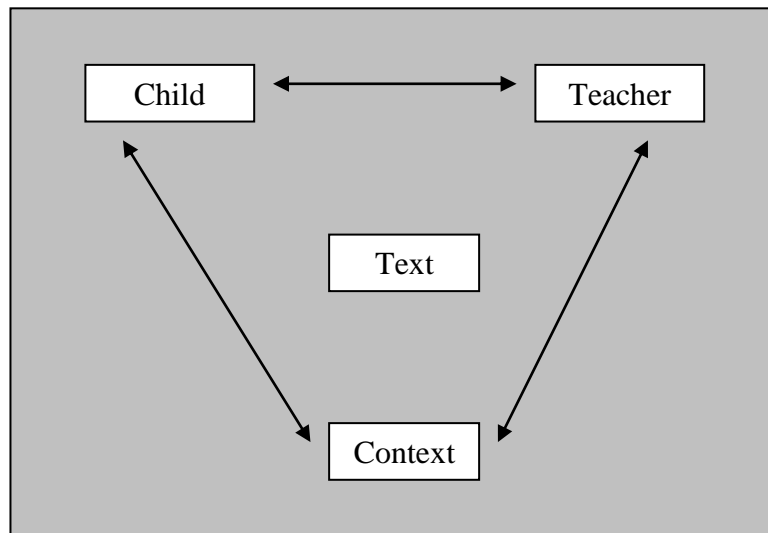
Figure 1.1 Three Major Factors that Influence the Readers' Ability to Read and Understand



On the basis of these three major factors that affect readers while they read, my personal interest is in conducting research on the interaction between the reader and the reading materials or texts. The study of '*matching the reader and the text* has come to be

called readability' (Gilliland, 1972, p.12). What sparked my interest in carrying out research in this area is the important role of text in literacy. Wray (2004) has stated that text is at the '*heart of the literacy process*' (p. 8) (see Figure 1.2). He has argued that literacy skills are only useful when they help individuals to use these skills in real literacy experiences, and the key factor in such experiences is the text. Wray's argument has helped me realize the importance of matching suitable texts to readers. This is because confronting a reader with inappropriate texts might lead to a collapse of the whole literacy process. Hence, a study on readability is crucial because this concept is closely related to the text elements that affect the success of readers (Figure 1.2).

Figure 1.2: The Literacy Triangle



(Wray, 2004, p. 3)

1.3 Rationale

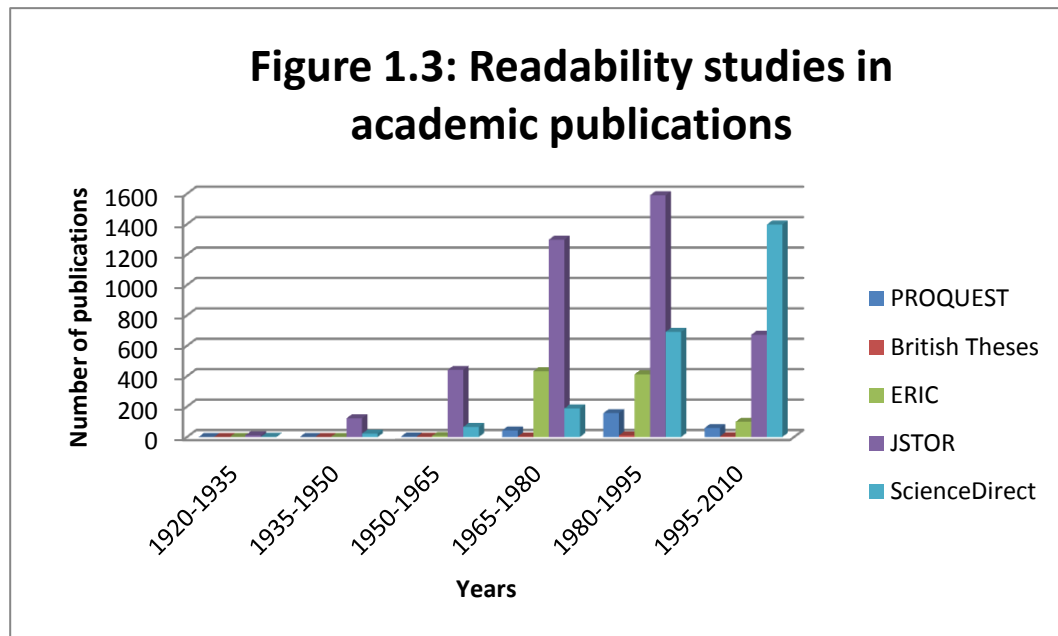
Underpinning definitions of readability give emphasis to the elements which lead to comprehension: that is, the understanding of words, phrases and relating ideas in the passage. Parts of the term also refer to a person's ability to read a given text at an optimum speed. Finally, this concept also includes motivational factors which affect interest in

reading a text. According to Dale and Chall, (1948) these three elements of the definition are not separate, but interact with each other so as to affect readability. To explain this interaction, Gilliland (1972, p. 13) provides the following example:

‘...in a scientific article, complex technical terms may be necessary to describe certain concepts. A knowledge of the subject will make it easier for a reader to cope with these terms and they, in turn, may help him to sort out his ideas, thus making the text more readable. This interaction between vocabulary and content will affect the extent to which some people can read the text with ease. Similarly, some uncommon words and ideas may be familiar to some readers because of their experience and interests. If the text itself is difficult because of the ways in which the ideas are expressed, then interaction between vocabulary and reader's knowledge will affect readability’.

However, the measurement of readability has not generally reflected definitions of readability (Gilliland, 1972). Readability measurement has usually involved an objective estimate of the difficulty level of reading material derived from a formula which takes into account sentence and vocabulary difficulty. These objective measures of readability are done through the use of formulae such as Flesch-Kincaid (1948 cited in Harrison, 1984), FOG (1952 cited in Harrison, 1984), Fry (1977), SMOG (1969), Chall-Dale revisited (1995) and various other.

There was a great deal of development in readability research between 1920 and the middle of the 1990s. The growth of attention to this research area was caused by the urge to emphasize quantification in developing a scientifically based curriculum. Hence, educational methods were undertaken, and materials implemented through empirical testing (Chall, 1974). The development in this research area appeared to decrease in the middle 1990s, however, and little further research in the area has been reported recently (Figure 1.3).



This decrease in research is related to the factors of the readability formulae. The criticisms concern the fact that readability formulae are not reliable and valid predictors of text difficulty (Redish & Selzer, 1985; Bruce, Rubin & Starr, 1981). Also, it has been found that various readability formulae tend to produce significantly different results on the same texts, and an average score, taken over a passage, can conceal a wide range of variations of difficulty within that passage (Chamber, 1983). Additionally, it has been found that the predictor variables on which the readability formulae are built (i.e. sentence length and word frequency) are not the best predictors of comprehension (Schriver, 2000). Furthermore, readability formulae rarely directly count other important elements in the text, such as the degree of discourse cohesion, the number of inferences required, the number of items to remember, the complexity of ideas, the rhetorical structure, the dialect, and the background knowledge required (Bruce, Rubin & Starr, 1981). According to Bruce, Rubin, and Starr (1981), because the formulae are measurements based on a text

isolated from the context of its use, they cannot reflect reader factors such as motivation, interest, value and purpose.

Considering the above research findings, the ideal readability concept as suggested by Dale and Chall, (1948), which involves the text and the reader, does not exist. The readability concept tends to focus on an objective estimation of text comprehension difficulty without involving the readers of that text. Consequently, it is important to explore the concept of readability, in order to find out whether this concept is still relevant to matching the reader and the text, because its focus has changed. It is hoped that a new conceptualization of the concept of readability may help people to choose suitable reading material for themselves and others. In addition, in the educational context, it remains important to conduct research in this area, in order to face the challenge of providing suitable reading materials for pupils.

1.4 The Research Aims and Questions

Aims

The aims of the current study are as follows:

- To explore the factors operating during the interaction between a reader and a text that might influence the concept of readability.
- To develop a preliminary new theoretical model and a new definition of readability.

Research Questions

The study addresses the following research question:

1. What influences the reader's comprehension during the interaction between him/her and a text that might help develop the concept of readability?

Sub questions

- a. What are the text factors that help or hinder the reader's comprehension?
- b. What are the reader factors that help or hinder the reader's comprehension?
- c. How do text and reader factors interact to help or hinder the reader's comprehension?
- d. What are the implications of the above for a renewed concept of readability?

1.5 Thesis Structure Overview

This thesis is organized into six chapters. Following this introduction, Chapter 2 presents the Literature Review. The literature review includes the fundamental theories and concepts that underpin the current study. Chapter 2 begins with the theoretical framework of the present research, describing the epistemological and theoretical paradigms in readability research, followed by reading and reading comprehension research. Chapter 2 includes a discussion of the factors that affected the concept of readability, followed by the history of readability formulae, with criticisms of readability research.

Chapter 3 introduces the research methodology, describing the epistemological and theoretical paradigms that created the design and data collection instruments. This Chapter also discusses the rationale for choosing a complementary combined method research design as a key method. Data collection procedures, data collection methods, and data analysis procedures, validity and reliability, and ethical issues of the present study are also discussed in detail in this Chapter. Chapter 4 presents the data analysis. Patterns and themes that emerged from data analysis are discussed in the next chapter (Chapter 5). Chapter 5 might be considered to be the most important one, since the collected data are interpreted and discussed with the support of previous studies' findings, so as to build up a new theoretical model of readability. Finally, the thesis concludes with a Discussion which

provides a summary of the key findings and implications for the literacy research community, community of school and community of public. The limitations of this research are also evaluated in a separate section, and recommendations for future research are included at the end of the thesis.

Chapter 2 – Literature Review

2.1 Introduction

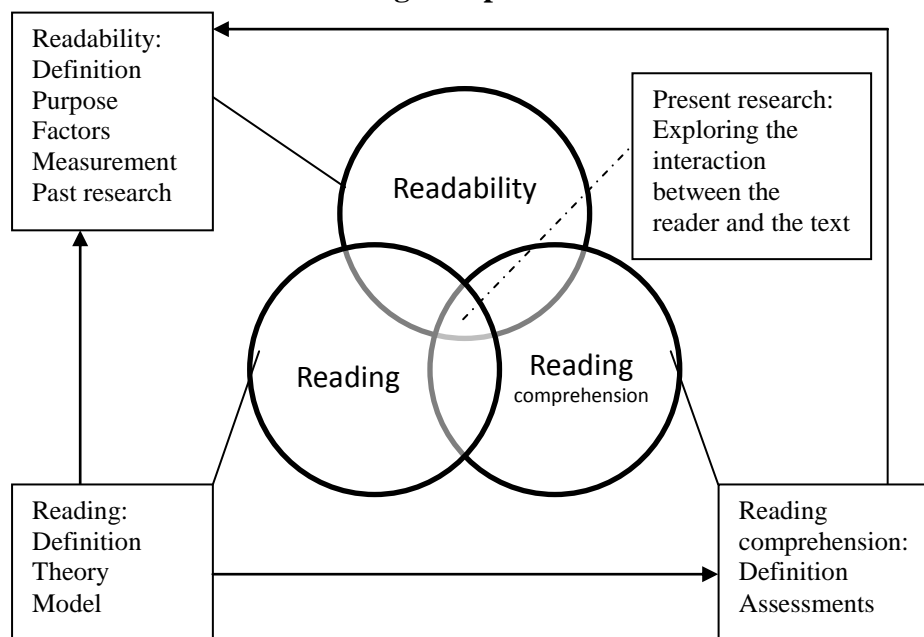
Earlier research on readability has focused mainly on the development of practical methods to match reading materials to the abilities of children and adult readers. These efforts have been centred on the development of easily applied readability formulae for teachers and librarians to use (e.g. Chall, 1974). More recently, readability research has included a period of consolidation, in which researchers have sought to learn more about how such formulae work, and how they can be improved.

As discussed previously (in Chapter 1), the present study explores the factors operating during the interaction between a reader and a text which can influence the concept of readability. In addition, the research is an attempt to develop a preliminary new theoretical model and a new definition of the term *readability*.

This Chapter presents main literature and research review findings in the field of readability, related to the present study. The Chapter begins with a discussion of the fundamental nature of the main scientific paradigms. Then, a discussion of the background of readability research follows, and the development in reading and reading comprehension research is also presented and discussed. The changes in these three research fields and the relation among them have guided and shaped the theoretical framework of the present research (Figure 2.1). A review of main literature which focuses on the factors that may

influence readability is also included in the Chapter. This is followed by a discussion of the measurements of readability and several criticisms of these measurement limitations.

Figure 2.1 Relationships between Research in Readability, Reading, and Reading Comprehension



2.2 Theoretical Framework

This section discusses the development of the present study's theoretical framework. This framework is based on transformations in the research field of readability, reading and reading comprehension. The main paradigms underpinning each of these research fields are discussed in detail in the following section. Firstly, the nature of the main scientific paradigms is presented and discussed.

2.2.1 The Nature of Scientific Paradigms

Firstly, definitions of the term “*paradigm*” are provided. The most common definition of paradigm in the philosophy of science is that of Thomas Kuhn, in his book *The Structure of Scientific Revolutions* (1962). Influenced by Kuhn's work, Patton, (1997, p.9) defines a paradigm as:

“A paradigm is a world view, a general perspective, a way of breaking down the complexity of the real world. As such, paradigms are deeply embedded in the socialization of adherents and practitioners telling them what is important, what is legitimate, what is reasonable. Paradigms are normative; they tell the practitioner what to do without the necessity of long existential or epistemological consideration. But it is this aspect of a paradigm that constitutes both its strength and its weakness-its strength in that it makes action possible, its weakness in that the very reason for action is hidden in the unquestioned assumptions of the paradigm”.

There is no complete agreement regarding the usage of the term ‘*paradigm*’ at the time of writing. For this reason, another definition of the term by Filstead, 1979 (cited in Deshpande, 1983, p. 101-103) needs to be highlighted:

“A paradigm (1) serves as a guide to the professionals in a discipline for it indicates what are the important problems and issues confronting the discipline; (2) goes about developing an explanatory scheme (i.e., models and theories) which can place these issues and problems in a framework which will allow practitioners to try to solve them; (3) establishes the criteria for the appropriate "tools" (i.e., methodologies, instruments, and types and forms of data collection) to use in solving these disciplinary puzzles; and (4) provides an epistemology in which the preceding tasks can be viewed as organizing principles for carrying out the "normal work" of the discipline. Paradigms not only allow a discipline to "make sense" of different kinds of phenomena but provide a framework in which these phenomena can be identified as existing in the first place”.

The definitions by Patton and Filstead clearly explain that the nature of a paradigm enables a researcher to determine what problems may be worth researching, and what methods are available to scrutinise them. The essential differences between these two definitions lies in the fact that the one acts as a guide, and the other as a set of rules to be followed by the practitioners within certain paradigms. Patton’s definition of paradigm provides guidance to the practitioners as to what to do, without the need for epistemological consideration. Patton (2002) suggests that the researcher not only works within paradigms, but also brings in new frameworks, methods, and tools – as needed – to address the research question in hand more effectively. Conversely, Filstead’s definition of

paradigm requires rules to be pursued by the practitioners in some kind of a framework within a certain paradigm. Filstead's definition suggests that one should work within an existing paradigm and adjust their research questions within it.

As can be seen, there is no complete agreement as to the usage of the term '*paradigm*' in the field of sociological enterprise. The current existing disagreement about the meaning of '*paradigm*' not only concerns the term itself, but also the ways that paradigms can be accepted within a scientific community. These issues have mainly been given attention within the field of philosophy. Traditionally, one of the issues that philosophers in science have been particularly concerned about is related to the process of '*knowing*'. There has been a debate on the important argument: '*How do we know what we know?*' In seeking to answer this question, philosophers have been polarized into different schools of thought (Cohen, Manion, Morrison & Dawson, 2007).

This polarization has led to the creation of two major paradigms that have dominated the social science field. The first paradigm has been given the term *positivism*, and defines *reality* as everything that can be perceived through the human senses (Crotty, 1998). The positivist paradigm adheres to the belief that reality is '*out there*', free of human awareness, and is objective (Sarantakos, 1997). Furthermore, the supporters of this paradigm believe that reality rests in order, and is governed by strict natural and unchangeable laws (Crotty, 1998). The supporter of the positivist paradigm also believe that reality can be realized through experience, and is defined in the same way because they all share the same meanings (Crotty, 1998; Deshpande, 1983; Rist, 1977; Sarantakos, 1997).

Thus, a highly structured research methodology emerges from this *school of thought*, named *quantitative methodology* (Fang, 1995). Quantitative research proposes a

disciplined and systematic procedure. The methodology is set out to establish a ‘clear’ and ‘objective’ orientation and a systematic procedure (Cohen, Manion, Morrison & Dawson, 2007; Creswell, 2008; Fang, 1995; Sarantakos, 1997). This methodology is also reality bounded, a fact that allows the scientist to reach a theory free of unclear approaches. It is also outcome oriented, emphasizing measurement and quantification (Cohen, Manion, Morrison & Dawson, 2007; Creswell, 2008; Deshpande, 1983; Fang, 1995; Sarantakos, 1997).

In contrast, the second paradigm, *anti-positivism*, which is also known as the *interpretive paradigm*, proposes that reality is *not* ‘out there’ but it is hidden in the minds of people (Sarantakos, 1997). Supporters of this paradigm believe that reality is an internal experience, and is socially constructed through interaction and interpretation by actors (Cohen, Manion, Morrison & Dawson, 2007; Sarantakos, 1997). Furthermore, they believe that reality is based on the definition that people attach to it. To them, reality is not objective, but subjective, and it is how people see it (Cohen, Manion, Morrison & Dawson, 2007; Creswell, 2008; Deshpande, 1983; Fang, 1995; Sarantakos, 1997).

Consequently, *qualitative research* emerges from the anti-positivism paradigm. According to Fang (1995) qualitative research subscribes to a phenomenological orientation. This methodology attempts to capture reality within interaction (Cohen, Manion, Morrison & Dawson, 2007; Creswell, 2008; Fang, 1995). Qualitative research aims to study reality from the *inside* and not from the *outside* of people (Sarantakos, 1997). Furthermore, it seeks to approach reality without fixed ideas and pre-structured models or patterns while it employs research procedures that produce descriptive data (Cohen, Manion, Morrison & Dawson, 2007; Fang, 1995). The data is then presented in such ways that respondents’ own words are used to illustrate and exemplify their views and

experiences (Cohen, Manion, Morrison & Dawson, 2007; Creswell, 2008; Deshpande, 1983; Fang, 1995; Sarantakos, 1997).

Debates regarding the nature of the scientific paradigms give an overview to the researcher of the importance of understanding these paradigms within each specific research field. This is because knowledge regarding research paradigms provides information and guidance to the researcher to make them able to choose and employ the best approaches to conduct a certain investigation. As such, the next section presents the paradigms in the field of readability research, as well as their impact.

2.2.2 Paradigms in Readability Research

2.2.2.1 Introduction

In the previous section, the importance of the knowledge of the research paradigms was highlighted. Therefore, this section aims to discuss the paradigms in the field of readability research. The section presents the main definitions of the term *readability* according to several researchers, and discusses the historical perspective of readability research. Finally, several conclusions are presented and discussed in terms of what stands as the existing current paradigm of readability research and its consequences.

2.2.2.2 What does Readability mean?

The earliest and most well-known definition of the term *readability* was given by Dale and Chall back in 1949. Dale and Chall (1949) reported that:

‘In the broadest sense, readability is the sum total (including the intersection) of all those elements within a given piece of printed material that affect the success a group of readers have with it. The success is the extent of which they understand it, read it at an optimum speed, and find it interesting (p.23).’

Dale and Chall’s (1949) definition of readability has focused on three major aspects of the reading process: *comprehension*, *fluency*, and *interest*. Dale and Chall have

emphasized that these three components interact with one another, aiming to influence readability, with the main focus always given to certain elements like words, phrases, sentences, structures, and subject knowledge that lead to comprehension.

On the contrary, Klare (1963) has claimed that the term readability is related to the success of reading a piece of text that is assessed through its writing style. Therefore, Klare has argued that much research on readability has focused on ease of comprehension, due to the style of writing. As such, according to Klare, the term *readability* has been used for three main purposes:

1. *To indicate legibility of either handwriting or typography.*
2. *To indicate the ease of reading due to either the interest-value or the pleasantness of the writing.*
3. *To indicate the ease of understanding or comprehension due to the style of writing.* (Klare, 1963, p. 1).

On the other hand, a few years later, McLaughlin (1968) combined the definitions created by Dale and Chall (1949) and McLaughlin (1968), arguing that readability rests on reader factors and text factors combined. Considering this argument, McLaughlin (1968) proceeded to define readability as '*the degree to which a given class of people find certain reading matter compelling and, necessarily, comprehensible*' (p. 188). Therefore, it can be seen that McLaughlin has emphasized the importance of the reader's character as well as the level to which the text is '*compelling*'. McLaughlin has also stated that a text's readability level is based on the readers' choice of reading materials and is more satisfactory when it reflects the degree of interest by certain sets of readers.

Taking into consideration McLaughlin's (1968) arguments, Gilliland in 1972 argued that readability is the process of matching readers with their interest and reading skills and a wide range of texts that differ in their content, style and complexity. Gilliland

has also stated that the success of reading a piece of text lies on the success of the way the reader and the text are combined. Therefore, Gilliland's (1972) definition of readability is as follows: *'readability is primarily concerned with a basic problem familiar to all people who chose books for their own use, or who choose books for others to use. This is a problem of matching'* (p. 12).

Harrison's (1977) definition of readability, a few years later, mentioned that the importance of readability is to take out the "guesswork" that takes place during the most difficult judgements related to the complexity of prose and vocabulary load of a text. Thus, he defined readability as: *'aspects of a text which can be measured objectively in some way in order to predict the kind of difficulty we might expect a child of a certain age to encounter'* (p.44).

The various attempts by professionals to create the most appropriate definition of the term *readability* have been through a lot of changes in the 1990s, when such definitions moved towards the interaction between the text and the reader. Accordingly, in the *Literacy Dictionary* created by Harris and Hodges (1995) readability is defined as: *'Text and reader variables interact in determining the readability of any piece of material for any individual reader'* (p. 203).

Supporting and expanding the definition of readability by the *Literacy Dictionary* (Harris & Hodges, 1995), more recently, Pikulski (2002) proposes that readability not only depends on the interaction between the text and the reader, but on the purpose of reading. Thus, Pikulski (2002) defined readability as: *'the level of ease or difficulty with which text materials can be understood by a particular reader who is reading that texts for a specific purpose'* (p. 1).

Over the past six decades, there have been several changes in the definitions of readability. The earliest definition by Dale and Chall (1949) was mainly concerned with comprehension, fluency and interest. This definition showed a close relation between readability, reading, and reading comprehension. In addition, this relation is influenced by *interest*. Although Klare's (1963) definition of readability focused on the success of reading a text that related to the writing style of the text itself, he also acknowledged the fact that reading and comprehension were both involved in the whole process. This shows that the 'reality' or the difficulty of the text lay in the text itself, and not on the inside of the reader.

In the late 1960s and early 1970s there had been some other changes to the definition of readability. In this era, readability definitions started to include the matching of the diversity of the reader's characteristics and compellingness of the text characteristics (Gilliland, 1972). McLaughlin (1968) and Gilliland's (1972) definitions of readability have emphasized that the success of reading and understanding a piece of text relies on the success of this matching attempt. The compelling nature of the text characteristics was the main focus. Thus, it can be concluded that the 'reality' or the difficulty of the text come from 'outside' of the reader, as the compelling of the text characteristics was seen as a crucial factor affecting the success of the whole reading process.

In the middle of 1990s and early 2000, again, the definitions of readability went through changes, and moved towards the *interactive* nature of the construct (Pikulski, 2002). During this decade, the *Literacy Dictionary* (Harris & Hodges, 1995), and Pikulski's (2002) definition of readability have moved the emphasis to the interaction between text characteristics and reader characteristics. The interactive nature of these characteristics has led readability research to a new, broad dimension. Thus, it may be

concluded that in this era, readability research has been within the *interpretive paradigm* as a ‘reality’ in which text difficulties are related to the inside of the reader’s mind when the texts’ difficulties are judged through the interaction of both sides of the readers and the texts. Through all the above definitions of readability and the changes they have gone through in the last six decades, it can be suggested that the definition of readability is closely related to the reading and reading comprehension field of research.

Although this definition of readability seems ideal, the field of readability research may also face weaknesses. These weaknesses lie in the fact that readability has mainly focused on what makes the language in materials easy or difficult to read (Bormuth, 1968), or on the attributes of the text that relate to comprehensibility (Harrison, 1977, 1984). A more embracing definition of readability has not yet emerged from the research literature in the area. These difficulties in conducting research into readability may have led to further weaknesses such as, for example, the fact that the formulae being used to estimate the level of the readability index are questioned about their validity and reliability (Duffy, 1985; Schriver, 2000; Stokes, 1978).

As such, the following sections reveal the historical research view of readability research, including the factors that are involved in readability, as well as the development of certain readability formulae. Additionally, the paradigms of reading and reading comprehension that have contributed to changes in readability research will be discussed. It should be taken into account that traditional research into readability has been aimed at justifying the arguments made regarding the paradigms of readability in the definitions presented previously in the readability section.

2.2.2.3 The History of the Readability Research

Readability research has its origin a long way back in the classical rhetoric of Plato and Aristotle. Nevertheless, the history of readability research in education only began in the 1920s. The first study on readability was conducted by Thorndike in 1921, who published *The Teacher's Word Book*, listing 10,000 words based on their frequency of use. Thorndike started his work around 1911, by counting this frequency of words in English with each of these words given a score, depending on how frequently it was used. The higher the score was, the more frequent the words being used (e.g. 'for' given 201, 'her' given 161 credit and 'water' given 139 credits) (Thorndike, 1921, p. 21). This list could help teachers to measure difficult words in a text. Thus, *The Teacher's Word Book* can provide an objective measurement of *word difficulty* (Thorndike, 1921). Thorndike led the foundation for the following readability research.

The main aim of readability research in the early years was to devise procedures and instruments that reliably and validly distinguished easier from more difficult texts, or graded texts in terms of difficulty. Consequently, readability and vocabulary control studies had similar purposes, namely to seek objective means of measuring the difficulty of printed materials for learning (Chall, 1988). In the years 1922 to 1926, readability studies had tended to focus on vocabulary aspects such as difficulty, diversity and range. At that time, in order to measure vocabulary difficulty, Thorndike's *Frequency Word List* was used. Worth mentioning here is the fact that these early researchers were Americans, focusing on words and text which were difficult in American English. The outcomes would have been different in British (or any other) English. Accordingly, it is rather obvious that at that time, the difficulty of the text was judged to be within the positivist paradigm where the

reality was believed to lie “*outside*” the reader, whereas text difficulty was judged through a list of common vocabulary items.

A greater variety of factors was considered in the second stage of readability research, from 1928 to 1939. Two studies (Vogel and Washburne, 1928; Gray and Leary, 1935 cited in Dubay, 2007a) were reviewed, in order to show that at that point in time, readability studies were strongly governed by the quantitative method, within the positivist paradigm. Vogel and Washburne’s (1928) formula is an example of the greater variety of factors used at that time. Vogel and Washburne (1928) formed a new formula by considering factors such as kinds of sentence, prepositional phrases, word difficulty and sentence length. They validated their formula by using 700 books that had been judged by 37,000 children from different reading abilities. Each of these books was preferred by 25 or more children (Vogel & Washburne, 1928). These researchers also used the mean reading scores of the children as a difficulty measure in developing their formula. As such, Vogel and Washburne’s (1928) research study became the first that could objectively match the reading ability of the reader with the grade level of the text.

Gray and Leary (1935 cited in Dubay, 2007a) were determined to find out what could be readable for adults with low levels of reading ability. Thus, they began to survey 100 experts and 100 librarians regarding elements that made a book readable. Their findings revealed 289 variables, and they divided these into four categories: *content*, *style*, *format* and *organization*. They then minimized the long list to 44 style variables that they believed could reliably be counted. These 44 factors were trialled with several reading comprehension tests to thousands of adults. As a result, the exhaustive 44 factors became reduced to 20, and showed a significant relationship with the ability to answer

comprehension questions. Through multiple regressions researchers identified five *style* factors with the greatest variance in reading difficulty: (1) *average sentence length in terms of words*; (2) *number of different “hard” words*; (3) *number of first, second, and third-person pronouns*; (4) *percentage of different words*; (5) and *number of prepositional phrases* (Gray and Leary, 1935 cited in Dubay, 2007a, p. 163-164). Although Vogel and Washburne (1928) and Gray and Leary (1935 cited in Dubay, 2007a) included readers, experts and librarians in order to validate their formula, both their research projects showed that the difficulty of the text is best judged using the formula. As such, they reported that the assessment of text difficulty still lay “*outside*” the reader.

The third stage which readability research went through took place in the years 1939 to 1950. Within this period, the focus of the research was the opposite of the first and second stage. The researchers who had looked for more factors for readability formulae previously, now turned to the search for fewer factors, but at the same time, increased research validity (Chall, 1974). The assumptions of these studies was that, as many factors add to difficulty, the interrelations between them is so great that only a few factors need to be used as valid predictors. Lorge (1944) showed that although his formula had fewer factors compared to the study by Gray and Leary (1935 cited in Dubay, 2007a), the formula gave a better prediction. He examined the five factors used by Gray and Leary (1935 cited in Dubay, 2007a), the four factors used by Morris and Holversen (1938 cited in Lorge, 1944), and Thorndike’s (1932, cited in Lorge, 1944) 20, 000 Words List. Lorge came out with three factors that he used in his formula, namely: *average sentence length in words*, *number of prepositional phrases per 100 words*, and *number of hard words not listed on the Thorndike’s vocabulary list* (1944, p. 182). A few years later, Dale and Chall (1948) revealed that their two factor formula gave a higher prediction than Lorge’s three

factors formula. Dale and Chall's formula is, at the moment, the best known among readability formulae. Dale and Chall's (1948, p.198) formula consists of factors like *sentence length* and *vocabulary difficulty* (judged by the number of "hard" words that did not appear on the Dale and Chall formula word list). Like Thorndike's list, the list produced by Dale and Chall (1948) is American word list. At this stage, not much difference was found in the way readability research was conducted, as compared to the previous era. The fact that searching for the criteria which could make a text difficult based on the text's linguistic features may emphasize that at that stage studies were still conducted within the positivist paradigm.

In the years 1950 to 1980, readability research was considered to be within its formative years (Klare, 1988). In the formative years of readability studies, focus was placed on the development of readability definitions and formulae. Klare (1988, p. 14-15) has listed 12 common characteristics of the concept of readability in the formative years, which are:

1. *The almost exclusive emphasis on style variables in readability formulae.*
2. *The reduction of style variables to semantic and syntactic factors.*
3. *The search for a satisfactory criterion for formula development.*
5. *The presentation of readability formulae scores in terms of grade levels. The efficient use of a word list for the semantic factor and sentence length for the syntactic factor.*
6. *The efficient use of syllable length for the semantic factor and sentence length for the syntactic factor.*
7. *The trend to increase emphasis on the ease of use.*
8. *The development of formulae for languages other than English.*
9. *The introduction of a cloze procedure as a convenient criterion for formulae development.*
10. *The growing criticism of readability formulae in terms of their developmental criteria and their grade level scores.*
11. *The growing criticism of readability formulae in terms of "writing to formula."*
12. *The need for improvement the current readability measures.*

As a corollary of Klare's (1988) characteristics of the concept of readability within

the formative years, it can be seen that at this stage, the paradigm is still positivist. One study was reviewed, in an attempt to show the issues being in focus in that period of time. The research by Klare (1974-1975) *Assessing Readability* was reviewed. In this study, Klare reviewed formulae that had been created since 1960. The reviews were done within four categories: (1) formulae that had been recalculated and revised; (2) new device formulae purposes, whether general or specific; (3) application aids for both manuals and machine use; and (4) prediction of readability for foreign languages. Klare concluded and suggested that to choose an appropriate formula to assess text difficulty, the following aspects should be considered: (1) special versus general needs, (2) manual versus machine application, (3) simple versus complex formulae, (4) word length versus word list formulae, and (5) sentence length versus complexity. In addition, the researcher also emphasized that some formulae could provide a good level of text difficulty, but could not indicate what caused the difficulty, or suggest how to write a readable text. Apart from Klare's research, there were some other studies conducted in the same period, namely: (1) *Readability versus read ability* (Miller, 1962), (2) *Proposals for British readability measures* (McLaughlin, 1968), (3) *Cloze readability procedure* (Bormuth, 1967), and *A Spanish readability formula* (Spaulding, 1956). As such, it can be clearly seen that the positivist paradigm still had a strong influence on the way readability research was conducted.

Studies in readability were at a high level between the years 1980 to 1995 (see Figure 1.3). Figure 1.3 demonstrates the publications of research in readability in: (1) PROQUEST (online database access to dissertations and theses), (2) British Theses (online database access to dissertations and theses from the United Kingdom and Ireland), (3) ERIC (digital library of education literature), JSTOR (online Journal storage), and

ScienceDirect (online collections of published scientific research). During that time point readability studies increased vastly. This increase did not only increase the academic journal publications, but also affected the increase of the numbers of PhD scholars in Britain and the United States conducting research in readability.

During those years, readability studies started to focus on different issues like: (1) the use of cloze procedures as an alternative method to test text properties (Harrison, 1986; Rush, 1985; Shanahan, Kamil & Tobin, 1982), (2) the readers' factors that can influence readability (e.g. reading ability) (Pettersson, 1993), (3) motivation, prior knowledge, and interest (Baldwin, Peleg-Brukner & McCintock, 1985; Tobias 1994), and (4) readability effects and written work (Duffy, 1985). Although in that era research in readability was at a high level, at the end of the era there were gradually drops in the number of studies in readability from 1995 and onward. This was because there had been several criticisms, especially, regarding readability formulae in terms of their developmental criteria and grade level scores (Bruce, Rubin & Starr, 1981; Chambers, 1983; Davison & Kantor, 1982; Duffy, 1985; Fuchs, Fuchs & Deno, 1983; Meade & Smith, 1991; McConnell, 1983; Maxwell 1978; Pichert & Elam, 1985; Perera, 1980; Redish & Selzer, 1985; Redish, 2000; Schrivvers, 2000; Stokes, 1978; Sydes & Hartley, 1997).

One study was reviewed that aimed to show one of the dominating issues that took place in the years 1980 to 1995. As such, I reviewed the research by Rush (1985) entitled *Assessing Readability: Formulas and Alternatives*. Rush's (1985) study explored the characteristics of popular readability formulae like the Dale Chall (1948), the Fry Graph (1977), and the Spache (1953). Rush also described an alternative method to readability formulae like text based i.e. phrase analysis (PHAN) and reader/text based like: (1) trial reading; (2) teacher judgment; (3) Cloze procedure; (4) the Irwin-Davis Readability

Checklist (1980) (see Appendix 2.1). Rush's results have revealed the following facts: (1) readability formulae are suitable for getting rough estimates for materials like library books and periodicals which are read independently, (2) formulae are not suitable to match a text to a specific reader or a group of readers whose characteristics are known, (3) formulae should be not be used for instructional materials, because they consistently predict materials too difficult for a given grade level. The researcher also paraphrased Klare's use of readability formulae, as follows:

- *realize that different formulae produce variant scores for the same passage,*
- *consider formulae as screening devices,*
- *take large random samples of texts to be evaluated, and for research purposes, analyze the entire texts,*
- *recognize that for materials intended for higher levels where content is important, formulae are poorer predictors,*
- *recognize that materials intended for training purposes are naturally more difficult than other kinds of texts,*
- *consider the effects of motivation and prior knowledge on comprehension,*
- *not rely on formulae alone but include expert judges,*
- *do not use formulae as part of writing* (Rush, 1985, pp. 282-283).

In this stage, in the years 1980 to 1995, readability research started to move towards the interpretive paradigm. The reader factors became more important, and were given emphasis when matching reader and text. Assessing text difficulty by using a set of criteria like the Irwin-Davis Readability Checklist (1980) (see Appendix 2.1) can show that text difficulty did not only lie in the text, but also within the reader.

In the years 1995 to 2010, readability research decreased significantly. During this time, researchers in readability were still in debate regarding the same issues as in the previous era. The difference now was that: (1) emphasis was given to topics like readability versus levelling and criticism on readability, and (2) the amount of research in each of the topic decreased. Although, there was a decrease in readability research in the field of social

sciences, there was an increase in such research relating to the science discipline. The increase was because of the emerging research that related to computers, such as the *Human Computer Interactive* (HCI), as a result of which studies focused on the ease of reading on the computer screen.

Research by Fry (2002) entitled *Readability versus Levelling* was reviewed with the aim of showing one of the issues on debate during that time period. In this study Fry started his argument by providing a definition of readability according to The Literacy Dictionary (Harris & Hodges, 1995, p.203): “*the ease of comprehension because of style of writing*”, as well as the definition of the levelling book by Weaver (2000, p. 57): “*selecting books to match the competencies of a reader or writer.*” Next, Fry mentioned certain variables that can be used to determine readability or level scores. According to Fry, in readability variables like *syntactic* and *semantic* difficulty can be adopted, whereas in book levelling variables like *content, illustrations, length, curriculum, language structure, judgement; and format* can be used (pp. 287 - 288). Fry also found that readability had a wider range from grade level 1 through 12 or grade 1 through 17. On the other hand, in levelling, books tended to be graded between kindergarten and grade six (p. 289). As such, in this period, readability research shifted towards the interpretive paradigm as text difficulty assessment included other elements, rather than the linguistics of the text.

The decrease of research in readability in this era might also have taken place because of several changes that happened in the reading and reading comprehension research at that period of time (Alexander & Fox, 2004; Harrison, 2000; Gaffney & Anderson, 2000; Kamil, Afflerbach, Pearson & Moje, 2011; Pearson, 2009). As mentioned previously, readability research is closely related to reading and reading comprehension research, and therefore, changes in reading and reading comprehension research may

change research in readability as well (Janan, Pope & Wray, 2010). Changes in research on reading and reading comprehension are discussed in the next section.

Conclusions

To sum up, readability research in education began in the 1920s with Thorndike, who came up with a list of words that could help teachers to measure the difficulty of words in a given text. Over the years from 1950 to the present, the definition of readability has moved from the positivist paradigm to the interpretive paradigm. Between the years 1920 to 1980 research in readability was conducted within the positivist paradigm where the difficulty of a text was assessed through the difficulty of linguistics in the text. However, the belief that text difficulty lay in the text itself were challenged at the end of 1980s and early 1990s. Following this, up to the present, it may be seen that the main debates in readability research focuses on the issue of readability versus levelling and the criticism of readability, along with a decrease of research. The main reasons for this decrease concerned the credibility of the readability formulae which was decreasing, and the various changes that happened in the reading and reading comprehension research field. These changes are discussed in the next section.

2.2.3 Paradigms in Reading Research

2.2.3.1 Introduction

In the previous section, the traditional view of readability and the reasons for the decreasing amount of research in readability were discussed. This decrease happened mainly because of the changes in the reading and reading comprehension research field. Thus, the present section aims to reveal those changes that have influenced readability studies. The section starts by giving main definitions of reading and by describing and discussing the theory of reading. Next, there is the discussion of the models of reading,

followed by a discussion about the main existing trends in reading research. The section ends with a description of the links between readability and reading and reading comprehension research.

2.2.3.2 Definition of Reading

Reading is an extraordinary phenomenon. The complex process of reading has been extensively researched across a wide range of different disciplines (Alexander & Fox, 2004; Harrison, 2000; Gaffney & Anderson, 2000; Kamil, Afflerbach, Pearson & Moje, 2011; Pearson, 2009). The debates regarding its definition, its processes and the effectiveness of various approaches to its instruction have never come to a real end. The ups and downs in discussion about reading have been described succinctly by Stahl, (1998, p. 31): *‘In reading, we have swung from whole word methodology to phonic to direct instruction to whole language, with various stops along the way, over the course of my lifetime’*.

Stahl’s (1998) description of the ups and downs in reading research is a description of the changing of paradigms in reading research. Walcutt (1967) has mentioned that it is appropriate to attempt a new definition of reading so that it could clarify, satisfy, and unite the theory and practice of reading instruction. However, there have been various problems regarding reading definitions. This is because *reading* definitions may have several meanings and characteristics, such as: (1) *decoding the printed visual*; (2) *understanding language*; and (3) *the art and intellect that are accessible only through the printed page* (Walcutt, 1967, pp. 363-364). Stahl’s (1993) descriptions of reading and Walcutt’s (1967) characteristics of the definition of reading portray a tendency to change the paradigms in reading research. As such, main reading definitions were reviewed, aiming to describe the theoretical paradigms that take place in reading research.

Generally, many reading definitions share a common concern. Most of these definitions view reading as decoding printed visual symbols. This definition may be found in earlier reading definitions. For example, Tinker (1952, cited in Robeck, 1974, p. 32) defined reading as *a three-step process in which the first step is the recognition of words as symbols*. Much later, Mitchell (1982) defined reading as *decoding the printed visual symbols by regarding reading as the ability to make sense of these written or printed symbols* (p. 1). Nevertheless, later on, the meaning of decoding the printed visual symbols has been expanded as the ability to extract visual or textual information from a written text. This definition of reading has been highlighted by Rayner and Pollatsek (1989), who reported that reading *is the ability to extract visual information from the page and comprehend the meaning of the text* (p. 23). Much later, definitions of reading include not only the ability to extract visual or textual information in a written text, but also to extract information from electronic screens. This has been emphasized by Fisher, who reported that:

“Initially reading was the simple faculty of extracting visual information from any encoded system and comprehending the respective meaning. Later it came to signify almost exclusively the comprehending of the continuous text of written sign on an inscribed surface. More recently it has included the extracting of encoded information from electronic screen” (Fisher, 2004, p. 12).

The next common concern in the continuous reading debate was ‘*understanding language*’ (Walcutt, 1967, p. 364). This notion was also pointed out by Goodman (1975). Goodman (1975) defined reading as a *receptive language process* (p. 5), stating that reading is a psycholinguistic process which starts with a linguistic surface representation encoded by the writer, and ends with meaning which the reader constructs. Similar attention was given to the issue of ‘*bringing meaning to the printed text*’ Walcutt (1967, p.

365). Considering this, Smith (1988) highlighted the fact that readers must bring meaning to a text; they must have a developing and constantly modifiable set of expectations about what they will find in it. He explains that reading depends on everything that is going on, not just on what is being read, and on why a particular reader is reading (1988). Finally and more recently, emphasis has been given to reading as an intellectual process. Harrison (2004) viewed reading as an intellectual process, defining reading as how we are able to think. He explained that reading does not only increase life skills and extends knowledge, but is also *a tool to become human* (p. 2-5).

To sum up, early definitions of reading focused on *decoding the printed visual to bring meaning to the text*, as well as to the *cognitive process* of the interaction between the reader and the text. As such, early definitions regarded reading as decoding which according to Wallace (2001) is seen as a product, with stress on the structure and meaning of a written text and its constituent parts. However, later definitions seem to regard reading as a cognitive process, which *"pays relatively greater attention to the role of the reader in the ongoing processing of written language and the strategies that she or he draws on in constructing meaning from text"* (Wallace, 2001, p. 21). Accordingly, it is seen that reading definitions moved from the positivist paradigm, focusing on the product and with stress on the structure and meaning of the written text, to the interpretive paradigm, with the main concern on the role of the reader in the ongoing process of constructing meaning from the text. Definitions of reading have shown two important attributes, namely the reader and the text. The following section discusses the nature of reading definitions, as well as of the reader and text relations.

2.2.3.3 New Perspectives in Reading Definitions, and Reader and Text Relationships

As mentioned in the previous section, the reader and the text are attributes of more recent definitions of reading. The most recent definitions of reading also characterise it as a set of interactive processes of a reader involved in meaning construction in collaboration with a text (Wallace, 2001). During the interaction between the reader and the text, the essential aim is for the reader to be able to get meaning from a printed message written by writers (Nuttall, 1996). Although the communication between the reader and the writer does not actually take place within a face to face situation, there is no doubt that there is a level of communication between them. As such, when a reader decodes a printed text that has been created by a writer, there is probably a hidden communicative intention (Wallace, 1992).

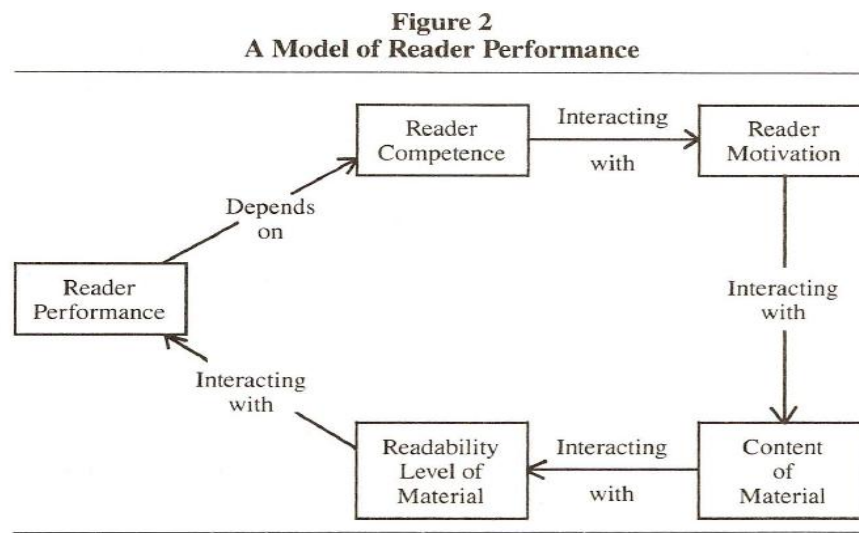
Thus, a reader's reaction to a written text through interpreting and understanding what the writer is trying to say is a kind of communication (Nuttall, 1996). During a conversation, it is obvious that communicators depend on one another and are bounded by certain unspoken rules named, as *co-operative principles* (Nuttall, 1996). Given this, Nuttall (1996) further suggests that when these principles apply to reading, they form the reader's assumptions in that: (1) they and the writer are using the same code – the same language; (2) the writer has got a hidden message in his/her text; and (3) the writer intends to make the reader understand this message. As such, *reading*, according to this view, is an “interactive” process – as conversation is - because both reader and writer depend on one another (Nuttall, 1996, p.11).

In addition, there is research to show that the interaction between the reader and the text no longer treats the “text as an object”, but rather emphasizes the “text as a process” (McDonough & Shaw, 1993). The “Text as an object” viewpoint refers to the reader as a

passive recipient that has nothing to contribute during the reading process, given that the writer is the sole information provider to the reader, who is seen as an “*empty vessel*” that only receives information (McDonough & Shaw, 1993, p. 92). On the other hand, the “*text as a process*” viewpoint refers to the close interaction between the reader and the text with the involvement of the reader’s background knowledge, previous knowledge, and general intelligence (McDonough & Shaw, 1993).

Further evidence on the fact that reading is now an interaction between the reader and the text can be found through the *model of reader performance* suggested by Klare (1988). This model shows the elements that can influence the performance of a reader in the reading process. It is obvious that the reader’s performance depends on his/her competence, motivation, and prior knowledge, as the reading process involves both the reader and the text being read. Figure 2.2, below, demonstrates the *Model of Reader Performance*, created by Klare (1988, p.29).

Figure 2.2: The Model of Reader Performance



To sum up, there have been vast changes in the definitions of reading, as well as the reader and text relations. The changes have shown that the reader is no longer a passive recipient of information during the reading process. Now, reading has become a dynamic interactive process between the reader and the text. Thus, there have been theoretical changes in the reading research paradigms. These changes are related to the positivist paradigm with the assumption that reading is a process of decoding the printed words and getting meaning from it, whereas within the interpretive paradigm the focus is on reading as an interaction between the reader and the text. The next section describes and discusses the changes and different interactions between a reader and the text being read, that have taken place in different models of the reading process.

2.2.3.4 Models of Reading Process

In this section, four models of the reading process are presented and discussed. These are: *bottom-up*, *top-down*, *interactive* and *transactional*. The aims for presenting these views regard the nature of changes of the reader and the texts' roles in each of the models.

Bottom-Up Model

The central attention of the *bottom-up* model is given to deriving meaning from the print activated by graphic information embedded in it (Vacca, Vacca & Gove, 2000). As such, the *bottom-up* model focuses on the text and parts of it as well (Wallace, 2001) or on “*data driven*” (Vacca, Vacca & Gove, 2000). The text and parts of the text or data in this case refer to the letters and words on each page. One of the models created for bottom-up processing is Gough's (cited in Rayner & Pollatsek, 1989) model, which emphasises the fact that reading involves a series of “*linguistic steps*” beginning with the recognitions of key features in the letters and continuing letter by letter, word by word and sentence by sentence, until the meaning of the text is formed (Rayner & Pollatsek, 1989). In this

model, the reader's role is seen as passive, as meaning construction is believed to be activated by graphic information embedded in the print.

Top-Down Model

Top-down models emphasize the fact that the reading process focuses on the reader, rather than the text (Wallace, 2001). As such, models like this show that during reading, the information is generated by the reader's prior knowledge and experience in relation to the writer's messages (Rayner & Pollatstek, 1989). Thus, the ideas or concepts in the mind of the reader are the elements that generate the information processing during reading. Given that, the more readers know in advance about the topic to be read, the less they need to use the graphic information on the page (Rayner & Pollatstek, 1989). In these models the reader's role is seen as active, and the reader actively brings meaning to the text (Wallace, 2001).

Interactive Model

Interactive models suggest that the process of reading is initiated by the readers

“negotiating” with the intended meaning of the writer within a text (Wallace, 2001).

Therefore, during the reading process the reader does not use prior knowledge nor graphic information, but instead, generates hypotheses about meaning by decoding letters and words within the text (Rayner & Pollatstek, 1989; Vacca, et al., 2000). The success of the reading process depends on the strength of the reader's hypotheses about the meaning of the text. The more effective the reader is, the stronger their hypotheses are, as they know how to interact with the print to understand the writer's messages (Rayner & Pollatstek, 1989).

Transactional Model

The transactional model has been proposed by Rosenblatt (1994). Such a model suggests that reading is a circular relationship between the reader and the text (Barc, 1998).

Therefore, *the “meaning” does not reside ready-made “in” the text or “in” the reader, but happens or comes into being during the transaction between reader and text* (Rosenblatt, 1994, p. 1063). Rosenblatt has further explained that in this model the term “text” is simply a mark that is far from having meaning that can be imposed on all readers. She has also mentioned that the meaning of a text only appears when a reader transacts with the text. In the transactional model, the context of reading affects the content of the reading material (Barc, 1998). In addition, the reader’s reactions towards the text and the reading event are governed by the context.

To sum up, the development of different models regarding the reading process described above shows the transition of the interaction between the reader and the text from a passive to an active, and then to an interactive and a transactional relation. This transition, overall, affects the trends in reading research which are presented in the following section.

2.2.3.5 Trends in Reading Research

This section aims to discuss the trends that exist in current reading research. Research in reading covers various topics, including reading concepts, reading instruction, and reading research policy issues. Nevertheless, this section focuses on the topic of the changing concept of reading and its effects on the trends of reading research. For this reason the research study conducted by Gaffney and Anderson (2000) was reviewed. Gaffney and Anderson (2000) analyzed four journals published from July 1965 to April 1998. Although

they initially sought to analyze four journals, only two of them were analyzed comprehensively: the *Reading Research Quarterly* and the *Reading Teacher*.

Accordingly, Gaffney and Anderson's (2000) research findings have shown that there have been changes in the theoretical paradigms into the concept of reading research. These changes range between behaviourist to cognitive paradigms and from cognitive to sociocultural paradigms. Although these researchers pointed out that reading research was mainly within behaviourist paradigms in the 1960s, they also questioned whether the behaviourist notion that was popularized by B.F Skinner ever really existed in reading research. This is because their analysis shows that terms like *reinforcement*, *operant*, and *behaviour analysis* are hardly used in the *Reading Research Quarterly* and the *Reading Teacher* Journal (Gaffney and Anderson, 2000). Gaffney and Anderson's (2000) research has further revealed that in the 70s there was a development in *cognitive science*, and the concept of *schemata* was reinvented. At that phase, text processing became more complex, and more closely related to metacognition themes.

Furthermore, Gaffney and Anderson (2000) have mentioned that in the 1980s, and later on into the 1990s, the attention of reading research once again shifted towards the *social constructivist* notion. These researchers also pointed out that qualitative research was favoured over experimental or quantitative research. Gaffney and Anderson's (2000) analysis can further show that there was a decrease in the percentages of published articles in the field of word and sub-word units of language, whole text, comprehension, and schema in the 1990s. On the other hand, there was an increase in the percentages of published articles in the field of social or cultural motivation and interest in reading research.

Since Gaffney and Anderson's (2000) research analysis on such trends in reading research was only available in the 1990s, the latest preface of *Handbook of Reading Research* (Kamil, Afflerbach, Pearson & Moje, 2011) was reviewed, aiming to provide an understanding of the latest practice in reading research. Kamil, Afflerbach, Pearson & Moje (2011) have recently mentioned that current reading research focuses mainly on: (1) dealing with the upcoming of more challenging of latest research methodologies in reading; and (2) on the challenge of dealing with the diverse demand of context and practice. They have further mentioned that *the complexity of reading research is increased by the demand to analyze acts of reading as situated in diverse contexts and practiced by diverse groups of people* (Kamil, Afflerbach, Pearson & Moje, 2011, p. xix).

Prominent queries that may be addressed regarding reading research in this first decade of 21st century are to concentrate on the component processes of reading and to examine research within the development of skilled reading. One important notion introduced by Kamil, Afflerbach, Pearson & Moje (2011) is the distinction between *processes* and *development* of reading. They consider the distinction by acknowledging *that learning to read does not end with the development of phonemic awareness or fluent reading ability, but is a process that occurs throughout life as one enters new domains and encounters new types of texts* (Kamil, Afflerbach, Pearson & Moje, 2011, xxii) This notion has revealed issues regarding reading development across the lifespan, which had not been given much attention in the previous era.

Consequently, there is a need to address questions like: (1) *What is the shifting role of print, image, and sound in developing reading skills as people move across the lifespan?*; (2) *How do these forms of representation change in relation to one another?*; and (3) *How do people's motivations to read and purposes for reading change as they*

grow up and move through different life contexts? (Kamil, Afflerbach, Pearson & Moje , 2011, p. xxii). Another important issue within this decade concerns the current definitions of the reader and the text. The question now is *who is the reader?* and *what is a text?* The question, ‘*who is the reader?*’ has led research towards finding answers in the following statements: (1) *Is the reader an information processor, a strategist, a situated thinker or a digital native?*; (2) *is the reader the texter, the twitter or the internet junkies?*; (3) *Is the reader engaged, dispassionate, curious or resigned?*; (Kamil, Afflerbach, Pearson & Moje, 2011, p. xxii). On the other hand the question ‘*what is a text?*’ invites the need for examining issues like: (1) *what are the research methods for studying the text?*; (2) *how are digital texts read and taught?*; (3) *what is the role of texts in disciplinary learning?*; and (4) *how are texts read critically?* (Kamil, Afflerbach, Pearson & Moje, 2011, p. xxii).

To conclude, there are traces of evidence regarding the transition of the concept of reading in the past decades. The transitions vary from the behaviourist to the cognitive paradigm, and from the cognitive to the sociocultural paradigm. More recent research in reading shows the increase in challenging methodologies. Apart from this, the focus is also given to the notion of reading development across the lifespan. One of the major transitions in reading research in this first decade of the 21st century is the changing of the definition of the terms ‘reader’ and ‘text’.

As such, the results of the present study have shown that there are gaps between reading research and readability research. Currently, in reading research, there are changes in the role of the reader and the text. These changes can undoubtedly change the interactions between the reader and the text. The corollary of these changes is the need for new methods to assess the interaction between a reader and a text. Therefore, the methods

regarding the reader being matched with the text or “*readability*” needs to be redefined and reconceptualised.

2.2.4 Paradigms in Reading Comprehension

2.2.4.1 Introduction

This section aims to reveal the changes that have taken place in reading comprehension research and its effects on readability research. An account of the historical perspective in reading comprehension, as well as the assessment of reading comprehension, is given. Two methods of assessing reading comprehension i.e miscue analysis and retelling, will also be explained in further detail.

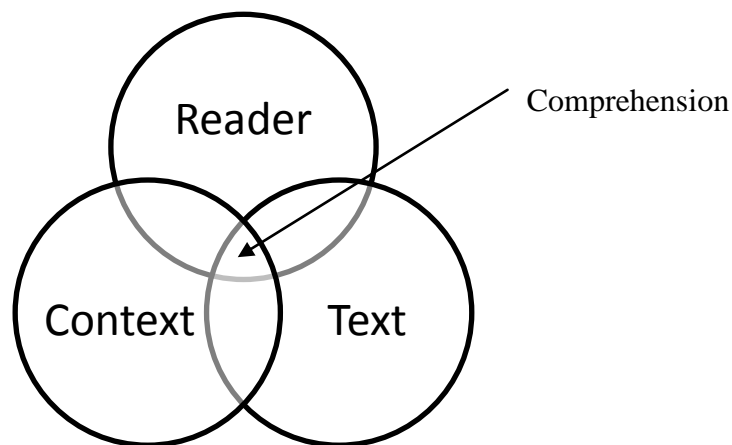
2.2.4.2 Historical Perspective on Reading Comprehension

Reading comprehension is considered to be an essential element in the reading process.

Without comprehension, reading is nothing more than the mimicry of the sounds of the language (Paris & Hamilton, 2009). There are many definitions of the term ‘*reading comprehension*’. Earlier definitions have focused mainly on thinking and reasoning (e.g. Thorndike, cited in Paris & Hamilton, 2009). However, more recent definitions tend to emphasize the constructive and interactive processes of reading comprehension (Paris & Hamilton, 2009). *The Research and Development Report* (RAND), defines comprehension as: ‘*The process of simultaneously extracting and constructing meaning through the interaction and involvement with the written language*’ (p. 11). The *National Assessment of Educational Progress Reading Framework Committee* (NAEP) (2009) defines reading comprehension as: ‘*an active and complex process that involves understanding the written text, developing and interpreting meaning, and using meaning as appropriate to type of text, purpose and situation*’ (NAEP, 2009, cited in Paris & Hamilton, 2009, p. 32) .

The definitions of reading comprehension advanced by Thorndike, the RAND report, and the NAEP show that definitions have changed, with the main focus varying from meaning construction from the text to an interactive relationship between reader and text. Later on, the changes continued, with the interactive relationships between the reader and the text being now bounded by the context. As a corollary to all the above changes, it can be seen that the transition of the definitions of reading comprehension are influenced by the transition in the definitions of reading and the model of the reading process.

Figure 2.3: The Intersection of Reader, Text, and Context



Pearson, 2009, p.14

Accordingly, the early models of comprehension in the 1960s and 1970s explain reading comprehension as the extraction and gathering or reform of a message contained in a text, with the text seen as the same as traditional written documents such as books, stories and articles (Fox & Alexander, 2009). At this stage, arriving at the designated message in the text was the desirable outcome. As such, the *Extraction-Assembly Model* of text comprehension emerged during this period of time (Fox & Alexander, 2009). Major text

features related to this model included readability, text structure, concreteness and typography (Gibson & Levin, 1975). At this point, the reader's task was to '*produce an oral language equivalent of the graphic input... and reconstruct the meaning of what he is reading*' (Goodman, 1970, p.265).

Figure 2.4: The Extraction-Assembly Model

Element	Description
View of text	Static container or transmitter of message coded into written symbols
Typical text	Single unambiguous text often specifically crafted to convey a message or develop a skill (e.g., basal reader)
Reader's activity	Extracting and assembling or reconstructing information from the text, matching it to existing mental content
Reader's product	Mental representation of text information as matched with existing mental content

Fox & Alexander, 2009, p. 229

In the 1980s, the view of text comprehension began to shift towards a "*bidirectional*" view, which integrated top down and bottom up processes of reading (Fox & Alexander, 2009). Thus, at this stage text comprehension was seen as a constructive activity with the involvement of the reader's prior knowledge and context to shape the text's message (Fox & Alexander, 2009). As such, the *Constructive-Integrative Model* of text comprehension took place at this era (Fox & Alexander, 2009, p. 231). This model allowed the possibilities of a more individualized response to text meaning. As such, the text might have more than one interpretation, in which each reader builds his/her own mental representations of what the texts is saying and what it means (RAND, 2002).

Figure 2.5: The Constructive-Integrative Model

Element	Description
View of text	Static written presentation of propositional network
Typical text	Single, often narrative, text or information text from an authoritative/invisible author (e.g., textbook)
Reader's activity	Constructing meaning from text and background knowledge, using integration, elaboration, interpretation
Reader's product	Mental representation of a text on a propositional level and integrated with background knowledge – e.g., textbase and situation model

Fox & Alexander, 2009, p. 231

Moving into the 21st century, the model of comprehension focuses on what reading comprehension means across diverse contexts involving both traditional and alternative contexts (Fox & Alexander, 2009). This is because of the changes in the perspectives on what is now seen as text and what is now qualified as a reading situation in diverse sociocultural context and social interactions. According to Fox and Alexander (2009, p.233) many studies emerged to reconceptualise the nature of text comprehension, such as : (1) *the use of electronic books* ; (2) *cohesion in hypertext* ; (3) *strategies for navigating in hypertext* ; (4) *effect of structure and genre in an-online newspaper* ; (5) *computer text interface vs. traditional print* ; (6) *signalling of hyperlink* ; *the role of text annotations* ; (7) *hypermedia and cognitive flexibility* ; and (8) *text believability* . As such, a new model of text comprehension has been created and named the *Transitional Extension Model* (Fox & Alexander, 2009, p. 233).

Figure 2.6: The Transitional Extension Model

Element	Description
View of text	Fluid or static presentation in single or multiple modalities of single or multiple linked propositional networks
Typical text	Multiple informational texts, texts needing evaluation for credibility or accuracy, argumentative texts, non-static or non-linear texts, hypermedia, blogs, text messages
Reader's activity	Constructing meaning while connecting across text; creating individual navigational paths through links; considering authors; responding interactively; building collaborative understanding
Reader's product	Mental representation of text/context – of text meaning, of topic, of text as product of author, of structure of intertext relations (for text networks like hypermedia), dialogic representation of text as ongoing conversation

Fox & Alexander, 2009, p. 233

To sum up, the transition of the research into reading comprehension has produced three models: The Extraction-Assembly Model; the Constructive-Integrative Model; and the Transitional Extension Model of text comprehension. The transition in reading comprehension research is undoubtedly influenced by the transition in reading research. This was made clear when all the three models of text comprehension development took into account the changes made in the model of the reading processes. For example, the changes in the model of the reading process, from bottom-up and top-down to an interactive model in the 1980s and 1990s, have influenced the emerging of the Constructive-Integrative Model in text comprehension, which focused on the integration of bottom-up and top-down models of the reading processes in text comprehension processes.

As such, in the present study, it may be seen that reading research and reading comprehension research transition are inter-related. In addition, it was identified that the

transition in reading and reading comprehension were not related to readability, as should be the case. Thus, it may be suspected that this is the fact that caused the decline in the amount of studies in readability from the 1990s to present. As a corollary to these arguments, the need to investigate the relevancies of the main concepts of readability needs to be acknowledged.

2.2.4.3 Assessing Reading Comprehension

The assessment of reading comprehension has to do with understanding the process of text comprehension. The complexity of the assessment of reading comprehension invites criticism and debates among researchers in the field. The very complexity of understanding the nature of text comprehension has been reported by Pearson and Hamm (2005) who stated that:

'The process of text comprehension has always provoked exasperated but nonetheless enthusiastic inquiry within the research community. Comprehension, or "understanding," by its very nature, is a phenomenon that can only be assessed, examined, or observed indirectly (Johnston, 1984a; Pearson & Johnson, 1978). We talk about the "click" of comprehension that propels a reader through a text, yet we never see it directly. We can only rely on indirect symptoms and artifacts of its occurrence. People tell us that they understood, or were puzzled by, or enjoyed, or were upset by, a text. Or, more commonly, we quiz them on "the text" in some way—requiring them to recall its gist or its major details, asking specific questions about its content and purpose, or insisting on an interpretation and critique of its message. All of these tasks, however challenging or engaging they might be, are little more than the residue of the comprehension process itself. Like it or not, it is precisely this residue that scholars of comprehension and comprehension assessment must work with to improve our understanding of the construct' (p.14).

Furthermore, according to Leslie and Caldwell (2009) the assessment of reading comprehension can be divided into two categories, 'formal' and 'informal' assessment. The early stage of the formal assessment of reading comprehension includes using short paragraphs, multiple choice response options and constructed responses. David (1944, cited

in Leslie and Caldwell, 2009, p. 405) has conducted research to review the skills that describe reading comprehension by using multiple-choice. He then categorizes these skills into nine groups, as follows: (1) *recalling word meaning*; (2) *drawing inference about the meaning of a word from the content*; (3) *following the structure of the passage*; (4) *formulating the main thought of the passage*; (5) *finding answers to questions answered explicitly or merely in paraphrase in the content*; (6) *weaving together ideas in the content*; (7) *drawing inference from the content*; (8) *identifying the writer's techniques*; and (9) *literary devices, tone and mood, and recognizing the authors purpose, intent and point of view*.

In the 1970s and early 1980s, the assessment of reading comprehension has gone through certain changes, because of the *mastery learning movement* and the focus on finding reading sub skills necessary for competent reading. The skills involved during this period of time include sequencing, getting the main idea, and summarising. Nonetheless, in the late 1980s the dissatisfaction with regard to the mastery learning movement led to a major shift in reading comprehension, with the belief that reading comprehension was not a unitary construct. At this stage, assessment of reading comprehension included longer passages, and measured the prior content and strategies of knowledge. However, in the early 2000s, the assessment of reading comprehension revealed the involvement of new elements like the effects on the passage, items, persons, genre, and themes as variables to measure comprehension (Leslie & Caldwell, 2009). Apart from these, the formal assessments of reading comprehension includes informal assessments such as *questions, recalls or retellings, informal reading inventories, thinking-aloud, and sentence verifications tasks, and wide variety of assessments grouped under the general heading of performance or authentic assessments* (Leslie & Caldwell, 2009, p. 410).

Stahl (2009) has created several theoretical points that can apply to the assessment of comprehension of young children (Figure 2.7).

Figure 2.7: Theoretical frames and Corresponding Assessment

Theoretical Points	Assessment
Comprehension is developmental, historical, and social. Changes over time in children's bio-sociocultural development and ever increasing bank of experience result in changes in reading comprehension capabilities (Kintsch, 1998; Nelson, 1996)	<ul style="list-style-type: none"> • Minimal reading/Nonreading measures: Narrative Wordless Picture Books (Paris & Paris, 2003; van Kraayenoord & Paris, 1996); Sulzby's Classification Scheme (1985); Video measure • Retelling • Cued Recall • Verbal Protocols • Sentence Verification
Reading comprehension demands capable decoding, language processes and domain knowledge (Knitsch, 1998)	<ul style="list-style-type: none"> • Miscue analysis: Reading Miscue Inventory (Goodman, Watson, & Burke, 1987), running records, informal reading inventories • Curriculum-based Measures • Cloze and maze
Proficient reader tend to engage in some common strategies during the initiation of reading, during the act of reading, and after reading that enable them to integrate the material from the text with prior knowledge and experience. Strategies enable the reader to monitor, repair, and enhance comprehension (Kintsch, 1998; Paris, Lipson, & Wixson, 1983).	<ul style="list-style-type: none"> • Verbal Protocols • Strategy Scales: Index of Reading Awareness (Jacobs & Paris, 1987; Paris & Jacobs, 1984), Metacognitive Strategy Index (Schmitt, 1990), Major Point Interview (Keene & Zimmerman, 1997)
One role of school is to provide the instruction, experience, and the socio-cultural context that will promote student competency in utilizing external systems of knowledge for their own purpose and personal growth (Donald, 1991; Kintsch, 1998)	<ul style="list-style-type: none"> • Dynamic assessment • Common Instructional Passage Assessment (Stahl, Garcia, Bauer, Pearson, & Taylor, 2006)

Stahl, 2009, p. 429

According to Stahl (2009) the construction of a narrative based on a wordless picture book predicts and correlates to reading comprehension. In this assessment, *young readers* were asked to perform spontaneous oral retelling based on wordless picture books. The assessor could ask the *young readers* about the narrative features of the texts, so as to ‘*assess their explicit and implicit comprehension of the story*’ (p.431). The bottom side of the narrative wordless picture book assessment was when it had not been fully utilized because of lack of developmental sensitivity when compared to other assessments like, for example, retelling (Stahl, 2009). All the above are examples of reading comprehension assessment for *young readers*. It may be seen that each type of the assessment has its own advantages and limitations.

Among all the reading comprehension assessment schemes for young children, retelling and miscue analysis may be the most common used by teachers and researchers. The next section focuses on retelling and miscue analysis.

Miscue Analysis

Miscue Analysis is an evaluation of oral errors in reading (Stahl, 2009). Error analysis has been used as evidence of the comprehension process (Clay, 2000; Davenport, 2002; Goodman, Watson & Burke, 2005) and ‘*like a window on the reading process*’ (Goodman, 1977, p. 5). In miscue analysis the reader is asked to read aloud an unfamiliar text and the researcher or teacher records the reading using a coding system (see Section 3.4.5.3). After the reading aloud session, the researcher or teacher evaluates the reader’s errors, as well as self-correction. Substitution, omission and teacher’s assistance are recorded and counted as errors. Repetitions and self-corrections are both recorded, but are not counted as errors. Miscues are analyzed depending on their syntactic and semantic acceptability in the sentence and the passage. Miscues are also analyzed depending on whether they result in

changes in the meaning of the text, and to the grapho-phonetic similarity to the text. The priority in miscue analysis is given to syntactic and semantic acceptability, and a coding form is used for analysis. Miscue analysis may be conducted independently, using the *Reading Miscue Inventory* (Goodman, Watson & Burke, 2005) or may appear with other assessments, such as for example the *Running Record* (Clay, 2000) and the *Informal Reading Inventories* (Leslie & Caldwell, 2009).

Miscue analysis is premised on the notion of the whole language concept of reading. According to this concept, skilled reading is when the reader makes many miscues during the progressive integration of the cueing system, in order to develop their reading. As with other reading comprehension assessments, miscue analysis has limitations/weaknesses as well. Indeed, miscue analysis has a rather problematic theoretical basis (Hempenstall, 2009), and also the various proposals regarding the skilled reader have been rejected by many scholars, as argued by Tunmer and Hoover (1993):

This view of skilled reading, which comes from Goodman (1967) and Smith (1978), has been rejected by the scientific community (Adams, 1990; Ehri, 1986; Goswami & Bryant, 1990; Gough, Ehri & Treiman, 1992; Just & Carpenter, 1987; Perfetti, 1985; Rayner & Pollatsek, 1989; Rieben & Perfetti, 1991; Stanovich, 1986, 1991; Vellutino, 1991). Skilled reading is not sampling features of the text on the run, it is not a psycholinguistic guessing game, and it is not incidentally visual. Rather, research has shown that 'skilled readers process virtually all the words they encounter in connected text, and typically, all of the letters in those words' (Vellutino, 1991, p. 82). Research further indicates that skilled readers are sufficiently fast and accurate at recognising words in text to make reliance on contextual information unnecessary (Perfetti, 1985). (p. 167)

Nevertheless, it should be noted that this critique does not necessarily imply that the qualitative analysis of readers' errors is valueless. Studies in miscue analysis have included issues like: (1) the grade level and reading ability of children's miscue patterns (Christie, 1981); (2) miscue analysis assessment in the classroom (Valencia, Rhodes & Shanklin ,

1990); (3) relationship of substitution miscues to comprehension (Beebe, 1980; Englert & Semmel, 1981); and (4) the effects of insertion and omission miscues (Dangelo & Wilson, 1979; D'Angelo & Mahlios, 1983) (See Section 3.4.5.3 for more information on miscue analysis procedures).

Retelling

Retelling is a task that requires the reteller to '*orally summarize the information that was seen, heard, or read*' (Stahl, 2009, p.433). The reteller is required to reconstruct the details from the text with a changing degree of combinations, with prior knowledge and connection to other texts. The advantages of retelling includes the fact that the reader is able to go beyond recognition. As Kucer (2010) has reported: '*Rather than measuring recognition, retellings tap into what the reader has independently constructed and accessed from transacting with the text*' (p.3).

The use of retelling to assess reading comprehension is based on various theoretical perspectives (Leslie & Caldwell, 2009). Thus, to conduct a retelling, a researcher cannot simply assume a common theoretical foundation. Retelling has been used for different purposes, based on different theoretical perspectives. Retellings can be used to: (1) investigate the effects of retelling (free recall) upon the comprehension of text information (Gambrell, Pfeiffer, & Wilson, 1985); (2) develop children's sense of story structure (Mandler & Johnson, 1977; Morrow, 1985); (3) investigate the effect of practice in retelling on the reading comprehension performance (Gambrell, Koskinen & Kapinus, 1991); and (4) measure how children comprehend expository text (Moss, 1997). (see Section 3.4.5.4. for details on retelling procedures).

2.2.5 Conclusion

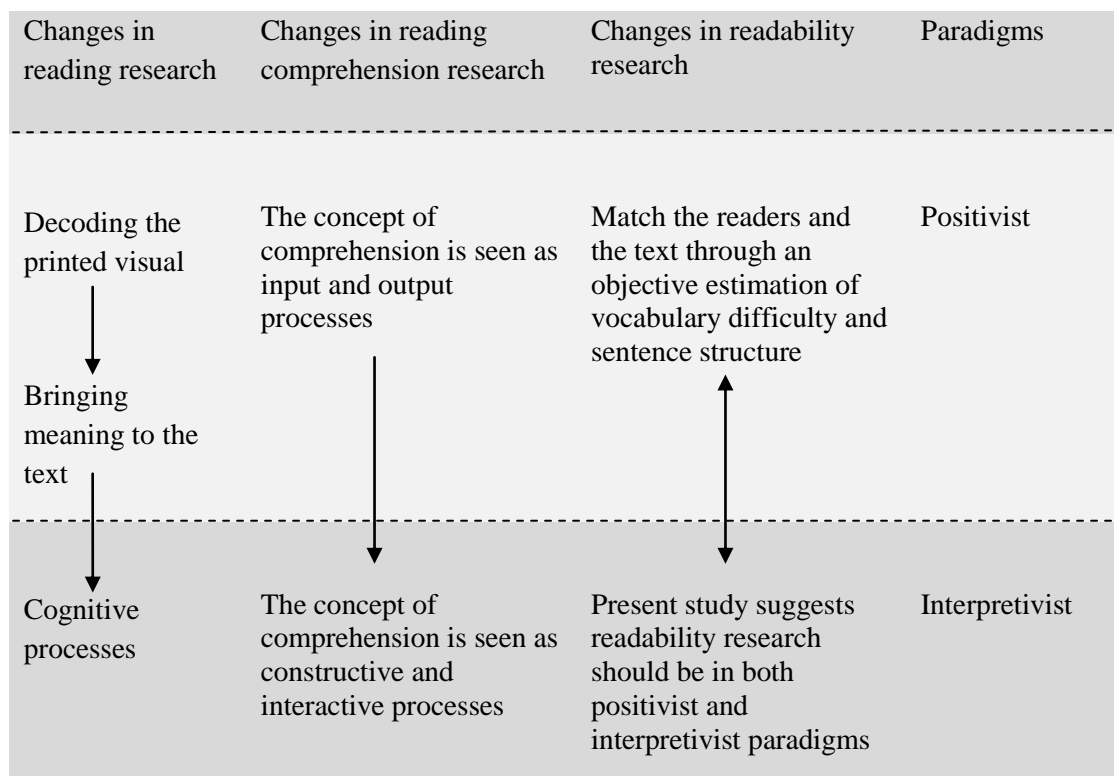
The theoretical framework section presented above aims to give an account of the underpinning changes in readability research. The arguments discussed in the section were divided into three subsections i.e.: paradigms in readability research, paradigms in reading research and paradigms in reading comprehension. It has been seen that there is evidence showing transitions in the definition of readability research that is from the positivist paradigm to the interpretative paradigm. Until the 1980s, research in readability was carried out within the positivist paradigm, in which the difficulty of the text was assessed through the difficulty of the linguistics in the text. However, the belief that text difficulty lay with the text itself was challenged at the end of 1980s and early 1990s. Although there have been changes in definitions of readability, there were very few changes in the way readability research was conducted. In other words, although the definitions of readability have gone through a transition from the positivist to the interpretive paradigm, the methods of conducting readability remained the same within the positivist paradigm. As such, there were tensions created at the end of the 1990s in readability research which seemed to decrease.

Readability research is closely related to reading and reading comprehension research. Given that any changes in the reading and reading comprehension research may affect also readability research. Therefore, these may be the reasons that there were vacuums in readability research at the end of the 1990s until recently. The main reason for this vacuum is that there is evidence to show that there are huge transitions in reading research. These transitions have changed the definitions of reading and the methods of conducting research in reading. These vast changes included the changes on the model of the reading process and the trends in reading research. The changes on the model of the

reading process have rather affected the concept of reading comprehension. As such, it can be argued that practice in reading and reading comprehension is an interactive relationship between readers and texts across diverse contexts within a diverse sociocultural context and social interactions.

Accordingly, in considering the results of the present study, it can be argued that readability research needs similar improvements and changes as have occurred in reading and reading comprehension research. Such changes need to include the interactive relationship between the reader and the text across diverse contexts in a diverse sociocultural context and social interactions. As such, it can be suggested that readability research may not only be based on the positivist paradigm, but can also include the interpretive paradigm point of view as well.

Figure 2.8: Reading, comprehension, and readability research paradigms



2.3 Factors that Influence the Concept of Readability

2.3.1 Introduction

In the previous section it has been discussed that the text and the reader are the main components in reading and reading comprehension processes. Thus, this section aims to reveal the most important text and reader factors that can influence the process of reading and reading comprehension. As mentioned in the previous section readability is closely related to reading and reading comprehension. Hence, factors that influence reading and reading comprehension processes, may also affect readability.

2.3.2 Text Factors

Text is the main element that plays a significant role in reading. Reader comprehension in reading does not simply mean understanding individual words or fragments of sentences, but understanding the text. A text can have multidimensional characteristics depending on its discipline, purpose of reading and the characteristics of the reader. As such, it is difficult to achieve a unified definition. Education professionals such as Wray (2004) define the term text as *‘a piece of connected language that serves function in social interchange: it has purpose, it is constructed and it exists within a social context and it implies dialogue’* (p.viii). Linguists like Halliday and Hasan (1976), meanwhile, have defined text as *‘any passage, spoken or written, of whatever length, that forms a unified whole’* (p.1).

According to other linguists like Beaugrande and Dressler (1981), the notion ‘text’ is defined as:

“A naturally occurring manifestation of language, i.e. as a communicative language event in a context. The SURFACE TEXT is the set of expressions actually used; these expressions make some knowledge EXPLICIT, while other knowledge remains IMPLICIT, though still applied during processing” (p. 63)

In terms of the present thesis, ‘text’ means printed material that primary school pupils encounter in their daily life, whether at school or at home. Thus, a number of text features have been demonstrated as affecting the readability of the texts used in the study.

These are as follows:

- a) Linguistic difficulties:
 - i. Word difficulty.
 - ii. Sentence difficulty.
- b) Organisation
- c) Content structure
- d) Legibility
- e) Illustration
- f) Genre
- g) Physical feature
- h) Author’s style

2.3.2.1 Linguistic Difficulties

Linguistic difficulties can be divided into two categories: (1) word difficulty; and (2) sentence difficulty.

Word difficulty

Word difficulty has to do with the reader’s understanding of individual words. The difficulty of words is measured in two ways:

- i. the length of the word; and
 - ii. the familiarity of the word.
- i. *The length of the word.*

Word difficulty has traditionally been measured by the length of each word, with the assumption that long words are harder to be read than short ones. Word length is measured in two ways: the number of letters and/or the number of syllables in the word. It can often be seen that short words are perceived as more familiar and long words as more formal or technical. There is research that has shown that readers pause longer on longer words (Just & Carpenter, 1987). Nevertheless, there have also been findings to suggest that the assumption that short words are always easier than long ones is somewhat incorrect. There are examples of monosyllabic words such as *adze*, *carse*, *gneiss*, *haugh*, *hoys*, and *knorr*, found in lower secondary school text-books, which are unlikely to be easy words for the pupils who read such books (Perera, 1980). Accordingly, the assumption that short words are easier than long words must be viewed with caution.

ii. Word familiarity

Word difficulty may also be affected by word familiarity. In previous readability research, as well as in a number of readability formulae, word familiarity usually refers to words that appear in word lists, such as the Dale-Chall (1948) list (revised in 1995 – see Chall, 1995), consisting of 3000 words. It is presumed that words which appear on this list are relatively easy for children to read, whereas words which do not appear on the list are unfamiliar and more difficult to read. However, the use of such a word list has caused considerable difficulties in practice. Vocabulary use varies over time and across cultures, and, of course, it is subject specific. For example, in the Dale and Chall list, the words “neighborhood” and “negro” are listed as easy words. Perera (1980) points that there are many discrepancies between the Spache (1953) list (American) and the Edwards and Gibbon list (1964, 1973), which was compiled from a frequency count of British children’s written vocabulary. Another issue is that sometimes words might appear familiar but only with a

particular meaning. Homonyms, or words used with their less common meanings, might confuse the familiarity criterion (Perera, 1980).

Sentence difficulty

The common belief regarding sentence structure is that the longer sentences are, the harder the text is to be read. Hence, the average sentence length has often been used as a measure of sentence difficulty. One of the reasons which make longer sentences harder to read is that such sentences usually contain subordinate clauses with complex relationships between them. Nonetheless, there are cases where the same length of sentence brings a different level of difficulty. Keith (1998) has reported, for example, that the following sentences may vary widely in terms of difficulty of reading, especially when read by children:

- *The cat sat on your mat.*
- *The cat on the mat.*
- *On the mat the cat sat.*
- *Sat, on the mat: the cat.*
- *The cat on the mat sat.*
- *Sat: the cat on the mat.*
- *Sat the cat on the mat.*

Also Perera (1980) has argued that, at times, longer sentences are easier because they can provide more clues to the meaning of the sentence and to the relationship between its parts. It is arguable, for example, which of following sentences may be easier to be read:

- The man, who had a wooden leg, sat down quickly. (10 words long)
- The wooden-legged man sat down quickly. (6 words long)

2.3.2.2 Organisation

Research on the organization of a text has mainly focused on the effects of the manipulation of logical or conceptual structures in the passage (Harrison, 1984). There have also been studies focusing on content variables that may significantly affect comprehension and memory of prose (Harrison, 1984). As such, the level of organization of a text may affect its readability. For example Ausubel (1960 cited in Harrison 1984) first used the term 'advance organisers' to explain introductory paragraphs summarizing the content of a text. Certain elements such as paragraphs, subheadings and typographies are format variables which are effective in improving comprehension (Harrison, 1984). Cohesion and coherence can also tie the text together to make it understandable.

‘Cohesion’ refers to the surface links in a text, and has a vital role in creating the unity of the text (Beaugrande & Dressler, 1981). A non-cohesive text may result in the reader’s loss of concentration, because the reader may not be able to obtain the message intended, if the information conveyed is not linked together. ‘Coherence’ refers to the links beyond the text (Beaugrande & Dressler, 1981). As such, if a text is not coherent, it may not yield any sense. On the contrary, coherence is concerned with what is beyond the surface text or it looks at the internal textual world. A text may be cohesive without necessarily being coherent. ‘Cohesion’ relies on lexical and grammatical relationships, whereas coherence is based on semantic relationships. As such, if cohesion does not automatically guarantee coherence, then neither is the reverse relationship true.

Studies on cohesion in reading have shown that it can make a substantial contribution to readability. For example, Chapman (1987) has demonstrated that readers between the ages of eight and fifteen showed growth in their ability to perceive cohesion in a text and to use it to support their comprehension. This suggests that readers may develop

an awareness of cohesion over time and make increasing use of it in order to get meaning from the print. However, if they do not have sufficient experience and knowledge of the ways in which texts are cohesive and coherent, then this can be a major limitation to their comprehension. Moreover, further research has revealed the important role of cohesion and coherence in text comprehension (e.g. Cain, 2003; Ferstl & Cramon, 2001); and the effects of causal cohesion on comprehension and memory (e.g. Keenan, Baillet & Brown, 1984).

2.3.2.3 Content Structure

Content structure refers to the cognitive structure of a text that is the semantics or meaning aspects (Binkley, 1988). A well-written text requires a structure that readers can easily use to find the information they need and to understand it correctly. A text can become confusing when information is inappropriately presented. Most sentences, when taken out of context, may become ambiguous in meaning (Janan & Wray, 2011).

When linguistic expressions are combined into units for processing, many individual linguistic elements may be ignored and the whole chunk may be treated as one semantic unit. When a significant amount of information is conveyed in a relatively small amount of text, the reader may easily become confused. This problem is known as ‘Propositional Density’ (Janan & Wray, 2011). The greater the number of ideas expressed in a text, the more effort is required by the reader to interpret the text.

The second limitation with text structure is so-called ‘Lexical Incoherence’, which occurs when writers present new information to the readers without making clear its relationship to previous information (Janan & Wray, 2011). The writer assumes that they have provided enough information to allow readers to follow their arguments logically, but if a large number of new, unrelated ideas are introduced, then a reader may find it difficult to make sense of a text.

2.3.2.4 Legibility

Katzen (1977 cited in Lund, 1999, p.15) has defined legibility as '*the effect of different typographical arrangements on the reader's ability to carry out the reading task most easily, comfortably and effectively*'. Traditional research on legibility has dealt with topics like: (1) *single characters compared to each other regardless of typeface*; (2) *certain typefaces or typeface categories compared with each other*; (3) *type size, interlinear spacing, and line length*; (4) *the colour and qualities of paper, the colour of ink, and illumination* (e.g. Lund, 1999, p.34).

Moreover, Lund (1999) has reported that the development in legibility research is divided into four phases. In the first phase, legibility research was a visible part of reading research, whereas the second phase took place between the 1920s and 1960s. During that time, research was mainly dominated by Tinker and Peterson, who prolifically conducted research on typography (Lund, 1999). Lund has further mentioned that the third phase of legibility research took place between the 1960s to 1970s, and mainly showed hectic activities on matters related to low resolution capitals-only displays and print-out devices, typewriter-based 'typesetting', photocopies, and microfilm. Finally, Lund concluded that the fourth phase of legibility research was '*represented by the dwindling - but far from vanished*' research activity since the 1970s until today (p. 36).

In the early years, a great amount of research was published in psychology Journals. Nevertheless, at present, there has been a decrease in such research, and almost no research is being published in psychology Journals. According to Lund (1999) the reasons for this decrease in legibility research are as follows:

"The fact that interest in legibility studies is nearly non-existent in psychology today does not necessarily say anything about the prospects for or value of legibility studies, but probably more about the aversion to getting associated with

such highly practical matters as the legibility of reading matter; in order not to be marginalized within psychology and cognitive science.” (p.46)

Several criticisms on legibility research have mainly focused on: (1) *post-positivistic critiques and notions of tacit craft knowledge*; (2) *lack of internal validity*; (3) *peripherality to the reading process*; (4) *lack of theory*; (5) *'The hypothesis of habit' - empiricism vs. rationalism*; (6) *critiques from design practitioners*; and (7) *postmodernist critiques* (Lund, 1999, p. 55-78).

Despite the decrease and criticism on legibility research mentioned by Lund (1999), there has been an increase in the field at the beginning of the 21st century. The increasing topic being research relates to the developing of research in computer based. Recent legibility research that has being carried out within this new millennium mainly focuses on issues like: (1) *Print advertising: Type size effect* (Pillai, Katsikeas & Presib, 2011); (2) *Do serifs provide an advantage in the recognition of written words?* (Moret-Tatay & Perea, 2011); (3) *Typographic properties of online learning environments for adults* (Kuzu & Ceylan, 2010); (4) *An Assessment of the legibility of Google books* (James, 2010); (5) *Typography for children may be inappropriately designed* (Wilkins, Cleave, Grayson & Wilson, 2009); (6) *Evaluating patient choice of typeface style and font size for written health information in an outpatient setting* (Eyles, Skelly & Schmuck, 2003); (7) *A framework towards understanding Influences on the typographic quality of text* (Bachfischer, Robertson & Zmijewska, 2006); (8) *Letter case and text legibility in normal and low vision* (Arditi & Cho, 2007); (9) *Serifs and font legibility* (Arditi & Cho, 2005); (10) *Investigation into font characteristics for optimum reading fluency in readers with sight problems* (Feely, Rubin, Ekstrom & Perera, 2005); (11) *Typefaces* (Horn, 2004); (12)

and *Evaluating patient choice of typeface style and font size for written health information in an outpatient setting* (Eyles, Skelly & Lou Schmuck 2003).

2.3.2.5 Illustration

Illustrations are regarded as an important element in children's books. They exist as often as the text and play an important role in the children's reading processes (Brookshire, Scharff & Moses, 2002). Research has shown that illustrations have been used to teach reading to *beginner readers* (Brookshire, Scharff & Moses, 2002). Illustrations are presented alongside single words to be learnt in the 'whole word' reading approach (Brookshire, Scharff & Moses, 2002). Within this approach, *beginner readers* learn to read by making association between the pictures and the words, and eventually are able to recognize and decode words without the illustrations at a later stage.

Illustrations not only help *beginner readers*, but can also help older and more competent readers, by helping the intended ideas by the author to get across (Brookshire, Scharff & Moses, 2002). The ways of presenting illustrations are various, depending on the type of text that is illustrated, and the type of illustrations that are used to describe the text. Some illustrations are designed to describe the whole story that appears in the text, whereas others may illustrate particular aspects of it. Also, some illustrations may go beyond the content of the text when the illustrator tries to expand it (Serafini, 2011). Recently, Pikulski (2010) has reported that the combination of illustrations and texts can build the background concepts of the reader.

Within the literature, it has also been suggested that illustrations can stimulate and promote children's interest in books, and can display familiar experiences which children are likely to be identified with more easily (e.g. Lewis, 1994). As such, illustrations have been one of the criteria that children readers take into account when choosing their reading

materials (Amsden, 1960; Brookshire, Scharff & Moses, 2002; Goldstone, 2001; Mohr, 2003, 2006; Reutzel, 1998; Weiss, 1982). However, Butterworth (2001) has revealed in her research the need to be cautious with the ways that illustrations are used as tools to help young children in reading comprehension. This may be because her findings have revealed a mixed role of illustrations in helping children's reading comprehension.

Specifically, Butterworth (2001) has found that: (1) less skilled readers may face deficits in understanding picture information as they read a text; (2) less skilled readers may experience difficulties when integrating information across the illustrations and the text to make inference; (3) illustrations can be used to help readers to overcome certain difficulties they face when understanding the text; (4) less skilled readers can benefit from illustrations that repeat text information and provide a context for understanding the text; (5) less skilled readers may face difficulties when encountering illustrations which do not overlap with the text, or with illustrations that have to be integrated with the text in order to understand the story. Therefore, Butterworth (2001) has concluded to illustrate, consider the ways that pictures can be used, when they can be used, in what way, and for whom.

2.3.2.6 Genre

“THE WORD GENRE, derived from French and Latin, means “kind” or “genus”. “Genus” in turn means “a class,” “kind,” or “sort,” with the accompanying expansion in logical usage of being a class of like objects or ideas, having several subordinate classes or species... In literature, for example, scholars and teachers usually refer to fiction, poetry, and drama as the “primary genre,” though there are myriad and often rather technical subdivisions within each. To illustrate the point, consider.” (Harris, 1995, p.509).

There are many genres of children's reading books such as picture books, poetry books, traditional literature, modern fantasy, contemporary realistic fiction, historical fiction, biography, informational book, and graphic novels. These different genres of books

contain different writing approaches. According to Graesser, Hauft-Smith, Cohen and Pyles (1980) there are four basic writing approaches, namely *description*, *exposition*, *narrative* and *persuasion*. According to Kintsch (1980), the type of text, can play an important role as it can influence the strategies used to comprehend. Kintsch has also pointed out that different types of genre may have different complexities of presentation. For example, imaginative narrative texts include generally longer and more complicated sentences compared to imaginary texts. The length and complexity of sentences can be factors that can affect comprehension.

Pappas (1990) has also stated that narrative and informative books can serve different social or cultural purposes, as for example the meaning communicated in usual texts from each genre are formed by ‘*different linguistic registers, by different book language structure and patterns*’ (p. 3). This researcher has further mentioned that there is evidence showing that children, at an early age, obtain the basic knowledge that written language can be used for different purposes. Hidi & Hildyard (1983 cited in Pappas, 1990) have compared elementary school children’s competence regarding narrative and expository discourse forms, suggest that children’s exact understanding of the organization of the textual attributes of non-story genres are developed later than story understanding. Accordingly, these are the reasons that in primary schools, the majority of early reading materials are narrative in form, and gradually the quantity of informative materials increase as pupils move towards the upper primary level. Therefore, higher primary classes generally have a bigger variety of text types and formats regarding reading materials, compared to lower level classes.

2.3.2.7 Physical Feature of the Text

The physical feature of the text refers to the appearance of the book, the nature of the book cover, the size of the book and the length of the story. Research findings have shown that many readers look at the cover as one of their criteria in choosing their book. The reader appears to either look at the title of the story (Reutzel & Gali, 1998; and Mohr, 2003 & 2009) or read the blurb to know the summary of the story (Reutzel & Gali, 1998).

Williams and Hughes (2003) have suggested three different sizes of book for different ages of readers. Large size (297 x 210mm) books can be suitable for children age 5-7 years old; medium size (246 x 189mm) books are rather suitable for children age 7-9 years old; and small size (198 x 129mm) are may be suitable for 9-11 years old. Research findings have showed evidence that children do choose their books according to size (Kragler, 2000; Leemans & Stockmans, 1991; Mohr, 2006; Moss & McDonald, 2004; Robinson, Larsen, Haupt & Mohlman, 1997; Weiss, 1982). The length of the book or story also becomes a concern for children readers in choosing their reading material (Oakhill & Petrides, 2007).

2.3.2.8 Author's Style

Different authors have different way of writing their story and some authors use certain trade mark features in telling their story. There are authors that include elements such as suspense, humour and horror to draw the attention of their readers. There are children that choose their books according to their favourite authors or by following familiar and popular authors (Leemans & Stockmans, 1991; Reutzel & Gali, 1998).

Author style is an important element in reading material because it can contribute to making reading material interesting or boring. According to Kintsch (1980, p.93) '*A story may be interesting, however, not so much because of what is said, but how it is said.*'

Kintsch (1980) claimed that stylistic variations served as cues for invited inferences.

Moravcsik and Kintsch (1993) have also argued that stylistic features play a complex role in comprehension. They carried out research to determine the influence of different styles of writing with the same content on comprehension. Their findings suggest that writing style is associated with a reader's recall of content. They concluded that writing style could affect a reader's comprehension. As such by reading books by the same author, the reader could become familiar with this author's style and this could help them to recognise characteristic author cues and to make improved inferences.

2.3.3 Reader Factors

Although text factors may considerably influence readers' comprehension, the greatest influence may be caused by factors brought by the reader to the encounter. Such reader's factors include: (1) reading ability and skills; (2) prior knowledge; (3) interest; (4) motivation; (5) engagement; (6) attitudes; (7); purposes of reading; (8); age; and (9) gender. These readers' factors will be discussed in detail next.

2.3.3.1 Reading Ability

Defining 'reading ability' may be a difficult task. This is because reading ability involves various different aspects of reading. According to Perfetti (1985) definitions of the term reading ability should be related to: *(1) the cognitive process of reading, which involves the lexical access process (word recognition - identifying the words), and the comprehension process, (the building meaning representations of the text); (2) essential language process, which refers to the manipulation and representation of linguistic structures; (3) cognitive development, which includes cognitive capabilities that may set limits to reading achievement; (4) speed and comprehension, which count as reading fast relatively to a*

given age group, and reading with good comprehension (p.11-12). On the other hand, Pang (2008) has compartmentalised reader's abilities into three dimensions:

“Readers’ abilities in terms of three dimensions: linguistic, cognitive, and metacognitive. Linguistic knowledge and processing ability refer to readers’ formal knowledge of vocabulary, syntax, and discourse and their abilities to use this knowledge in their interaction with texts. Cognitive ability is concerned with readers’ use of prior knowledge and various strategies in their efforts to construct meaning in the comprehension process. Metacognitive strategic competence reflects readers’ monitoring and control of reading strategies.” (p.2)

Therefore, several terms have been used to describe a reader's abilities: *good or poor, proficient or less-proficient, successful or unsuccessful, fluent or non-fluent, skilled or unskilled, and fast or slow reader* (Pang, 2008). Perfetti (1985) has defined a skilled reader as *‘one who can, relatively to a given age group, show comprehension and reading rates that are at least average. The less skilled reader, accordingly, is one below average in comprehension and /or reading rate’* (p.11).

Furthermore, a good reader may be seen to have several characteristics. Firstly, a good reader must have basic decoding skills (Callery, 2005; Pang, 2008; Perfetti 1985). Basic decoding skills include letter identification and word decoding, and having knowledge of syntax. Another characteristic is having skills in metacognition, which includes the awareness of, and ability to choose, manage and apply cognitive strategies to complete a given task (Callery, 2005; Pang, 2008). Thirdly, a good reader has reasoning skills to help him/her establish a sense of connections between the information in the text and related background information (Callery, 2005; Pang, 2008). Another characteristic of a good reader is having self-monitoring skills which can monitor comprehension by making decisions at all stages of the reading process (Callery, 2005;

Pang, 2008). The fifth characteristic is related to recalling skills (McCrudden & Schraw, 2007).

2.3.3.2 Prior Knowledge

There is evidence to show the influence of prior knowledge on reading comprehension and is rather recognised in research (e.g. Alexander, Kulikowich & Jetton, 1994; Langer, 1984; Spyridakis & Wenger, 1991; Stahl, Jacobson, Davis, & Davis, 1989; Stanovich & Cunningham, 1993). The above researchers have investigated this relationship within the framework of schema theory, which sees background knowledge as scaffolding to aid the process of information encoding in the text (Stahl, Jacobson, Davis, & Davis, 1989).

Therefore, it could be argued that what the readers know may affect what they understand, or readers with more background knowledge may understand better as compared to those with less background knowledge (Stahl, Jacobson, Davis, & Davis, 1989).

Accordingly, Alexander, Kulikowich & Jetton (1994) have mentioned that background knowledge can be a significant predictor of comprehension. Although background knowledge may be such a significant predictor, the relation between prior knowledge and comprehension is not linear (Alexander, Kulikowich & Jetton 1989). This is because activating prior knowledge can interfere with the readers' comprehension if that knowledge is incompatible with the information in the text (Alvermann, Smith & Readence, 1985). Alvermann, Smith & Readence (1985) conducted research examining the effects of prior knowledge activation on average readers' comprehension of compatible and incompatible texts. Fifty-two sixth-grade pupils either activated or did not activate what they believed to be relevant background knowledge before reading each of two science passages. The findings showed that the participants who activated relevant background knowledge before reading the text that contained ideas which were incompatible with their

existing knowledge structures, allowed their previous knowledge and experiences to override the text information. There was no difference in performance between activators and non-activators on compatible text. Researchers concluded that their findings support the notion that prior knowledge may interfere with, rather than facilitate, reading comprehension under certain conditions (Alvermann, Smith & Readence, 1985). To sum up prior knowledge is an important element during reading, provided that prior knowledge is compatible with the text that the reader intends to read.

2.3.3.3 Interest

Research in the field of interest began in the early 1980s (Hidi, 2001; Wade, 2001).

Starting from that period of time and onwards, researchers began to investigate the level that interest can affect the discourse processing and learning (Hidi, 1990; Hidi, 2001; Kirby, Ball & Geier, 2010; Wade, 2001). Most theories on interest support that interest arises as individuals interact with their environment (Hidi, 1990). Most of these theories focus either on the characteristics of the *environment that creates interest for many individuals* (situational interest), or on *dispositions that are specific to individuals* (individual interest) (Wade, 2001).

During the emerging research on interest, textbooks were criticized as boring and poorly written (Tyson & Woodward, 1989). As such, this promoted the development of another research area that looked at the characteristics of the text that were closely related to interest (Wade, 2001). Such research has revealed a major issue that is how the readers' situational interest can be increased (Hidi, 2001; Wade, 2001). Research in this area has focused on investigating text characteristics that can make reading material more interesting. Earlier research has shown that features like novelty, unexpected or surprising information, intensity, concreteness, and visual imagery, were the sources of situational

interest (Hidi, 2001). However, there are researchers who argue that such features may or may not facilitate learning (e.g. Wade, 2001). Later on, more features have been investigated, and were found to be sources of situational interest, namely: (1) ease of comprehension; (2) text cohesion; (3) vividness; (4) reader's engagement; (5) evocative emotional reactions; and (6) prior knowledge (Schraw & Dennison, 1994). Current research on the issue of interest has also explored the possibility of the relationship between reading interest and reading ability. For example, Kirby, Ball & Geier (2010) found in their study that interest in reading has a weak relationship to reading ability. Summing up, interest did play an important role for readers, as it affected their comprehension, prior knowledge and engagement to read.

2.3.3.4 Engagement

The term *reading engagement* refers to the joint functioning of motivation and strategies used during reading (Guthrie & Wigfield, 2000). Upon reviewing a few studies several interesting issues have been identified. For example, Guthrie (2004) has reported that the term reading engagement may refer to: (1) *time on task*, which signifies paying attention to the text, concentrating on meaning, and sustaining cognitive effort; (2) *effect* refers to certain qualities like enthusiasm, liking, and enjoyment, which surround the interaction with the text; (3) *cognitive qualities of the reader* with an emphasis on the depth of processing during reading that includes conceptual meanings such as comprehension monitoring; (4) or may be *activity-based*, referring to the amount and diversity of the readers' reading activities in and out school.

Guthrie and Wigfield (2000) have defined engaged readers as follows: '*Engaged readers in the classroom or elsewhere coordinate their strategies and knowledge (cognition) within a community of literacy (social) in order to fulfil their personal goals,*

desires, and intentions (motivation)’ (p. 404). As such, engaged readers read intently for their own internal personal goals, desires, and intentions, in which the impact is much greater compared to reading for merely external incentives (i.e. points, gold stars, or grades). Engaged readers have curiosity, involvement, preference for challenge, and desire to explore while reading, and these are elements that can make them successful readers. Additionally, engaged readers have the capabilities to use their reading strategies correctly, something that enables them to use higher-order understandings to gain new knowledge and new experiences from a range of texts. Finally, engaged readers are these who can be socially interactive through their reading, and are able to share their thoughts and feelings regarding the content of their readings with family and friends.

Research in the field of reading engagement has shown that such successful engagement in reading can be used to improve pupils’ comprehension (e.g. Wigfield & Guthrie, 2008). Flowerday, Schraw and Stevens, (2004) have indicated that certain factors like for example situational interest, rather than choice or topic interest, can promote engagement.

2.3.3.5 Motivation

Reading motivation can be defined as *the individual’s personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading* (Guthrie & Wigfield, 2000, p.405). Earlier and recent research suggests that motivation can affect general performance in reading (Wigfield & Guthrie, 2008; Retelsdorf, Koller & Moller, 2011; Taboada, Tonks, Wigfield & Guthrie, 2009) and it appears to be a core predictor of reading performance (Wigfield, 1997; Wigfield & Guthrie, 2008; Wigfield, Guthrie, Tonks & Perencevich, 2004). Ryan and Deci (2000) have identified two types of motivation, namely the *intrinsic* and the *extrinsic motivation*. *Intrinsic reading motivation* includes two different aspects:

‘(1) *reading enjoyment, that is the activity-related component which indicates that people read because they experience reading as inherently enjoyable; and (2) reading for interest, that is personal topic-oriented interest that shows the individuals’ relatively stable attitude towards a certain topic*’ (Retelsdorf, Koller & Moller, 2011 p. 551). *Extrinsic reading motivation* includes components, such as action due to external value and demand (Retelsdorf, Koller & Moller, 2011 p. 551).

Taboada, Tonks, Wigfield & Guthrie, (2009) in their longitudinal study, examined how intrinsic motivation and cognitive variables can predict reading comprehension. Their findings have shown that intrinsic motivation, background knowledge, and cognitive strategies, may independently and significantly contribute to children’s comprehension when the other predictor variables are controlled. Also, Retelsdorf, Koller & Moller, (2011) in their longitudinal study, aimed to identify the effects of reading motivation on reading performance when other variables, such as cognitive skills, were controlled. The researchers included two types of intrinsic reading motivational (reading enjoyment and reading for interest), one type of extrinsic reading motivation (competition), as well as reading self-concept as their research variables. Their findings show that all variables, reading enjoyment, reading for interest, and reading self-concept, had a positive effect on reading performance, except competition variables which had a negative effect. Retelsdorf, Koller & Moller, (2011) research findings seem to be in accordance with previous longitudinal research. For example, Becker, McElvany & Kortenbruck, (2010) have similarly identified the negative effect of extrinsic motivation on reading performance. Thus, Reteldorf, Koller & Moller, (2011) predicted that the reasons for this are the lack of reading practice.

2.3.3.6 Attitudes

Certain factors such as attitude towards reading are likely to influence young children's readiness to engage in independent reading activities, as well as their success in reading. Reading attitude has been defined as '*a system of feelings related to reading which causes the learner to approach or avoid a reading situation*' (Alexander & Filler cited in McKenna, Kear & Ellsworth, 1995, p. 934). According to McKenna, Kear & Ellsworth, (1995, p. 938) three principal factors influencing attitudes change: (1) *beliefs about the outcomes of reading in light of the judged desirability of those outcomes*; (2) *beliefs about the expectations of others in light of one's motivation to conform to those expectations*; and (3) *the outcomes of specific incidents of reading*. Nevertheless, research in attitudes and reading has frequently fallen into contradictions because of a lack of consistency in defining the term attitude. This debate has led research to move away from affective components of reading and to focus on cognitive factors (Petscher, 2010).

Much research has been conducted to examine the relation between attitudes and reading achievement. Petscher's (2010) recent meta-analysis has shown that the mean strength of the relationship between reading attitudes and achievement was moderate ($Z_r = .32$). Nevertheless, he stated that there was a limitation in his meta-analysis, due to the lack of details in the research method section of the studies included in it. He has also suggested that attitudes towards reading may be influenced by gender and cultural factors and that these factors need to be explored further in future research.

2.3.3.7 Purpose for Reading

Different readers have different purposes for reading. The purpose for reading can influence the way the reader interacts with the text. Research suggests that purposes can influence: (1) the type of inference readers make while reading a text (van den Broek &

Lorch, 2001); and (2) the types of strategies used to handle the text (Linderholm & van den Broek, 2002; Braten & Samuelstuen, 2004). The most common purposes for reading found among *young readers* include preparation for an exam, entertainment (Linderholm & van den Broek, 2002, Narvaez, van den Broek & Ruiz, 1999), and preparation for a classroom task or discussion (McCrudden & Schraw, 2007).

Reading for an exam and for a classroom task preparation, are likely to be combined as reading for school (*study*) purposes. Reading for study purposes has been found to be less interesting, slower, and ‘*more taxing of understanding and memory*’ (Narvaez, van den Broek & Ruiz, 1999, p. 489). Van den Broek & Lorch, (2001) have investigated the effects of readers’ purposes on inference generation and memory for expository text. Their findings suggest that readers with study purposes focused more on coherence building (generating more backward/explanatory and forward/predictive inferences), compared to readers with entertainment purposes, who produced more associations and evaluations. These research findings by Linderholm and van den Broek (2002) were similar to those of Broek & Lorch (2001). Broek & Lorch’s findings show that readers with a learn purpose produced more coherence building coherence, whereas readers with an amusement purpose produced more associations and evaluations. Thus, the results indicate that the generated inference during reading is partly strategic, and is influenced systematically by reading purpose. Braten and Samuelstuen (2004) have explored whether the influence of reading purposes on reported use of text-processing strategies was moderated by the pupils’ prior knowledge about the topic of the text. They reported that the effects of reading purpose on reported use of memorization and elaboration strategies strongly depend on pupils’ level of topic knowledge.

2.3.3.8 Age

Regarding age differences, these do seem to have a particular impact on the interaction between *young readers* and the texts they read. It is often assumed that younger children can be more influenced by their interpersonal relationships, and there is a basic developmental trend for them to become more independent and self-reliant as they grow up (Furrer & Skinner, 2003). As such, the different age of the readers might shape the different ways they interact with a text. Research has shown that: (1) there are relationships between children's self-perceptions of academic competence and their actual reading achievement, and this increase with age; (2) the accuracy of children's cognitive self-perception improves with age and experience; and (3) children's self-worth becomes differentiated with age and experience (Paris & Oka, 1986).

2.3.3.9 Gender

Millard (1993) has argued that gender differences may not only influence the choice of reading, but also the ways of reading, the amount of time spent on reading, and the enthusiasm given to reading, because of the concept of sex-role stereotyping. Children shape their behaviour according to the expectations of those living around them. They learn different behavioural models that are appropriate to the roles given from the people around them before they enter school. Nevertheless, Harris, Nixon & Rudduck, (1993) has suggested that the concept of sex-role modelling is rather lacking in sufficient complexity as a means of explaining the contradictory aspect of gender relations.

There is a wide range of gender studies in reading. Recently, Logan and Johnston (2009) found in their research a high correlation between gender and attitudes, belief and reading ability. Other researchers have found gender differences in reading motivation with girls having more positive motivation compared to boys (Baker & Wigfield, 1999;

Mucherah & Yoder, 2008; Wigfield & Guthrie, 1997). McKenna, Kear & Ellsworth, (1995) and Martinez, Aricak & Jewell, (2008) have found that female readers had significantly more positive attitudes towards reading compared to male readers. Similarly, Oakhill and Petrides (2007) found that there were gender differences in cognitive performance, with girls having a higher level of interest in a topic compared to boys. Moreover, McKenna, Kear & Ellsworth, (1995) found that gender differences may reflect an internalization of cultural expectations where girls were more positive in reading than boys.

Conclusion

To sum up, looking at the above sections, it can be seen that there are several text and readers' factors which appear to affect the interaction between a reader and the text he/she reads at a certain time. Related to this, it is seen that readers' factors are more complicated, as they can affect each other. During the interaction between a reader and a text, difficulties can lie in the reader or the text itself. At certain times, readers can be affected by text factors, whereas at other times, readers' factors can affect the text. As such, it can be concluded that the interaction between a reader and a text is a dynamic process.

2.4 Measurement of Readability

2.4.1 Introduction

The previous sections have demonstrated the paradigms of readability research and certain reasons for its decrease. Several factors that might affect the concept of readability have also been discussed. In this section, the history of readability formulae, the criticisms of these readability formulae and alternatives to them will be discussed.

2.4.2 The History of the Readability Formulae

Many of the assumptions made about readability are automatically associated with readability formulae, because formulae are the best known product of this field of research. However, at an early stage, it was not as easy as it is now to count formulae development, because the description of what exactly constitutes a formula has never been clearly stated. As a result, this has led to situations where the word “*formula*” was substituted with other words such as “*method*”, “*technique*”, “*measure*” and “*quantitative associational study*” (Klare, 1963, p. 33).

The development of readability formulae can be divided into two stages, namely the *classic readability formulae* stage and the *new readability formulae* stage. According to Klare (1963) the first attempt to examine readability was made by religious teachers. They were seen using words and ideas and estimating the frequency of occurrence in order to distinguish usual from unusual sense (meanings). The main concern regarding readability started by religious teachers was that they were the literate persons at that point in time. Later on, in the 1840s, the interest towards readability calculation spread among teachers when ease of understanding was considered in terms of vocabulary that was found in the *McGuffey Readers* (Klare, 1963).

After a century, Thorndike published *The Teacher's Word Book* in 1921, which consisted of tabulations of the frequency with which words occurred in print, and this Word List became the basis for the work of Lively and Pressey who developed the first readability formula in 1923 (Klare, 1963). Apparently, at that time point vocabulary was considered the most important factor in reading difficulty. Another important event worth highlighting here is the publication of the McCall and Crabb's *Standard Test Lessons in Reading* in 1925 that consisted of sets of graded reading passages. These sets of graded

passages became then the most commonly used and the most adequate in terms of the available criteria for constructing readability formulae (Klare, 1963).

Klare (1963) has defined readability formulae as ‘*method of measurement intended as a predictive device*’ (p.33). The design of the method provided quantitative objective estimates of difficulty for pieces of writing, without requiring readers to take tests of any of them. On top of this, such a design method could generally provide an estimation of a range of applicability and difficulty when comparing more than merely a few specific books. In other words, readability formulae provides information about text difficulties that a teacher would have to judge through experience, or measure through a reading test.

In 1935, Gray and Leary (cited in Dubay, 2007a) published their book entitled *What Makes a Book Readable?*, which consisted of suggestions of elements that should appear in readability formulae, namely content, style, format, and organization. According to Gray and Leary content and style elements may be the most important ones, but only style can be broken down into useable measuring factors. As such, most readability formulae focus on style factors.

The early sets of readability formulae were formed between 1921 and 1934. Formulae that appeared in that period of time were the Thorndike (1921); Lively and Pressey (1923); Vogel and Washburne (1928); Lewerenz (1928); Johnson (1930); and Patty and Painter (1931) (Klare, 1963). At that time, primary attention was given to vocabulary as the basis for predicting readability, and emphasis was placed on *Thorndike’s Teacher’s Word Book* as the basis for measuring vocabulary difficulties, and the use of relatively crude criteria of reading difficulties (Klare, 1963). An example of a formula from that period of time is demonstrated below:

Vogel and Washburne (1928 cited in Klare, 1963) formula:

- a) *Systematically sample 1000 words of the book to be analysed, noting propositions:*
- b) *Count the number of different words in 1000 (x_2);*
- c) *Count the total number of prepositions (x_2);*
- d) *Count the total number of words not on the Thorndike list of 10,000 (x_2);*
- e) *Count the number of simple sentences in 75 sample sentences (x_2);*
- f) *Apply in the regression equation:*
- g) X_1 (reading score) = $.085x_2 + .101x_3 + .604x_4 - .411x_5 + 17.43$.

The next sets of readability formulae were formed in the years between 1934 and 1938, namely the Ojemann (1934); Dale and Tyler (1934); McClusky (1934); Gray and Leary (1934) and Morris and Halverson (1938) (Klare, 1963). The focus of these readability formulae was on including more and different factors formula variables; with less dependence on the Thorndike's word count; and there was an increase of concern for an adequate criterion (Klare, 1963). In between 1938 and 1953 the formulae started to include tables to make the formula application quicker and easier. Farr-Jenkins-Peterson (1951 cited in Klare, 1963) for example, provided a table for their formula. Nevertheless, not all formulae during that period included tables. Other formulae which were created during that period of time were the Washburne-Morphett (1938), Lorge (1939); Yoakam (1955), Kessler (1941), Flesch (1943), Dale and Chall (1948), Dolch (1948), and Gunning (1952) (Klare, 1963). The next period of time appeared to be that of the development of more specialized formulae. These specialized formulae included aspects such as the level of abstraction or special audience levels, such as primary grade. Some examples of formulae that were created between the years 1953 and 1959 were those of Forbes (1953), Spache (1953), Wheeler-Smith (1954) and Flesch (1954) (Klare, 1963). The Spache (1953) formula was designed for primary level reading materials, and is, according to Spache (1953), as follows:

- a) *Select 100 word samples for analysis;*

- b) Determine average sentence length in words (x_1);*
- c) Count number of words outside the Dale “Easy Word List” of 769 words (x_2);*
- d) Use the following formula:*
- e) Grade level = $.141x_1 + .086x_2 + .839$.*

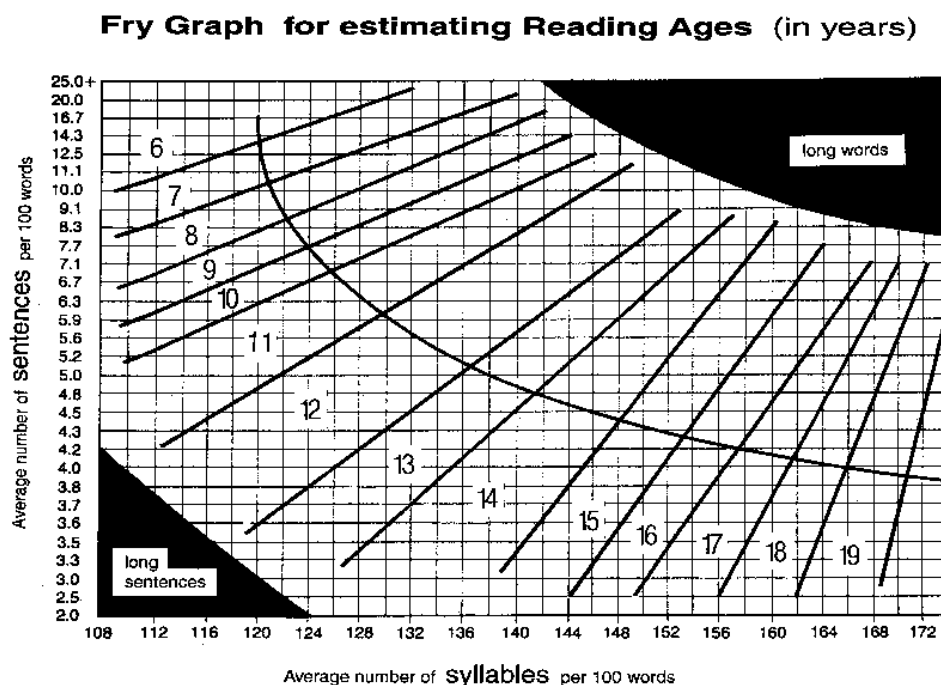
The readability formulae continued to develop despite criticisms of the reliability of the criterion passages and criterion scores (see next section for details). The arrival of cloze procedure as a tool for measuring readability in mid 1950s stimulated the development of new criterion passages, new formulae, manual aids, computerized versions, and the continued testing of text variables (Dubay, 2004). Research by Coleman (1965), Bormuth (1966), and MacGinitie and Tretiak (1971), as well as the formulae they created marked new sites and criteria for the readability formulae (Dubay, 2004).

Bormuth (1966) has shown that changes in the numbers of readability variables in addition to vocabulary and sentence length, can affect comprehension. Bormuth further claimed that cloze testing was appropriate for measuring not only the difficulty of the whole passage but also the difficulty of individual words, phrases, and clauses. MacGinitie and Tretiaks’ (1971 cited in Dubay, 2004) study also showed that the average sentence length can be the best predictor of syntactic difficulty.

In 1963, Fry created a graph that could test readability level. His graph was completed in 1971 and could be used from primary to college level years (Fry, 1977).

Instructions to use the Fry graph are as follows:

- a) Select sample of 100 words.*
- b) Find y (vertical), the average number of sentence per 100-word passage (calculating to the nearest tenth).*
- c) Find x (horizontal), the average number of syllables per 100-word sample.*
- d) The zone where the two coordinates meet shows the grade score. The score on the graph shows that the higher the score number is the more difficult the text is.*

Figure 2.9: Fry Readability Graph

The readability formulae continued to develop within the years 1960 and 1980 with more new formulae such as the SMOG by McLaughlin (1969). In between 1970 to 1980, many readability formulae developed for a specific use by the U.S. Military, such as the FORCAST (1973); Army's Automated Readability Index (ARI); and Navy Readability Index (NRI) (Dubay, 2007b). In the 1990s not many formulae were created. Chall and Dale (1995) updated their old formula and named it the New Dale-Chall Readability formula (Chall & Dale, 1995). The new formula updated a list of 3,000 easy words that had been formed 47 years before, and new score lists called cloze score lists and reading grade level lists were also formed (Chall & Dale, 1995).

More recently, a greater number of computerized formulae were developed, such as the Lexile Framework and ATOS. The Lexile Framework formula is not an open source formula, and therefore, users have to subscribe in order to use it. The Lexile Framework

formula uses several variables, such as the average of sentence length and the average of word frequency that are found in the *American Heritage Intermediate Corpus* (Stenner & Burdick, 1997; Stenner, Burdick, Sanford & Burdick, 2006). The ATOS readability formula was formed with the purpose of providing an “open” formula that would be available to the educational community free of charge. The ATOS project was the most extensive study of readability, and includes three variables, namely words presentence, average grade of words, and characters per word (Milone, 2008; Renaissance Institute, 2000).

To sum up, readability formulae have gone through several phases and changes. The early sets of readability formulae were mainly depended on Thorndike’s Word List. Following this, the formulae continued to develop with further new variables being added. At present, readability formulae are still popular and easier to use with the formula now available on the internet. However, it was found that the created formulae did not include readers’ factors. In the next section the limitations of the formulae and their criticisms will be presented and discussed.

2.4.3 Limitations and Criticism of Formulae

Readability research focused on devising procedures and instruments that would reliably and validly distinguish easier from more difficult reading materials. In this paradigm reading difficulty was influenced by four factors mainly related to reading materials such as content, stylistic elements, format and organization. Stylistic elements were the most ‘*amenable to reliable quantitative measurement and verification*’ (Chall, 1974, p. 156). In the stylistic elements, factors like vocabulary load, sentence structure, idea density, and human interest, were found to be significantly related to reading difficulty. Researchers in readability believed that vocabulary diversity was the most significant criterion in reading

difficulty. Vocabulary diversity refers to the number of different words in the reading material. According to Chall (1974, p. 157), most studies showed that the smaller the number of different words, the easier the material. Another factor which was significantly related to reading difficulty was that of vocabulary difficulty.

Vocabulary difficulty regarded the reader's understanding of the individual words in a text. Chall (1974) reported that most studies had found some measures of vocabulary difficulty to be significantly related to comprehension. The ways to measure vocabulary difficulty included either reference to a set list of words or word length. It was found that the larger the proportion of unfamiliar or long words was in a text, the harder it was for the reader to grasp the meaning. Vocabulary difficulty factors have been used in all readability formula.

Another way that researchers in readability predicted reader comprehension was by looking at the sentence structure. Sentence structure was found to be significantly related to comprehension difficulty (Chall, 1974). The best way to measure sentence structure was believed to be by sentence length (Chall, 1974). Generally, the longer the sentences were, the harder the text was deemed to be. Apart from examining sentence structure, researchers were also interested in estimating sentence difficulty by the number of complex sentences, the number of simple sentences, and sentence length estimated by a count of syllables. It was also found that sentence measures were interrelated and significantly related to reading difficulty (Chall, 1974). Readability is very famous for its formulae for predicting reading difficulty. Vocabulary load and sentence structure were the most commonly used variables in readability formulae.

Accordingly, several assumptions were developed reporting that: (1) the smaller the number of different words, the easier the material; (2) vocabulary difficulty can be judge to

a set list of words, either by reference or by word length; (3) the larger the proportion of unfamiliar or long words in a text was, the harder it was for the reader to grasp the meaning; (4) the longer the sentences were, the harder the text was; and (5) the simpler the sentences were, the easier the text (Chall, 1974). As such, these assumptions led to a series of criticisms as to the readability formulae in particular, and to readability in general.

The limitations of the readability formulae began to be discussed back in 1963, when Klare pointed out the first four limitations: (1) formulae measured only one style and they did not include content, organization, word order, format or imagery. Moreover, the formulae did not ‘*take into account the differing purposes, maturity, or intelligence of readers*’; (2) although the formulae related to a style, they measured only difficulty, and not mood, tone and persuasive effectiveness; (3) the formulae did not measure difficulty perfectly, as the scores may depend on the sample that someone chooses; and (4) they do not tell us that we have good style (Klare, 1963, p. 23-24).

Moreover, Bruce, Rubin and Starr, (1981) pointed out another three weaknesses in the formulae, with the first one relating to a theoretical point of view. Based on a theoretical point of view, the formulae did not take into account current knowledge about the reading process. It was seen that the formulae generally included sentence length and word difficulty as the main factors. As such, it was not able to count indirectly other factors that make a text difficult, such as the degree of discourse cohesion, number of inferences required, number of items to remember, complexity of ideas, rhetorical structure, dialect and required background knowledge (Bruce, Rubin & Starr 1981). Also, the formulae measured text difficulty isolated from other elements such as the context of its use, reader’s motivation, interest, competitiveness, value and reading purpose (Bruce, Rubin & Starr, 1981).

A further weakness that can be considered is the lack of a statistical basis, because many existing formulae are validated only in terms of earlier formulae, whereas, *'The early formulas, in turn, were validated using the McCall-Crabbs Standard Test Lessons in Reading... But the McCall-Crabbs lessons intended only to be practice exercises in reading, never as measures of comprehension or text comprehensibility; nor they intended to be general indicators of reading ability across age, class, or cultural groups'* (Bruce, Rubin & Starr, 1981, p.2). Furthermore, Stoke (1978) in his study examined seven types of readability formulae namely the *Flesch, FOG, SMOG, Power-Sumner & Kearl, Farr-Jenkins-Peterson, Dale-Chall*, and simple count of “hard” words. Stoke’s findings indicated that although these formulae had a high correlation between the seven applied formulae, they gave widely differing grade levels. In other words, although these formulae agreed on which text was difficult, they assigned the same text a different grade level.

A third weakness of the readability formulae concerned their inappropriate use. According to Bruce, Rubin & Starr, (1981) inappropriate use refers to the failure of the formulae to correctly predict how a particular reader will interact with a particular book. Inappropriate use also refers to the failure of the formulae to guide text revision. Horns, in the 1930s (cited in Chall, 1988), cautioned against the mechanical use of word lists and readability formulae for selecting and rewriting books in social studies. He reported that word lists and readability formulae did not pay sufficient regard to the possibility that it was the conceptual difficulty of a text that could cause poor understanding, although the words may be common. He also stated that words of high frequency are also likely to cause greater difficulty if a reader gives these words the wrong meaning. He gave an example from his own study with his students where negligible effects in terms of comprehension may have resulted merely from a simplification of the vocabulary.

Many years later, in 1982, Davison and Kantor reported that certain changes made to make the text easier, may actually make the text harder to understand. Such changes included splitting the complex sentences into component clauses and changing vocabulary items, amongst others. As a conclusion, Davison and Kantor argued strongly against the implicit use of readability formulae as a guide to writing graded texts, and urged experimental research to define the real factors constituting readability (Davison, 1982). As a result, two primary professional associations in the USA, the *International Reading Association* and the *National Council of Teachers of English*, called for the cautious use of readability formulae (Michelson, 1985, cited in Hiebert & Mesmer, 2006). This call was echoed in *Becoming a Nation of Readers* in which a moratorium on the use of readability formulae was advocated (Anderson, 1985, cited in Hiebert & Mesmer, 2006).

Moreover, several other researches showed the inadequate nature of readability formulae. Criticisms included issues like: (1) grade-level formulae were meant for children's school books (Redish & Selzer, 1985; Redish, 2000); (2) neither commonly used formula was developed for technical materials (Redish, 2000); (3) readability formulae only measure what can be counted (Redish, 2000); (4) readability formulae assume that all readers are alike (Redish, 2000); (5) most of what makes a document usable is not included in readability formulae (Chambers, 1983; Redish & Selzer, 1985; Redish, 2000); (6) readability formulae do not work on forms, web pages, or documents with lots of lists (Redish, 2000); (7) readability formulae are not very reliable (Chambers, 1983; Fuchs, Fuchs & Deno, 1983; Redish, 2000; Stoke, 1978; Sydes & Hartely, 1997; Templeton, Cain & Miller, 1981); (8) improving comprehension does not clearly correlate to the improvement of readability scores (Chambers, 1983; Pichert & Elam, 1985; Redish, 2000; Sydes & Hartely, 1997); (9) a good score does not necessarily mean that we have a usable

or useful document (Redish, 2000); and (10) rewriting to get a better score is misusing the formula (Chambers, 1983; Davison & Kantor, 1982; Redish & Selzer, 1985; Redish, 2000; Schriver, 2000).

Apart from the criticisms listed above, the most important factors regarding the failure of readability research were discussed in the present thesis's literature review and regarded the paradigms of reading and reading comprehension. The failure is related to the change in reading and reading comprehension paradigms. Cognitive research has marked a change in the paradigm of readability studies. In previous sections of this thesis (sections 2.1.3 and 2.1.4) the changes in the concept of reading and the conceptualization of the comprehension process were discussed. The comprehension process is no longer considered as an input and output process. It is no longer a simple matter of getting meaning from the page. Critics in understanding this comprehension process in general and readability in particular, have stated that readers have been considered as passive recipients of text information (Dole, Duffy, Roehler & Pearson, 1991). In other words, meaning is seen as residing in the text itself, and the goal of the reader is to reproduce that meaning. This is in contrast to the cognitive science perspective. Cognitive based views on reading comprehension have emphasized the interactive nature of reading and the constructive nature of comprehension (Dole, Duffy, Roehler & Pearson, 1991).

Hence, within this new view of comprehension, both *beginners* and skilled readers use their existing knowledge, a range of cues from the text, and the situational context in which the reading occurs to build or construct a model of meaning. Further supporters of this theory believe that even *beginner readers* can act similarly to skilled readers when they deal with texts and tasks on which they possess appropriate knowledge (Dole, Duffy, Roehler & Pearson, 1991). On the other hand, even skilled readers can 'fall' to the

beginners' level when they have to deal with difficult or ambiguous texts (Dole, Duffy, Roehler & Pearson, 1991). In this case, if a *beginner reader* is given a text which he/she has prior knowledge of, he/she will then be able to behave similarly to a skilled reader. *Beginner readers* can then be able to use their prior knowledge to interpret and construct the meaning of a given text.

Conversely, when skilled readers have to face complicated or ambiguous texts, they will probably act like beginners who are not able to determine the importance, to draw inferences, and to elaborate the given text (Dole, Duffy, Roehler & Pearson, 1991). Therefore, two important characteristics of the readers within this view can be seen: the characters that are the knowledge that the readers bring to the task, and the strategies that they use to foster and maintain understanding. Consequently, within the age range and the ability of the readers to interpret and construct the meaning in a given text, they may also use their own existing knowledge as a filter. The debates in reading have recently viewed reading as an active process, in which a model of meaning represented by the text is constructed, and the readers can select from a range of cues that derive from the text and the situational context (Dole, Duffy, Roehler & Pearson, 1991).

According to the above arguments, there has been a vast change in the definitions and the ways of considering reading. These changes have directly affected the nature of the comprehension process. Recently, the comprehension process has been defined as the action capability of understanding (Dole, Duffy, Roehler & Pearson, 1991). Comprehension now refers to a higher cognitive process of the brain that searches for relations between a given object or aspect with other objects or aspects, and their relations in long-term memory, and establishes a representational model for the object or aspect by connecting it to appropriate clusters of memory (Wang & Gafurov, 2003). Therefore,

reading and comprehension research has lately come closer to finding answers to what really happens in the readers' minds during reading.

Changes in views of reading and comprehension processes, definitions, and understanding have had a huge effect on the understanding of readability. Since reading and comprehension are interactive processes, readability has also become an interactive process between readers and texts. Furthermore, it is now more obvious that the comprehension process has been related to the cognitive process within the search for meaning. Therefore, meaning does no longer come from the text, but from the readers' mind during interaction with the text. At this point, it is clear that the positivist paradigm is no longer appropriate to justify readability research. Readability is no longer 'out there'. A new paradigm in reading can provide a different way of looking at reading and comprehension processes. It is considered as a new paradigm because the reading and comprehension processes are no longer measuring the outcome of the process, but instead, they focus on what is happening during this process. As such, it is recognised that the ideal way to investigate readability might be the combination of positivist and interpretivist paradigms.

2.5 Summary

This chapter has reviewed a range of studies on the concept of readability. The theoretical framework of this research has also been presented and included: the paradigms of readability research, the paradigms in reading research, and the paradigms in reading comprehension. Following this, a discussion related to factors that have influenced the concept of readability was presented. The main limitations and criticisms regarding

readability were then presented. The next chapter will present the methodology underpinning the present study.

Chapter 3 – Methodology

“The purposes of the research determine the methodology and design of the research”
(Cohen Manion, Morrison & Dawson, 2007, p.78).

3.1 Introduction

This Chapter presents the theoretical paradigms underpinning the present research design. In addition, the rationale for utilizing mixed methods and case study approaches in the present study is described, and a detailed account of the research design is provided. Furthermore, the issues of validity and reliability are addressed and a discussion about the ethical issues considered in the research is presented. Finally, the boundaries of the research are described and discussed in this Chapter.

3.2 Theoretical Paradigms

The current research is based on positivist and interpretivist paradigms, which aim to explore the factors operating during the interaction between a reader and a text which influence the concept of readability. In addition, the research is intended to develop a preliminary new theoretical model, and a new definition of the term *readability*.

In the view of a positivist paradigm: *“reality is ‘out there’, independent of human consciousness, is objective, rests on order, is governed by strict, natural and unchangeable laws, and can be realised through experience”* (Sarantakos, 1997, p. 36). Accordingly, the use of positivism in this study is grounded by the following presuppositions:

- Text difficulties and comprehensibility lay on the text itself. The vocabulary diversity, sentence structure, and text features were variables that contributed to text difficulty.
- In this study, readability formulae and text feature analysis were used to evaluate text difficulties and comprehensibility quantitatively.

On the contrary, an interpretivist view suggests that: “*reality is not ‘out there’ but in the minds of people; reality is internally experienced, is socially constructed through interaction and interpreted through the actors, and is based on the definition people attach to it*” (Sarantakos, 1997, p. 36). Consequently, the use of interpretivism in this study is based on the following presuppositions:

- Text difficulties and comprehension lay on the reader of the text. The reader’s ability to read, motivation, background knowledge, preferences and reading techniques were the variables which contributed to the text difficulties.
- In terms of this research, miscue analysis, retelling, and interviewing were regarded as the most appropriate approaches to elicit the reader’s text difficulties and comprehension qualitatively.

3.3 Research Methods

Based on an extensive literature review, it has been suggested that previous readability research carried out within the positivist and the interpretive paradigms displayed both strengths and weaknesses. As such, neither can be regarded as the “best” way to conduct readability research comprehensively. This is because within the positivist paradigm, textual elements have been regarded as insufficient to assess text comprehensibility

(Davison & Kantor, 1982) and, within the interpretive paradigm, it has been suggested that it is somewhat difficult to get evidence about what happens in people's minds as they read and comprehend (Xu, Cui, & Chen, 2007). Therefore, in my own research on readability, as a practitioner researcher, the two paradigms were used in a complementary way, in an attempt to overcome the limitations of each. Accordingly, it was more effective to employ mixed method research in the present study, which allowed for the merging and uniting of both quantitative and qualitative research approaches (Creswell, 2008).

In this study, a mixed method approach was used. As mentioned above this study combines the positivist and interpretivist paradigms together. This creates a dilemma as to whether to position this study either as focusing on “*depth and detail*” or “*breadth and comparative*”. A decision was made to include both “*depth and detail*” and “*breadth and comparative*” together by conducting a small scale mixed methods design. Hence, the next section will discuss the nature of mixed methods designs.

3.3.1 Mixed Methods

“A mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration” (Johnson & Christensen, 2008, p.123).

A significant point arising from the above definitions, was that by applying mixed methods in a research, the researcher is not only having a “*collection of two independent strands of quantitative (QUAN) and qualitative (QUAL) data but able to observe the connection, integration, or linking of these two strands*” (Creswell, 2008, p. 51). According to the above viewpoints by Johnson & Christensen (2008) and Creswell (2008), the rationale for conducting a mixed methods design in this study was mainly to reach a more

comprehensive account of the phenomenon of readability within two competing paradigms, i.e. positivist and interpretive.

The greatest issue in a mixed methods research design is the ‘*paradigm wars*’ or the ‘*paradigm debate*’ (Bryman, 2008; Creswell, 2008; Hammersley, 1992). The positivist paradigm supports the superiority of quantitative methods, whereas the interpretive paradigm supports the use of qualitative methods, and these notions are the main cause of the debate between quantitative and qualitative researchers. This debate mainly focuses on the fact that quantitative and qualitative “*approaches have not been used together because of the differences in the worldview or philosophies associated with the two approaches*” (Johnson & Christensen, 2008, p.33). Nonetheless, the new pragmatism has countered the previous arguments, and suggests that “*both quantitative and qualitative methods are very important to and often should be mixed in single research studies*” (Johnson & Christensen, 2008, p.33). Pragmatic position is an approach which “*uses whatever philosophical or methodological approach works best for the particular research problem at issues*” (Robson, 2002, p. 43). The Pragmatism philosophy supports the fact that “*knowledge is not abstract philosophy but what works in practice*” (Johnson & Christensen, 2008, p.33). Accordingly, a research design should be planned and conducted based on how best to help to answer the research questions.

To explore the factors operating during the interaction between a reader and a text which influence the concept of readability, and to develop a preliminary new theoretical model and a new definition of readability, I felt comfortable about placing this study within the pragmatism notion. This decision was made upon the fact that pragmatist philosophy focuses more on providing useful answers to research questions than on expecting to find the final evidence (Creswell, 2008). This best fits this research study, because its main aim

was to explore what are the best ways to define the concept of readability rather than to provide the exact definition of the readability concept.

However, combining quantitative and qualitative methods in a single research may still have weaknesses in the final results: for example, the existence of biases in each method used. Nevertheless, I believe that the different results which may be produced are not a failure of a study, but an additional area of knowledge to the field. In relation to this, Blaikie commended Mathison's argument: *"She rightly points out that while different methods may produce different results because of the bias in each measure, different methods may also tap different ways of knowing. We might add, from different ways of knowing we may discover different realities"* (Blaikie, 2000, p. 267).

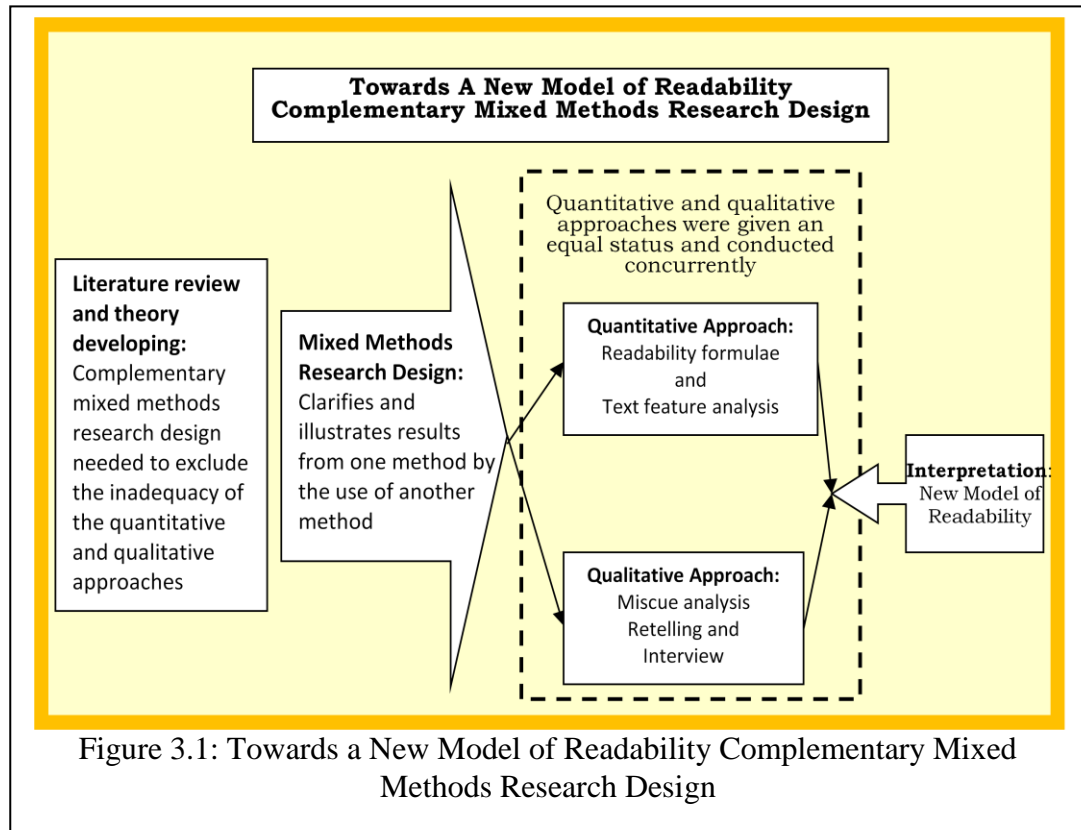
This study was conducted based on a range of characteristics similar to the mixed methods approach as suggested by Johnson & Christensen (2008). The steps taken were as follows:

Table 3.1: Characteristics of mixed method in the present study

Mixed research steps suggested by Johnson & Christensen 2008 (p. 450)	Details
<i>Step 1</i> Determine whether a mixed methods design is appropriate.	<ul style="list-style-type: none"> In this study, the use of a mixed methods design was determined based on the literature review. The literature review has shown several weaknesses and limitations of conducting readability research using quantitative and qualitative methods separately. Hence, a mixed method design was chosen as the most appropriate one because it allowed the combination of both quantitative and qualitative research methods.
<i>Step 2</i> Determine the rationale for using a mixed methods research design. Answering the questions: 1. What do you want to achieve by mixing quantitative and qualitative	<ul style="list-style-type: none"> This research aimed to explore the factors operating during the interaction between a reader and a text which influence the concept of readability, and to develop a preliminary new theoretical model and a new definition of readability. A quantitative approach was used in this study in order to find out the factors that contributed to the

<p>approaches?</p> <p>2. How will mixing approaches help you to answer your research question?</p>	<p>text difficulty that laid in the text itself. A qualitative approach was used with the aim to identify the factors that contributed to the text difficulty of the readers. Therefore, by mixing quantitative and qualitative approaches, a comprehensive view of the factors that influence the concept of readability was achieved.</p>
<p><i>Step 3</i> Select a mixed methods research design and mixed sampling design.</p> <p>Answering the questions: 1. Is the quantitative and qualitative paradigm going to be given priority, or will both be given equal status in your study? 2. Should the qualitative and quantitative components be carried concurrently or sequentially?</p>	<ul style="list-style-type: none"> In this study the quantitative and qualitative approaches were given an equal status. The quantitative and qualitative component has been carried out concurrently. Therefore, it was found that a complementary mixed method research design was the most appropriate one. According to Hammersley, (1996, p. 168) a complementary mixed methods research design is when “<i>two approaches provide different sorts of information that complement one another</i>”.
<p><i>Step 4</i> Collect the data</p>	<ul style="list-style-type: none"> This research data collection was divided into two phases named Reading Event One (RE1) and Reading Event Two (RE2). Details of the data collection procedures are explained in detail in section 3.4.4.
<p><i>Step 5</i> Analyse the data</p>	<ul style="list-style-type: none"> The quantitative data were analyzed using readability formulae and text features analysis. Miscue analysis, retelling and interviewing, were used. The details of the data analysis procedures are described in section 3.4.5.
<p><i>Step 6</i> Continually validate the data</p>	<ul style="list-style-type: none"> To continuously validate the data, I used the mixed methods research validity introduced by Onwuegbuzie and Johnson 2006 (cited in Johnson & Christensen, 2008, p. 283). Details of the validity and reliability issues in this research are outlined in section 3.5.
<p><i>Step 7</i> Continually interpret the data and findings</p>	<ul style="list-style-type: none"> The qualitative and quantitative data in this research were interpreted separately, and concurrently. At some point during data interpretation, some data were integrated or compared.
<p><i>Step 8</i> Writing the research report</p>	<ul style="list-style-type: none"> To write this research report I took into consideration four potential problems when writing a mixed methods research report, as suggested by Johnson & Christensen (2008, p. 455): <ul style="list-style-type: none"> i. The style of writing: Qualitative and quantitative research reports tend to have a different way of writing. The challenge is to find a balance between the two forms of writing. ii. Audience: The readers may not be familiar with both qualitative and quantitative

	<p>techniques. It is best to avoid highly specialized terms that are likely to be unknown to the audience, and provide useful references for them to expand their understanding of the related concept.</p> <p>iii. Length of the report. Since this research combines both qualitative and quantitative methods, there is a tendency that the report may be longer than a mono-method research.</p> <p>iv. Mixed research is still an emerging field. I might face arguments by pure quantitative or qualitative researchers.</p>
<i>Summary</i>	<ul style="list-style-type: none"> I transformed my complementary mixed methods research design into the diagram presented below. I named it <i>A New Model of Readability Complementary Mixed Methods Research Design</i>.



3.4 Research Design

This section describes the research procedures, beginning with the participants' profiles.

Finally, the data collection and analysis methods are presented and discussed.

3.4.1 Participants

In this research, the participants consisted of 16 boys and 16 girls, all school pupils, within an age range of five to twelve years old. There were 6 participants from a Reception class, 6 participants from a mixed class of Year one and two pupils, 10 participants from a mixed class of Year three and four pupils, and 10 participants from a mixed class of Year five and six participants.

In terms of this research, the participants that were not yet classified by the school as free choice readers were considered as '*beginner readers*' and those who were classified as free choice readers were considered as '*young readers*'. The free choice readers were those participants who had finished their reading scheme successfully. The term '*Successfully*' referred to readers who were able to read reading materials without any guidance or assistance, to read the reading materials with full expression, to understand the content of the story and to retell the story coherently. Also, there were a few readers who did not complete the entire reading scheme, but were still selected as free choice readers. These groups of readers were good readers, who had managed all the reading skills mentioned previously, even without going through all the books in the reading scheme. The reading scheme used in school included collections by Oxford Reading Tree.

Consequently, the participants for this research were fluent readers. Fluent readers were required because the main aim was to assess text difficulties and not the readers' reading fluency. Hence, having fluent readers as a sample would reduce reading fluency interference during data collection. In order to select fluent readers as my target samples, the class teachers were consulted.

Altogether, there were 32 participants involved in the study. The reason for choosing more cases than the common practice was to get a broader picture and pattern of

the data. Also, I applied maximum variation sampling which is a '*purposeful sampling strategy in which the samples, cases or individuals, differ by some characteristics or traits (e.g. different age groups)*' (Cohen, Manion, Morrison & Dawson, 2007, p. 214). Hence, in this study, participants of different age groups and gender were selected from one school in Coventry area.

Table 3.2: Breakdown of the participants

		Male participants	Female participants
<i>Beginner readers</i>	Reception	3	3
	Year 1 – Year 2	3	3
<i>Young readers</i>	Year 3 – Year 4	5	5
	Year 5 – Year 6	5	5
Total		16	16
Total number of participants		32	

3.4.2 Text Selection

64 texts were used in this research (see Appendix 3.1). 32 of them were used in Reading Event One (RE1) and the other 32 were used in Reading Event Two (RE2) (see section 3.4.4). The texts used in RE1 were chosen by the participants themselves, except for the participants from the reception group, whose texts were selected by the class teacher. All the participants except for the participants from the reception group were asked to choose a text that they enjoyed reading, which should not be two bands higher or lower than their current band. This reading band is a school-assigned indicator of the participants' current reading stage and all the participants were aware of their own reading band.

The participants were asked to choose materials which were no more than two bands higher or lower than their current reading band because I wanted to ensure that the participants would choose a text which would not be too difficult or too easy for them. Furthermore, the participants were asked to choose the reading text in RE1 themselves in

order to form an individual readability index for the text. This individual readability index was then used as the benchmark index in choosing the texts in RE2. Readability formulae were used to gauge the readability index (see section 3.4.5.1).

The texts in RE2 were chosen by me. I set a rule to choose a text with a slightly higher readability index, the reason being to provide a slightly more difficult text for the participants. In addition, the texts chosen were texts that had not been read by the participants. The rationale behind it was to compare the similarities and differences of the participants' interaction with the text used in RE1. The RE2 text choosing processes are detailed in section 3.4.5.1.

3.4.3 Pilot Study Report

A pilot study was carried out at a school in the Coventry area from 17th November 2008 to 25th November 2008. The purpose of the pilot study was to determine the suitability, practicality, reliability and validity of the instruments and procedures developed for the research fieldwork.

The Out Come of the Pilot Study

Sample

In the beginning I intended to collect data from four categories of participants, including different age groups, gender, ethnicity and social economic income. During my pilot study I found difficulties in getting all four categories of participants from one school. Due to this fact, I had to collect my data in more schools if I wanted to include all the categories. During my pilot study, I had difficulty in obtaining permission to conduct my research. From 10 potential schools, only one school gave permission to conduct the research. In order to overcome these problems I decided to have only two categories of participant comprising different age and gender group which I could obtain from the school that

allowed me to conduct the research. Furthermore, for age categories, I intended to collect data from *beginners*, *young* and adult participants.

Research Methods

Initially I wished to use seven types of data collection methods, consisting of readability formulae, retrospective miscue analysis, think aloud protocol, retelling, interview and text feature analysis. Nevertheless, during the pilot study I found that the seven methods produced an overwhelming amount of data. I learned that it was impossible for me to analyse such data within the planned research schedule. Apart from this, retrospective miscue analysis required a lot of commitment to conduct it. Retrospective miscue analysis also needed a very quiet room with two voice recorders. During the pilot study, I was aware that there was no place that I could conduct retrospective miscue analysis. From the lessons learned during the pilot study I decided not to include retrospective miscue analysis.

I was aware that think aloud protocols were a useful method for this research to obtain knowledge of participants' reading strategies. Nevertheless, as mentioned above all these methods produced such huge data and the amount of data obtained was out of my capability to analyse within the planned research schedule. Hence, I decided to use only five methods excluding retrospective miscue analysis and think aloud protocol. Nonetheless, this decision does not affect the quality of this research data, as I was collecting using five established research methods i.e readability formulae, miscue analysis, retelling, interview and text feature analysis.

During the pilot study I concentrated mainly on my interview questions. The interview questions were piloted twice to four *beginner readers*, two *young* readers and two adult readers. At the beginning there were 40 semi-structured interview questions.

During piloting, I realised that too many interview questions made the participants tired and lose their concentration, especially among the *beginner* and *young* participants. Apart from this, I learned that a number of interview questions were asking for the same information. Furthermore, the questions asked were not themed. In addition, a few of the interview questions used terms and vocabulary that could not be understood by the *beginner* and the *young* participants. To solve these problems I rewrote the interview questions (more details in section 3.4.5.5).

Data Collection Procedure

The data collection procedures presented in this thesis went through several changes after the pilot study. During the pilot study, I learned that the participants' could easily be distracted and lose interest in continuing with the rest of the data collection activities if interview sessions were conducted at an early stage in the data collection session. This was because the participants seemed to lose confidence if they were unable to answer certain question in the interview session. This lowered their motivation and commitment to continue the activities. Consequently, after the pilot study I rearranged the data collection steps. I placed the interview session almost at the end of the data collection procedure, to avoid participants feeling tired and losing concentration in the miscue analysis and retelling sessions.

Findings to be Obtained in the Actual Research

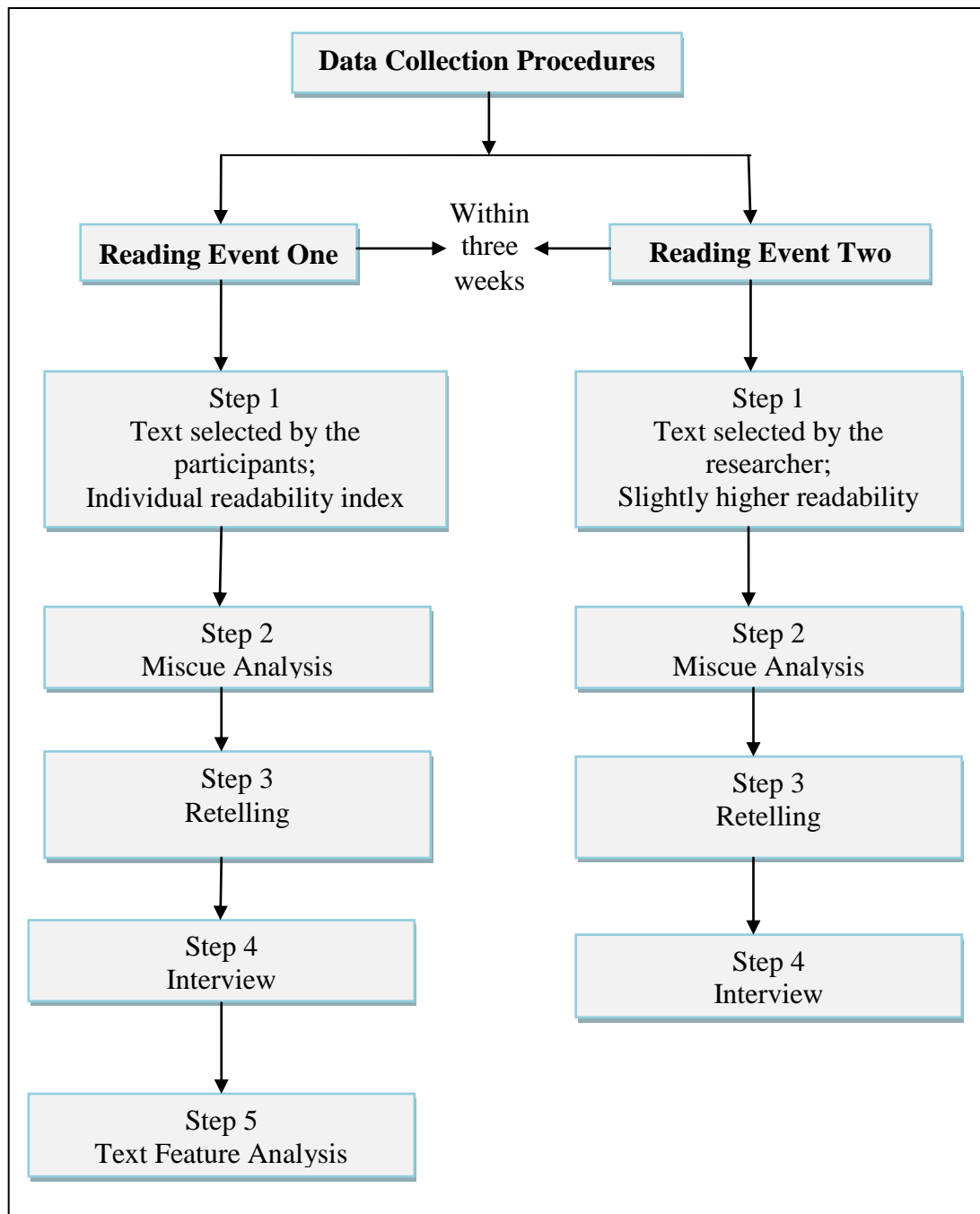
This pilot study showed that the methods selected and the data collection procedures were able to collect the needed information. From the participants' answers I obtained some insights into my research. I found that there was a recursive pattern to the participants' answers to a few questions asked. For example, the *beginner* and the *young* participants' choice of reading selections were influenced by TV series.

Conclusion

The pilot study has given insights into the fact that the data collection procedures and the chosen research methods for fieldwork were appropriate and manageable with some adjustments. Further from this pilot study I also gained some experience of data organizing and ways to overcome unforeseen difficulties, such as difficulties in obtaining permission from schools to conduct this research.

3.4.4 Data Collection Procedures

In this research, the data collection processes were divided into two phases. The first phase is called Reading Event One (RE1) and the second phase is called Reading Event Two (RE2). The data from RE1 and RE2 were collected within the duration of three weeks. This was logistically to minimise the gap between the two data collection events. It was also felt that the gap was sufficiently small to minimise the possibility of reading growth in the participants through simple maturation. The whole process of RE1 and RE2 is illustrated in Figure 3.2.

Figure 3.2: Data collection procedures

3.4.4.1 Reading Event One

The aims of Reading Event One were as follows:

- To collect readability indices using a variety of formulae for the texts that the participants chose to read.

- To find out the elements that help or hinder the participants' comprehension of a text that they choose to read.
- To find out the strategies used by the participants to comprehend a text that they choose to read.
- To find out factors that motivates the participants to engage with a text that they choose to read.
- To find out how the participants' awareness of the text topic and text feature elements affect the strategies that they use, in order to comprehend the text that they choose to read.

RE1 Step 1

- Upon getting the consent (see section 3.6) to conduct this research I went to the school to discuss with the teachers concerning the participants required for the research. The teachers were informed that the selected pupils for this study should be fluent readers. After the participants were identified, I conducted a meeting with all the participants (accept those from the receptions group participants). During the meeting, I explained to the participants the purpose of the meeting and the research. The participants were informed of their roles and the activities they would be involved in. They were requested to bring any book, or any other reading materials that they enjoyed reading and they were also told to choose books or other reading materials that were not more than two bands higher or lower than their current reading band. On the day of the data collection, I checked the reading band of the books before letting them read them.
- I did not have any formal meeting with the reception group before the data collection session. Nevertheless, I had to build rapport with them prior to the data

collection session by doing voluntary work, helping the teachers in the reception class. The reason for doing this was to make sure the participants felt comfortable with my presence and to build trust. During the voluntary work, I had the chance to explain the data collection activities to the selected pupils who became the participants of this research.

RE1 Step 2

- On the day of the data collection, I explained the whole activities that the participants had to go through again. Although I received consent to record their voice, on the day of the data collection, I still asked their verbal permission to record their voices. I also checked the reading band of the books selected by looking at the back of the book to see if there was any reading band stated by the publisher. If there was no reading band stated, I had to judge whether the book was too easy or too difficult, by listening to their reading aloud activity.
- The participants were asked to read the selected text aloud. The participants' read aloud activity were tape recorded. The recorded read aloud sessions were then analysed for miscues. Miscue analysis was used to find out the elements that helped or hindered the participants in comprehending the selected text. It was also aimed at finding out the strategies used by the participants to comprehend the text. Miscue analysis was not analysed in front of the participants. The miscue analysis processes are detailed in section 3.4.5.3.

RE1 Step 3

- After the participants had read aloud the reading text, they were asked to retell it in their own words without looking at text. They were given the chance to read the

text twice before the retelling activity. The aim of using this retelling method was to concentrate on the interpretation of the content and the structure of the text by participants. The retelling sessions were also tape recorded. The retelling session processes are detailed in section 3.4.5.4.

RE1 Step 4

- After the participants had finished their retelling I proceeded to the interview session. This interview session aimed to explore: (1) the textual elements that help or hinder the participants in their reading comprehension; (2) what the participant thought were the strategies they used to comprehend the text; and (3) what motivated them to engage with the text that they had read. The interview session processes were detailed in section 3.4.5.5.

RE1 Step 5

- After the interview sessions, the participants were asked their preferences on the text feature elements. They were given sets of text with different types of text feature, and they were asked if they can identify the differences in those text feature elements that were showed to them (see Appendix 3.2). They were also asked to choose which text feature that they preferred, and to provide reasons for their preference. The text feature sessions processes are detailed in section 3.4.5.2.
- Apart from that after the RE1 sessions the text feature for all texts in RE1 were analysed.

3.4.4.2 Reading Event Two

The aims of Reading Event Two were as follows:

- To find out the elements that help or hinder the participants' comprehension of a text choose by the researcher.
- To identify the strategies used by the participants to be able to comprehend a text choose by the researcher.
- To find out factors that motivate the participants to engage with a text choose by the researcher.
- To find out how the participants' awareness of the text topic affects the strategies that they use in order to comprehend the text choose by the researcher.

RE2 Step 1

- In RE2 the texts used were chosen by me and the participants were given a text with a higher readability index compared with the text that they read in RE1. The reason behind giving the participants text with a higher readability index has been discussed in section 3.4.2. Texts used in RE2 were obtained from the school library or the public library in Kenilworth. Details of the text selection can be found in 3.4.2.

RE2 Step 2

- There were two to three weeks gaps between RE1 and RE2 sessions. Hence, on the day of the data collections for RE2, I once again explained the whole activities that the participants had to go through. Next, the participants were asked to read the selected texts aloud. These read aloud activities were tape recorded. The recorded read aloud sessions were later used to analyse the participants' miscue. However, the miscue analysis was not analysed in front of the participants.

RE2 Step 3

- The retelling sessions conducted were similar to those conducted in RE1.

RE2 Step 4

- The interview sessions were also conducted exactly as they were conducted in RE1. However, the number of questions asked was less. The reason fewer questions were asked is explained in section 3.4.5.5.

Note

- In RE1 Step 5 the participants were given sets (see Appendix 3.2) of texts with different types of text feature and they were asked if they could see the differences in the text feature elements that were shown to them. This activity was not conducted in RE2 because the data collected in RE1 was sufficient for me to know the participants preference.
- Apart from text features, all RE2 texts were not analysed because they were selected by me. Hence, the text features represented in all RE2 text were not the features that the participants preferred, as it was not their personal choice.

3.4.5 Methods of Data Collections and Analysis Procedures

This section will discuss the data collection methods used and the analysis procedures of the data collected. The section is divided into five sub sections containing the readability formulae, text feature analysis, miscue analysis, retelling and interview.

3.4.5.1 Readability Formulae

Introduction

Readability is a study to match the readers' abilities with the text that they were reading (Chall, 1974; Fry, 2002; Gilliland, 1972; Klare, 1963). A readability formula is a

mathematical equation derived through regression techniques to assess readability (McLaughlin, 1969; Chall, 1974). Apart from measuring readability these formulae were also used to grade reading materials in terms of difficulty (Chall, 1988 and Fry, 2002). *Readability formula results are reported as numerical indices* and there were two way of reporting the readability result which is in a grade level or a scale forms (Badgett, 2010, p. 2). Formulae such as Dale-Chall, FOG, FORCAST, Fry, SMOG, Spache, Flesch-Kincaid, New Dale-Chall, and ATOS, were using grade level form to report their readability results except *Lexile*, readability results were in a scale form (Badgett, 2010). These readability formulae usually consist of predictors such semantic and syntactic variable for measuring readability (Bormuth, 1966; Chall, 1974; Chambers, 2008; Gray and Leary cited in Dubay, 2007a; Fry, 2002; Harrison, 1977; Klare, 1963; Oakland, 2004; Perera, 1980; and Stokes, 1978).

Semantic variables are most often associate with vocabulary difficulty variables and most often address issues which include: (1) average word length as measured by the numbers of letters and syllables; (2) numbers or percentage of ‘easy or hard’ or ‘familiar or unfamiliar’ words in which usually identified by determining whether they are included in familiar words lists such as *The Dale-Chall list of 3,000 familiar words*; (3) number of first, second, and third person pronouns; (4) number of monosyllables words; (5) number of personal words; (6) percentage of concrete or abstract words; (7) and monosyllables and polysyllables words. Syntactic variables are most often associated with sentence difficulty variables, and most often address: (1) average sentence length as measured by the number of letters or syllables;(2) number of personal sentence; (3) number of sentence per passage; (4) number of prepositional phrases; (5) number of simple sentences; (6) number of explicit

sentences; (7) number of complex sentences; and (8) number of polysyllabic word per sentences.

According to Chall (1974) and Klare (1974) among these vocabulary and sentence difficulty predictor variables, it was found that sentence length and word length, and the percentage of difficult words were most potent factors in estimating readability. Badgett (2010, p. 3) supported Chall's (1974) claims and pointed out that the two more popular and widely used readability formulae were using word length, number of unfamiliar words and sentence length:

$$1. \text{ Flesch-Kincaid Grade level (USNavy, 1975)} = .39 \text{ } wl + 11.8 \text{ } sl - 15.59$$

(Where wl = word length and sl = sentence length)

$$2. \text{ Dale-Chall Cloze (Chall, 1995)} = 64 - .95X_1 - .69X_2$$

(Where X_1 = number of unfamiliar words and X_2 = average sentence length)

The following are five widely used and two more recent readability formulae. The five formulae were considered widely used based on the frequency of use by researchers and librarians (Stokes, 1978) and they were: 1) The Flesch-Kincaid (1975); 2) The FOG Formula (Gunning, 1952); 3) Powers, Sumner and Kears, (1958); 4) The SMOG Formula (McLaughlin, 1969); 5) Dale-Chall (1948 and 1995). The two more recent readability formulae are Lexile (1988) and ATOS (1998).

Flesch-Kincaid (1975 cited in Dubay, 2004, p. 50) formula involved three factors, which consisted of: (1) words length; (2) number of unfamiliar word; and 3) sentence length. The formula as cited in Dubay (2004, p.50:

$$1. \text{ Flesch-Kincaid Grade level (USNavy, 1975)} = .39 \text{ } wl + 11.8 \text{ } sl - 15.59$$

(Where wl = word length and sl = sentence length)

Gunning's FOG formula (1952 cited in Harrison, 1984, p.79) was known as the easiest of all readability indices to work out, and this fact explains its popularity. Gunning's formula consisted of variables of i.e: 1) average number of words per sentence; and 2) percentage of polysyllabic words. The FOG formula as cited in Harrison, 1984, p. 79:

$$2. \text{ FOG reading grade level, US} = 0.4 \times (\text{WDS/SEN} + \% \text{ PSW})$$

Where WDS/SEN = average number of words per sentence and PSW = percentage of polysyllabic words

*UK reading level = US grade + 5 or 6

Power, Sumner and Kearsley's (1952 cited in Harrison, 1984) formula consisted of variables of 1) average number of words per sentence; and 2) average number of syllables per 100 words. The formula Power, Sumner and Kearsley as cited in Harrison, 1988, p. 67:

$$3. \text{ Reading grade level, US} = - 2.2029 + (0.0778 \times \text{WDS/SEN}) + (0.0455 \times \text{SYLL}/100\text{w})$$

Where WDS/SEN = average number of words per sentence and SYLL = average number of syllables per 100 words

*UK reading level = US grade + 5 or 6

The SMOG Formula (McLaughlin, 1969) is the easiest and the quickest formula of all to work out by hand. However, nowadays it has become much easier, with the formula available on the internet. The SMOG Formula consisted of a single variable, and the number of polysyllabic (i.e. three or more syllable) words in 30 sentences. The formula SMOG Formula as cited Harrison, 1984, p. 79)

$$4. \text{ SMOG reading grade level, US} = 3 + \sqrt{P} \text{ (i.e 3 plus the square root of P)}$$

Where P = the nearest perfect square to the number of polysyllabic words (i.e. three or more syllable words) in thirty sentences.

Dale – Chall (1948) came up with an early formula, with variables of 1) percentage of unfamiliar words; and 2) average of words per sentence. The familiar words are usually identified by determining whether they are included in familiar words lists such as *The Dale-Chall list of 3,000 familiar words*. The formula Dale-Chall as cited in Harrison, 1984, p.74:

$$5. \text{ Reading grade level, US} = (0.1579 \times \text{Percent UFMWDS}) + (0.0496 \times \text{WDS/SEN}) + 3.6365$$

Where UFMWDS = unfamiliar words and WDS/SEN = average number of words per sentence

*UK reading level = US grade + 5 or 6

Chall and Dale revised their readability formula and published the formula in 1995.

The new Dale Chall formula (Chall & Dale, 1995, p.2):

1. Selecting exact 100-word samples.
2. Record the number of complete sentences.
3. Record the number of unfamiliar words.
4. Obtain the Cloze Score via the cloze tables, with the counts of sentences and unfamiliar words.
5. Obtain the Reading Level via reading level tables, with the counts of sentences and unfamiliar words.
- Users are provided with two tables that is the Cloze Score Table and Reading Level Table which have the number of unfamiliar words along the Y axis and number of complete sentences along the X axis.

The Spache formula (1953) has been widely used in United Kingdom. Nevertheless this formula is suitable for reading material below a true difficulty level of eleven years.

This formula uses the following variables: 1) average number of words per sentence; and 2) unfamiliar words. Unfamiliar words are based from those not in the Dale's 769 word list.

The Spache formula as cited in Harrison, 1984, p. 67:

$$6. \text{ Reading grade level, US} = (0.121 \times \text{WDS/SEN}) + (0.082 \times \text{PERCENT UFMWDS}) + 0.659$$

Where WDS/SEN = average number of words per sentence and UFMWDS = unfamiliar words

*UK reading level = US grade + 5 or 6

The Lexile claims their framework for reading is able to measure reader ability and text readability with common metrics. They use variables i.e: (1 the number of words per sentence; and (2) the frequency of words. Both average sentence length and average word frequency were based on the *American Heritage Intermediate Corpus* (DuBay, 2004, p. 52). The formula is (cited in Stenner and Burdick, 1997, p. 9):

$$7. \text{ Theoretical Logit} = (9.82247 \times \text{LMSL}) - (2.14634 \times \text{MLWF}) - \text{constant}$$

Where LMSW = log of the mean sentence length and MLWF = mean of the log word frequencies

ATOS is an '*open standard*' readability formula that can be applied to any material and for which the user does not pay a fee (Renaissance Institute, 2000, p. 2). ATOS selected three variables as components of their formula i.e: (1) words per sentence; (2) average grade level of words; and (3) average characters per word (Milone, 2008). ATOS claimed average grade level of words in the text proved to be a better predictor of text difficulty than the two other variables: percent of familiar words and words frequency (Milone, 2008, p.6). The formula is (ATOS, 2000, p. 9):

$$8. \text{ Rasch Difficulty Formula} = [-8.54 + 1.95 * \text{Ln}(\text{AvgWords}) + .46 * \text{AvgGrad100} + 1.74 * \text{Ln}(\text{AvgChar})]$$

Where AvgWords = words per sentence; AvgGrad = average grade level of words and AvgChar = average characters per word.

Rationale

Readability formulae were used in this research in order to form an individual readability index for the reading texts that the participants had selected in RE1. This individual readability index of the texts for each of the participants was then used as a benchmark index that guided me in selecting appropriate reading texts for the participants in RE2. Additionally, I wished to investigate the consistency of the readability formulae in predicting easy and difficult texts. Hence, the above readability formulae Dale Chall, FOG, SMOG, Spache, Flesch-Kincaid, Lexiles and ATOS were reviewed, together with their variables and target groups.

The above review show that different readability formulae have been designed to measure the readability index of different types of text for different readers at particular ability levels. The FOG formula has been developed specifically for adult level materials. The Dale – Chall, Flesch Kincaid formulae have been developed to count the readability index for materials for readers from primary school to adulthood. The Powers, Sumner and Kearsley formula has been designed for primary school materials, and Spache formula has been developed to be used with materials from reception to primary school level. Lexiles and ATOS formulae have been designed to use materials from the reception to adult level. From the above findings, it was considered that the FOG, Dale – Chall, the Flesch-Kincaid and Powers, and the Sumner and Kearsley formulae would be less appropriate for the current

research study because its texts include texts read by participants at the reception class. Therefore, Spache, Lexiles and ATOS formulae were regarded as the most appropriate formulae to estimate the texts used in this study.

However, some weaknesses may be present in the Spache and Lexiles formulae, such as the variable regarding word familiarity and frequency. These are regarded as a weak indicator of text difficulty. Moreover, there is the question of the validity of the word list. For instance, according to Perera (1980) *‘the word lists used in Britain are based on frequency counts done in the United States, where patterns of use are different’* (p.154).’ Perera further reports that the comparison of the revised Spache (1974 cited in Perera, 1980) list – which is American – with Britain frequency count of children’s written vocabulary by Edwards and Gibbon (1964 cited in Perera, 1980) reveals some discrepancies. Related to the above arguments it is suggested that: *‘average word frequency is not a good predictor because many words are common at certain age or level, but then become uncommon – such as “kitten”. But in cases like these, infrequency at higher grade level does not make them difficult words’* (Milone, 2008, p.6).

After taking into consideration all the above arguments, it was decided that to estimate the level of difficulty of the text used in the present study, more than one formula was used. The reason for using more than one formula is to produce a more established estimated level of the texts difficulties. It was decided to use Dale Chall, FOG, SMOG, Spache, Flesch-Kincaid, and ATOS, formulae because they were an *‘open standard’* readability formula that can be applied to any material for which the user does not have to pay a fee.

Readability Indices Estimation Conducting Procedures

There were 64 texts used in this study. 32 texts were used in RE1 and were chosen by the participants, and the remaining 32 were used in RE2, and were chosen by me. Hence, the readability indices estimation was made within two stages, and the third stage was used to validate the readability indices obtained in stages one and two. The following procedures were implemented:

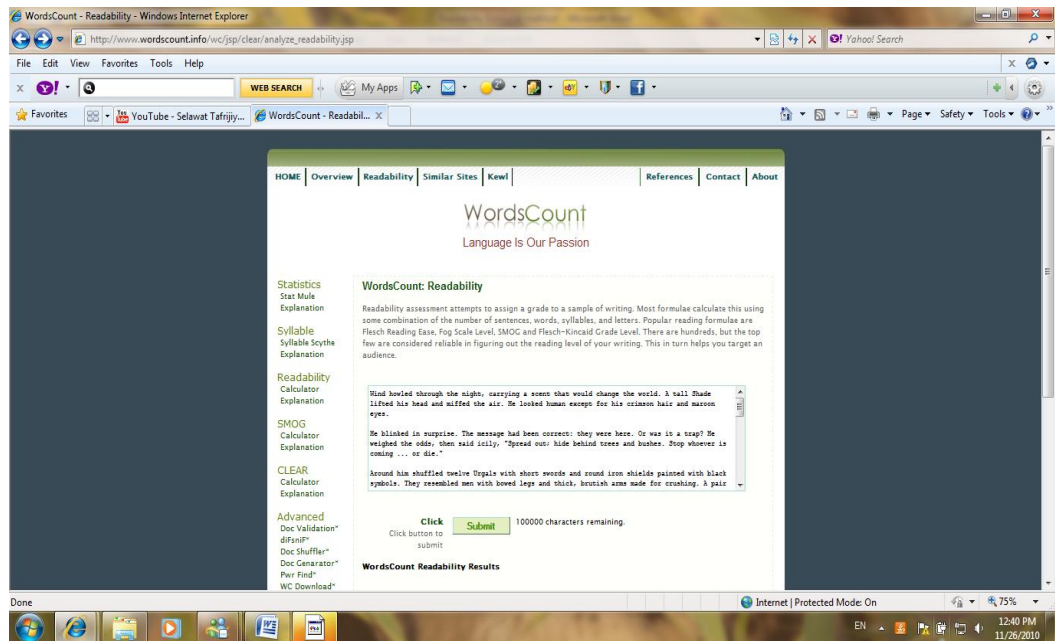
Stage One:

1. The 32 texts chosen by the participants were photocopied and then saved as RTF files, using Optical Character Recognition software.
2. Later, the texts were analyzed using readability formulae that were available on the internet. I used a website called Words Count (<http://www.wordscount.info/>). Through this website, I obtained the readability indices for the texts using SMOG, FOG, Flesh-Kincaid, Spache and Dale-Chall Index formulae in one go. WordsCount website does not include the calculation using ATOS formula. Hence, I used the formula provided in the ATOS website.
3. The obtained indices became the individual readability indices for the reading texts that the participants chose to read in RE1. These individual readability indices of the texts for each of the participants were then used as the benchmark index that guided me to choose suitable reading texts for them in RE2.

The following screen shows an example of the process of counting the readability indices of one of the texts that was used in this study.

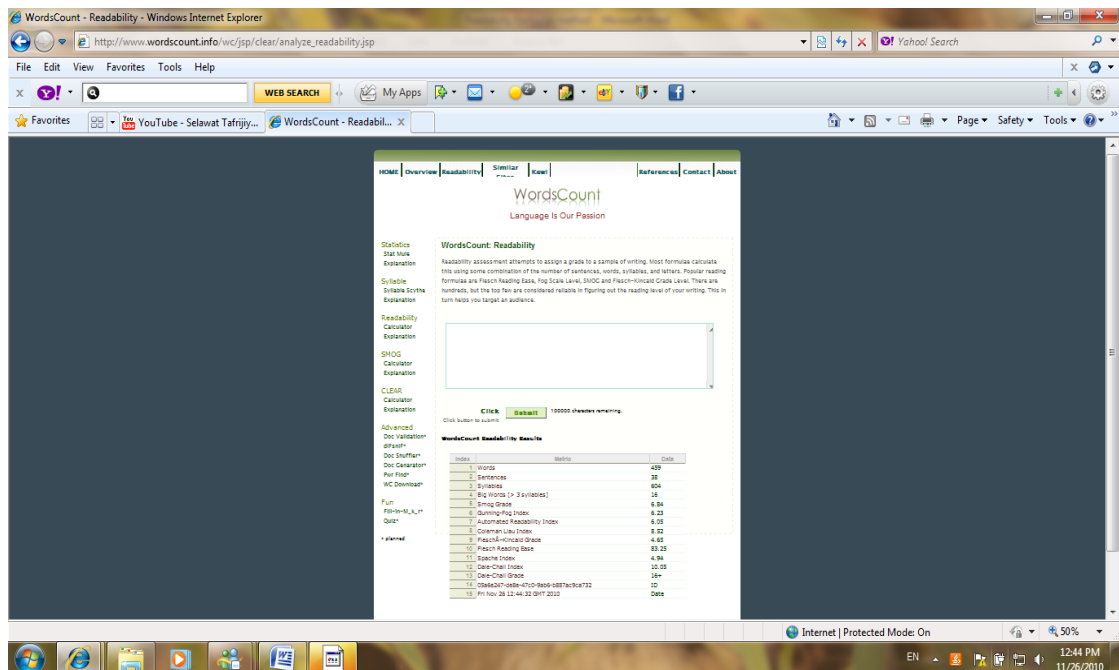
The first screen presents the process of setting on the text:

Figure 3.3: WordsCount website: Uploading the text



The second screen is the result of the readability indices:

Figure 3.4: WordsCount website: Readability indices calculation



Stage two:

1. I chose the texts for RE2 based on the interview responses by the participants regarding the content or topic that they would like to read and the text features found in the texts that the participants chose to read in RE1.
2. I then set the rule that the readability indices for the chosen texts used in RE2 would be slightly higher from those in the RE1 (see 3.4.2). To obtain these slightly higher readability indices, the chosen texts were scanned and the readability index was counted using the WordsCount web site. If in any chosen text the readability indices were lower than those in RE1, the texts were not used, and therefore, I had to go through the same process again to choose other texts and count the indices again.
3. WordsCount website does not include the calculation using ATOS formula. Hence, I used the formula provided in the ATOS website. The first step taken to count the readability index for the texts using ATOS was to transform all the texts that were saved in an RTF file to a plain text form (TXT file).
4. Afterwards I submitted the title of the book where the text was obtained to the *ATOS analyzer submission form* to get a confirmation number for each of the texts for which I wanted to count the readability index.
5. Upon getting the confirmation number from ATOS, I sent the texts according to the given confirmation number. Once the texts were analyzed ATOS sent back the results by email.

The following screens were the process of analysing the texts using the ATOS formula.

The first screen shows the ATOS Analyzer submission form.

Figure 3.5: ATOS Analyzer Submission Form

The screenshot shows a web browser window displaying the 'ATOS Analyzer Submission Form for Text' on the Renaissance Learning Accelerated Reader website. The form is titled 'ATOS Analyzer Submission Form - Complete Text'. It includes a 'Required field' section with input boxes for 'Title', 'Author's First Name', and 'Author's Last Name'. Below this is a 'Contact Information' section with input boxes for 'First Name', 'Last Name', and 'Email Address'. There are 'Submit Title' and 'Clear Form' buttons at the bottom of the form. The browser's address bar shows the URL 'http://www.renlearn.com/ai/overview/atosform_text.asp'. The taskbar at the bottom shows the date and time as 12:35 PM on 11/26/2010.

The second screen shows the confirmation number received.

Figure 3.6: ATOS Analyzer Text Confirmation Number

The screenshot shows an email message in a web browser window. The email is from 'ATOS' <atos@renlearn.com> to 'dahliajanan@yahoo.co.uk' with the subject 'ATOS for Text Instructions (Confirmation #47254)'. The email body contains the following text:

Thank you for your interest in the ATOS Analyzer. In order to submit a file for analysis, please follow these simple steps:

1. Reply to this email. Do this by clicking on the reply button in your email client software.
Your confirmation number is #47254.
This number, along with the other information you provided listed below is very important and will be used to track your submission and return your results. Please make sure it is in your return email.
2. You have requested analysis for:
Title: Stravaganza: city of star
Author First Name: Mary
Author Last Name: Hoffman
If any of the above information is incorrect, please write the corrected information here:

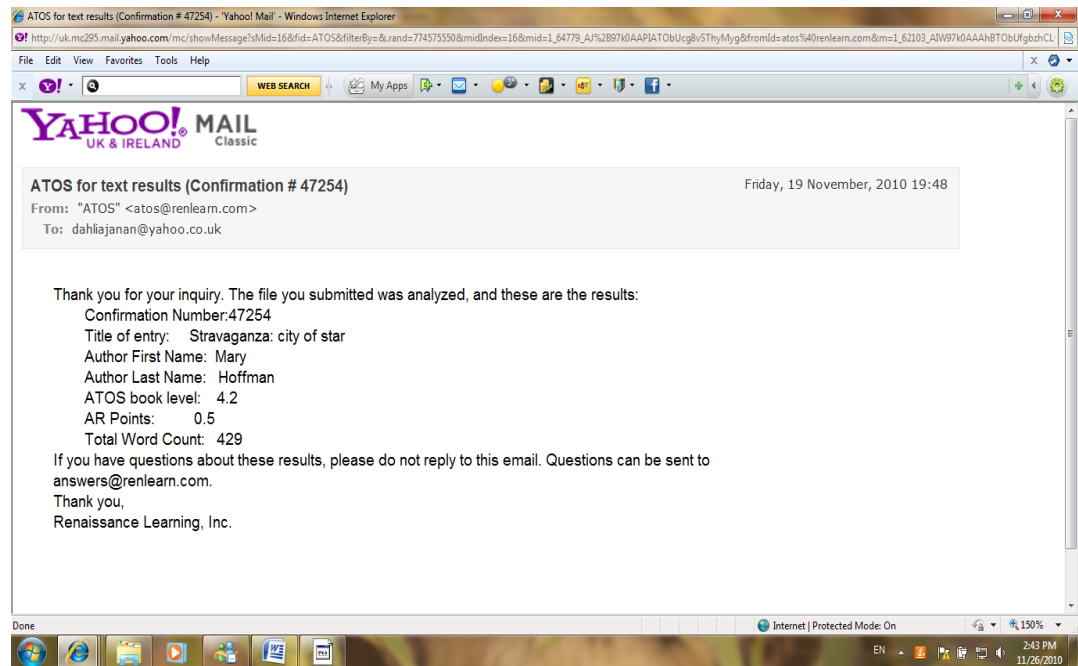
Title:
Author First Name:
Author Last Name:

1) Create your text file for analysis. The analyzer was designed for English text. Text in any other language will be rejected. This text will need to be attached as a separate file. Please do not place your text in the body of this message.

The email is dated Friday, 19 November, 2010 17:41. The browser's taskbar at the bottom shows the date and time as 2:41 PM on 11/26/2010.

The third screen demonstrates the ATOS results for one of the texts used in the research.

Figure 3.7: An Example of the ATOS Results



Readability Data Analysing Procedures

To analyze the collected readability indices, the following procedures were followed:

1. All readability indices for all texts in RE1 and RE2 by using the different formulae were listed and transferred to SPSS software. Through SPSS I used Spearman's rank correlation coefficient to count the correlation between the formulae, to predict whether the texts were easy or difficult.
2. After that, through SPSS, I calculated the mean of the readability indices produced by each formula, and compared them to identify any differences. Finally, I used a T-test to examine whether the mean difference was statistically significant.

3.4.5.2 Text Feature Analysis

Introduction

‘A text is a piece of connected language that serves function in social interchange: it has purpose, it is constructed and it exists within a social context and it implies dialogue’

(Wray, 2004, p.viii). According to Beaugrande and Dressler (1981), a text is defined as a communicative occurrence that meets seven standards of textuality: cohesion, coherence, intentionality, acceptability, informativity, situationality (relevancy or appropriateness), and intertextuality (context). In terms of this study, the term ‘text’ refers to a passage read by the participants. These were of a length of between 350 to 400 words for the *young reader* participants, 300 to 350 words for the *beginner reader* participants, and less than 100 words for the participants in the reception class.

Rationale

In this study readability formulae were used to predict the level of difficulty in the texts used by the participants. These readability formulae included particular variables like vocabulary difficulties and sentence length, which have traditionally been used to predict the difficulty level of texts (Chambers, 1983; Chall, 1974; Davison & Kantor, 1982; DuBay, 2004). These readability formulae have been widely criticized. Davison and Kantor (1982) have argued that readability formulae do not define the actual features of texts which make them easy or hard to be read. Similarly, Chambers (1983) has reported a number of readability formulae weaknesses. For example he stated that a) certain reading difficulties associated with different subjects and genres are not assessed by various readability formulae; b) average scores, taken over a passage, can conceal a wide range of variations of difficulty within that passage; and c) conceptual difficulty and interest level are not taken into account (Chambers, 1983, p.3). Hence, in this study a text feature

analysis method was used to elicit other elements of texts that may have made them easier or harder to be read.

Text Feature Analysis Conducting Procedures

In a readability study, a text is judged as easy or hard to be read, based on the stylistic elements in the text such as vocabulary load and sentence structure (Chall, 1974). The basis of readability studies is the principal that an easy or a hard text can be predicted using readability formulae (Chall, 1988; Fry, 2002). However, there may be other aspects that can affect text difficulty, such as the legibility of the print, illustration and colour, organization, and the reader's motivation, background knowledge and interest (Chall, 1974; DuBay, 2004; Harrison, 1984; Wray, 2004). Consequently, in my research study, I decided to investigate possible factors that affected the participants during their interaction with the text. I specifically examined the legibility of the print, illustration and colour and organization, which were referred to as text feature analysis. Hence, the next section of this thesis discusses the elements included in the legibility category.

The term *legibility* has probably never had a precise definition (Lund, 1999; Waller, 1991; Watts & Nisbet, 1974). At some point there has been confusion and interchange in the use of the terms legibility and readability (Lund, 1999; Watts & Nisbet, 1974). Tinker (1963) acknowledged this confusion, and defined legibility as being '*concerned with perceiving letters and words, and with the reading of continuous textual material*' (Tinker cited in Lund, 1999, p. 17). According to Foster (cited in Lund, 1999, p.19) legibility research '*embraces not only typography, but also the use and design of sign, illustrations, maps, symbols, colour-coding systems.*'

The scope of typography elements usually researched in legibility studies includes '*size of characters, thickness of strokes, white space between strokes, dissimilarity of*

characters, ... justify composition” (Waller, 1991, p. 342). The use of colours in legibility research is related to the effect of the colour combinations to legibility (Watts & Nisbet, 1974). Furthermore, Magne and Parknas (1963 cited in Watts & Nisbet, 1974, p. 77) have described two functions of illustration in books which are the ‘*information value and the motivation value*.’ Watts and Nisbet (1974) have further suggested that in some research, illustration has been described through its *motivation value*, which has motivated *young readers* more than adults. However, they have also stated that there are still controversies about whether the illustration *information value* is an aid to learning. The organization of a text in legibility research has focused mainly on the effects of the manipulation of logical or conceptual structure in a passage (Harrison, 1984).

There have also been studies that have focused on content variables that may significantly affect comprehension and memory of prose (Harrison, 1984). There is some evidence to suggest that the number of propositions in a text is an important determinant of the degree to which the text can be understood and the amount to which it can be recalled (Kintsch, 1975 cited in Harrison 1975). Nevertheless, according to Harrison (1984) this area of research is not easy, because the ‘*lack of an adequate grammar with which to represent the internal structure of stories and text*’ (p. 26). Harrison (1984) has suggested three aspects of organization: *format variables*, *advance organizer* and the use of printed questions as a part of the book that are designed to promote learning and understanding.

Harrison (1984) argues that *format variables* include paragraphing, headings and subheadings, and typographical effects like bold type, underlining, and italic. He further explains that the *advance organiser* refers to a summarising content that is included at the beginning of a text to enhance the readers’ conceptual organization. Finally, according to

the same author, the questions as part of the book are designed to promote learning and understanding, and are likely to cause the reader to reorganise their understanding of the text. From the review of the previous research, I modelled my own text feature analysis to answer my research aim, which looked at exploring factors which operate during the interaction between a reader and a text and influence the concept of readability, and also to develop a preliminary new theoretical model and a new definition of the term ‘readability’.

The text features analysis in this study included 32 of the 64 texts that had been used by the participants, and these 32 texts were those used in the RE1 sessions. This was because the texts in RE1 were chosen by the participants themselves, and the features that appeared in the chosen texts were through the participants’ preferences. On the other hand, the texts used in RE2 were chosen by me as a researcher, and as a result, the features which appeared in these texts did not represent the participants’ preferences. A further discussion regarding the texts used in RE1 and RE2 may be found in section 3.4.2.

The procedure used in this research for carrying out text feature analysis is described below:

1. Firstly, the texts that the participants chose themselves in RE1 were collected on the day of the RE1 session. During RE1 and after the reading aloud, retelling and interviewing sessions, I borrowed the books from the participants and photocopied the part that they had read. Upon returning the books to the participants, I analyzed the general features of the books, and noted several details, for example the title, author, date, pages, pictures and illustrations, front and back cover, content pages and glossary pages.

2. Next, data collection for the text feature analysis was also divided into two Phases. The first phase included the process of seeking the participants' preferences for certain text features that were shown to them. During this activity, I used text feature comparison sheets (see Appendix 3.2) which helped me to note down the participants' preferences and their reasons for showing more interest in certain features compared to others. These text comparison sheets were designed by taking into consideration the fact that typography elements may sometimes affect the readers, and these included: upper and lower case, serif and san serif typeface, font size 12 and 14, and justified and unjustified paragraph (see Appendix 3.2).
3. The second Phase of the text feature data collection included the observation of the participants' text feature preferences, through observing the text that they chose to read. To standardize my observation, I created relevant sheets (see Appendix 3.3). These text feature observation sheets were designed to take into consideration certain other text elements which affected the readers, such as the use of colours in legibility, the function of illustration in books, and the organization of the text (see Appendix 3.3).

Text Feature Data Analysis Procedures

The gathered texts were then analyzed following the procedure described next:

1. Firstly, the collected data was analyzed by using frequency and simple percentages to describe the occurrence of the participants' text feature preferences.
2. The participants' reasons for their liking of a certain feature were analyzed using Nvivo to seek patterns to their responses.

3.4.5.3 Miscue Analysis

Introduction

Miscue analysis as a research method was developed by Kenneth Goodman, back in 1973, and its aim was to enhance an understanding of the reading process. Goodman (1973) has reported that miscue analysis is a “*window on the reading process*” that provides us with access to a process that is usually out of our reach and unseen. After four decades, it has become one of the major techniques for examining oral reading for many research and pedagogic purposes. It is an approach that allows the researcher to analyze why readers may sometimes have unexpected responses while reading.

According to Goodman, Watson & Burke, (2005) “*a miscue is a place in which a reader’s observed response (OR) does not match the expected response (ER)*” (p. 3).

Therefore, a miscue can be explained as an attempt to read textual items that are produced differently from their original form during oral reading. Incorrect reading may include replacing the words in a text with other words (substitution), reading words that are not in the original text (insertion), not reading words that are in the text (omission), rereading the words or phrases in the text (repetition), interchanging parts of letters, words, phrases or clauses (reversal), pausing in front of items in the text (hesitation), and correcting errors made in reading the text (correction), which are all forms of miscue.

Miscue analysis may be a way of describing, explaining and evaluating a reader’s control within the reading process. Through miscue analysis, the readers’ strengths, as well as the strategies they use to understand and construct meaning, may be identified (Davenport, 2002). Furthermore, miscue analysis may be seen as an evaluative instrument in reading that provides qualitative and quantitative data. The qualitative sets of data in miscue analysis may include the description of what the readers are doing during reading,

and the quantitative set of data would probably include the frequency or quantity of their miscues (Goodman, Watson & Burke, 2005). Further aims of miscue analysis include providing specific information about the reader's reading ability, linguistic knowledge, and strategy use (Davenport, 2002; Goodman, Watson & Burke, 2005).

Rationale

One of the aims of this research was to identify elements that influenced the readers' comprehension during their interaction with the text. Therefore, I tried to identify the text elements that helped or hindered each reader's comprehension and the strategies that they used to comprehend a text. Hence, it was important to observe and analyze what the readers were doing while reading. Miscue analysis has been shown to be an effective method of observing readers' behaviour during the reading process. "*Both miscue analysis and its underlying theory grew out of listening to people read and trying to understand why they do what they do while reading*" (Goodman, Watson & Burke, 2005, p. 11).

Additionally, this research applied both quantitative and qualitative methods to assess text comprehensibility. Therefore, miscue analysis was one of the most appropriate methodology tools to be used because: "*Miscue analysis differs significantly from other commonly used diagnostic and evaluative instruments in that the resulting analysis of reading is both qualitative (describing what the reader is doing – the quality of the reading) as well as quantitative (providing statistical information – the quantity or the frequency of miscue)*" (Goodman, Watson & Burke, 2005, p. 4).

Miscue Analysis Conducting Procedures

Miscue analysis procedures have developed rapidly after being introduced by Goodman in 1973. Consequently, several methods are being used at the moment in conducting miscue analysis. For example, Goodman, Watson & Burke, (2005) introduced three procedures to

carry out miscue analysis, under the terms *Classroom Procedure*, *Informal Procedure*, and *In-Depth Procedure*. Moreover, a few other researchers have introduced a simplified version of miscue analysis procedure to be used in the classroom, such as the *Over the Shoulder* (Davenport, 2002); the *Running Records* (Clay, 2000), and the *Arnold's system* (Arnold, 1982). Table 3.3 below demonstrates the main differences between these different forms of miscue analysis.

Table 3.3: The similarities and differences of miscue analysis procedures

Miscue Analysis Procedure	Goodman, Watson & Burke, (2005)			Davenport (2002)	Clay (2000)	Arnold (1982)
	Classroom Procedure	Informal Procedure	In-Depth Procedure	Over the Shoulder (OTS)	Running Records	Untitled
Purpose	Investigates the influence of the reader's miscue on the sentence in the context of entire story or article (p. 96)	Examines the acceptability of miscues at text, paragraph, and sentence levels (p.96)	Provides information of each reading miscue in relation to other miscues within the sentence and within the entire text, evaluating how the text and the reader's prior knowledge influence the reading (p. 131)	Focuses on ways the reader constructs meaning through the lens of individual miscue (p. 131)	Prime purpose of a Running Records is to understand more about how children are using what they know to get to the message of the text, or in other words what reading processes they are using (p.8)	The aim is to discover the balance between positive and negative strategies being used while reading. Positive and negative strategies are base on individual miscue acceptability. (p. 62)
Selecting material	Unfamiliar Text One grade above the reader's assigned reading Based on	Reader's select or bring their own current reading material (p.130)	Unfamiliar Text One grade above the reader's assigned reading Base on	Reader's bring their own current reading material (p.156)	Any text in the classroom setting. It can be a new book or a book that has been read before. Usually a	Unfamiliar text A readability level of 9-12 month higher than than reader's

Chapter 3 – Methodology

	teacher/researcher goals (p. 46)		teacher/researcher goals (p. 46)		levelled book in the Reading Recovery setting	‘normal’ reading (p. 60)
Text length	Depends on reader’s age & analysis purpose: Generally above 200 words as the quality of miscue change after the reader passes the first 200 words (p. 46)	Depending on the types of book the reader’s reading (p. 130)	Depends on reader’s age & analysis purpose: Generally above 200 words as the quality of miscue change after the reader passes the first 200 words (p. 46)	Depending on the types of book the reader’s reading: 2-4 pages for information book The whole picture book depends on the book length Generally 5-7 minutes of reading (p. 133)	100 – 200 words of two or three little books	150 - 300 words, which likely to tax the reader without frustrating them (p. 60)
Reading text	Is prepared	Not prepared	Is prepared	Not prepared	Not prepared	Is prepared
Typescript	Is prepared & used to follow along the reader’s reading their text Also used to record miscue & nonverbal action Look alike the reading text (p. 50)	No typescript	Is prepared & used to follow along the reader’s reading their text Also used to record miscue & nonverbal action Look alike the reading text (p. 50)	No typescript	No typescript	A duplicate passage to record miscue (p. 60)
Tape-recording	Session tape recorded	Session not recorded	Session tape recorded	Session not recorded	Session not recorded	Session tape recorded
Coding form	Classroom Procedure Coding Form	Informal Procedure Conference Form	In-Dept Procedure Coding Form	OTS form	Running Record Sheet	Untitled form
Retelling session	Conduct retelling session	Conduct retelling session	Conduct retelling session	Conduct retelling session	The teacher may choose to ask for a	No retelling session but

					retelling	the reader were asked a set of multiple-choice questions (p.67)
Burke Reading Interview (BRI)	BRI is not used and no discussion session	BRI is not used instead conduct student & teacher discussion	Conduct BRI	BRI is not used instead conduct a discussion focuses on: Teaching point Discuss miscue Celebrate well doing (p. 156)	BRI is not used instead conversation with a child about the story after taking Running Records adds to the teacher's understanding if the reader in useful ways (p.14)	BRI not used and no discussion session
What are analyzed	Coded sentence for: *Syntactically acceptable *Semantic acceptable Meaning change Code patterns of meaning construction and grammatical relations Code word-for-word substitutions for graphic similarity Code word-for-word substitutions for sound similarity (optional) (p. 127)	Tally the sentence: Make sense Doesn't make sense (p.130)	Coded a minimum of 25 miscues for: *Syntactically acceptable *Semantic acceptable *Meaning change *Correction *Graphic similarity *Sound similarity Code patterns of meaning construction and grammatical relations Compute statistic for meaning construction and grammatical relations	Coded miscue: What reader said & the text said Corrected or uncorrected & if it changed meaning (p.156)	Coded error are analyse for: M – Did the meaning or the messages of the text influence the error? Perhaps the reader brought a different meaning to the author's text. S – Did structure (syntax) of the sentence up to the error influence the response? V – Did visual information from the print influence any part of the error?	Coded word-for-word substitutions for: *Graphic similarity *Syntactically acceptable *Semantic acceptable Transform the coded substitution miscue into substitution diagram Code miscues and divided it into positive and negative categories (p. 62)

			pattern for graphic and sound similarity (p. 160)		(p.21)	
--	--	--	---	--	--------	--

Generally, as can be seen on Table 3.3, there are two major types of miscue analysis procedures: tape recorded and untaped procedures. A tape recorded miscue analysis procedure is a formal assessment that is suitable for the researcher or the teacher concerned with developing detailed knowledge about the reader's or the student's reading, whereas the unrecorded miscue analysis procedure is a formative assessment which is suitable for the teacher and regards the ongoing achievement of the students in reading.

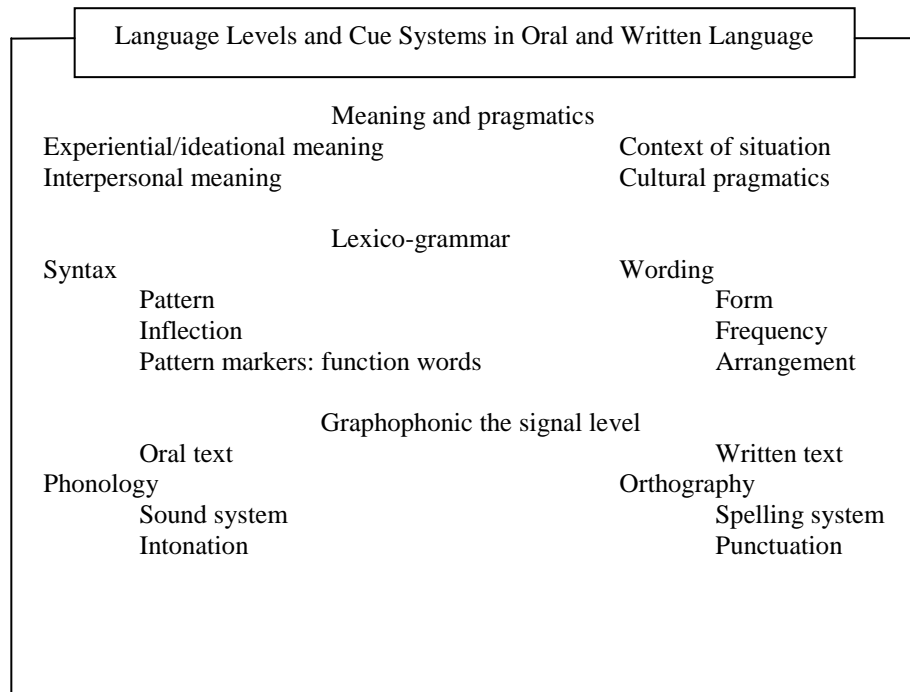
Within the recorded miscue analysis procedure, the reading materials were selected by the researcher or the teacher, whereas the students themselves select their own reading materials in the unrecorded miscue analysis procedure. Moreover, miscues are analyzed in detail in the recorded miscue analysis procedure, compared to the unrecorded procedure. Whether recorded or unrecorded, both methods are supported by a coding form to help the researcher or the teacher to analyze the miscues made by readers.

Cue Systems

It is useful to understand the language cueing system in order to know more about how miscue analysis works. Goodman (1996) suggested that reading is a transaction between a reader and a text. He explained that the writer uses the system of his or her language to represent idea and the reader uses common features, forms and system of the writer's language to reconstruct the writer's thought. In his opinion, in order for us to understand reading we must first understand how the language systems that function at different levels within a given text work together. Goodman produced the diagram below to show the

levels of language and the cue systems available to readers as they actively construct meaning from text.

Figure 3.8: Language Levels and Cue System in Oral and Written Language (Goodman, 1996, p.65)



The above diagram shows the three cueing systems available to readers to construct meaning from the text that they read. These three cues are the graphophonic level (*graphophonic*), lexico-grammar level (*syntactic*), and the meaning and pragmatics level (*semantic*). They are integrated, and “*are not intended to be employed in isolation, but so quickly that they appear simultaneously*” (Hempenstall, 2009, p.8).

Graphophonic cues refer to the connection between the orthographic system (conventions of spelling, punctuation, and other print features), the phonological system (the sounds of oral language), and the complex relation between the two (Goodman, 1996; Goodman, Watson & Burke, 2005). Syntactic cues mean the interrelation of words and

sentences within a connected text. According to (Goodman, Watson & Burke, 2005, p.32) in the English language, systematic syntactic relations include word order, tense, number and gender. Semantic cues involve the text characteristics that make the “*meaning constructed by the readers in transacting with the text*” (Goodman, 1996, p.85).

Types of Miscue

Goodman (1969) listed 28 different types of miscues, and to broaden the usage Goodman, *et al*, (1972) developed a concise description called the Reading Miscue Inventory (RMI) which contains nine questions to be asked regarding each miscue (cited in Hempsenstall, 2009). The RMI includes dialect variation, an intonation shift, graphic similarity, sound similarity, grammatical similarity, syntactic acceptability, semantic acceptability, meaning change, and self-correction with semantic acceptability to the text words. Other researchers who have used miscue analysis have come up with different names for the miscue types.

Arnold (1982) has listed eight types of miscues: non-response (refusal), substitution, omission, insertion, reversal, self-correction, hesitation and repetition, whereas Campbell (1993) has reported seven types of miscues: substitution, insertion, omission, self-correction, repetition, hesitation, and sounding out. More recently, Davenport (2002) recorded eight types of miscue: substitution, omission, partial, insertion, regressions, pauses, repeated miscues, and complicated miscues. Equally important, Goodman, Watson & Burke, (2005) has recently produced a new version of RMI which includes eight types of miscue: substitution, omission, insertion, repetition, complex miscue, repeated miscues, multiple miscues and other additional miscues. All of these types of miscues are presented on Table 3.4 below.

Table 3.4: Types of Miscue

	Goodman, Goodman, Watson & Burke, 2005, p.64-76	Davenport, 2002, p.28-29	Clay, 2000	Arnold, 1982, p. 61	Campbell, 1988 , p.49-50
1	Substitution Text item substitutions Substitutions that are complex miscues Substitutions, often called reversals Substitutions involving bound morphemes	Substitutions One-word substitution High- quality miscues Complex miscues Reversal Non-words Dialect usage Misarticulations Intonation shift Split syllables	Wrong response	Non-response (refusal)	Substitution
2	Omission	Omissions Word Phrase or line End punctuation	Trials	Substitution	Insertion
3	Insertion	Partials	Self-correction (SC)	Omission	Omission
4	Repetitions Repeating and correcting the miscue Repeating and abandoning a correct form Repeating and unsuccessfully to correct Repetitions that affect more than one miscue	Insertions	Insertion	Insertion	Self-correction
5	Complex miscue	Regressions Repetition Abandoning the correct form Unsuccessful attempt to correct Correction	Baulks (T)	Reversal	Repetition
6	Repeated miscues	Pauses	Appeal for help (A)	Self-correction	Hesitation
7	Multiple miscues	Repeated miscues	Try That Again (TTA)	Hesitation	Sounding out

8	Others Partial attempts Non-word substitutions Dialect and other language variations Misarticulations Intonation shifts Split syllables Pauses	Complicated miscues	Repetition (R)	Repetition	
---	---	------------------------	----------------	------------	--

Table 3.4 shows the types of miscue mentioned by five different researchers.

Although there are many types of miscues, all these researchers have focused on the same basic types of miscues: substitution, insertion, omission, self-correction, repetition, and hesitation. On Table 3.4 it can be seen that the most discussed miscues are substitution miscues. For different researchers substitution miscues have different merits; however. According to Arnold (1982) and Campbell (1993) substitution miscues happen when readers produce a different word or non-word from its original form during oral reading.

However, according to Davenport (2002) and Goodman, Watson & Burke, (2005) substitution miscues is not only about providing a word or non-word, but it also happens when the readers substitute one phrase for a phrase in the text and reverse the order of two words. Table 3.4 further presents certain miscues that have been highlighted by some researchers but not supported by others. For example Davenport (2002) and Goodman, Watson & Burke, (2005) emphasized dialect usage, misarticulations, intonation shift, split syllables, complex and multiple miscues, but these are not suggested by Arnold (1982) and Campbell (1993). A few of these miscue types are shown in the following diagram.

Just before midnight the sound's in the stable changed. Starlight was restless. At the same time Cesare woke up and was aware of his father's presence.

In inervning that per
 (It was unnerving the way/Paolo/did that. He always knew where he was needed

and when. He had brought a sock with him and twisted us bre breaket bracket set
 and when. He had brought a torch with him which he thrust into a bracket set

high up in the wall so that sparks wouldn't set the straw on fire. Cesare sprang

lightly to his feet, dislodging the disgruntled cat, who went to wash in the doorway.

Substitution miscue

Insertion miscue

Unsuccessful correction miscue

Omission miscue


Repetition miscue

Hesitation miscue

Substitution miscue: A substitution miscue happens when a reader substitutes incorrect words or phrases to replace the correct text. The following example shows examples of substitution miscues.

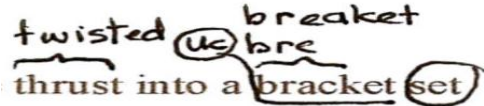
Sentence	Script	Substitution miscue
He had brought a torch with him which he thrust into a bracket set sock and twisted us bre breaket bracket set	torch which trust	sock and twisted

Insertion miscue: An insertion miscue is when the reader reads words that are not in the text. The next example shows an insertion miscue.

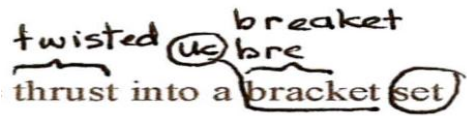
Sentence	Insertion miscue
	<p>Inserting the word [<i>in</i>] before the word [<i>It</i>] in the sentence.</p> <p>Inserting the word [<i>that</i>] before the word [<i>Paolo</i>] in the sentence.</p> <p>Inserting the non-word [<i>per</i>] before the word [<i>did</i>] in the sentence.</p>

Omission miscue: Not reading words that are in the text is called omission miscue.

The next example shows an omission miscue:

Sentence	Omission miscue
	<p>The circle word [<i>set</i>] has been omitted during the oral reading.</p>

Correction miscue: Correcting replacing words to their original form in the text is known as correction miscue. The following example however shows the unsuccessful correction miscue.

Sentence	Unsuccessful miscue
	<p>The word [<i>bracket</i>] has been substituted with a non-word [<i>bre</i>] and then the readers try to correct it with the word [<i>breaket</i>] which is an unsuccessful correction miscue.</p>

Repetition miscue: Readers reread the words or phrases in the text. The following example shows a repetition miscue.

Sentence	Repetition miscue
<u>high</u> up in the wall so that sparks	During oral reading the readers has repeat twice the word [<i>high</i>].

Hesitation miscue: While reading some readers pause in front of words in the text. The following example shows a hesitation miscue.

Sentence	Hesitation miscue
dislodging the disgruntled	During oral reading the readers pause in front of the word [<i>disgruntled</i>] before continue reading the whole sentence.

From the above examples it can be seen that each of the miscues produced provide information about the reader; moreover, each miscue can indicate certain positive or negative characteristics of the reader. For example, a substitution miscue may provide information regarding the strengths and weaknesses of the reader to construct meaning while reading, as the OR and ER can be compared. Therefore, substitution miscues allow a critical level of analysis compared to other miscues. Nevertheless, other miscues may still be able to demonstrate the readers' strengths and weaknesses.

Insertion and omission miscues may also show whether the reader is acting as the editor of a text, either by improving it or changing it into their own dialect (Campbell, 1993). Equally importantly, these miscues may also show the reader's weaknesses, for example the omission miscue can identify the reader's reluctance to read words that they find difficult, and at times, they are unwilling to read the whole sentences. Furthermore, the

self-correction miscue can indicate that the reader is reading for a meaning, as they realise the mistakes and go back to correct them (Campbell, 1993; Goodman, Watson & Burke, 2005).

Substitution miscue can probably provide more information about the reader compared to other miscues (Arnold, 1982; Campbell, 1993; Davenport, 2002; Goodman, Watson & Burke, 2005). Likewise, it is reported that substitution miscue is the most frequently produced miscue by readers (80%)(Campbell, 1993). Substitution miscues are important, because they are frequently not random guesses, but rather, calculated responses gained from different cues (Barrs, 1978; Arnold, 1982). Hence, they reflect the use of three levels of language, as demonstrated in Figure 3.9. Accordingly, a substitution miscue is based on three aspects:

- a. Do the substituted words look like (the) text words? (graphophonically acceptable)
- b. Do the substituted words fit grammatically into the sentence? (syntactically acceptable)
- c. Do the substituted words make sense within the whole passage? (semantically acceptable)

Taking into consideration the above three aspects, it can be said that there are certain measurements that need to be considered before a substitution miscue is regarded as graphophonically, syntactic or semantically acceptable. Graphophonics is a system that attends to the graphic and sound features of a word of which readers makes use as they read a text. The graphic features refer to what the word actually looks like, or its physical appearance in orthography or print. The sound features refer to how the reader's responses to a word sound like the expected by the sound of the various letters and letter

combinations (Goodman, Watson & Burke, 2005). The following examples explain graphic and sound similarity in detail.

Text word (ER)	Miscue (OR)	Graphophonic similarity
Bracket	<i>breaket</i>	Yes (Y) - high degree of visual/auditory similarity: two or more parts of the OR look like two or more parts of the ER and appears in the same location (Goodman, Watson & Burke, 2005, 91-93)
Thrust	<i>twisted</i>	Partial (P) - some degree of visual/auditory similarity: one part of the OR look like one part of the ER and appears in the same location (Goodman, Watson & Burke, 2005, 91-93)
Which	<i>And</i>	No (N) - no degree of visual/auditory similarity: no degree of graphic similarity exists between the OR and the ER (Goodman, Watson & Burke, 2005, 91-93)

Syntactic acceptability refers to the degree to which the readers produce acceptable grammatical structures. The following examples explain syntactic acceptability in detail.

Text sentence (ER)	Miscue sentence (OR)	Syntactic acceptability
He had brought a torch with him which he <i>thrust</i> into a bracket set high up in the wall so that sparks wouldn't set the straw on fire.	He had brought a torch with him which he <i>twisted</i> into a bracket set high up in the wall so that sparks wouldn't set the straw on fire.	Yes (Y) - miscue completely syntactically acceptable within complete sentence and within the entire text (Goodman, Watson & Burke, 2005, 135) The reader replaces the verb <i>thrust</i> with another verb <i>twisted</i> and produces a syntactically acceptable sentence.
<i>It</i> would not do to lose control.	<i>He</i> would not do to lose control.	Partial (P) - miscue acceptable with first or last part of sentence but not within the complete sentence. Or, the miscue is syntactically acceptable within the

		<p>sentence, but not within the text (Goodman, Watson & Burke, 2005, 135)</p> <p>The reader replaces the pronouns <i>It</i> with another noun <i>He</i> and produces a first part of the sentences acceptable but not within the complete sentence.</p>
It was unnerving the way Paolo did that.	It was inerving the way Paolo did that.	<p>No (N) - miscue is not syntactically acceptable within the sentence</p> <p>The reader replaces the word <i>unnerving</i> with a non-word <i>inerving</i> and produces not syntactically acceptable sentence.</p>

Semantic acceptability focuses on the success with which the reader produces meaning within an acceptable structure. Semantic acceptability depends on syntactic acceptability. Therefore, if the miscue is syntactically unacceptable, the miscue is considered semantically unacceptable, because a miscue cannot be coded higher semantically than syntactically (Goodman, Watson & Burke, 2005). The following examples explain semantic acceptability in detail.

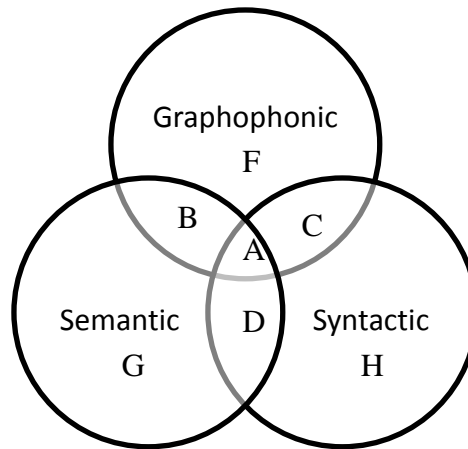
Text sentence (ER)	Miscue sentence (OR)	Semantic acceptability
He had brought a torch with him which he thrust into a bracket set high up in the wall so that sparks wouldn't set the straw on fire.	He had brought a torch with him which he twisted into a bracket set high up in the wall so that sparks wouldn't set the straw on fire.	<p>Yes (Y) - miscue completely semantically acceptable within complete sentence and within the entire text (Goodman, Watson & Burke, 2005, p.135)</p> <p>The reader replaces the verb <i>thrust</i> with another verb <i>twisted</i> and produces a semantically acceptable sentence.</p>

It would not do to lose control.	He would not do to lose control.	Partial (P) - miscue acceptable with first or last part of sentence but not within the complete sentence. Or, the miscue semantically acceptable within the sentence, but not within the text (Goodman, Watson & Burke, 2005, p.135) The reader replaces the pronouns <i>It</i> with another noun <i>He</i> and produces a first part of the sentences acceptable but not within the complete sentence.
It was unnerving the way Paolo did that.	It was inerving the way Paolo did that.	No (N) - miscue is not semantically acceptable within the sentence The reader replaces the word <i>unnerving</i> with a non-word <i>inerving</i> and produces not semantically acceptable sentence.
He had brought a torch with him which he thrust into a bracket set high up in the wall so that sparks wouldn't set the straw on fire.	He had brought a sock with him which he thrust into a bracket set high up in the wall so that sparks wouldn't set the straw on fire.	No (N) - miscue is not semantically acceptable within the sentence The reader replaces the noun <i>torch</i> with another noun <i>sock</i> and produces not semantically acceptable sentence even syntactically acceptable.

Arnold (1982) has introduced a useful simple diagram to show how far the reader uses all the available cueing systems, by showing all recorded substitutions as members of overlapping sets in the Venn chart. Diagram 3.10, below, presents the overlapping sets. According to Arnold (1982) the best substitutions take place in area A, where all three systems are being used, and for the area B, C and D, the readers are using two out of three

of the cueing systems. For the area F, G and H the readers are only using one cueing system, and there are sometimes substitutions which fall outside the Venn diagram when none of the three cueing systems are used.

Figure 3.9: Substitution Diagram



Miscue Analysis Conducting Procedures in this Research

In this research recorded and unrecorded miscue analysis procedures are mixed according to Goodman, Watson & Burke, (2005). The following procedures were used:

1. The participants were asked to bring their own current reading materials in RE1 and I chose reading materials for them in RE2.
2. The participants were told before each session that they would not be assisted during the reading, and they were reminded to read as if they were on their own.
3. The participants were informed that the oral reading sessions would be tape recorded. They were also informed of the purpose of this recording.
4. The participants read directly from the original text. This was important because it gave me insights into the typography elements that may have affected them during reading.

5. During the oral reading sessions the participants received no assistance. If they hesitated more than 60 seconds, they were encouraged to use phonic method to sound the word. All the participants were familiar with using the phonic method since the school uses this method to teach primary reading skills in the reception class.
6. An identical typescript of the original passage was prepared, in order to mark the miscues. The typescript was twice double spaced in order to clearly record the miscues.
7. A miscue coding guideline sheet was prepared to standardize the marking system between me and the second markers for a number of typescripts (see Appendix 3.4).
8. All readings were audio-taped, transcribed, and analyzed afterwards.
9. The recorded oral readings were heard a few times in order to verify, revise and code the participants' miscues on the prepared typescript (Appendix 3.5).

Miscue Analysis Data Analysis Procedures

To analyze the data from the miscue analysis, I decided to mix the procedures used by Arnold (1982) and the In-Depth Procedure used by Goodman, Watson & Burke, (2005). The In-Depth Procedure miscue data analysis was used because it allowed the exploration of the miscue itself in relation to other miscues produced by the readers within the sentence or the entire story (Goodman, Watson & Burke, 2005). The information collected by this analysis demonstrated what each participant was actually thinking of while producing each miscue.

Consequently, the In-Depth Procedure miscue data analysis allowed me to identify how the readers made use of the three cueing systems to construct meaning during the reading process. *"This procedure also allows the teacher/researcher to observe how*

readers use their sampling, predicting, inferring, correcting, and integrating strategies since each miscue is analyzed individually within the sentence but in relation to other miscues" (Goodman, Watson & Burke, 2005, p. 7).

Numerical data from the miscue analysis produced information regarding the reader's use of reading strategies within the context of the sentence and within the context of the story (Livingston, 2006). Moreover, the substitution diagram by Arnold (1982) was used to show the level of the participants' use of all the available cueing systems, by showing all the recorded substitutions as members of overlapping sets in the Venn chart. Hence, Arnold's (1982) substitution diagram clearly showed whether the participants were using one, two or three cueing systems in order to construct meaning while reading. To analyze the collected data, the following procedures were employed:

1. I listened to the taped oral readings and coded all the miscues by the participants on the prepared typescript. Since I am not an English native speaker, a second marker who is an English native speaker was involved in the research to increase the reliability of the coded miscues. In this context, I was the first marker and the English native speaker was the second marker. Hence, the second marker listened to the same recordings and coded the miscues on a different typescript. The second marker coded the miscues without any discussion with the first marker. Nevertheless, she was informed as to what she was supposed to do and how to code the miscues using the symbols provided in the miscue coding guideline sheet (see Appendix 3.4 and Appendix 3.5). Twelve similar recordings (19% of the overall recordings available in this part of the research) were given to the second marker.
2. To determine the quality of the markings collected by the two markers, I checked for inter-rater reliability. According to Stemler (2004), inter-rater reliability is the

level of agreement between a particular set of raters on a particular instrument at a particular time. He further categorizes inter-rater reliability into three types: 1) consensus estimates, 2) consistency estimates, or 3) measurement estimates. In this research I only computed consensus estimates and consistency estimates in order to examine the degree of the markers' agreement and to verify the markers' consistency in classifying the miscues according to the coding guideline.

3. To see the consensus estimate of inter-rater reliability I used the simple percent-agreement figure. Percent agreement is calculated by adding up the number of typescripts which received the same marks by both markers, and dividing that number by the total number of typescripts marked by the two markers. The results showed that 89% of my marked miscues were the same as the second-rater. The result from the inter-rater reliability indicated that there was consistency in my marking. Subsequently, I continue to analyse the rest of the recordings of the participants' miscues, with some confidence that my analysis was consistent. Further, inter-rater reliability was also undertaken to check the consistency of my miscues rating. This is done by discussion with my supervisor to establish agreement as to each miscue in two samples of participants' typescripts. Disagreements were settled by consensus. Next, I continue to analyse the rest of the typescripts of the participants' miscues, with some confidence that my analysis was consistent.
4. The coded miscues were then transferred to a miscue analysis coding form to analyze their patterns. This form was a modified version of the In-Depth Procedure

miscue analysis form by Goodman, Watson & Burke, (2005) (see Appendix 3.6).

The miscues coded on the typescript were substitutions and corrections.

5. For the purpose of this research, only substitution and correction miscues were analyzed. This is because previous research has found that substitution and correction miscues have the capability to provide information regarding the reader's ability to use the three cueing systems and their aptitudes in comprehension (Goodman, 1977) Related to this argument, Englert and Sammel (1981) have reported that only two substitution miscue types were significantly related to comprehension performance. These are nonsense miscues and visually different miscues. They have further claimed that the reader who produces a high number of nonsense substitution miscues may not comprehend adequately. Other related research has shown that some types of miscues are less worth of analysis because they can offer limited information. As D' Angelo and Mahlios (1983) have observed, insertion and omission miscues provide such a small amount of information that it is not significant to analyze it:

“Stated positively, when these subjects made insertion and omission miscues, 99% of the time semantics were not distorted and 93% of the time syntax was not distorted... among good readers at instructional level, 80 to 90% made two or fewer insertions and equally few omissions in either average or difficult material. Among poor readers these percentages were similar. Again, these figures indicate that most readers, good and poor, made small numbers of insertions and omissions” (D' Angelo and Mahlios, 1983, p. 781).

6. The substitution miscues were further analyzed to identify their graphophonic, syntactic and semantic acceptability. To increase the reliability of this analysis, three coding forms were discussed with my supervisors to evaluate my judgement of graphophonic, syntactic, and semantic acceptability. In addition, ongoing

discussions with my supervisors were held throughout my analysis period about any substitution miscues which I was not confident to judge in terms of their graphophonic, syntactic and semantic acceptability.

7. The coded graphophonically, syntactically and semantically acceptable substitution miscues were later transferred into the substitution diagram to further analyze their patterns.

3.4.5.4 Retelling

Rationale

In this research, miscue analysis was used to assess the strategies the readers used while reading. Although in terms of this research miscue analysis was used as a method to assess text comprehensibility, there may still be weaknesses in it. One of the drawback factors is that miscue analysis is not strongly related to word identification or passage comprehension (Vellutino, 1991). Therefore, retelling was used to elicit the participants' comprehension as a complement to the miscue analysis procedure. Retelling was also used, because it could deliver holistic representations of the readers' understanding rather than the fragmented information provided by answering comprehension questions (Bromley cited in Moss, 2004).

Additionally, retelling could avoid assessing comprehension by using questions which regularly contain clues to the expected response (Goodman, 1973; Hansen, 1978). Instead, the examiner could probe using information already given by the reader to draw out further information (Goodman, 1973). In addition, this research explored the readers' strengths and the strategies they used to understand and construct meaning while reading. Consequently, retelling was an appropriate method to be used because it "provides insights

about children's ways of constructing meaning from text and their ability to organize information" (Moss, 2004, p. 712).

Retelling Sessions Procedures

Retelling can be used as an assessment and instruction tool for comprehension. In terms of this research, it was used as a tool to assess comprehension. The retelling procedures in two earlier studies were reviewed, and later used as a guide to develop this research's retelling procedures.

Hansen (1978) has used retelling to investigate the comprehension abilities of learning disabled students. In her research, the retelling procedures were conducted in three stages. In the first stage, prior to the actual data collection, the students were given the chance to practise retelling by reading the first-grade oral reading selection from Durrell Analysis of Reading Difficulty and retelling the passage in their own words. In the second stage, during the actual data collection, the students were asked to read orally either the third or fifth-grade from *Durrell* and to be prepared to retell the story afterwards. During the retelling session, if the students stopped talking, the examiner could probe using cues, such as '*can you tell me more?*' (Hansen, 1978, p. 64). In the final stage, the examiner orally read the corresponding comprehension questions provided by the Durrell and the students were expected to respond to the questions orally.

Additionally, Pearman (2008) used retelling in her research to examine whether young students with different levels of reading proficiency would score higher on an oral retelling when given a text for reading, presented via CD-ROM storybook format rather than a traditional print out format. In this research the retelling procedure started by asking the students to read the traditional format either silently or aloud depending on their personal preference. The students were asked to treat the reading session as if they were

reading for a personal purpose. After completing the reading passage, the students performed an oral retelling, following the cues of “*Tell me about the story*” or “*Can you tell me about the story that you just read?*” Pearman prompted the students who were reading aloud with “*Pretend you are telling this story to your friend that has never read it before. What will you tell them?*” According to her, this prompt was used to avoid retelling less information because they knew the examiner had just heard the story. During the retelling if the students stopped talking, the examiner could prompt them with “*Can you tell me more?*” or “*What happened next?*” (Pearman, 2008, p.598 if its a quotation, put it all in italics). She also gave prompts during retelling to avoid assisting the students on the content.

Both Hansen’s (1978) and the Pearman’s (2008) retelling sessions were audiotaped, and later, each student’s retelling was transcribed. Reading materials in these studies were carefully chosen by the researchers. Hansen (1978) used reading materials taken from *Durrell*, and Pearman (2008) used books chosen by using the classification system developed by *Fountas and Pinnell*.

This research’s retelling procedure was based on Hansen’s (1978) and Pearman’s (2008) ones, with some adjustments to fit the aims. The following procedures were followed:

1. The participants were asked to bring their own current reading materials in RE1 and the researcher chose reading materials for them in RE2.
2. The participants were told before the session that they would not be assisted during the reading, and they were reminded to read as if they were on their own.
3. The participants were asked to read aloud the text given to them. Upon the completion of the reading of each text, they were prompted with “Can you tell me

what you have just read?” They were given a choice as to whether to read through the text again if they did not have the confidence to start the retelling.

4. During the retelling, if the participants stopped talking, the researcher prompted them with "Is there anything else you want to tell me?" The retelling sessions finished when the participants indicated that they had nothing else to say.
5. No comprehension questions were asked at the end of the retelling sessions.
6. The participants were informed that the retelling sessions would be tape recorded. They were also informed of the purpose of this tape recording.

Retelling Data Analysis Procedures

To analyze the collected retelling data the following procedures were employed:

The researcher transcribed the participants’ retelling exactly how the participants retold it.

1. The transcribed retelling was then transferred into a coding sheet that the researcher had created, in order to help her evaluate the quality of the retelling. This coding sheet called Retelling: Inter-rater grading sheets (see Appendix 3.7).
2. There are two types of assessments to evaluate the quality of oral retelling: quantitative and qualitative assessments (Morrow, 1988).
 - a. Quantitative assessment requires the examiner to parse the text into units (see Appendix 3.9). The units can be characters, plot, setting, and elements of the story structure. Transcription of the reader’s retelling is then parsed into identical units and compared with the text units. The match between the transcription units and text units signify the reader’s comprehension score (Morrow 1988).
 - b. Qualitative assessment of retelling refers to holistic grading systems (Morrow, 1988) (see Appendix 3.10). The principle of this assessment is

that retelling is best viewed in its totality, rather than its isolated parts. This assessment focuses on the reader's deeper understanding of the text by considering the reader's generalization beyond the text, including summary statements, interpretations, and biases for or against some types of information. Apart from this, this assessment is also able to point out coherence, completeness and comprehension. To conduct this assessment the examiner needs to judge the reader's retelling as a whole piece by assigning the retelling's richness based on a set of criteria that distinct level of the retelling richness. In accordance with the above facts, it was found that Irwin and Mitchell (1983) had developed a set of criteria that distinguish the level of the retelling richness, and which contains five levels of richness that is called the *Judging Richness of Retellings* (see Appendix 3.8).

3. Underpinning the quantitative and qualitative assessment for retelling, discussed above, it was felt that a qualitative assessment of retelling would be effective to judge participants' retelling in this research. This is because the nature of this research's data collection process for RE1 required the participants to bring their own reading texts. Therefore, the researcher, as an examiner, did not have the chance to see the text before the actual retelling data collection. Hence, it would have been impossible to parse the texts as suggested in a quantitative assessment. For this reason, a quantitative assessment was found not appropriate to be used in this research. Furthermore, retelling was used in order to seek the participants' comprehension of the text they read. Consequently, qualitative assessment was a better choice in judging retellings because this assessment can point out the

participants' coherence, completeness and comprehension of the text. The scoring scheme *Judging Richness of Retellings* by Irwin and Mitchell (1983) was used in this research.

4. The retellings were analyzed by being read as a whole and judged for their quality according to a set of criteria introduced by Irwin and Mitchell (1983) that contain five levels of richness in retelling.
5. To judge the examiner's grading reliability an inter-rater test was conducted. A second and third rater was involved in this research to increase the examiner's grading reliability. In this context, I was the first rater as an examiner. The second and third raters were informed of what they were supposed to do and how to grade the participants' retellings based on the *Judging Richness of Retellings* scoring scheme. 12 retelling typescripts (19% of the overall typescripts available in this part of the research) were given to the second and third marker (Appendix 3.7 and Appendix 3.8).
6. Two raters that were involved in judging the retellings were two final year PhD students. Both of these students had experience of teaching in school before they pursued their PhD in Corpus Linguistics and EdD in Applied Linguistics and TESOL. To determine the consistency between raters, Cronbach's alpha coefficient was used. Cronbach's alpha coefficient "*is a measure of internal consistency reliability and is useful for understanding the extent to which the ratings from a group of judges hold together to measure a common dimension*" (Stemler, 2010, p. 1). The Cronbach's alpha coefficient result for this analysis was .78. DeVellis, 2003 (cited in Pallant, 2007) recommended that, ideally, the Cronbach's alpha coefficient

of a scale should be above .7. Therefore Cronbach's alpha coefficient of scale .78 in this research shows a satisfactory value, which indicated there was a good agreement between the raters. In other words, my judgements as to the participants' retelling were consistent when comparing them with those made by the other two raters. Subsequently, I continue to judge the rest of the retellings, with some confidence that my judgment was consistent.

3.4.5.5 Interviewing

Introduction

The fifth data collection method in this research was the interview. An interview is defined as '*a special form of communication between people for a specific purpose associated with some agreed subject matter*' (Anderson, 1990, p. 222). Thus, the purpose of interview in this study was to explore the participants' feelings about the texts they read, the text elements that helped or hindered their ability to read, and their reading strategies and motivation to read.

Rationale

Given that this study's main aim was to discuss the participants' feelings towards the texts they read, the interview was identified as the most appropriate method to explore their inner thoughts, as an interview is '*a distinctive research technique used as the principle means of gathering information by providing access to what is inside a person's head... possible to measure what a person thinks i.e. attitudes and beliefs*' (Tuckman, 1994, p.216). Moreover, using interviews allowed me to penetrate into the inner world of the participants, and gain an understanding of their perspectives (Patton, 2002), on their reading strategies, and motivation to read. Furthermore, through interviewing, I was able to elicit the text elements that they thought had helped or hindered their ability to read.

“The purpose of qualitative interviewing is to capture how those being interviewed view their world, to learn their terminology and judgments, and to capture the complexities of their individual perceptions and experiences... The fundamental principle of qualitative interviewing is to provide a framework within which respondents can express their own understandings in their own terms.” (Patton, 2002, p. 348)

This study’s interview aims included the exploration of the participants’ feelings about the texts they read, the text elements that helped or hindered their ability to read, and their reading strategies and motivation to read, which influenced the concept of readability. Therefore, the interview was found to be an appropriate method for this purpose because one of the main purposes of an interview as an instrument is that *‘it can be an exploratory device to help identify variables and relations, to suggest hypotheses, and guide other phases of the research’* (Kerlinger, 2000, p. 693). Finally, the interview was used in conjunction with other methods, to go deeper into the participants’ reasons for responding as they do in reading aloud and retelling sessions. This was done because an *‘interview can supplement other methods, and go deeper into the motivations of respondents and their reasons for responding as they do’* (Kerlinger, 2000, p. 693).

Interviewing Conducting Procedure

Two interview sessions were carried out. The first interview was conducted as part of RE1 and the second as part of RE2. The same procedures were used in both RE1 and RE2. This procedure was divided into three phases: pre interview, interview, and post interview.

Pre-Interview

Designing the interview

Based on this study’s aims and the associated background literature, two interview protocols called the RE1 Interview Protocol and the RE2 Interview Protocol were developed in order to investigate the participants’ reasons for choosing the book in RE1

and reasons for liking the book in RE2, their background knowledge on the topic found in the text in RE1 and RE2, their motivation to read, elements that helped them to read, their reading strategies and interest in reading, their self esteem regarding reading, and their attitudes towards and understanding of reading.

Based on the aim to explore the participants' perspective on certain matters, a standardized open-ended interview approach was considered the most appropriate tool to elicit the needed data. Within this approach, the interview questions were all written out, and I read them exactly as written, and in the same order to all the participants (Johnson & Christensen, 2008). The questions were all written in order to be piloted so that the terms and language used would be appropriate and understandable by the samples. This was important, because the type of language used and the complexity of grammar might have a great impact on the participants' ability to answer a question (Wilson, 2001). Furthermore, I interviewed a group of participants at a very young age, some below six years old. Hence, it was noticed that these young participants' concentration span in doing activities was short (Lustig, 2002). Apart from this, the time allowed for interviewing was limited because the sessions could be done during their reading periods only. Therefore, by applying a standardized open-ended interview approach, the interviews would be highly focused, such that the participants' time could be used efficiently (Patton, 2002). Moreover, this research involved 32 participants. Hence, by using standardized open-ended interview the analysis would be easier because it would be possible to trace and compare each respondent's answers to the same question quickly and arrange questions and answers that were related (Patton, 2002). The interview questions in this research combined direct and indirect question formats. Each main question was followed by probes or specifying questions to obtain elaboration or more specific details in the given information (Patton,

2002). There were two interview protocols in this research: the RE1 Interview Protocol and the RE2 Interview Protocol. The RE1 Interview Protocol included more questions compared to the RE2 one. This was because the questions that aimed to elicit the participants' interest and self-esteem on reading, strategies to comprehend and understanding of reading were not asked in RE2, because they revealed the participants' personal knowledge on reading and that was enough to be asked only once.

The RE1 Interview Protocol

	Questions	Aims to elicit the participants':
1	What made you choose that book? What makes that book interesting? What else makes you like that book?	Reasons for choosing the book. Motivation to read. Elements that help them to read the text.
2	In the story... Do you have any similar experience? Could you tell me your experience? When did this happen?	Background knowledge on the topic or story in the book that they read.
3	What other books do you read? What makes you read those books? What else makes you read those books?	Interest on reading. Motivation to read.
4	When you are reading and cannot understand something, what do you do? What else could you do? Anyone helps you? How does she or he help you?	Reading strategies to comprehend the text that they read. Elements that help them to read.
5	How do you choose a book to read? What else do you do?	Reading strategies to comprehend the text that they read. Elements that help them to read.
6	If you were going to create a book, what would you include in it? What else would you include? What makes you want to include these in the book?	Elements that help them to read.

7	Are you a good reader? What makes you a good reader? Who else is a good reader? What makes him or her good reader? Or Who is a good reader that you know? What makes him or her good reader?	Self esteem on reading. Strategies to comprehend the text.
8	Why do you read? What else makes you read?	Self esteem on reading. Strategies to comprehend the text.
9	What is reading?	Understanding of reading.

The RE2 Interview Protocol

	Questions	Aims
1	Is that book easy or difficult for you? What makes that book easy or difficult to read*? What else makes that book easy or difficult to read*? *depends on the answer	Reasons that make the book easy or difficult to them.
2	Do you like reading that book? What makes you like that book? What makes the book interesting?	Reasons to liking the book in RE1. Motivation to read. Elements that help them to read the text.
3	In the story... Do you have any similar experience with the story you just read? Could you tell me about your experience? When did this happen?	Background knowledge on the topic or story in the book that they read.

Piloting the Interview

This study's interview questions were piloted twice. The first pilot sessions were conducted informally with some friends' children, and the second were done formally in a school in the Coventry area. The questions were piloted in order to make sure that their content would cover all the information needed to answer the research questions. Apart from this,

the main aim was to make sure that the language used and the grammar complexity were on the same level as the participants' ability to understand, in order to answer the questions.

I also wanted to find out about the duration of the interview sessions in order to plan the data collection length. Moreover, I went through the interview questions with fellow colleagues, to ascertain whether any content was repeated and whether the sequence was appropriate. All participants in both the first and second pilot study were English native speakers. Therefore, their ability to understand the interview questions was the same as the participants who were English native speakers. This was also part of this research's limitations, as it did not include second language interference as data included in the analysis.

While piloting the questions, I realized that some of them made the participants tired and lose their concentration, and this happened especially to the *beginner* participants. Initially, there were forty questions used during the pilot study. Hence, each session lasted for about fifty minutes. I also realized that a number of questions were asked in order to elicit similar information as for example: '*Why do you like that book?*', '*Why do you choose that book?*' and '*What motivates you read that book?*' In addition, I found out that a few of the questions used terms and vocabulary that could not be easily understood by the interviewees like for example: '*reading material*' and '*motivate*.' Furthermore, I had the chance to practise talking less and listening more to build up my interview skills.

To minimize the above difficulties, I reduced the number of the questions by grouping the one asking about similar information and rewrote them as a single question. Moreover, some of the questions that contained similar content were used as probes to the

main questions to elicit more information. While rewriting the questions I avoided using terms that would be confusing to the participants. I also avoided lengthy questions. As a result, I managed to reduce the questions to only eleven of which nine were used in the RE1 Interview Protocol and three in the RE2 Interview Protocol. Thus, that the questions were reduced, the interview sessions' duration was also reduced.

Making Contacts

Making contact with my participants was one of the challenges I had to face during data collection. This was because I was an international student collecting valuable research data in the United Kingdom. Hence, I had to go through certain procedures before getting the chance to interview my participants. The first requirement needed was a CRB check certificate. This certificate was essential, in that my participants were children under the protection of people set in a position of trust towards them. The second step was that I had to get the permission of the participants' gatekeepers i.e. head teacher, school manager, Year coordinator, class teacher and parents. Through data collection, I realized that I had to build a rapport with the gatekeepers and not only the participants. I found out that it was much easier to conduct my data collection if the school trusted me.

Once I earned the school's trust it was much easier to access the participants and have a suitable place to conduct the interviews. I had developed positive relations with the school's staff by doing voluntary work for one year before the data collection. Through a voluntary project held by the University of Warwick, I was placed in the school to help the teachers. I went to the school twice a month. I had the experience of being placed in Reception, and Key Stage 1 and 2 classes. Through this, I gained valuable experience regarding the United Kingdom educational system, as I was an international student from a different educational system background. Furthermore, the school children became familiar

to me, and later, some of them became my participants. The third step was that after the samples were selected and I had the consent from their parents, with the help of the particular Year class coordinator the participants were gathered in a meeting with me, where I explained the interview purposes and process. During the meeting, the coordinator introduced me to my samples and let them ask any questions regarding the sessions.

Interview Reliability and Validity

This research's interview reliability establishment followed the claim made by Silverman that the reliability of an interview can be achieved through: pre-testing of the interview schedules, training of the interviewers, as many fixed-choice answers as possible, and inter-rater reliability checks on the coding of answers to open-ended questions. Apart from this, the collected interview data had to satisfy the criterion of low inference description which refers to quality achieved through tape-recording of all face-to-face interviews, carefully transcribing the tapes according to the needs of reliable analysis by not handing the problem to an audio-typist, and presenting long extracts of data in the research report – including questions that provoked any answer (Silverman, 2001, p. 229-230).

This research's interview reliability was established by following Silverman's (2001) criteria and the pilot study was used as foundation to alter and test the effectiveness of the interview protocols. The pilot study was also used as a training platform for me to minimize weaknesses due to the lack of practical experience especially in interviewing children, although I had received basic theoretical training by formally by attending the research methods courses (*Foundation Research Methods* and *Advanced Research Methods*) conducted by the Institute of Education, The University of Warwick. Since this research applied a standardized open-ended approach, the criteria '*as much use as possible of fixed-choice answer*' could not be applied to establish reliability. Two colleagues were

involved as inter-raters to two sets of interview transcriptions. They were introduced to the code used by me, and asked to read the transcriptions and code the responses themselves. The aim here was to identify to what extent the choices were similar.

Two of the participants' interview transcriptions were given to two other independent raters (Appendix 3.11). The two independent raters were two final year EdD students. Both of these students were doing EdDs in Applied Linguistics and TESOL, and were also doing research on reading. To determine consistency between the raters, the marked typescripts by each one were compared and the total of similarly coded categories was counted. To determine inter-rater reliability, I used the simple percent-agreement figure. Percent agreement is calculated by finding the percentage of similarly coded categories. The results showed that 87% of my categorizing was the same as that of the other raters. The results of this inter-rater reliability test indicated that there was consistency in my categorising of the data. Subsequently, I continued to analyze the rest of the interview transcriptions with more confidence that my categorizing was consistent.

In order to obtain the interview data with low-inference description criteria, I used a digital voice recorder to record the sessions. Long extracts of the data collected by the interviews are presented in the results chapter of this thesis. Finally, although Silverman (2001) disagrees with the use of a professional audio typist for the transcription of tapes, the large number of participants (thirty two) and time restriction made me ask for help from a fellow researcher who was waiting for her viva exam. A second reason for having someone else doing the transcribing was to preserve the quality or the authenticity of the data. By having someone else transcribe the data, the possibility of summarising while transcribing was avoided. This was important, because sometimes valuable data may be excluded without one realizing it. Nevertheless, I checked the transcription by listening to

the tapes as I read them. As a result, this offered an opportunity for me to immerse myself in the data (Patton, 2002).

Regarding interview validity, Cohen, Manion, Morrison & Dawson, (2007) have stated that the most practical way of achieving greater validity in an interview is to minimize the amount of bias as much as possible. According to Oppenheim (1992) biases in interviewing may be caused by: biased sampling, poor rapport between the interviewer and the interviewee, changes to question wording, poor prompting or biased probing, poor use and management of support materials, alterations to the sequence of the questions, inconsistent coding of responses, selective or interpreted recording of data or transcripts, and poor handling of difficult interviews.

For this research's interview validity, the pilot study was used as a base to minimize biased sampling by having the teacher of the school choose the participants according to their own criteria. Additionally, the pilot study was used as a foundation which allowed me to build up rapport with the participants. In this research two interview protocols were used for all participants. Hence, bias in terms of changes to question wording, poor prompting and biased probing, and alterations of the sequence of questions, was avoided. The pilot study was also used as a platform to strengthen my interviewing skills. Hence, poor handling of difficult interviews and poor use and management of support materials were minimized by having the confidence to conduct the interviews with various types of children after the pilot study. The biases of inconsistent coding of responses and selective or interpreted recording of data or transcripts were minimized by having two fellow research colleagues as inter-raters for random interview transcription.

Interview ethical issues

Ethical issues within interviewing have been taken into consideration in this research and referred to confidentiality and data access and ownership. These facts were clearly stated in the informed consent and information sheets that were sent to the head teachers when seeking their permission to conduct the research in their school (Appendix 3.15 and 3.16). The informed consent process is described in details in section 3.6.

Interviewing

1. To start my interview sessions I asked the participants open-ended questions regarding their recent activity. After the participants had relaxed, I once again explained the purposes and process of the interviews. They were also informed that they were allowed to withdraw if they felt uncomfortable. I once again asked for their consent to record the sessions. A digital recorder was used to record the interviews.
2. The interview sessions were conducted in two different places. The participants from Year one to five were interviewed in the school library. When the library was used by another teacher I was allowed to use the teacher's classroom to conduct the interviews. The library was a comfortable and conducive place to conduct the interviews because it was quiet and private. Although the library was a private area, its location was strategic because it faced Year one and three classes. As a result, the participants did not feel isolated during the sessions. The participants from the Reception class were interviewed in a quiet room, located in the Reception class itself. The room wall was made of glass and had a door that subdued the noise. This quiet room was used for the one to one reading activities of the Reception pupils

and the teacher or any volunteer parents. Hence, it was conducive because the samples were used to the room and felt safe to be interviewed there.

3. I had to ensure that all questions in the RE1 and RE2 Interview Protocols were asked to all participants. Although I had the protocols with me, sometimes I had to re-phrase a question to some of the participants in order to obtain the exact answer I wanted from them. Sometimes I used probes to obtain additional information or ask for clarification. At the end of the interview sessions, the participants were told that their participation and cooperation were highly appreciated. They were also assured that the data collected would be used only for answering the research questions.

Post-Interview

Immediately after the interview sessions, I listened back to the digital voice recorder to check whether the recording was of good quality. After this, I transferred the recording to the computer and labelled it. The transcribing process took place after all the recordings had been labelled. Half of the data was transcribed by a fellow researcher who was waiting for her viva exam. The interview data analysis was divided into three stages: 1) data preparation, 2) data analysis design, and 3) data organization which consisted of coding a system and patterns and themes building.

The interview data preparations started as soon as the sessions finished. The first step was to make sure that the recorded sessions were in good condition. Next, the recordings were labelled, and to assure the participants' anonymity all recorded data were labelled using an alphabet letters and numbers system to indicate the participants: from C01FY, C02FY to C32MB. The transcribing process was carried out by me and a fellow researcher.

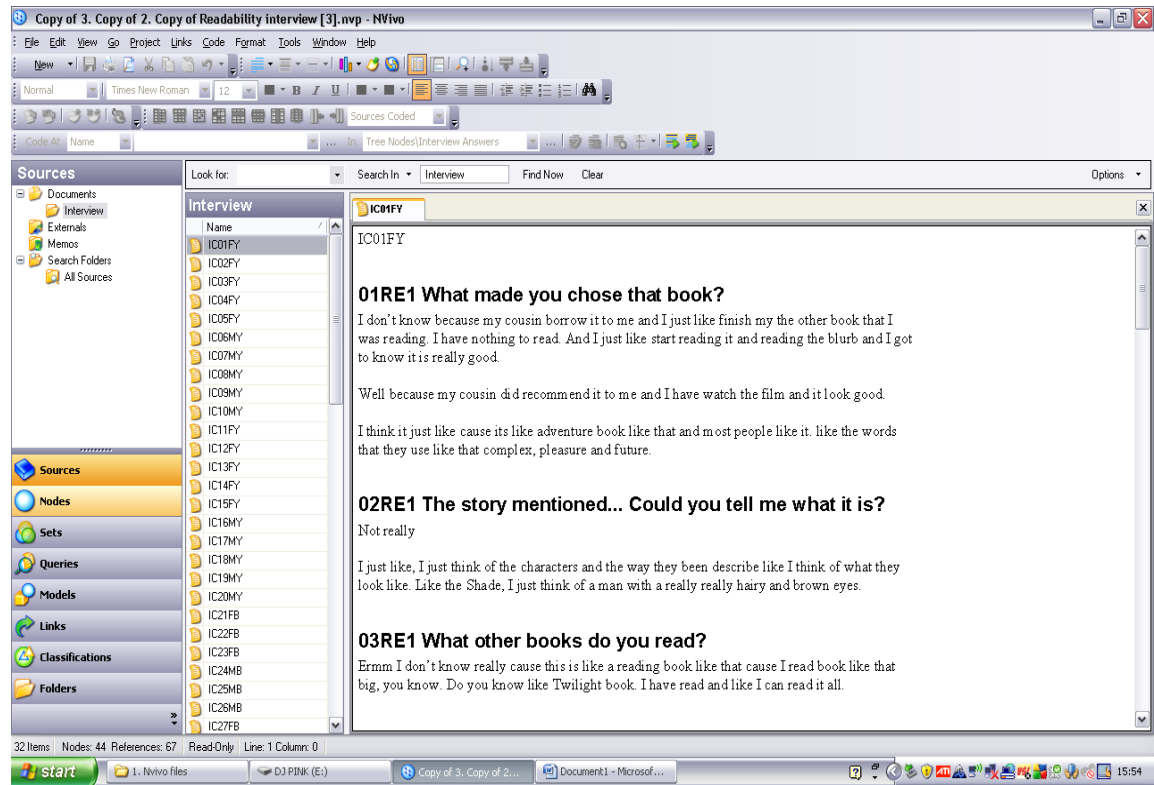
A standardized transcribing system was set up between me and the transcriber, to assure that the data was in the correct form for transcribing word for word the interviewee's conversations. The transcriber was given the interview protocol to let her know the interview questions. Finally, I formatted all the questions in the interview transcription scripts as '*Headings 1*' (an *auto format style* feature in MS Word) as a preparation for analyzing the interview transcription in Nvivo7.

Interview Data Analysis Procedure

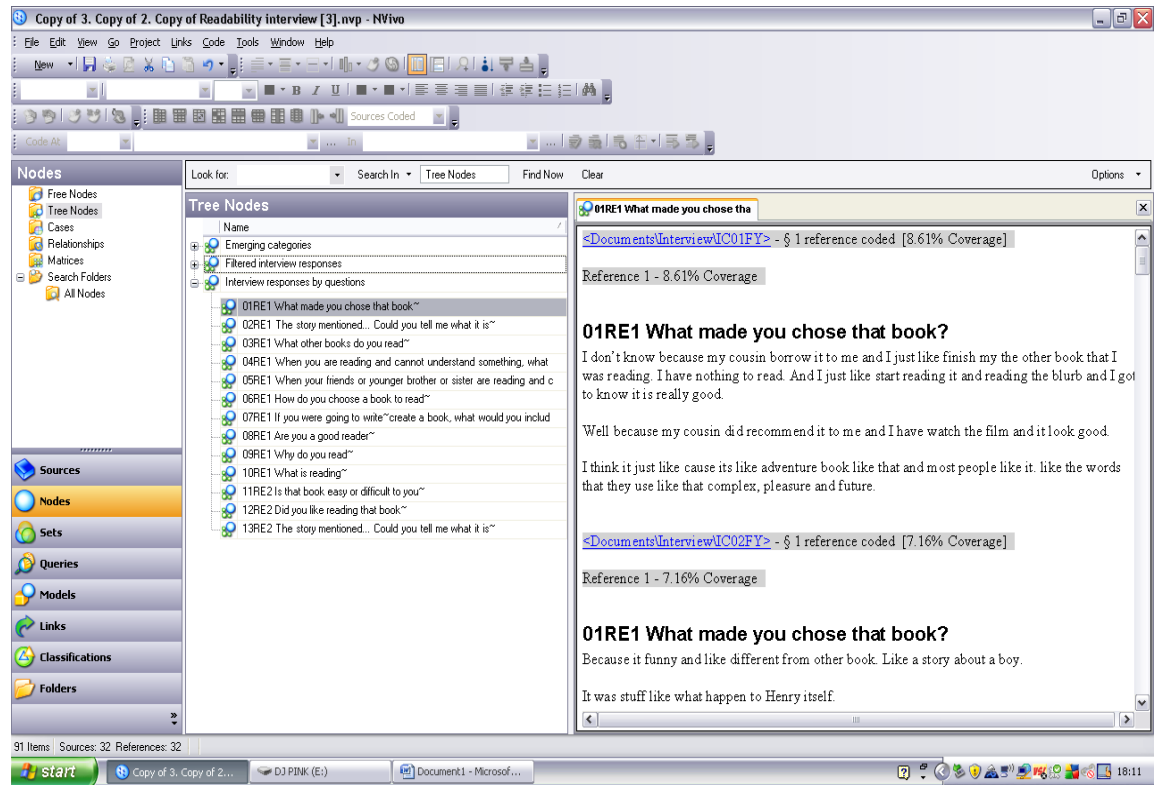
The interview data collection has a standard open-ended approach. According to Patton (2002) data collected through a standard open-ended approach are best analyzed using cross-case or cross-interview analysis approaches. He further stated that '*cross-case analysis means grouping together answers from different people to common questions, or analysing different perspectives on central issues*' (Patton, 2002, p. 440).

Thus, the interview analysis design used a cross-case analysis with responses to the interview organised questions by questions (Patton, 2002). Next, the data that had been organised question by question were analyzed using a content analysis approach. Cohen, Manion, Morrison & Dawson, (2007, p. 476) stated that '*content analysis involves coding, categorising (creating meaningful categories into which the units of analysis – words, phrase, sentences etc. – can be placed), comparing (categories and making link between them), and concluding – drawing theoretical conclusions from the text.*'

The interview data was analyzed using the computer qualitative data software Nvivo7. The first step to data organisation was to import the transcriptions into Nvivo7 by creating a file called *Interview* in the *Sources* field.

Figure 3.10: Document imported into Nvivo7

As mentioned before, a cross-case analysis was used, with the responses being organised question by question. Hence, the next step was to sort out the responses according to the relevant questions. This was done by *autocoding by headings* all the imported MS Word documents of the transcriptions within Nvivo7. As a result, the responses were sorted out according to the relevant questions.

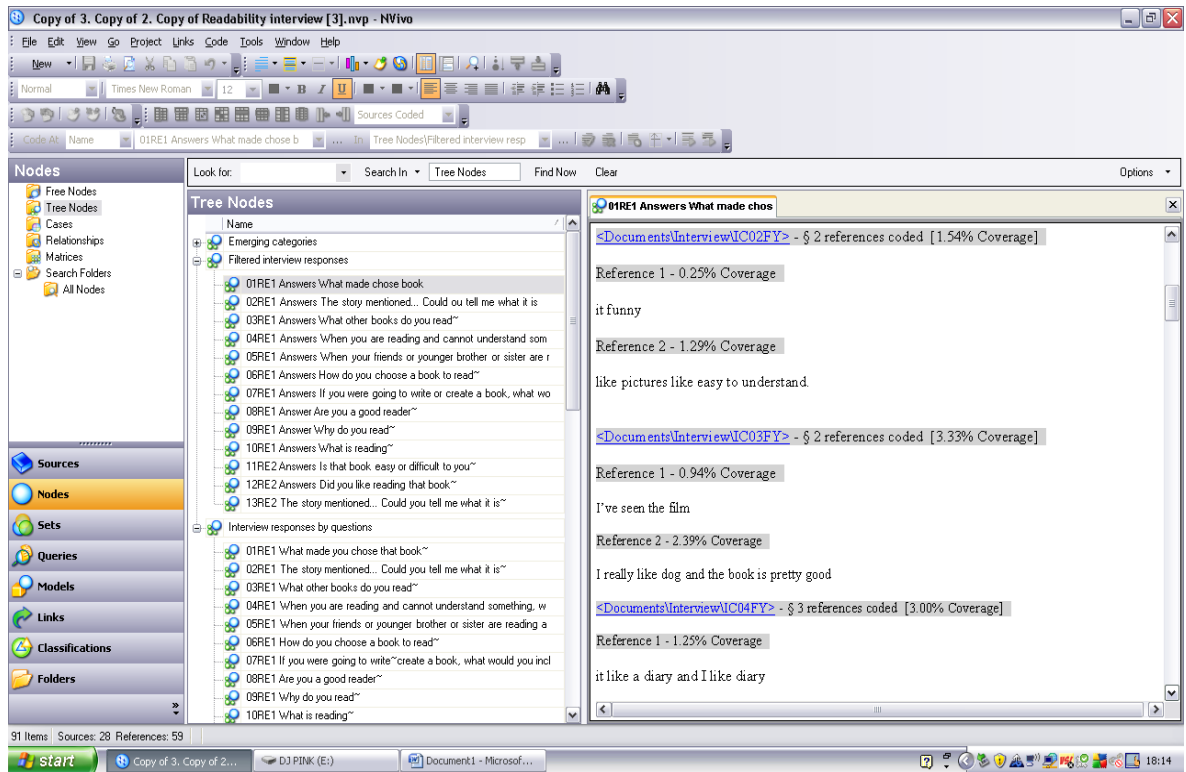
Figure 3.11: Responses sorted questions by questions in Nvivo7

These responses were stored in a Nodes field (a Nodes field is where the categories and coded texts are held in a treelike structure within Nvivo and its function was to show the hierarchical structure of the categories; within Nodes there are Tree Nodes and sub-nodes and these were the way to formalize the hierarchy structure within the data). I labelled the responses *interview responses by questions*. Altogether there were 13 questions asked during the interviews; nine questions were asked in RE1 and three in RE2. Hence, there were 13 sub-nodes under the *interview response by questions* category.

Next, I coded words, phrases or sentences from the responses that were thought to be useful and important when answering each question, stored them in the Tree Nodes, and referred to them as a *filtered interview responses* category. Since the coding process of the responses was in question by question form, the *filtered interview responses* category was

also stored in question by question form, and had 13 sub-nodes. The reason was to let me have a sense of the whole idea of the coded responses to each question before categorizing them. Hence, I felt I could be more focused when undertaking the categorization.

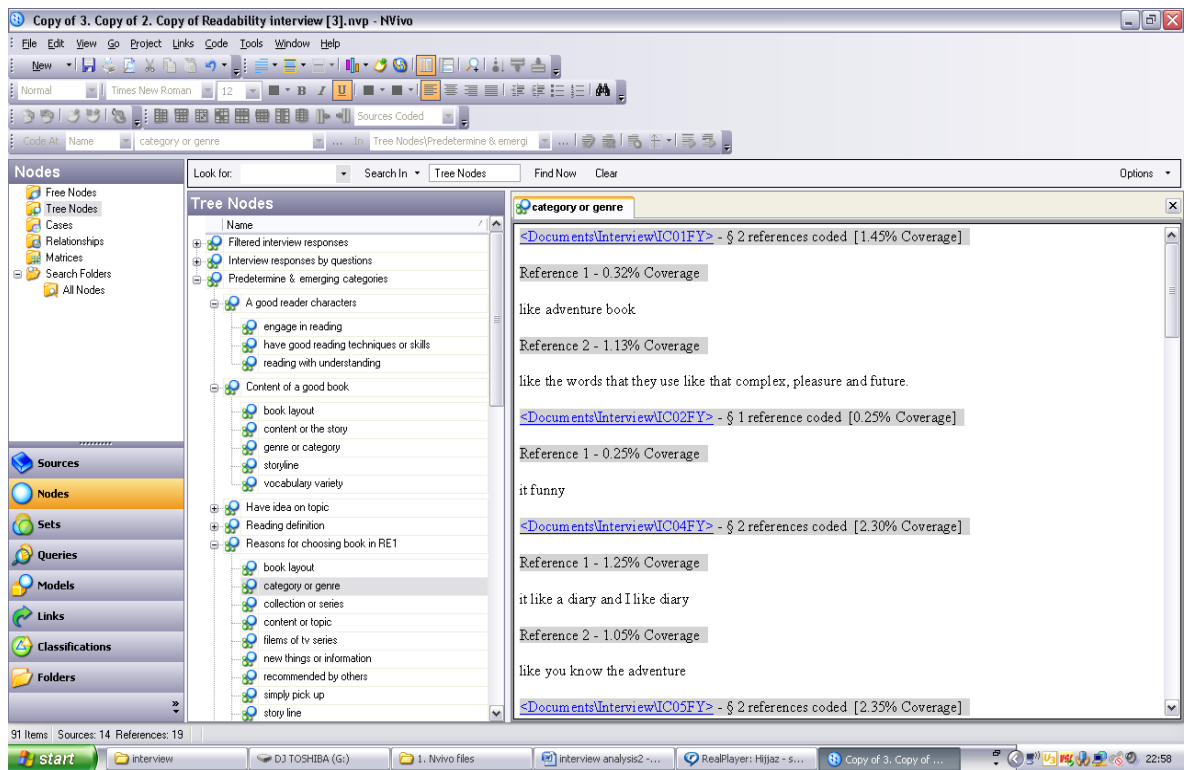
Figure 3.12 Filtered responses stored questions by questions in Nvivo7



The categorizing processes started by creating *predetermine categories* from the variables found in the questions, in order to focus on the main aims which included: to discuss in depth the nature of and underpinning rationale for the participants' feelings about the text they read, the text elements that helped or hindered their ability to read, their reading strategies and their motivation to read. Next, the coded responses from each interview question were recorded as sub-nodes to a suitable *predetermine category* and

these sub-nodes were the *emerging categories* of the data. Under each *predetermine category*, there were a few *emerging categories*.

Figure 3.13: Predetermine and emerging categories in Nvivo7

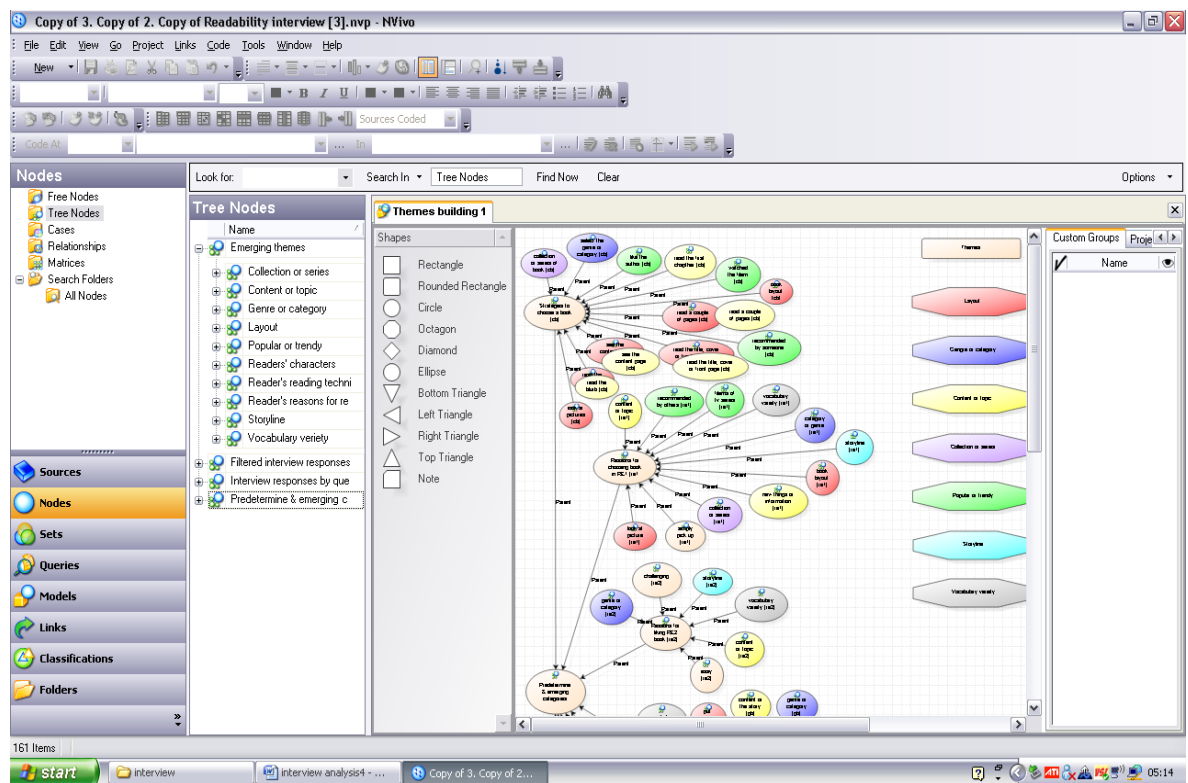


To establish the categorization reliability for the *emerging categories* of the data, an inter-rater reliability process was conducted. Two other raters were involved, in order to increase judgment reliability, and in this context, I was the first rater. The second and third raters were informed of what they were intended to do and how exactly the process should be undertaken. Two identical interview transcripts (1.0% of the overall typescripts available) were given to the second and third marker.

Upon finishing the internal consistency reliability process with the other two raters, I created the themes for the *emerging categories* by using the Model field in the Nvivo

programme. In the Model field, I managed to set up all my *emerging categories* into a diagram automatically. Next, I coloured the categories that were thought to be in the same group with the same colour and gave themes to them. These diagrams helped me to group the categories that belonged to the same themes (Figure 3.14).

Figure 3.14: Emerging themes in Nvivo7



3.5 Validity and Reliability

“Reliability and validity are bound together in complex ways” (Creswell, 2008, p.

169). Wray (2007) has reported that:

“Reliability has to do with the quality of measurement. In research, the term reliability means “repeatability” or “consistency”. A measure is considered reliable if it would give us the same result over and over again (assuming that what we are measuring is not changing!).” (p.1)

Furthermore, Wray (2007) has suggested that:

“In general, validity is an indication of how sound a piece of research is. More specifically, validity applies to both the design and the methods of research. Validity in data collection means that your findings truly represent the phenomenon you are claiming to measure. Valid claims are solid claims so validity is one of the main concerns in research.” (p. 1)

As suggested from the above definitions by Wray (2007), reliability and validity may be a crucial concerns for all researchers, as they are the prominent criteria for assessing the quality of the research. In quantitative research, reliability is also known as *dependability*, *consistency* and *replicability* (Cohen, Manion, Morrison & Dawson, 2007), and there are three types of reliability: 1) *stability*, which is the measurement of consistency over time and over similar samples, 2) *equivalence* which is achieved through equivalent forms and inter-rater reliability, and 3) *internal consistency* which demands tests or instruments to be used twice or once through the split half method (Cohen, Manion, Morrison & Dawson, 2007).

Reliability in qualitative research is preferable known as *credibility*, *consistency*, *applicability*, *trustworthiness*, and *transferability*, and may be achieved through fidelity to real life, context and situation specificity, authenticity, comprehensiveness, detail, honesty, depth of response, and meaningfulness for the respondents (Cohen, Manion, Morrison & Dawson, 2007, p. 149). Cohen, Manion, Morrison & Dawson, (2007) have further stated that validity in quantitative data can be obtained through careful sampling, appropriate instruments and appropriate statistical treatment of the data, whereas in qualitative data, validity could be gained through honesty, depth, richness, and scope, the participants approached, the extent of triangulation and the objectivity of the researcher (Winter, cited in Cohen, Manion, Morrison & Dawson, 2007).

In terms of this study, reliability and validity have been addressed through the nature of data collection methods and the analysis approaches (see section 3.5).

Nevertheless, this section is intended to present an overview of the reliability and validity steps that were taken for the aims of this study. Table 3.5 summarizes the data collection and analysis methods employed in this study.

Table 3.5 Methods of data collections and analysis approaches

Methods		Form of data	Nature of data	Analysis approach	Reliability and Validity
QUAN	Readability formulae	Participants individual readability index / the degree of the text difficulty	QUAN	QUAN – SPSS ▸ Spearman Rho ▸ T-test	Reliability – <i>Stability</i> Correlation test & inter-correlation check Validity Internal-consistency
	Text feature analysis	Participants text feature preferences	QUAN	QUAN – SPSS ▸ Frequencies ▸ Percentages	Reliability – <i>Stability</i> The use of coding sheets Validity Internal-consistency
QUAL	Miscue analysis	Participants' errors during reading aloud / comprehension	QUAL	QUAN – SPSS ▸ Wilcoxon-Sign-Rank ▸ Frequencies ▸ Percentages	Reliability – <i>Stability</i> Data collection period within three weeks to reduce the effect of the participants' maturity towards the results <i>Equivalence</i> Running an inter-rater reliability with an English native speaker to reduce the researcher

					second language interference during miscue analysis Crosschecking with English language experts (supervisors) regarding graphophonic syntax Validity Internal-consistency
	Retelling	Participants' understanding of the story sequencing / comprehension	QUAL	QUAN – SPSS ▶ Frequencies ▶ Percentages	Crosschecking the retelling level with two fellow colleagues.
	Interviewing	Participants' preferences, motivation, background knowledge, interest	QUAL	QUAL – Nvivo ▶ Categories ▶ Themes	Crosschecking the categories level with two fellow colleagues.

Readability formulae were used to count the individual readability index of the samples and to grade the text that they used in terms of their difficulty. Hence, to check the *stability* of these formulae in grading the texts that were easy or difficult, Spearman Rho's correlation test was conducted.

The text feature analysis in this study aimed to elicit other factors that made the texts easy or difficult. During data collection coding sheets, called the *text feature comparison sheet* and *text feature observing sheet*, was used (Appendix 3.2 and 3.3). The coding sheet was used in order to ensure that I was analyzing the same things throughout the whole texts used by the participants. Therefore, this aimed to ensure consistency of the text feature analysis and produce valid findings. Reliability and validity of the miscue

analysis, retelling and interviewing have been discussed previously (see section 3.4.5.3, section 3.4.5.4 and section 3.4.5.5)

3.6 Ethical Issues and Consent

Ethical issues exist in any kind of research, and can arise from the nature of the research project itself, its context, the procedures adopted the data collection methods, the nature of the participants, the type of data collected, and what is to be done with the data afterwards (Cohen, Manion, Morrison & Dawson, 2007). Bearing these in mind, a few steps were taken to address this research's ethical issues and consent process. The first step taken was to attend the Advance Research Methods course conducted by the Institute of Education, University of Warwick, as a means of proving that I had been through the Revised Ethical Guidelines for Educational Research published by BERA (2004). During the course, these guidelines were discussed thoroughly. Hence, by attending this course, I gained the knowledge and awareness of several ethical issues in educational research. Also, I fulfilled one of the requirements for the Ethical Approval for Research Degrees issued by the Institute of Education, University of Warwick, that is, attending a course on the Revised Ethical Guidelines for Educational Research. This study's ethical approval was granted on 17 September 2008 (see Appendix 3.12).

The data collection was undertaken in the United Kingdom, and involved getting data from children. Hence, a CRB check certificate was needed because children are under the protection of people who are in a position of trust towards them. The purpose of the CRB check certificate is '*to help protect children and vulnerable adults by providing a first-class service to support organisations recruiting people into positions of trust* (<http://www.crb.homeoffice.gov.uk/>).’ In the process of conducting this study, I also did

some voluntary work called '*The Right to Read*' for the University of Warwick Voluntary project. Hence, I obtained the CRB through the University of Warwick Voluntary project (Appendix 3.13). It is worth mentioning here that as I am an international student, I was required to produce an extra identification letter to support my CRB check certificate application form. Consequently, I presented a '*Certificate of Good Conduct*' issued by the Ministry of Foreign Affairs, in Malaysia (Appendix 3.14).

Upon gaining ethical approval and obtaining a CRB check certificate, I proceeded to apply for permission to conduct research in my chosen school. An '*Information Sheet*' (Appendix 3.15) and a '*Consent Letter*' (Appendix 3.16) were prepared and sent to the head teacher. After gaining approval from the head teacher, a consent letter was sent to the participants' parents. This consent letter was prepared by the school manager, using the school's formal letter head (Appendix 3.17). The selected sample children were aged five to eleven years old, and hence, their willingness to be involved in the study was gained through their parents. Nevertheless, the participants themselves had to give their own free consent as to whether to participate or not (Gregory, 2003). Therefore, at the beginning of data collection I asked the participants whether they agree to take part in the study, assuring them that they could withdraw at any stage of the process.

During data collection, the school and the children samples were assured of anonymity and confidentiality. Hence, the school's and the samples' name were not mentioned in the thesis report at any time. The participants were only identified by a code given to them, for example, C01 for participant number 1, and so on.

3.7 Summary

To sum up, both positivist and interpretivist paradigms underline the current research's design. These also influenced decision making about methodology and data collection and analysis methods. A decision was made a small scale mixed methods research were used. The research design elucidated the participants, text selection, pilot study, and data collection procedures. The data collection and analysis methods involved both quantitative and qualitative approaches. An overview of the reliability and validity of the research has also been addressed in the chapter. This chapter ended with a description of the ethical issues and consent process. The next chapter presents the results of the research conducted through a quantitative approach.

Chapter 4 – Findings

4.1 Introduction

This chapter presents the results of this study, which used both quantitative and qualitative data collection and analysis methods. The quantitative results include the data collected by the readability formulae and text feature analysis, whereas the qualitative results include the data collected by the miscue analysis, retelling and interview sessions.

Data analysis addressed the following research aims, question and sub questions:

Aims of the Research

The aims of the current research were as follows:

- To explore the factors operating during the interaction between a reader and a text that might influence the concept of readability.
- To develop a preliminary new theoretical model and a new definition of readability.

Research Questions

This study addressed the following research question:

2. What influences the reader's comprehension during the interaction between him/her and a text that might help develop a concept of readability?

Sub questions:

- a. What are the text factors that help or hinder the reader's comprehension?
- b. What are the reader factors that help or hinder comprehension?

- c. How do text and reader factors interact to help or hinder the reader's comprehension?
- d. What are the implications of the above for a renewed concept of readability?

4.2 Quantitative Findings

4.2.1 Introduction

This section presents the results of the quantitative analysis using readability formulae and text feature analysis. It will firstly present the data arising from the use of a range of readability formulae on the texts read by the participants in the study. It will then go on to present the results of an analysis of the features of these texts. The first part of this analysis will focus on the participants' preferences regarding certain typography elements that they were asked to choose. The second part will present an analysis of the texts themselves in terms of their use of typography elements; of colour; of illustrations; and their organisation. Thus, a descriptive and inferential analysis was deployed in order to explore the texts that were chosen by the participants.

4.2.2 Readability

The aims of using readability formulae are to predict and quantify the comprehensibility of a text for its intended readership (Stokes, 1978, p. 23). The methods of calculating a readability index are much the same for most formulae. The most common variables used in these formulae are sentence and word length, and the percentage of difficult words. There is no limitation on the number of variables used in a formula; hence, most formulae consist of a combination of variables that best predict the grade level of the texts using multiple regression. The results presented by these formulae are usually expressed in terms of grade level or reading age (Harrison, 1984).

Readability formulae including ATOS, Dale-Chall (1948), Flesch-Kincaid, FOG, SMOG, and Spache were used in this research to calculate the readability indices of the texts that were chosen by the participants. These indices were then used as a benchmark to guide the choice of suitable reading texts for participants in RE2. These readability indices showed the grade level and predicted difficulty of each text. In order to investigate the extent to which formulae agreed in predicting the grade level of the texts, six formulae were applied to each text in turn, using a computer program developed by Alain Trottier called WordsCount (<http://www.wordscount.info/>). The ATOS (1997), Dale-Chall (1948), Flesch-Kincaid, FOG, SMOG, and Spache formulae were used in this study to provide an index in terms of a grade level that was derived from the US grade. *UK reading level = US grade + 5 or 6.

Through the six readability formulae, it was found that there were five predictor variables involved: *word length*, *grade level of word*, *sentence length*, *unfamiliar or difficult words* and *polysyllabic words*. Table 4.1 shows the most frequently used variable by the formulae was *sentence length*. It was used in five of the six readability formulae. This was followed by *unfamiliar or difficult words*, used by three of the formulae. Next, Table 4.1 shows that two out of the six readability formulae used *word length* and *polysyllable words*. Finally, it was shown that the SMOG formula was unique in using only one predictor variable, that of *polysyllabic words*. Table 4.1 is as follows:

Table 4.1 Predictor variables included in the six readability formulae used in this study

Formulae	Predictor variables				
	Word length	Grade level of words	Sentence length	Unfamiliar / Difficult words	Polysyllable words
SMOG					*
FOG			*		*
Flesch-Kincaid	*		*	*	
Spache			*	*	
Dale-Chall (1948)			*	*	
ATOS	*	*	*		

To check the reliability of the six formulae statistical tests were conducted. These statistical tests were conducted to check the consistency and the form of relationship of the six formulae in predicting the level of text difficulty. The statistical analyses conducted were:

1. *Consistency estimation.* Aims to demonstrate the consistency among the formulae in predicting the level of text difficulty. Spearman's rank correlation coefficient was used.
2. *Comparison of the grade levels.* Aims to demonstrate the extent to which formulae agreed in predicting grade level. Statistical test Paired-sample T-Test was used.

4.2.2.1 Consistency Estimation of the Formulae

The consistency estimation of the six formulae in predicting the difficulty level of the texts was assessed by Spearman's rank correlation coefficient. Table 4.2 presents the results of the Spearman's rank correlation coefficient of the six formulae.

Table 4.2: Spearman's rank correlation coefficient of SMOG, FOG, Flesch-Kincaid, Spache, Dale-Chall (1948) and ATOS formulae

Formulae	FOG	Flesch-Kincaid	Spache	Dale-Chall (1948)	ATOS
SMOG (rho) Significant (2-tailed)	.98 .00	.93 .00	.83 .00	-.41 .00	.70 .00
FOG (rho) Significant (2-tailed)		.95 .00	.84 .00	-.47 .00	.74 .00
Flesch-Kincaid (rho) Significant (2-tailed)			.88 .00	-.32 .01	.68 .00
Spache Kincaid (rho) Significant (2-tailed)				-.14 .26	.68 .00
Dale-Chall (rho) Significant (2-tailed)					-.49 .00

Number of texts N= 64, $p < 0.01$

Correlation ranging were based on Cohen, Manion, Morrison & Dawson, 2007, p. 536: .20 - .35 = low; .35 - .65 = medium; .65 - .85 = high; .85 - 1 = very high

Table 4.2 also shows that a *very high* statistically significant correlation was found among the SMOG, FOG, Spache, and Flesch-Kincaid formulae in predicting the grade level of the texts' difficulty; $\rho = \text{above } .83$, $n=64$, $p < .01$. Hence, the SMOG, FOG, Spache, and Flesch-Kincaid formulae produced *almost* the same results on whether the text was easy or difficult to read. Furthermore, Table 4.2 shows that the SMOG formula had the *highest* statistically significant correlation with the FOG formula ($\rho = .98$, $p = .00$) compared to the Spache and Flesch-Kincaid formulae. In other words, the Spache and FOG formula produced the same results on whether the text was easy or difficult to read.

Next, Table 4.2 shows that the ATOS formula had *high* statistically significant correlation ($\rho = \text{above } .68$, $n=64$, $p < .00$) with the SMOG, FOG, Spache, and Flesch-Kincaid formulae in predicting the grade level of the texts' difficulty. Finally, it was found

that the Dale Chall (1948) formula had *medium* statistically significant correlation with the SMOG and FOG formulae ($\rho = \text{above}-.41$, $n=64$, $p<.00$) in predicting the grade level of the texts' difficulty. Furthermore, it was spotted that the Dale Chall (1948) formula had *no* statistically significant correlation with the Flesch-Kincaid ($\rho = -.32$, $p=.01$) and the Spache formulae ($\rho = -.14$, $p=.26$). Generally, the data on Table 4.2 shows that there were different magnitudes of statistically significant correlations among the six formulae and in some cases the different magnitudes were *not* statistically significant. These results show that the consistency levels among the six formulae varied.

It can be noted that the Dale Chall (1948) formula had a *negative* statistically significant correlation with the rest of the formulae. This is an indication that the Dale Chall (1948) formula could predict if a text was easy although the SMOG, FOG, Flesch-Kincaid, Spache and ATOS formulae predicted it as difficult to read, and vice versa. Therefore, it can be seen that there was consistency among the SMOG, FOG, Spache, Flesch-Kincaid and ATOS formulae in predicting the level of text difficulty. However, the Dale Chall (1948) formula was found not to be inconsistent in predicting the level of the text difficulty, compared to rest of the formulae.

4.2.2.2 Comparison of the Grade Levels

The next data include the results of the investigation of the extent to which the six formulae were able to predict the grade level. Table 4.3 shows the means of the texts' grade levels predicted by the six formulae. The full details of the 64 texts grade levels are presented in Appendix 4.1.

Table 4.3: The means of the texts grade levels predicted by the six readability formulae

Formulae	Number of texts	Mean of the text grade level (fx)	Standard Deviation
SMOG	64	6.64	2.31
FOG	64	5.80	2.40
Flesch-Kincaid	64	3.96	2.29
Spache	64	4.05	.69
Dale-Chall (1948)	64	9.88	1.20
ATOS	64	3.13	1.59

Table 4.3 shows that the six formulae yielded different results regarding the mean of the text grade levels. For example, the Dale-Chall (1948) formula had the *highest* mean grade level (9.88), whereas the ATOS had the *lowest* (3.13). Between these two extreme means, the means of the text grade levels for other formulae were found: the SMOG formula (6.64) FOG formula (5.80), Flesch-Kincaid formula (3.96), and Spache formula (4.05). These data indicated that the texts assigned were appropriate to be read by readers at the age of 14 to 15 years according to the Dale Chall (1948), were assigned as appropriate by younger readers (8 years) by the ATOS formula, readers of 11 to 12 years old by the SMOG formula, 10 to 11 years old by the FOG formula, and 9 years old by the Flesch-Kincaid and the Spache formulae. The formulae grade levels were measured in US grades. *UK reading level = US grade + 5 or 6.

The next findings looked into the differences in the mean grade levels produced by the six formulae. A paired-sample T-test was conducted to identify whether there were statistically significant differences in mean grade levels. Table 4.4 presents the differences of the text mean grade levels for the SMOG, FOG, Flesch-Kincaid, Spache, Dale-Chall (1948) and ATOS formulae.

Table 4.4: Paired-sample T-Test the differences of the mean grade levels of the SMOG, FOG, Flesch-Kincaid, Spache, Dale-Chall (1948), and ATOS formulae

	FOG	Flesch-Kincaid	Spache	Dale-Chall (1948)	ATOS
SMOG (mean)	.81	2.67	2.64	-3.18	3.58
t	6.63	18.19	-8.02	16.67	17.22
Significant (two-tailed)	.000	.000	.000	.000	.000
FOG		1.85	1.85	-3.99	2.77
t		17.22	7.49	-9.96	12.63
Significant (two-tailed)		.000	.000	.000	.000
Flesch-Kincaid			.09	-5.93	.83
t			-.40	-15.48	3.90
Significant (two-tailed)			.690	.000	.000
Spache				5.84	.92
t				-30.59	3.90
Significant (two-tailed)				.000	.000
Dale-Chall (1948)					6.75
t					21.98
Significant (two-tailed)					.000

Degree of freedom $df = 62$, $p < .01$

Correlations ranging were based on Cohen, Manion, Morrison & Dawson, 2007, p. 536: .20 - .35 = low; .35 - .65 = medium; .65 - .85 = high; .85 - 1 = very high

Table 4.4 further shows that the *highest* difference of the text mean grade levels was between the Dale Chall (1948) and ATOS formulae (M difference 6.75), with the difference being statistically significant ($t=21.98$, $df=62$, $p<.01$). The *lowest* difference of the text mean grade level was found between the SMOG and FOG formulae (mean difference .81) ($t=6.63$, $df=62$, $p<.01$). Next, Table 4.4 revealed that there was *no* statistically significant difference in the mean grade level between the Flesch-Kincaid and FOG, although the mean difference was .09 ($t=-.40$, $df=62$, $p=.69$). It can therefore be seen that the Flesch-Kincaid and FOG formulae produced similar results for the text mean grade level.

Further data also revealed that the Dale Chall (1948) formula had a *high* statistically significant difference in the mean grade level compared to the rest of the formulae (mean

difference above 3.18). Moreover, the results also showed that the FOG had the *lowest* statistically significant difference in the mean grade level, compared to the rest of the formulae (mean difference 3.99). To conclude, it may be seen that results generally showed statistical differences in the mean grade level of the text assigned by the six formulae.

In summary, the results of the formulae reliability analyses show that despite the fact that the SMOG, FOG, Flesch-Kincaid, Spache and ATOS formulae were found to share a strong correlation when predicting the grade level of the texts' difficulty, differing grade level mean scores were found among those formulae. In other words, although the SMOG, FOG, Flesch-Kincaid, Spache and ATOS formulae were found to agree on which texts were easy or difficult, they still assigned the same easy or difficult text to a different grade level. It was also found that the Dale Chall (1948) did not only not have consistency with the SMOG, FOG, Flesch-Kincaid, Spache and ATOS formulae in predicting the difficulty level, but also assigned a text as easy, whereas the rest of the formulae predicted it as difficult, and vice versa.

4.2.3 Text Feature

The purpose of text feature analysis in this research was to indentify the text elements that made it easy or hard to read, according to the readers in the study. The text feature analysis in this study included: (1) legibility of the print; (2) illustration and colour; and (3) organization. Data collected in this section were divided into two parts. Hence, this section provides data from:

1. Part one: Participants' typography elements preferences Participants' typography elements preference results consisted of the participants' preferences and their justifications their preference.
2. Part two: Text feature analysis observation.

4.2.3.1 Participants' Typography Elements Preference

The participants' typography elements preferences were collected by asking them to select between the typography elements that were shown on the typography comparison sheet (Appendix 3.2) in terms of which they preferred to read. The typography elements that the participants were asked to choose between were: (1) *uppercase* and *lowercase* print; (2) *serif* and *san serif* typeface; (3) *font size 12* and *14*; (4) *justified* and *unjustified* text composition (this element was not asked to the beginner participants as most of their reading material was unjustified). Tables 4.5 and 4.6 show the participants' typography elements preferences.

Table 4.5: Participants' typography preference according to gender

Description	Male N=16		Female N=16	
<i>Uppercase</i> or <i>lowercase</i> Missing value C05	Upper	Lower	Upper	Lower
	N=5 15.6%	N=11 34.4%	N=4 13.3%	N=11 36.7%
Serif or san serif Missing value: C05, C21, C24	Serif	San serif	Serif	San serif
	N=6 20.0%	N=9 30.0%	N=3 10.7%	N=11 39.3%
Print size 12 or 14 Missing value: C05, C21, C24	Size12	Size 14	Size 12	Size 14
	N=4 13.3%	N=11 36.7%	N=6 21.4%	N=8 28.6%
Normal or bold style Missing value: C05, C24	Normal	Bold	Normal	Bold
	N=9 30.0%	N=6 20.0%	N=7 23.3%	N=8 26.7%
Justified or unjustified composition Missing value: C05, C24, C27, C28, C29, C30, C31, C32	Justified	Unjustified	Justified	Unjustified
	N=6 25.0%	N=6 25.0%	N=9 37.5%	N=3 12.5%

Table 4.5 shows the participants' typography preferences according to their gender. It can be seen that there were a few missing values. Hence, the analysis and results presented took into account these missing values and excluded them for each type of typography element that the participants were asked to choose. Generally, as shown in Table 4.5, there were some differences in the participants' typography preferences according to their gender. Both male (34.4%) and female (36.7%) participants almost equally reported that they preferred *lowercase* print compared to *uppercase* print. Although not many texts were written in *uppercase* print, there were still participants who reported that they preferred it (28.9%). Next, it was found that 69.3% of the participants' preferred to read texts with *san serif* font type compared to *serif* font type texts. It was also shown that female participants (39.9%) outnumbered male participants (30.0%) (Table 4.5).

The results also revealed that more male participants (36.7%) preferred to read a text with font *size 14* compared to female participants (28.6%). Another finding is that although *bold* style texts are not common, almost half of the participants reported that they preferred it. It was also found that there were a number of female (26.7%) and a number of male participants (20%) who preferred *bold* style print compared to *normal* style print. Finally, it was found that more than half of the participants (62.5%) preferred *justified* composition text. Out of this percentage, it was found that a high number of the female participants (37.5%) reported that they preferred the *justified* composition text.

Based on the above results, there were a few missing cases were found. Participant Case C05 did not take part in the typography preference session although she went through the rest of the activities. The reason was that Case C05 participant rushed to finish early during the data collection session by the class teacher so that she could take part in the

school play at the same time. Participants 21 and 24 reported that they could not spot the differences between *serif* and *san serif* typefaces and between font *size 12* and *14*. Hence, no data were recorded by them. Participant Case C024 was found to have difficulty in differentiating *normal* and *bold* style, as well as *justified* and *unjustified* text composition, although he was shown the differences. Hence, no data was recorded by him either. Finally, a few *beginner reader* participants from the reception group (C27, C28, C29, C30, C31, & C32) were not asked to choose between *justified* and *unjustified* text composition, because most of their reading materials were in *unjustified* composition. Apart from this, the pilot study indicated that the *beginner reader* participants from the reception group would not be able to differentiate between *justified* and *unjustified* text composition. Table 4.6 presents the findings regarding the participants' typography preference according to their age.

Table 4.6: Participants' typography preference according to age

Description	Beginner reader N=12		Young reader N=20	
	Upper	Lower	Upper	Lower
Upper or lower case Missing value C05	7 29.2%	5 20.8%	2 5.2%	17 44.8%
Serif or san serif Missing value: C05, C21, C24	Serif	San serif	Serif	San serif
	1 5.0%	9 45.0%	8 21.0%	11 29.0%
Print size 12 or 14 Missing value: C05, C21, C24	Size12	Size 14	Size 12	Size 14
	3 15.0%	7 35.0%	7 18.4%	12 31.6%
Normal or bold style Missing value: C05, C24	Normal	Bold	Normal	Bold
	4 18.1%	7 31.9%	12 31.6%	7 18.4%
Justified or unjustified composition Missing value: C05, C24, C27, C28, C29, C30, C31, C32	Justified	Unjustified	Justified	Unjustified
	3 30.0%	2 20.0%	12 31.6%	7 18.4%

The above table presents the participants' typography preferences related to their age (Table 4.6). Generally, certain differences in the participants' typography preferences according to their age were found. Firstly, it was shown that a high percentage of *young reader* participants (44.8%) reported that they preferred texts with *lowercase* print compared to the *beginner readers* who preferred texts with *uppercase* print (29.2%). Conversely, a high percentage of *beginner reader* participants (45.0%) preferred the *san serif* typeface print compared to the *young reader* participants (29.0%), while only 26.0% of the participants preferred *serif* typeface print. Not many differences were identified for both *beginner* (35%) and *young* (31.6%) reader participants' preferences on the text with font *size 12* or *14*. Finally, it was found that a 61.6% of the participants reported that they preferred to read a text with *justified* composition, with 30.0% of them being *beginner readers* and 31.6% being *young reader* participants.

Apart from choosing the typography elements that they preferred, the participants were also expected to give reasons for their preferences. During data collection many of the participants did not seem to know the real reasons for preferring certain typography elements. Hence, the collected participants' preference justifications were only written in a short list. Table 4.7 presents the findings on the participants' typography preference justifications.

Table 4.7 Participants' typography preference justification

Description	Reasons for preferring or not preferring	Participants
<i>Uppercase or lowercase</i>	<ul style="list-style-type: none"> • <i>'Looks bigger'</i> • <i>'I get confused with capital letters'</i> • <i>'Capital letters are difficult, you</i> 	C01, C07, C21 C02 C14, C25 C20

	<p><i>have to express them so it is quite hard</i></p> <ul style="list-style-type: none"> • <i>'Because all capitals makes you forget'</i> • <i>'It looks too big and like a smaller on'</i> • <i>'I can't really see the big words'</i> 	<p>C22</p> <p>C25</p>
Serif or san serif typeface	<ul style="list-style-type: none"> • <i>'Have pinched the eyes'</i> • <i>'It looks bigger'</i> 	C01
Print size 12 or 14	<ul style="list-style-type: none"> • <i>'It looks bigger'</i> • <i>'It is smaller it is hard to read'</i> • <i>'It is big but it is not so fat'</i> 	<p>C03</p> <p>C01</p> <p>C20</p> <p>C22</p>
Normal or bold style	<ul style="list-style-type: none"> • <i>'Eyes get tired'</i> • <i>'It look smudge'</i> • <i>'Because it is darker'</i> • <i>'Because it captures our eyes and easy to see'</i> • <i>'It is too dark'</i> • 	<p>C02</p> <p>C01</p> <p>C01, C20, C22</p> <p>C14</p> <p>C25</p>
Justified or unjustified composition	<ul style="list-style-type: none"> • <i>'Looks like squash out'</i> • <i>'Makes me know where my reading ends and I know where to go for the next line'</i> • <i>'I chose it because it looks shorter than that one'</i> • <i>'I chose that one because it ends at the same place and don't have empty spaces at the end of the line'</i> • <i>'I chose this one because that one looks like stretching'</i> 	<p>C02</p> <p>C17</p> <p>C20</p> <p>C21</p> <p>C22</p>

Table 4.7 presents the participants' typography preferences justification. During data collection not many of the participants could give reasons for their preferences. Only a few of them could describe their reasons (see Table 4.7). Results in Tables 4.5 and 4.6

indicate that a high number of participants (22 out of 32) chose to read a text with *lowercase* print, because they found the text with *uppercase* print confusing while reading. They were confused because the capital letter print made them forget what they had already read. Apart from that, in their literacy classes the participants were expected to express the capital letter words in the text with feeling when reading. Hence, when the text was all in capital letters, the participants found it hard to read because they had to sound with expression each of the words. Furthermore, the participants reported that they found it easier to read a text with *lowercase* print because according to them, the capital letters make the eyes feel tired.

Furthermore, Tables 4.5 and 4.6 show that 20 out of 32 of the participants preferred to read sans serif text. Accordingly, Table 4.7 presents the reasons for choosing them was because the *san serif* typeface text looks bigger and they felt they did not have to pinch their eyes when reading. Tables 4.5 and 4.6 also show that 19 out of 32 of the participants preferred to read a text with font *size 14*. Table 4.7 presents the reason reported by the participants for choosing to read a text with font *size 14* (“it looks bigger but not bulky or bold and it is easier to read”). Tables 4.5 and 4.6 further show that half of the participants preferred to read a text with normal style print, whereas the other half preferred to read a text with bold style print. Accordingly, Table 4.7 shows that the participants chose to read a text with normal style print because the bold style print tires their eyes, and looks too dark and untidy. Conversely, participants who preferred a text with bold style claimed that the bold style grabbed their attention.

Finally, it was found that 15 out of 32 of the participants preferred to read a text with justified composition, because they found the text with justified composition helping them to read the next line better because there was an empty space at the end of the line.

Conversely, participants that chose unjustified composition claimed that they chose this because it looked shorter, and it did look like the line stretching.

In summary, there were few differences in the participants' typography preferences according to their gender, but there are several differences identified according to their age. Furthermore, the main reason why the participants preferred certain typography elements was related to the ease of their eyes in reading the text.

4.2.3.2 The Observation of Participants' Text Features Preference

Text analysis in the present study was used in order to observe the text features that appeared in the 32 texts chosen by the participants. However, in this section, only 31 texts were analyzed, as one of the texts was excluded, due to the fact that its reference was not recorded during data collection. To obtain these data, a text analysis observing sheet was created and used (see Appendix 3.3). The data collected and the results after the analysis focused on the following issues:

1. *Features of the book* which included: author, year of publication, length, size, in series, genre, topic and nature of the cover.
2. *Features of the text* which included: mean of sentences per paragraph, mean of words per sentence, and mean characters per word.
3. *Legibility elements* which included: justified and unjustified composition, and serif and san serif typeface.
4. *Illustration and colour* elements which included: illustrations, Colour, diagrams, and pictures or drawings.
5. *Organisation elements which included:* typographical effects, headings, content page, glossary and extra information on the book.

The text feature analysis consisted of five sections. The first section was related to the features of the books. To begin with, the first analysis focused on the authors of the 31 books. The data analysis showed that there was a tendency on the part of the participants to choose texts written by the same author. Six out of the 31 texts were written by Roderick Hunt, and these books were read by the *beginner reader* participants. Furthermore, there were four books written by Adam Coleman and these books were read by the *beginner reader* participants as well. The remaining 21 books were written by several other authors. The following tables, Table 4.8 and 4.9, present the findings on the features of the books according to the participants' gender and age.

Table 4.8 Text feature analysis: General features of the books according to gender

Categories		Male N=16			Female N=16		
General feature of the book Missing value C09	Year of publications (years)	1995 to 2000	2001 to 2005	2006 to 2010	1995 to 2000	2001 to 2005	2006 to 2010
		3 10%	5 16.7%	7 23.3%	5 15.6%	5 15.6%	6 18.8%
	Length of book (pages)	01 to 50	51 to 100	Above 100	01 to 50	51 to 100	Above 100
		8 26.7%	3 10%	4 13.3%	5 15.6%	0	11 34.4%
	Sizes of book	Small	Medium	Large	Small	Medium	Large
		15 50.0%	0	0	12 37.5%	3 9.4%	1 3.1%
	In series	Yes		No	Yes		No
		8 26.7%		7 23.3%	11 34.4%		5 15.6%
	Nature front cover: Title	Long		Short	Long		Short
		5		10	6		10

	length	16.7%					33.3%					18.2%					31.2%				
	Nature front cover: Illustration	Pictures					Drawings					Pictures					Drawings				
		1 3.3%					14 46.7%					2 6.2%					14 43.8%				
	Nature of back cover: Blurp	Yes					No					Yes					No				
		13 43.3%					2 6.7%					12 43.8%					4 6.2%				
	Nature of back cover: Reading level	Yes					No					Yes					No				
		11 36.7%					4 13.3%					6 18.2%					10 31.2%				
	Genre	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		9 30.1%	1 3.3%	4 13.3%	0	1 3.3%	7 21.9%	0	4 12.5%	4 12.5%	1 3.1%	7 21.9%	0	4 12.5%	4 12.5%	1 3.1%	7 21.9%	0	4 12.5%	4 12.5%	1 3.1%
	Topic/	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		3 10%	1 3.3%	3 10%	7 23.4%	1 3.3%	6 18.8%	2 6.3%	3 9.4%	5 15.5%	0	6 18.8%	2 6.3%	3 9.4%	5 15.5%	0	6 18.8%	2 6.3%	3 9.4%	5 15.5%	0

Genre indicator: (1) Picture book; (2) Traditional literature; (3) Modern fantasy; (4) Contemporary realistic fiction; (5) Information book

Topic indicator: (1) Mystic; (2) Animal; (3) Friendship; (4) Family; (5) Health

Table 4.8 shows findings related to the publication year of the books chosen by the participants. Through the analysis, it was found that the participants generally chose to read more recently published texts. None of the books read by the participants was over 15 years old (see Table 4.8). The analysis also revealed that there were no differences between male and female participants in their choice of year of publication. In addition, the results presented in Table 4.9 also show that there was not much difference between the *beginner* and *young* reader participants' choice regarding the year of publication. Hence, there was almost no difference in choice of year of publication, according to the participants' gender and age.

Table 4.9 Text feature analysis: General features of the books according to age

Categories		<i>Beginner reader</i> N=12					<i>Young reader</i> N=20				
General feature of the book Missing value C09	Year of publication (years)	1995 to 2000	2001 to 2005	2006 to 2010			1995 to 2000	2001 to 2005	2006 to 2010		
		4 16.7%	4 16.7%	4 16.6%			4 10.5%	6 15.8%	9 23.7%		
	Length of book (pages)	01 to 50	51 to 100	Above 100			01 to 50	51 to 100	Above 100		
		9 37.5%	1 4.2%	2 8.3%			4 10.5%	2 5.2%	13 34.3%		
	Size of books	Small	Medium	Large			Small	Medium	Large		
		11 45.8%	1 4.2%	0			16 42.2%	2 5.2%	1 2.6%		
	In series	Yes		No			Yes		No		
		9 37.5%		3 12.5%			10 26.3%		9 23.7%		
	Nature front cover: Title length	Long		Short			Long		Short		
		10 41.7%		2 8.3%			1 2.6%		18 47.4%		
	Nature front cover: Illustrations	Pictures		Drawings			Pictures		Drawings		
		3 12.5%		9 37.5%			0		19 50.0%		
	Nature of back cover: Blurb	Yes		No			Yes		No		
		8 33.3%		6 16.7%			17 44.8%		2 5.2%		
	Nature of back cover: Reading level	Yes		No			Yes		No		
		10 41.7%		2 8.3%			6 15.8%		13 34.2%		
	Genre	1	2	3	4	5	1	2	3	4	5
		10 41.7%	1 4.2%	1 4.2%	0	0	5 13.2%	0	7 18.4%	4 10.5%	3 7.9%
	Topic	1	2	3	4	5	1	2	3	4	5

		3 12. 5%	1 4.2 %	2 6.3 %	6 23 %	0	6 15. 8%	2 5.3 %	4 10. 5%	6 15. 8%	1 2.6 %
--	--	----------------	---------------	---------------	--------------	---	----------------	---------------	----------------	----------------	---------------

Genre indicator: (1) Picture book; (2) Traditional literature; (3) Modern fantasy; (4) Contemporary realistic fiction; (5) Information book

Topic indicator: (1) Mystic; (2) Animal; (3) Friendship; (4) Family; (5) Health

The next results are regarding the length of the books from texts chosen by the participants. This analysis revealed that 47.7% of the participants read books with above 100 pages (see Table 4.8). Of this percentage, it was found that the female participants (34.4%) outnumbered the male participants (13.3%) (Table 4.8). Additionally, results also showed that the *young reader* participants (34.3%) outnumbered the *beginner reader* participants (8.3%) in reading books with above 100 pages (Table 4.9). Therefore, it can be seen that there are significant differences in the participants' choice regarding the number of pages of their books, according to their gender and age.

The general features' analysis also focused on the size of the books. In terms of this research, the terms *small size* book refers to a book that was approximately 7.0 x 5.0'' (198 x 129mm), *medium size* refers to a book that was 9.5 x 7.5'' (246 x 189mm), and *large size* book refers to a book that was 11.5 x 8.5'' (297 x 210mm). These measurements are based on the book size suggested by the *Penguin Young Readers a Practical Teacher's Guide*. Consequently, the results show that the majority (87.5%) of the participants chose to read *small size* books. Of this percentage, 50.0% of them were males and 37.7% were females (Table 4.8). The results also revealed that the *medium* and *large size* books were rather unpopular, as only four of the 31 participants chose to read such books (Table 4.8). Nevertheless, of the 88.0% of participants that chose to read a small size book, it was found that 45.8% of them were *beginner readers* and 42.2% were *young readers* (Table 4.9).

Therefore, there were differences in the participants' choice of book size, according to their gender, but on the other hand there were no differences according to their age (see Table 4.9).

The next findings concerned whether the books were in series or not. Results showed that 61.1% of the books chosen by the participants were in series (Table 4.8). Of this percentage, the female participants were more positive than the male participants (Females=34.4% and Males=26.7%). In addition, results also showed that a higher percentage was found among the *beginner readers* (37.5%) that their books were in series, compared to the *young readers* (26.3%) (Table 4.9). Consequently, this showed that there were differences in the participants' choice of book, whether this was in series or not, related to their gender and age.

The general books' feature analysis also focused on the nature of the front and back covers of the books. This analysis consisted of an examination of the nature of the front cover, its title length and the nature of the illustration. Furthermore, the analysis also focused on the nature of the back covers, on the existence of blurbs, and on the reading level guidelines. In this research, I divided the length of the book titles into two categories: the '*short title*' and the '*long title*'. In terms of this study, the '*short title*' refers to a title consisting of three words or less, whereas the '*long title*' refers to a title consisting of more than four words. Accordingly, data analysis regarding the length of the books' titles revealed that 64.5% of them were in the *short title* category (see Table 4.8). Of this percentage, it was found that male (33.3%) and female (31.2%) participants shared almost equal percentages (Table 4.8). Likewise, Table 4.9 shows that 47.4% of *young readers*' books' titles were short titles, as compared to only 8.3% of *beginner readers*' books which had a short title. Therefore, there were no particular difference in the length of book title,

according to the participants' gender. However, there was a difference in relation to the participants' age.

Next, findings revealed data on the nature of the front book covers regarding their illustration types. In this study, I focused on whether the illustrations used in the books were pictures or drawings. Accordingly, the results showed that a very high percentage of illustrations (90.5%) were pictures (see Table 4.8). Of this percentage, 46.7% were books chosen by male participants and 43.8% were books chosen by female participants. Additionally, results revealed that 50.0% of *young reader* participants' books had pictures, compared to 37.5% of the *beginner reader* participants (Table 4.9). Therefore, it can be stated that there was no difference in the type of illustration in the participants' book according to their gender, but on the other hand. However, there was a difference according to their age.

Aside from exploring the nature of the front cover, the nature of the back cover of the books was also investigated. This consisted of elements like the existence of blurbs and the reading level guidelines. Results showed that a very high percentage (87.1%) of participants' books had blurbs (Table 4.8). It was also found that 43.3% of the male participants' books' back cover included blurbs, and 43.8% of female participants' books' back covers had blurbs (Table 4.8). Likewise, Table 4.9 shows that 33.3% of the *beginner readers* books' back cover had blurbs, as compared to a slightly higher percentage of *young readers* (44.8%) whose books' back cover had also blurbs. To sum up, there were few differences in the existence of blurbs at the back cover of the books chosen by the participants according to their gender. Nevertheless, there were differences according to their age.

The next analysis was related to the genre of the books. In term of this research the picture book genre refers to how both text and illustration are fused together. Traditional literature refers to literature that is born of oral tradition and has been "retold" or "adapted" as compared to modern fantasy which refers to traditional literature that has an identifiable author. Aside from the fairy tales and science fiction also included in this genre are; contemporary realistic fiction which refers to stories dealing with the ups and downs of living today; and information books genre refers to non-fiction books with accurate facts. Accordingly, findings show that half (52%) of the participants chose picture books and of this percentage 30% of them were male and 22% female (see Table 4.8). The second highest (25%) genre chosen by the participants was modern fantasy. The findings also showed that male participants chose to read genre such as traditional literature, whereas female participants chose to read genre such as contemporary realistic fiction (see Table 4.8). In addition, Table 4.9 revealed that out 54% of the participants that chose picture books, 42% of them were *beginner reader* participants. The findings also show *young reader* participants also chose to read genre such as modern fantasy (18%), contemporary realistic fiction (11%), and information book (8%) (see Table 4.9). In comparison, a small number of the *beginner reader* participants have chosen genre such as traditional literature (4%) and modern fantasy (4%) (see Table 4.9). Therefore, there are differences in regards to the subject of genre selection among the participants, according to their gender and age categories.

The next finding is related to the topic or content of the 31 books chose by the participants. Findings showed that a high numbers of percentages preferred topics related to family (39%), mystic (29%) and friendship (19%) (see Table 4.8). Out of these percentages it was found the male participants preferred topic related family (23%)

whereas the female participants preferred topic related to mystic (19%) (see Table 4.8). Furthermore, the male participants also chose reading materials with topics that related to animal and health whereas the female participants did not chose topics related to health (see Table 4.8). Additionally, findings also showed that a high number of *beginner readers* participants (23%) chose books with topics related to family (23%) and mystic (13%) whereas the *young reader* participants chose books with topic related to family (16%), mystic (16%), and friendship (13%) (see Table 4.9). Therefore, there are differences on the topic selection among the participants according to their gender and age categories.

Finally, the nature of the back cover element analysis also explored the existence of a reading level guide. The results showed that only 54.9% of the participants' books included a reading level guide at the back (Table 4.8). Out of this percentage, it was found that a 36.7% of male participants' books included a reading level guide, compared to only 18.2% of the female participants' books (Table 4.8). Results further revealed that 41.7% of the *beginner readers*' books had a reading level guide compared to only 15.8% of the *young readers*' books (Table 4.9). Consequently, there was a difference in the existence of a reading level guide at the back cover of the book chosen by the participants related to their gender and age.

The next findings focused on disclosing the general features of the texts chosen by the participants. The analysis revealed the *mean sentences per paragraph*, *mean words per sentence*, and *mean characters per word* of the texts. In view of this, the results exposed that the male and female participants chose to read books with three *sentences per paragraph* (Table 4.10). Likewise, Table 4.11 shows that the *beginner reader* participants chose to read books with two *sentences per paragraph*, whereas the *young reader* participants chose books with three *sentences per paragraph*. Therefore, there was no

difference in the *mean sentence per paragraph* according to the participants' gender, but on the contrary, there were differences related to their age.

Table 4.10 Text feature analysis: General feature of the text according to gender

Categories		Males N=16	Females N=16
General features of the texts	Mean sentences per paragraph	3	3
	Mean words per sentence	15	15
	Mean characters per word	4	4

The data analysis further focused on the *mean words per sentence* in the texts the participants chose to read. The results demonstrated that male and female participants chose to read books with 15 *words per sentence* (Table 4.10). Similarly, Table 4.11 shows that the *beginner reader* participants chose to read books with 16 *words per sentence*, while the *young reader* participants chose to read books with 17 *words per sentence*. In consequence, there was no difference in the *mean words per sentence* in the texts that the participants chose to read according to their gender, but in the contrary, there was a difference according to their age.

Table 4.11 Text feature analysis: General features of the texts according to age

Categories		<i>Beginner readers</i> N=12	<i>Young readers</i> N=20
General features of the texts	Mean sentences per paragraph	2	3
	Mean words per sentence	16	17
	Mean characters per word	4	4

Finally, the analysis regarding the general features of the texts disclosed the mean characters per word. The results show that the male and female participants chose books with four mean characters per word (Table 4.10). In the same way, the results of Table 4.11 reveal that the *beginners* and the *young* readers chose to read books with four mean characters per word. Therefore, there was no difference in the *mean characters per words* in the texts that the participants chose to read related to their gender and age.

The analyses of text legibility focused on two elements: *justified* and *unjustified* composition, and *serif* and *san serif* typeface. Accordingly, the results have shown that 64.8% of the participants' books were in justified composition (Table 4.8). Out of this percentage, 36.7% of the male participants' books were in *justified* composition, compared to 28.1% of the female participants' books (Table 4.12). Also, the results further revealed that 37.5% of the *beginner reader* participants' books were in justified form, compared to 28.9% of the *young reader* participants (Table 4.13). Thus, there was no difference in the *justified* or *unjustified* composition element according to the participants' gender and age. Finally, the legibility text analysis also explored the use of the *serif* and *san serif* typeface. According to these results, 100% of the participants' books were in *serif* typeface (Tables 4.12 and 4.13). As a result, there were no difference in the *serif* or *san serif* typeface used in the texts, according to the participants' gender and age.

Table 4.12 Text feature analysis: Legibility of print according to gender

Categories		Males N=16		Females N=16	
Legibility of print	Justified or unjustified composition	Justified	Unjustified	Justified	Unjustified
		11 36.7%	4 13.3%	9 28.1%	7 21.9%
Missing value	Serif and san serif typeface	Serif	San serif	Serif	San serif
		16 50.0%	0	16 50.0%	0

The next analysis regarded the illustrations and colour included in the texts. Hence, this analysis focused on the existence of illustrations, whether the existing illustrations were in a picture or a drawing form, whether they were in colour or no colour, and finally whether diagrams were included. Accordingly, the results have shown that a high percentage of 87.3% of the participants' books included illustrations (Table 4.12). The results have further demonstrated that 46.7% of male and 40.6% of female participants' books included illustrations (Table 4.12). In addition, Table 4.13 demonstrates that 45.8% of the *beginner* and 42.1% of the *young reader* participants' books had illustrations. Therefore, there was not much difference regarding the existence of illustrations in the books chosen by the participants according to their gender and age.

Table 4.13 Text feature analysis: Legibility of print according to age

Categories		<i>Beginner readers</i> N=12		<i>Young readers</i> N=20	
Legibility of print	Justified or unjustified composition	Justified	Unjustified	Justified	Unjustified
		9 37.5%	3 12.5%	11 28.9%	8 21.1%
Missing value C09	Serif and sans serif typeface	Serif	Sans serif	Serif	Sans serif
		12 50.0%	0	19 50.0%	0

Further analysis was carried out in order to investigate whether the illustrations were coloured or not. Results have revealed that 64.5% of the existed illustrations were coloured (Table 4.14). Further results demonstrate that 33.3% of the male and 31.2% of the female participants' books had coloured illustrations (Table 4.14). Similarly, Table 4.15 shows that 45.8% of the *beginner* and 23.7% of the *young reader* participants' books had coloured illustrations. Therefore, although there was no difference in the existence of

coloured illustrations in the books according to the participants' gender, there was still a difference related to their age.

Table 4.14 Text feature analysis: Illustrations according to gender

Categories		Males N=16		Females N=16	
Illustrations and colour	Illustration or no illustration	Yes	No	Yes	No
		14 46.7%	1 3.3%	13 40.6%	3 9.4%
Missing value C09	Coloured or not coloured illustrations	Colour	No colour	Colour	No colour
		10 33.3%	5 16.7%	10 31.2%	6 18.2%
	Pictures or drawings	Picture	Drawing	Picture	Drawing
		4 13.3%	11 36.3%	3 9.4%	13 40.6%
	Diagrams	Yes	No	Yes	No
		1 3.3%	14 46.7%	0	16 50.0%

The next analysis focused on examining whether the illustrations were in a picture or a drawing form. The results of this analysis showed that 76.9% of the participants' books had illustrations in drawing form (Table 4.14). Results have further displayed that 40.6% of the female and 36.3% of the male participants' books included a drawing form of illustrations. Additionally, results have demonstrated that 41.7% of the *beginner* and 36.9% of the *young reader* participants' books included a drawing form of illustration (Table 4.15). In conclusion, there was not much difference identified in the existence of a drawing form of illustration in the participants' books according to their gender and age. Finally, this analysis also explored the existence of diagrams in the books chosen by the participants. The results showed that there was a very low percentage (3.3%) of the

participants' books which included diagrams. As a result, there was no difference in the existence of diagrams in the books that the participants chose according to both gender and age categories.

Table 4.15 Text feature analysis: Illustrations according to age

Categories		<i>Beginner readers</i> N=12		<i>Young readers</i> N=20	
Illustrations and colour	Illustrations or no illustrations	Yes	No	Yes	No
		11 45.8%	1 4.2%	16 42.1%	3 7.9%
Missing value C09	Coloured or no coloured illustrations	Colour	No colour	Colour	No colour
		11 45.8%	1 4.2%	9 23.7%	10 26s.3%
	Picture or drawing	Pictures	Drawings	Pictures	Drawings
		2 8.3%	10 41.7%	5 13.1%	14 36.9%
	Diagrams	Yes	No	Yes	No
		0	12 50.0%	1 2.6%	18 47.4%

With the text feature analysis, the organisation of the texts was also examined. The analysis of the organisation of the texts focused on: typographical effects like *italic*, *capital letter* and *bold*, the existence of headings, content page and glossary, extra information on published movie that was based on the book, television series based on the book, and the author's personal website, blog or fan club. The typographical effects analysis examining elements like *italic*, *capital letter* and *bold letter type*, aimed to investigate the existence of these effects on the text that are generally used to give emphasis to certain words. Accordingly, the results showed that 34.9% of the participants' books used *italic* typographical effects (Table 4.16). It was also found that 16.7% of the male and 18.2% of

female participants' books used the italic typographical effect. Similarly, Table 4.17 shows that 4.2% of *beginner* and 13.1% of *young reader* participants' books used the *italic* typographical effect. Therefore, not much difference was found among the participants' responses regarding the existence of the *italic* typographical effect in their chosen books according to their gender; nevertheless, there was a difference related to their age.

Table 4.16 Text feature analysis: Organization according to gender

Categories		Males N=16		Females N=16	
Organiz ation Missing value C09	Typographi cal effect: Italic	Yes	No	Yes	No
		5 16.7%	10 33.3%	6 18.2%	10 31.2%
	Typographi cal effect: Capital letter	Yes	No	Yes	No
		1 3.3%	14 46.7%	5 15.6%	11 34.4%
	Typographi cal effect: Bold	Yes	No	Yes	No
		15 50.0%	0	16 50.0%	0
	Heading and sub heading	Yes	No	Yes	No
		4 13.3%	11 36.7%	7 21.9%	9 28.1%
	Content page	Yes	No	Yes	No
		4 13.3%	11 36.7%	7 21.9%	9 28.1%
	Glossary	Yes	No	Yes	No
		0	15 50.0%	1 3.1%	15 46.9%
	Further information: Movie	Yes	No	Yes	No
		0	15 50.0%	2 6.2%	14 43.8%
	Further information: TV series	Yes	No	Yes	No
		0	15 50.0%	0	16 50.0%

	Further information: Author's website/fan club	Yes	No	Yes	No
		0	15 50.0%	6 18.2%	10 31.2%

The next findings are related to the *capital letter* typographical effect. Results showed that there was a very low percentage of participants' books (18.9%) that had the *capital letter* effect (Table 4.16). Results have further demonstrated that only 3.3% of male participants' books used the *capital letter* effect, compared to 15.6% of female participants' books. In addition, results have also shown that 4.2% of the *beginner* and 13.1% of the *young reader* participants' books used the *capital letter* typographical effect (Table 4.17). To conclude, a difference was found in the existence of the *capital letter* typographical effect in the participants' chosen books according to their gender and age. Finally, this analysis also regarded the *bold* typographical effect. Accordingly, the results have shown that 100% of the male and female *beginner* and *young reader* participants' books included the *bold* typographical effect.

Table 4.17 Text feature analysis: Organization according to age

Categories		Beginner readers N=12		Young readers N=20	
Organiz ation Missing value C09	Typographi cal effects: Italic	Yes	No	Yes	No
		1 4.2%	11 45.8%	10 26.3%	9 23.7%
	Typographi cal effects: Capital letter	Yes	No	Yes	No
		1 4.2%	11 45.8%	5 13.1%	14 36.9%
	Typographi cal effects: Bold	Yes	No	Yes	No
		12 50.0%	0	19 50.0%	0

	Heading and sub heading	Yes	No	Yes	No
		1 4.2%	11 45.8%	10 26.3%	9 23.7%
	Content page	Yes	No	Yes	No
		1 4.2%	11 45.8%	10 26.3%	9 23.7%
	Glossary	Yes	No	Yes	No
		0	12 50.0%	1 2.6%	18 47.4%
	Further information: Movie	Yes	No	Yes	No
		0	12 50.0%	2 5.2%	17 44.8%
	Further information: TV series	Yes	No	Yes	No
		0	12 50.0%	0	19 50.0%
	Further information: Author's website/fan club	Yes	No	Yes	No
		0	12 50.0%	6 15.8%	13 34.2%

The next group of findings concerned the existence of *heading* and *sub heading*, content page and glossary in the books chosen by the participants. Accordingly, the results have shown that 35.2% of the participants' books included *headings* and *sub headings* (Table 4.8). Of this percentage, it was found that 13.3% male and 21.9% female participants' books included *headings* and *sub headings* (Table 4.16). Results have further shown that 4.2% of the *beginner* and 26.3% of the *young reader* participants' books included *headings* and *sub headings* (Table 4.17). Consequently, a difference was found in the existence of *headings* and *sub headings* in the participants' chosen books, according to their gender and age.

The next findings regarded the existence of a content page in the participants' chosen books. It was found that 35.2% of the participants' books included a content page (Table 4.16). Of this percentage, it was found that 13.3% of the male and 21.9% of the female participants' books included a content page (Table 4.16). Results have further shown that 4.2% of *beginner* and 26.3% of *young reader* participants' books included a content page (Table 4.17). Consequently, a difference was found in the existence of a content page in the participants' chosen books related to their gender and age. Finally, the results in Tables 4.16 and 4.17 also showed that only 3.1% of the male and female *beginner* and *young reader* participants' books included a glossary.

Next, text feature analysis focused on possible further information, including whether the book was used for a movie or a television series creation as well as the authors' personal websites, blogs or fan clubs. Accordingly, it was found that only 6.2% of the participants' books included information on a movie creation based on the book (Table 4.16). The results have also shown that only books chosen by the female *young reader* participants included such information (Table 4.17). *Eragon* and *Marley* were two books that were made into movies (see Appendix 3.1). The results presented in Tables 4.16 and 4.17 further showed that there was no information about any television series made based on the books chosen by all the participants.

Finally, further data regarding information about the authors' personal websites, blogs or fan clubs have also been found. The results have shown that 18.2% of the participants' books included additional information regarding the authors' personal websites, blogs or fan clubs (see Table 4.16). The results have further demonstrated that only books chosen by the female *young reader* participants included extra information regarding the authors' personal websites, blogs or fan clubs (Table 4.17). Books including

information regarding the authors' personal websites, blogs or fan clubs were under the title *Eragon*, *Stravaganza*, *City of Star*, *A Handful of Horrid Henry*, *Mystic* and *Midnight Ride*, *Marley*, *The Naughtiest Girl: Keeps a Secret*, and *Stack of Stories* (see Appendix 3.1).

As a conclusion, the text feature analysis showed specific differences in the text feature elements appearing in the participants' chosen books, according to gender and age categories.

4.3 Qualitative Findings

4.3.1 Introduction

This section presents the results of the qualitative analyses of miscue analysis, the retelling and interview sessions. Firstly, the results of the miscue analysis sessions are presented and discussed. The analysis is divided into three sections, consisting of *graphophonic*, *syntactic* and *semantic* analyses. Next, the results of the analysis of the retelling sessions are described. Finally, the overall results of the interview data are presented and discussed. A descriptive and narrative analysis was deployed, in order to discover the participants' comprehension ability, motivation, background knowledge and reading strategies during their interaction with the texts in RE1 and RE2.

4.3.2 Miscue

The purpose of miscue analysis in this research was to explore the readers' strengths, and the strategies they used in order to understand what they read and meanwhile construct meaning while reading. Miscue analysis relies on the identification of miscues that the reader made (Goodman, Watson & Burke, 2005).

4.3.2.1 Percentages Word Miscued

To begin the analysis I firstly checked the data distribution normality. This was done through the '*Explore*' command towards the participants' *percentage of word miscued* in RE1 and RE2. With the Kolmogorov- Smirnov test, the results came out statistically significant for the data in RE1 ($KS3 = .249$, $df = 32$, $p=.000$) and for the data in RE2 ($KS3 = .158$, $df = 32$, $p= .000$), meaning that the distribution was not normal in RE1 and RE2, and therefore, the assumption of normality was violated for data in both RE1 and RE2. Accordingly, the nonparametric data statistical analyses were conducted in order to explore the rest of the miscue data.

To begin the analysis of the data, the *percentage of word miscued* was presented. The *percentage of word miscued* aimed to reveal whether there were any differences between the participants' miscued words in RE1 and RE2. The *percentage of word miscued* was calculated by adding up the total number of miscues coded divided by the number of words in each text in RE1 and RE2, and multiplying by 100. In order to investigate whether any differences existed between the participants' miscued words in RE1 and RE2, the *Wilcoxon Signed Rank test* was used. This *test* was formed with the dependent variable, the *percentage of word miscued* to the independent variable, the text in RE1 and RE2. The results show that there was a significant difference between the *percentage of word miscued* in RE1 and RE2 ($z = -2.945$, $p = .003$), with a medium effect size ($r=.4$) (Table 4.18). The median of the *percentage of word miscued* increased from $Md = 2.5$ in RE1 to $Md = 3.6$ in RE2 (Table 4.18). These results suggest that the participants made more miscues in RE2 compared to RE1. In other words, the participants had more miscues in the higher readability index text.

Table 4.18 Percentage of word miscued in RE1 and RE2

Median in RE1	Median in RE2	Wilcoxon Signed Rank (2-tailed)
2.5	3.6	.003

$N=32$, $Z = -2.945^a$, $p = .003$, $r = .4$

Effect size using Cohen (1988) criteria of .1 = small effect, .3 = medium effect, .5 = large effect

Table 4.19 below presents the median *percentage of word miscued* according to gender. The overall results showed that there were increases in words miscued in RE2, compared to RE1 for both male and female participants (Table 4.19). Nevertheless, the female participants' median *percentage of word miscued* increased to higher than the males'. The results also showed that the female participants' median *percentage of word miscued* increased (1.3) from $Md = 2.5$ in RE1 to $Md = 3.8$ in RE2 compared to the males' median which increased (0.5) from $Md = 2.7$ in RE1 to $Md = 3.2$ in RE2 (Table 4.19). These results suggest that the female participants made more miscues compared to the male participants while reading texts with higher readability index.

Table 4.19 Percentage of words miscued in RE1 and RE2 according to gender

Gender		Percentage of words miscue in RE1	Percentage of words miscue in RE2
Male	N	16	16
	Median	2.7	3.2
Female	N	16	16
	Median	2.5	3.8

Number of participants (N) = 32 (total)

The next data regarded the *percentage of word miscued* in RE1 and RE2 according to age. The overall results showed that there were increases in words miscued in RE2 compared to RE1 for both *beginner* and *young* reader participants (see Table 4.20). Nevertheless, the *beginner reader* participants' median *percentage of word miscued*

increased higher compared to *young reader* participants. The results show that the *beginner reader* participants' median *percentage of word miscued* increased (2.0) from Md = 2.7 in RE1 to Md = 4.7 in RE2 compared to the *young reader* participants' median which increased (0.8) from Md = 2.3 in RE1 to Md = 3.1 in RE2 (Table 4.20). These results suggested that the *beginner reader* participants made many more miscues compared to the *young reader* participants while reading texts with a higher readability index.

Table 4.20 Percentage of words miscued in RE1 and RE2 according to age

Gender		Percentage of words miscue in RE1	Percentage of words miscue in RE2
<i>Beginner reader</i>	N	12	12
	Median	2.7	4.7
Young reader	N	20	20
	Median	2.3	3.1

Number of participants (N) = 32 (total)

In Tables 4.18 and 4.20, a significant difference of median *percentage of word miscued* in RE1 compared to in RE2 is generally indicated. This finding suggests that the participants made more miscues when using a higher readability index text. Nevertheless, the median *percentage of word miscued* does not show how the participants comprehended the texts. Therefore, it was important to explore the ways used by the participants to construct meaning while reading, in order to identify how they comprehended the texts.

4.3.2.2 Graphoponic Cueing System

To observe this the ways the participants used to construct meaning while reading, in order to identify how they comprehended the texts, I firstly explored how the participants used the three cueing systems. These cueing systems consisted of *graphophonic*, *syntactic* and *semantic acceptability* (see section 3.4.5.3). The three cueing systems analysis started by

addressing *graphophonic acceptability*. Therefore, for *graphophonic acceptability* analysis purposes, each miscue that was substituted for the printed word in the text was coded for both *graphic* and *phonic* similarity. By attending to the *graphic* and *phonic* features of a word miscued, the degree to which participants used the *graphophonic* system as they read, is indicated. The *graphic* characteristics of a word include what the word looks like and its physical features in its *orthography* or print. The *phonic* characters of a word contain the phonology or oral language. It takes account of how much the reader's reaction by the *sounds* of the various letters and letter combinations (Goodman, *et al*, 2005).

Graphic similarity refers to how the printed word looks, compared to the miscue that the participant actually made. *Graphic similarity* was judged according to the sequence and shape of the written miscue and the text word without paying attention to pronunciation. In the In-Depth Procedure, *graphic similarity* acceptances were divided into three parts for comparison purposes, consisting of *high graphic similarity*, *some graphic similarity* and *no graphic similarity* (see Appendix 3.5). *High graphic similarity* indicates that “two or more parts of the observer response (OR) look like two or more parts of the expected response (ER) and appears in the same location” (Goodman, *et al*, 2005, pp. 91-93). The sentence that follows is an example of *high graphic similarity* by participant C01 who substituted the word breaket (OR) for the word bracket (ER).

He had brought a torch with him which he thrust into a bracket set

Example taken from participant C01 typescript in RE2

A miscue was coded as having *some graphic similarity* if “one part of the OR look like one part of the ER and appears in the same location” (Goodman, Y., *et al.*, 2005, 91-

93). A word that has *no graphic similarity* would be “*no degree of graphic similarity exists between the OR and the ER*”(Goodman, Y., et al., 2005,p. 91). The example above also shows *some graphic similarity* by participant C01 who substituted the word twisted (OR) for the word thrust (ER). It also showed *no graphic similarity* by this participant, who also substituted the word and (OR) for the word which (ER).

Phonic similarity indicates whether the reader’s miscues sound like the word written in the text. *Phonic similarity* focuses on the reader’s pronunciation and not on the written form. In the In-Dept Procedure, to consider phonic similarity the OR and ER are contrasted by being divided into three parts, consisting of *high phonic similarity*, *some phonic similarity* and *no phonic* (see Appendix 3.5). *High phonic similarity* indicates that “*two parts of the OR sound like two parts of the ER and are heard in the same location*” (Goodman, Y., et al., 2005, p. 93). A miscue was coded as having *some phonic similarity* if “*one part of the OR sound like one part of the ER and is heard in the same location*” (Goodman, Y., et al., 2005, p.93). A word that has *no graphic similarity* would be “*no degree of phonic similarity exists between the OR and the ER*”(Goodman, Y., et al., 2005, p. 93). An example of *high phonic similarity* is shown by participant C01, who substituted the word breaket (OR) for the word bracket (ER). Also, in the same example, there is *some phonic similarity* by participant C01, who substituted the word twisted (OR) for the word thrust (ER). The sentence above shows a further example of *no phonic similarity* by participant C01, who substituted the word and (OR) for the word which (ER).

Example taken from participant C01 typescript in RE2

It was hypothesized that there would be differences in how the participants used the three cueing systems for texts in RE1 and RE2. Therefore, each miscue was explored individually to determine the extent of the participants' use of the *graphophonic cueing system* while reading each text. The *Wilcoxon Signed Rank test* was conducted to evaluate the impact of a higher readability index of text on participants' use of *graphophonic cueing system*. The *Wilcoxon Signed Rank test* was used for each of the dependent variables, *graphic* and *phonic* similarity to the independent variable for the texts in RE1 and RE2 (Table 4.21).

Table 4.21 demonstrates the participants' *graphophonic cueing system* in RE1 and RE2. The overall results indicate that there was no significant difference in the participants' *graphophonic* cueing system in RE1 and RE2 (see Table 4.21). This result suggests the fact that the texts with a higher readability index did not seem to be important, as the participants' miscues were similar in *graphics* and *phonic* features in the texts of both RE1 and RE2.

Table 4.21: Participants' graphophonic cueing system in RE1 and RE2

Miscues	Median RE1	Median RE2	Wilcoxon Signed Rank	Significant (two-tailed)
<i>High Graphic Similarity</i>	41.1	28.3	-1.179	.239
<i>Some Graphic Similarity</i>	34.2	35.7	-.206	.837
<i>No Graphic Similarity</i>	16.1	33.3	-1.600	.110
<i>High Phonic Similarity</i>	41.1	28.5	-1.225	.220
<i>Some Phonic Similarity</i>	33.7	35.2	-.561	.575
<i>No Phonic Similarity</i>	18.4	31.4	-1.309	.190

Number of participants (N) = 32 (total)

Table 4.21 also shows the usage of *graphophonic* cueing system used by the participants. To show the median of at least some degree usage of *graphic*, *high graphic similarity* and *some graphic similarity* parts were added. It was generally found that the participants' median of at least some degree usage of *graphic* was 75.3 in RE1 and 64 in RE2. The same procedure was applied to *phonic* usage by adding up *high phonic similarity* and *some phonic similarity*. The results show that generally the participants' median of at least some degree usage of *phonic* was 74.8 in RE1 and 66.6 in RE2. These high medians of at least some degree of usage of *graphic* and *phonic* suggest that the participants relied on a word's graphic and phonic feature when they encountered unfamiliar words, and they chose to substitute words based on what they looked and sounded like.

To show at least some degree of usage of *graphic*, *high graphic similarity* and *some graphic similarity* were added. The results presented on Table 4.22 show that there were differences between male and female participants' usage of *graphic* features. It was found that the male participants relied on *graphic* features to a higher degree in RE1 (Md=86.1), as compared to RE2 (Md=63.4) (Table 4.22), whereas, the female participants relied on *graphic* features in RE1 (Md=73.5) and RE2 (Md=63.8) with their median difference not being as high as the male participants'. Furthermore, Table 4.22 also shows that both male and female participants' median usage of *graphic* decreased in both RE1 and RE2. Accordingly, these results suggest that both male and female participants relied on less *graphic* features when reading a higher readability index text. Additionally, the results suggest that male participants' usage of *graphic* features were less affected by the higher readability index text, as compared to female participants.

Table 4.22: Participants' graphophonic cueing system in RE1 and RE2 according to their gender

Miscues	Male N = 16		Female N = 16	
	Median RE1	Median RE2	Median RE1	Median RE2
<i>High Graphic Similarity</i>	41.1	30.0	40.2	25.7
<i>Some Graphic Similarity</i>	45.0	33.4	33.3	38.1
<i>No Graphic Similarity</i>	1.8	33.3	31.0	31.4
<i>High Phonic Similarity</i>	41.1	30.0	40.2	27.1
<i>Some Phonic Similarity</i>	45.0	33.4	33.3	39.5
<i>No Phonic Similarity</i>	1.8	33.3	31.0	29.2

Number of participants (N) = 32 (total)

Table 4.22 presents the participants' usage of *phonic* features for texts in RE1 and RE2, according to their gender. To show at least some degree usage of *phonic*, *high phonic similarity* and *some phonic similarity* were added. Results suggest that there were differences between male and female participants' usage of *phonic* features. It was found that male participants relied on *phonic* features more in RE1 (Md=86.1), as compared to RE2 (Md=63.4) (Table 4.22), whereas female participants also relied on the *phonic* features in RE1 (Md=73.5) and RE2 (Md=66.6), but the median difference was much less when compared to the male participants. Table 4.22 also shows that both male and female participants' median usage of *phonic* decreased in both RE1 and RE2. Accordingly, these results suggest that both male and female participants relied on less *phonic* features when reading a higher readability index text. Furthermore, the results suggest that male participants' usage of *phonic* features was less affected by the higher readability index text, as compared to female participants.

The next results show participants' usage of *graphic* features for texts in RE1 and RE2 according to their age category. To show at least some degree of usage of *graphic*, *high graphic similarity* and *some graphic similarity* were added. The results in Table 4.23 show that there were a few differences between the *beginners* and the *young reader* participants' usage of *graphic* features. It was found that the *beginner reader* participants relied on *graphic* features more in RE1 (Md = 72.8), as compared to RE2 (Md = 63.2) (Table 4.23), whereas, the *young reader* participants had almost the same results on the *graphic* features in RE1 (Md = 75.9) and RE2 (Md = 73.2). In addition, Table 4.22 shows that both *beginner* and *young reader* participants' median usage of *graphic* decreased in both RE1 and RE2. Accordingly, these results suggest that both *beginner* and *young reader* participants relied less on *graphic* features when reading a higher readability index text. Furthermore, the results suggest that the *beginner reader* participants' usage of *graphic* features were less affected by the higher readability index text compared to the *young reader* participants.

Table 4.23: Participants' graphophonic cueing system in RE1 and RE2 according to their age

Miscues	Beginner Readers N = 12		Young Readers N = 20	
	Median RE1	Median RE2	Median RE1	Median RE2
<i>High Graphic Similarity</i>	43.7	27.1	38.4	29.3
<i>Some Graphic Similarity</i>	29.1	36.1	37.5	35.7
<i>No Graphic Similarity</i>	8.3	33.3	17.7	28.0
<i>High Phonic Similarity</i>	43.7	27.1	38.4	29.5
<i>Some Phonic Similarity</i>	29.1	36.1	34.5	35.1
<i>No Phonic Similarity</i>	8.3	33.3	33.7	27.3

Number of participants (N) = 32 (total)

Table 4.23 presents the participants' usage of *phonic* features for the texts in RE1 and RE2 according to their age. In order to show at least some degree of usage of *phonics*; *high phonic similarity* and *some phonic similarity* parts were added (usage of *phonic* = *high phonic similarity* + *some phonic similarity*). The results on Table 4.23 show that there were not many differences between the *beginner* and *young reader* participants' usage of *phonic* features. There were very few differences showing that the *beginner reader* participants relied on *phonic* features more in RE1 (Md = 72.8) compared to RE2 (Md = 63.2) (Table 4.23), whereas the *young reader* participants also relied on the *phonic* features in RE1 (Md = 73.9) compared to RE2 (Md = 65.0). Apart from this, Table 4.23 also showed that both *beginner* and *young reader* participants' median usage of *phonic* decreased in both texts in RE1 and RE2. Accordingly, these results suggested that both *beginner* and *young reader* participants relied less on *phonic* features when reading a higher readability index text.

In summary, the overall results in Table 4.21 and Table 4.23 showed the miscue analysis patterns on the usage of the *graphophonic cueing system*. The results indicate the participants' dependence on this system in both texts in RE1 and RE2. However, it was found that the participants' were less dependent on this system when reading a higher readability index text.

To further identify whether differences existed between the texts in RE1 and RE2 regarding the usage of the *graphophonic*, *syntactic* and *semantic* cueing systems used by the participants, it was important to determine how the participants used the other language system, such as *syntactic* and *semantic* elements as they read each text. Participants coordinated these systems as they read both texts in RE1 and RE2. The degree to which they used them as indicated by the results is presented next.

4.3.2.3 Grammatical Relation

Syntactic acceptability is concerned with the degree to which the readers produce acceptable grammatical structures (Goodman, et al., 2005). *Syntactic acceptability* has been described previously in section 3.4.5.3. *Semantic acceptability* focuses on the success to which the reader produces a meaningful text. *Semantic acceptability* depends on syntactic acceptability. Therefore, if the miscue is *syntactically unacceptable*, the miscue is considered *semantically unacceptable* as well. However, if the miscue is *syntactically acceptable*, the miscue may be coded as *semantically acceptable*, *partially acceptable* or *unacceptable* (Goodman, et al., 2005, p. 137). *Semantic acceptability* has been described previously in section 3.4.5.3.

Next, if the miscues are *syntactically* and *semantically acceptable*, the next question to be considered is whether the *meaning changes*. *Meaning change* examines the degree to which the reader changes the author's text (Goodman, et al., 2005). Attention was also given to whether the miscue was corrected *successfully*, whether the miscue was *partially successful* or if there was *unsuccessful self-correction* by the participants, and this attempt reflects the participants' conformation strategies (Goodman, et al., 2005).

In the In-Depth Procedure, the patterns of *grammatical relations*, that is the ability to produce text that sounds like language, are found by examining *syntactic acceptability*, *semantic acceptability* and *correction* elements. Four patterns of grammatical relations were found: *strength*; *partial strength*; *overcorrection* and *weakness* (see Appendix 3.5). The *strength grammatical relation pattern* signifies that the reader integrates efficient reading strategies. Miscues in this pattern include those that are *syntactically* and *semantically acceptable* and, if not, they are *corrected* (Goodman, et al., 2005, p. 154). The sentence below is an example of *strength grammatical relation pattern* by participant C01.

This sentence shows that the participant C01 replaced the verb thrust with another verb (twisted). The substituted word formed a sentence with perfect sense, sounded like language, and made sense within the context of the entire story. For this reason, this miscue was coded as a *strength grammatical relation pattern*.

It was unnerving the way Paolo did that. He always knew where he was needed
and when. He had brought a torch with him which he thrust into a bracket set
high up in the wall so that sparks wouldn't set the straw on fire. Cesare sprang

Example taken from participant C01 typescript in RE2

A miscue coded as *partial strength grammatical relation pattern* implied that a reader was strong in using the linguistic system (sound like language), but not always successful in integrating meaning. Miscues in this pattern include those that are *syntactically acceptable*, but not fully *semantically acceptable*, nor *successfully corrected* (Goodman, et al., 2005, p. 154). The sentence below is an example of *partial strength grammatical relation pattern* by participant C01. This sentence shows that participant C01 replaced the adverb above with another preposition (from) and produced a sentence that was a perfectly acceptable substitution within the context of the sentence, but was still unacceptable within the context of the entire text. Consequently, this miscue was considered a *partial strength grammatical relation pattern*.

thick, ^{bru}brutish arms made for crushing. A pair of twisted horns grew ^{from} above their

small ears. The monsters hurried into the brush, grunting as they hid. Soon the

Example taken from participant C01 typescript in RE1


Overcorrection grammatical relation pattern refers to miscues that were fully syntactically and semantically acceptable, and did not need correction, but the reader corrected it. This correcting act point out the participants' excessive concern for exactness and focuses on surface features of the text (Goodman, et al., 2005, p. 154). The following example shows the participants C01's miscue in *overcorrection grammatical relation pattern*. The first reaction given by participant C01 would have been acceptable, since this word is just a name, yet the participant corrected it, resulting in *overcorrection grammatical relation pattern*.

side, ^{Arcon}
^{Ar}
Arcangelo the

Example taken from participant C01 typescript in RE2

A miscue is coded as *weakness grammatical relation pattern* when it is syntactically and semantically unacceptable and the reader does not correct it. Miscues in this pattern imply that the readers attempt accuracy on a surface level rather than use reading strategies to make their reading sound like language (Goodman, Watson & Burke, 2005). An example showing *weakness grammatical relation pattern* by participant C01

follows. Participant C01 did not correct the substituted word his for the word the which was *syntactically* and *semantically unacceptable*.

his

 dark for any human to see, but for him the faint moonlight was like sunshine

Example taken from participant C01 typescript in RE1

To observe participants use of *syntactic cuing system* each miscue was explored individually for its *grammatical relation acceptability*. The *Wilcoxon Signed Rank test* was conducted to evaluate the impact of a higher readability index text on participants' *grammatical relation pattern*. This *test* was carried out on each of the dependent variables, *grammatical relation (strength, partial strength, overcorrection and weakness)* to independent variables texts in RE1 and RE2 (Table 4.24).

Table 4.24, below, demonstrates the participants' *grammatical relation patterns*. The results show a significant difference in the participants' *strength grammatical relation pattern* ($z = -3.17$, $r = .4$, $p = .002$) of miscues in RE1 compared to RE2. The participants' median for *strength grammatical relation pattern* decreased from 42.9 in RE1 to 26.5 in RE2. These results indicate that the participants integrated less efficient reading strategies during reading a higher readability index text. Next, the results also showed a significant difference in the participants' *partial strength grammatical relation pattern* ($z = -2.67$, $r = .3$, $p = .008$) of miscues in RE1 compared to RE2. The participants' median for *partial grammatical relation pattern* had not changed in RE1 ($Md = .000$) compared to in R2 ($Md = .000$). These results indicate that the participants used their linguistic system in the same way, regardless whether the text was with high or low readability index. *Strength*

grammatical relation pattern and *partial strength grammatical relation pattern* signify that the reader intergrades efficient reading strategies and use the linguistic system (sound like language), but is not always successful in integrating meaning. Therefore, these median results suggest that the participants were struggling to produce a text that sounded like language, and to use the linguistic system in integrating meaning for a higher readability index text.

Table 4.24: Participants' grammatical relations patterns in RE1 and RE2

Grammatical Relations Patterns	Median RE1	Median RE2	Wilcoxon Signed Rank	Significant (two-tailed)
<i>Strength</i>	42.9	26.5	-3.17	.002
<i>Partial Strength</i>	.000	.000	-2.67	.008
<i>Overcorrection</i>	.000	.000	-1.19	.233
<i>Weakness</i>	48.4	70.3	-3.80	.000

Number of participants (N) = 32 (total)

The results on Table 4.24 also show that there was no significant difference in the participants' *overcorrection grammatical relation pattern* ($z = -1.19$, $r = .1$, $p = .233$) of miscues in RE1 compared to RE2. As explained above, the *overcorrection grammatical relation pattern* designates the participants' excessive concern for exactness and focus on surface features of the text. Consequently, the results for the participants' *overcorrection grammatical relation pattern* suggest that it did not matter whether the texts had a higher or lower readability index, as the participants tended to *overcorrect* the miscues. Finally, a significant difference was found in the participants' *weakness grammatical relation pattern* ($z = -3.8$, $r = .5$, $p = .000$) of miscues in RE1 compared to RE2 (Table 4.24). The

participants' median for *weakness grammatical relation pattern* increased vastly from 48.4 in RE1 to 70.3 in RE2.

The *weakness grammatical relation pattern* refers to the readers' attempt at accuracy on a surface level, rather than on the use of reading strategies to make their reading sound like language. For this reason, the increase in the median of *weakness grammatical relation pattern* suggests that the participants tended to focus on reading the words accurately, rather than on constructing meaning in the higher readability index text. To conclude, the overall results presented in Table 4.24 indicate that a higher readability index text makes the participants use less efficient reading strategies, and they generally try to focus on reading the words correctly, rather than on constructing meaning for a higher readability index text.

Next, Table 4.25 demonstrates the participants' *grammatical relation pattern* in RE1 and RE2 according to their gender. The results show that both male and female participants' median *strength grammatical relation pattern* decreased in RE2, compared to RE1. The male participants' median *strength grammatical relation pattern* decreased from 35.9 in RE1 to 26.8 in RE2, whereas the female participants' median *strength grammatical relation pattern* decreased from 43.7 in RE1 to 25.9 in RE2 (Table 4.25). These results showed that the male and female participants integrated efficient reading strategies; however, the female participants integrated efficient reading strategies more than the male participants when faced with a text that had a higher readability index.

Table 4.25: Participants' grammatical relations in RE1 and RE2 according to gender

Grammatical Relations Patterns	Male N = 16		Female N = 16	
	Median RE1	Median RE2	Median RE1	Median RE2
<i>Strength</i>	35.9	26.8	43.7	25.9
<i>Partial Strength</i>	.000	.000	.000	.000
<i>Overcorrection</i>	.000	.000	.000	.000
<i>Weakness</i>	50.0	70.7	45.0	69.4

Number of participants (N) = 32 (total)

Table 4.25 also shows that both male and female participants' median *weakness grammatical relation pattern* increased in RE2, compared to RE1. The male participants' median *weakness grammatical relation pattern* increased from 50.0 in RE1 to 70.7 in RE2, whereas the female participants' median *weakness grammatical relation pattern* increased from 45.0 in RE1 to 69.4 in RE2 (Table 4.25). These results indicated that both male and female participants were reading for accuracy; nonetheless, the male participants tended to read for accuracy on a surface level, rather than using reading strategies to make their reading sound like language more than the female participants when encountering a higher readability index text.

Finally, as presented on Table 4.25, there was no change in the median for *partial strength grammatical relation pattern* and *overcorrection grammatical relation pattern* in RE1 and RE2 for both male and female participants. These results suggest that both male and female participants used their linguistic system, had an excessive concern for exactness, and focused on surface features of the text, regardless whether the text was with high or low readability index.

To conclude, the results generally indicated that both male and female participants integrated less efficient reading strategies when reading a higher readability index text. Apart from this, they also increased their reading for accuracy on a surface level, rather than on using reading strategies to make their reading sound like language and on constructing meaning while facing a text with a higher readability index. It was generally also shown that there was not a significant difference between the male and female participants' *grammatical relation pattern*.

Next, Table 4.26 shows the participants' *grammatical relation pattern* in RE1 and RE2 according to their age. The results show that both the *beginner* and *young reader* participants' median on *strength grammatical relation pattern* decreased in RE2 compared to RE1. The *beginner reader* participants' median *strength grammatical relation pattern* decreased from 47.3 in RE1 to 22.0 in RE1, whereas the *young reader* participants' median *strength grammatical relation pattern* decreased from 43.7 in RE1 to 25.9 in RE2. These results indicate that the *beginner* and *young reader* participants integrated efficient reading strategies, but however, the *beginner reader* participants integrated efficient reading strategies more than the *young reader* participants when encountering a higher readability index text.

Table 4.26: Participants' grammatical relations in RE1 and RE2 according to age

Grammatical Relations Patterns	<i>Beginner readers</i> N = 12		<i>Young Readers</i> N = 20	
	Median RE1	Median RE2	Median RE1	Median RE2
<i>Strength</i>	47.3	22.0	39.3	26.5
<i>Partial Strength</i>	.000	.000	.000	.000
<i>Overcorrection</i>	.000	.000	.000	.000
<i>Weakness</i>	43.7	78.0	50.00	64.55

Number of participants (N) = 32 (total)

Table 4.26 also show that both *beginner* and *young reader* participants' median on *weakness grammatical relation pattern* increased in RE2 compared to RE1. The *beginner reader* participants' median *weakness grammatical relation pattern* increased from 43.7 in RE1 to 78.0 in RE2, whereas the female participants' median *weakness grammatical relation pattern* increased from 50.0 in RE1 to 64.55 in RE2 (Table 4.26). These results indicate that both *beginner* and *young reader* participants were reading for accuracy, nonetheless the *beginner reader* participants tended to read for accuracy on the surface level rather than to use reading strategies to make their reading sound like language more than the *young reader* participants when encountering with a higher readability index text. Finally, the results suggest that there was no change in the median for *partial strength grammatical relation pattern* and *overcorrection grammatical relation pattern* in RE1 and RE2 for both *beginner* and *young reader* participants (Table 4.26). These results indicated that both *beginner* and *young reader* participants used their linguistic system and excessive concern for exactness and focused rather on surface features of the text regardless whether the text was with high or low readability index.

To conclude, overall results indicate that both *beginner* and *young reader* participants integrated less efficient reading strategies when reading a higher readability index text. Apart from this, they also increased their reading for accuracy on the surface level, rather than on using reading strategies to make their reading sound like language and on constructing meaning while facing a text with a higher readability index. It was also generally shown that there was not much difference between the *beginner* and *young reader* participants' *grammatical relation pattern*.

The findings regarding the *grammatical relation pattern* have generally shown that the participants' dependence on substituting words that sounded and looked like words in the text suggest that it had probably influenced their ability to exploit the semantic and syntactic cueing system in order to construct meaning. Furthermore, the analysis revealed that the higher the readability index text was, the higher the participants' reliance on substituting words that sounded and looked like the words in the text was as well. Considering these measures, it was somewhat important to analyze patterns so as to constructing meaning.

4.3.2.4 Meaning Construction

According to In-Depth Procedure patterns for constructing meaning, the miscues influence the reader's concern for making sense of the text (Goodman, Watson & Burke, 2005). To identify whether the readers constructed meaning, all three elements (*semantic acceptability, meaning changed* and *corrections*) were taken into account. *Meaning construction* patterns were judged by *no loss, partial loss* and *loss of meaning* (see Appendix 3.5).

No loss of meaning construction pattern reflected a high-quality of miscues that show the reader's concern for making sense of the entire text. In this pattern the miscues

were coded as semantically acceptable with no meaning change or, if not acceptable, were corrected (Goodman, et al., 2005, p. 152). The following example showed participant C01's miscue for *no loss of meaning construction pattern*. This example showed that participant C01 was aware of the fact that he/she had made an unacceptable miscue by replacing the word curved with a non word cerves. He/she later corrected the non word. The correction reflected the fact that participant C01 was concerned with whether his/her reading made sense.


 A handwritten correction in a typescript. The word "curved" is underlined in red. Above it, "cerves" is written with a circled "e". A bracket connects the "e" in "cerves" to the "e" in "curved". The sentence is "scratch curved down the blade."

Example taken from participant C01 typescript in RE1

Next, *partial loss of meaning construction pattern* refers to those miscues which were coded either as fully semantically acceptable with some meaning change, or partially semantically acceptable. Such miscues may have no attempt for correction, or there may be unsuccessful correction attempts. These miscues illustrate that the reader uses some strategies appropriately (Goodman, et al., 2005). An example follows which shows participants C01's miscue for *partial loss of meaning construction*. The example illustrates that participant C01 substituted the word scent (a noun) with another noun (sense) which was partially semantically acceptable. Even though the participant did not make any attempt to correct it, the miscue quality shows that he/she used certain strategies appropriately.


 A handwritten correction in a typescript. The word "scent" is underlined in red. Above it, "sense" is written with a bracket underneath. The sentence is "Wind howled through the night, carrying a scent that would change the world."

Example taken from participant C01 typescript in RE2

Finally, the *loss of meaning construction pattern* designated the miscues that were coded semantically unacceptable with no correction attempts or unsuccessful correction attempts, or the miscue was partially semantically acceptable with no attempt to be corrected. *Loss of meaning construction pattern* points out whether the reader has difficulties with specific segments of the text (Goodman, et al., 2005). The sentence below is an example of *loss of meaning construction pattern* by participant C01. This example shows that participant C01 substituted the word *gelding* with the words *jil*, *gel*, *gelded* and *gelbing*. All attempts to correct the miscues were unsuccessful. For this reason, these miscues were coded as *loss of meaning construction pattern*.

ted only in racing animals
 (us) gelbing
 gelded
 chetner gel shifly
 chestnut gelding shifted a

Example taken from participant C01 typescript in RE2

Semantic acceptability, meaning change and corrections were also taken into account in identifying whether the participants were constructing meaning as they read the text in RE1 and RE2 (see Appendix 3.5). The *Wilcoxon Signed Rank test* was conducted to assess the impact of a higher readability index text on the participants' ability to construct meaning. This *test* was used for each of the dependent variables, *meaning construction (no loss, partial loss and loss of meaning)* and independent variables in the texts in both RE1 and RE2 (Table 4.27).

Table 4.27: Participants' meaning construction patterns in RE1 and RE2

Meaning constructions	Median RE1	Median RE2	Wilcoxon Signed Rank	Significant (two-tailed)
<i>No Loss</i>	30.0	27.9	-.046	.964
<i>Partial Loss</i>	21.1	.000	-3.5	.000
<i>Loss</i>	45.3	61.8	-3.1	.002

Number of participants (N) = 32 (total)

Table 4.27 demonstrates the participants' *meaning construction pattern*. The results show that there was no significant difference in the participants' *no loss of meaning construction pattern* ($z = -.046$, $r = .0$, $p = .964$) of miscues in RE1 compared to RE2. The participants' median for *no loss of meaning construction pattern* decreased from 30.0 in RE1 to 27.9 in RE2. Although the participants' median for *no loss of meaning construction pattern* decreased, the decrease was not significant. Hence, these results indicate that the participants' *no loss of meaning construction pattern* continued to be the same, regardless of whether the text was with high or low readability index.

The next results showed that there was a significant difference in the participants' *partial loss of meaning construction pattern* ($z = -3.5$, $r = .4$, $p = .000$) of miscues in RE1 compared to RE2 (Table 4.27). The participants' median for *partial loss of meaning construction pattern* decreased from 21.1 in RE1 to .000 in RE2. These results indicate that the participants used less appropriate reading strategies when reading a higher readability index text. Finally, Table 4.27 showed that there was a significant difference in the participants' *loss of meaning construction pattern* ($z = -3.1$, $r = .4$, $p = .002$) of miscues in RE1 compared to RE2. The participants' median for *loss of meaning construction pattern*

decreased from 45.3 in RE1 to 61.8 in RE2. These results suggested that the participants had trouble with specific segments of the text while reading a higher readability index text.

To conclude, Table 4.27 shows contradictory results, which indicate that it did not matter whether the texts had high or low readability index in the participants' concern of making sense of their reading. Nevertheless, the participants seemed to be struggling to construct meaning in the higher readability index text due to inconsistency, loss or meaning, change of minor and major idea, incident, character, fact, sequence, or concept portions of the text (Goodman, Watson & Burke, 2005).

Next, Table 4.28 shows the participants' *meaning construction pattern* in RE1 and RE2 according to their gender. These results show that the male participants' median of *no loss of meaning construction pattern* increased from 19.1 in RE1 to 29.3 in RE2, whereas the female participants' median of *no loss of meaning construction pattern* decreased from 33.3 in RE1 to 26.8 in RE2. These results indicate that the male participants' concern for making sense of the entire text increased, while reading a higher readability index text, whereas the female participants' concern seemed to decrease.

Table 4.28: Participants' meaning construction pattern in RE1 and RE2 according to gender

Meaning constructions	Male N = 16		Female N = 16	
	Median RE1	Median RE2	Median RE1	Median RE2
<i>No Loss</i>	19.1	29.3	33.3	26.8
<i>Partial Loss</i>	21.6	.000	18.6	13.0
<i>Loss</i>	50.00	70.70	43.7	57.7

Number of participants (N) = 32 (total)

Table 4.28 also demonstrates the participants' *partial loss of meaning construction pattern* in RE1 and RE2. The results reveal that both male and female participants' median of *partial loss meaning construction pattern* decreased in RE2 compared to in RE1. The male participants' median of *partial loss of meaning construction pattern* decreased from 21.6 in RE1 to .000 in RE2, whereas the female participants' median decreased from 18.6 in RE1 to 13.0 in RE2. These results indicate that both male and female participants used less appropriate reading strategies when reading a higher readability index text. Finally, the results in Table 4.28 also show the participants' *loss of meaning construction pattern* in RE1 and RE2. These results show that both male and female participants' median of *loss meaning construction pattern* decreased in RE2 compared to in RE1. The male participants' median decreased from 50.0 in RE1 to 70.7 in RE2, whereas the female participants' median decreased from 43.7 in RE1 to 57.7 in RE2. These results suggested that both male and female participants had difficulty with specific segments of the text while reading a higher readability index text.

To conclude, the results presented on Table 4.28, indicate that both male and female participants had concerns for making sense of the entire text while reading a higher readability index text. Apart from that, they were found to be using less appropriate reading strategies and to have problem with specific segments of the text while reading a higher readability index text. Finally, it was generally shown that there were not important differences between the male and female participants' *meaning construction patterns*. The next results presented on Table 4.29 demonstrate the participants' *meaning construction patterns* in RE1 and RE2 according to their age. These results showed that the *beginner reader* participants' median of *no loss of meaning construction pattern* increased from .000 in RE1 to 20.6 in RE2, whereas the *young reader* participants' median slightly

decreased from 31.7 in RE1 to 29.3 in RE2. These results indicate that the *beginner reader* participants' concerns for making sense of the entire text increased while reading a higher readability index text, whereas the *young reader* participants' concerns decreased.

Table 4.29: Participants' meaning construction patterns in RE1 and RE2 according to their age

Meaning constructions	<i>Beginner readers</i> N = 20		<i>Young readers</i> N = 20	
	Median RE1	Median RE2	Median RE1	Median RE2
<i>No Loss</i>	.000	20.6	31.7	29.3
<i>Partial Loss</i>	23.6	.000	17.5	4.0
<i>Loss</i>	43.7	67.5	47.7	55.5

Number of participants (N) = 32 (total)

Table 4.29 shows the participants' *partial loss of meaning construction patterns* in RE1 and RE2 according to their age. The results revealed that both *beginner* and *young reader* participants' median of *partial loss meaning construction pattern* decreased in RE2 compared to RE1. The *beginner reader* participants' median decreased from 23.0 in RE1 to .000 in RE2, whereas the *young reader* participants' median decreased from 17.5 in RE1 to 4.0 in RE2. These results indicate that both *beginner* and *young reader* participants used less appropriate reading strategies when reading a higher readability index text. Finally, further results have revealed participants' *loss of meaning construction patterns* in RE1 and RE2. These results indicate that both *beginner* and *young reader* participants' median of *loss meaning construction pattern* decreased in RE2 compared to RE1. The *beginner reader* participants' median decreased from 43.7 in RE1 to 67.5 in RE2, whereas the *young reader* participants' median decreased from 47.7 in RE1 to 55.5 in RE2. These results

suggested that both *beginner* and *young reader* participants had trouble with specific segments of the text while reading a higher readability index text.

To conclude, overall results on Table 4.29 indicate that both *beginner* and *young reader* participants had concerns for making sense of the entire text while reading a higher readability index text. Apart from this, they were found to be using less appropriate reading strategies and to have trouble with specific segments of the text while reading a higher readability index text. Finally, it was generally shown that there was little significant difference between the *beginner* and *young reader* participants' *meaning construction patterns*.

To sum up, miscue analysis was chosen as a data collection instrument in this study, to identify the differences in how the readers utilized the three cueing systems in each text, and how they constructed meaning when reading each text in RE1 and RE2. The miscue analysis data indicates that when the graphic features of words were considered, the differences between the two texts were not significant. The data have also suggested that the participants relied on the graphophonic cueing system in both texts. Nevertheless, the results further show that there is a significant difference between the two texts in RE1 and in RE2 in the participants' grammatical relations and meaning construction. These significant results indicate and confirm that a higher readability index text had an important impact on the participants. It was also found that a higher readability index text had caused a lower score in the mean percentages of the participants' grammatical relations and meaning construction. Therefore, the statistical analysis indicated that the participants were unable to construct meaning in the higher readability index texts compared to the lower readability index texts. The data of the miscue analysis were additionally supported by the findings on the retelling of each text.

4.3.3 Retelling

4.3.3.1 Introduction

In this research the method of retelling was used in conjunction with miscue analysis in order to provide important information regarding the reader's search for meaning (Goodman, Watson & Burke, 2005). Hence, retelling was used to elicit the participants' comprehension. The participants' retellings were analyzed, in order to identify how much of the story they could recall and / or comprehend and a comparison of their overall comprehension of the two texts in RE1 and RE2 was made. Additionally, retelling also provided further information on any inferences, connections or critical inquiries that the participants made.

4.3.3.1 The Richness of Participants' Retelling

The retellings were judged using the criteria developed by Irwin and Mitchell (1983) under the title *Judging Richness of Retellings*. The richness of the participants' retellings was judged by comparing the content of their retellings with a set of existing criteria. According to these criteria, the retellings were scaled from level one to level five. Level 1 is the lowest level where the participants are only able to relate details, whereas in Level 2 the participants are able to relate a few major ideas. Level 3 means that the participants are able to relate major ideas, and in the fourth level (Level 4) the participants are able to make a summarising statement. In the highest level (Level 5) the participants are able to generalize beyond the text. In terms of the present research, the term 'generalize beyond the text' meant that the participants could relate the content of the story with their daily life and they could value the story as useful, funny etc. In this research, the five levels of retelling richness were also used as indicators of the degree of the participants' understanding of the text they read. In terms of this research the higher the level of richness

of the retelling was, the higher the degree of the participants' understanding of the text was as well. The full criteria for the scale can be found in Appendix 3.9.

Initially, I had planned to collect sixty four retellings from 32 participants, with each participants retelling twice, once in RE1 and once in RE2. Unfortunately, during data collection some of participants refused to retell. Most of these participants gave the excuse that they could not remember the story. They were then given a second chance to reread the text again either silently or aloud so that they could retell it, but unfortunately they still refused. They even refused to answer questions suggested to prompt them. There were five participants of participants who refused to retell in RE1 (Participant 15, Participant 27, Participant 29, Participant 30 and Participant 32) and four participants in RE2 (Participant 03, Participant 11, Participant 29 and Participant 30).

Based on the readability indices for each text, it was hypothesized that the text in RE1 would be easier for the participants to read than the text in RE2. In order to investigate whether differences existed related to the participants' level of retelling in RE1 and RE2, frequency and percentage were only used. Hence, Figure 4.1 presents the richness of the participants' retellings in RE1 and RE2. Generally, the findings indicated that the participants' level of retelling was at a low level as the majority of their retelling level was at Level 2 and none of the participants achieved a Level 4 or 5 in both texts in RE1 and RE2.

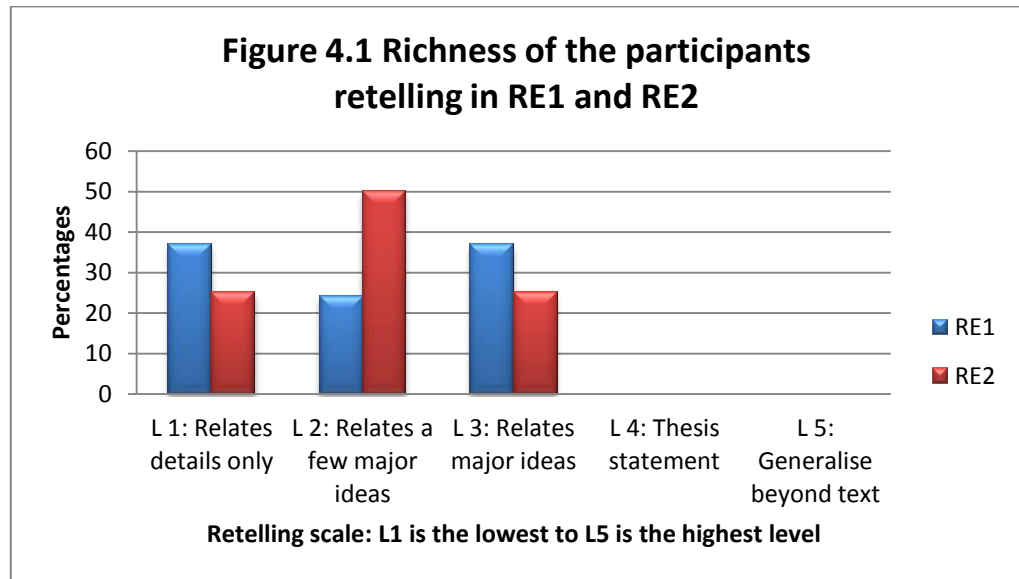


Figure 4.1 presents the results of the overall richness of the participants' retelling. The results generally show that the participants' retelling richness patterns changed when they read a higher readability index text. Results show that in RE1, 37.0% of the participants' level of retelling were at Level 1 and this level diminished to 25.0% in RE2 (see Figure 4.1). Hence, the results suggest that the participants' Level 1 of retelling decreased when they read a higher readability index text. According to Irwin and Mitchells' (1983) retelling criteria, Level 1 indicates that the reader can only relate details and provide irrelevant supplementations in their retelling. Irwin and Mitchell (1983) have also reported that Level 1 indicates that the reader's retelling has a low level of coherence and is incomplete and incomprehensible. Therefore, the results of the present study which have shown a decrease on the percentage of the participants' achieving Level 1 on the higher readability index text, suggest that the participants' retelling became better when they read a higher readability index text.

Furthermore, the results also reveal that in RE1 24.0% of the participants' level of retelling was at Level 2 and this level became twice as high in RE2 (50.0%) (Figure 4.1). Hence, these results indicate that the participants' level of retelling increased when they read a higher level of readability index text. According to Irwin and Mitchell (1983) retelling criteria, Level 2 indicates that the reader relates a few major ideas and supports details in his/her retelling. They have also stated that at Level 2 the reader includes irrelevant supplementations and shows some degree of coherence during retelling. Irwin and Mitchell (1983) also suggest that at Level 2 the reader's retelling has some completeness and is fairly comprehensible. Hence, the results of the present study showing that 50.0% of the participants' retelling at Level 2 for the higher readability index text suggests that the participants' retelling improved when they read a higher readability index text.

The results show that 37.0% of the participants achieved Level 3 in their retellings in RE1, and this percentage decreased to 25.0% in RE2 (Figure 4.1). Hence, these results show that the participants' level of retelling decreased when they read a higher readability index text. According to Irwin and Mitchell (1983) retelling criteria Level 3 indicates that the reader relates major ideas and includes appropriate supporting details and relevant supplementations in their retelling. They further report that at Level 3 the reader shows some degree of coherence in their retelling. Irwin and Mitchell (1983) also state that at Level 3 the reader's retelling is complete and comprehensible. Thus, the results showed a decrease in the percentage of the participants' achieving Level 3 in the higher readability index text, which suggests that their retelling was worse when they read a higher readability index text.

Finally, the results show that none of the retellings achieved Level 4 and Level 5 in both RE1 and RE2 (see Figure 4.1). According to Irwin and Mitchell (1983) retelling criteria, Level 4 and Level 5 indicate that the reader is able to generalize beyond the text in their retelling. They have further mentioned that at Levels 4 and 5, the reader's retelling includes summarizing statements, major points, appropriate supporting details and includes relevant supplementation. Meanwhile, they have stated that at Level 4 and Level 5 the reader's retelling shows a high degree of coherence, completeness and comprehension. Hence, the present results showing that none of the participants' retellings achieved Level 4 or Level 5 in RE1 and RE2, suggest that their retellings were generally at a low level regardless the type of text (a high or a low readability index text).

To sum up, the overall results suggest that a higher readability index text caused mixed results to the participants' retelling level. It was found that a higher readability index text led to the participants' low retelling level to decrease, and at the same time it also led to the participants' higher level of retelling to decrease. Apart from this, overall results suggest that the retellings were generally at a low level for either a high or a low readability index text. Therefore, it could be stated that higher readability index texts may not really have an effect on the participants' retellings.

The next finding is related to the richness of the participants' retellings according to their gender in both RE1 and RE2 (see Table 4.30). Results have shown that there are differences in the percentages for the male and female participants' retelling levels. It was found that the percentages of the male participants' richness of retelling at Level 3 changed vastly from 25.0% in RE1 to 13.3% in RE2, whereas the percentages for the female participants' richness of retelling at Level 3 did not change in RE1(11.5%) and RE2 (11.5%) (Table 4.30). Results show that the percentages of male and female participants'

richness of retelling at Level 2 were twice as high in RE2 compared to RE1. Furthermore, the results reveal that the percentages of the male participants' richness of retelling at Level 1 increased from 14.3% in RE1 to 16.7% in RE2, whereas the female participants' richness of retelling at Level 1 decreased greatly from 23.1% in RE1 to 7.7% in RE2. Finally, the results have shown that none of the participants, whether male or female, achieved a retelling Level 4 or 5 in both texts in RE1 and RE2 (Table 4.30). To sum up, the results presented on Table 4.30 suggest that the male participants were struggling more than the female participants to understand the text with a higher readability index. Apart from this, the female participants' understanding of the text, was not affected by a higher readability index text.

Table 4.30: Richness of the participants' retelling according to their gender in RE1 and RE2

Retelling Level	RE1		RE2	
	Male	Female	Male	Female
L 1: Relates details only	14.3%	23.1%	16.7%	7.7%
L 2: Relates a few major ideas	10.7%	15.4%	20.0%	30.8%
L 3: Relates major ideas	25.0%	11.5%	13.3%	11.5%
L 4: Thesis statement	0	0	0	0
L 5: Generalize beyond text	0	0	0	0

Number of participants (N) = 32 (total)

The retelling analyses also included looking at the richness of the participants' retelling according to their age in RE1 and RE2 (Table 4.31). Accordingly, the results show

that there were differences in the percentages for the *beginner* and *young reader* participants' retelling level. It was found that the percentages of the *beginner reader* participants' richness of retelling at Level 3 remained the same in RE1 (18.8%) and RE2 (18.4%), whereas the percentages of the *young reader* participants' richness of retelling at Level 3 increased vastly from 0.0% in RE1 to 19.5% in RE2. The results have also shown that the percentages of the *beginner reader* participants' richness of retelling at Level 2 were twice as high in RE2 (15.8%) compared to RE1 (6.2%), whereas the *young readers* participants' richness of retelling at Level 2 remained at the same level in RE1 (25.0%) and RE2 (25.0%).

Furthermore, the results have revealed that the percentages of the *beginner* and *young reader* participants' richness of retelling at Level 1 decreased in RE1 and RE2. Finally, further results show that none of the participants, whether *beginner* or *young readers*, achieved a Level 4 or 5 in their retellings, both in RE1 and RE2 (Table 4.30). To sum up, the results presented on Table 4.31 suggest that the *beginner reader* participants were struggling more than the *young reader* participants to understand the text with the higher readability index. Apart from this, the *young reader* participants' understanding of the text was not affected by the higher readability index text.

Table 4.31: Richness of the participants' retelling according to their age in RE1 and RE2

Retelling Level	RE1		RE2	
	<i>Beginner Readers</i>	<i>Young Readers</i>	<i>Beginner Readers</i>	<i>Young Reader</i>
L 1: Relates details only	25.0%	15.8%	25.0%	5.5%
L 2: Relates a few major ideas	6.2%	15.8%	25.0%	25.0%
L 3: Relates major ideas	18.8%	18.4%	0	19.5%
L 4: Thesis statement	0	0	0	0
L 5: Generalize beyond text	0	0	0	0

Number of participants (N) = 32 (total)

In sum, retelling was chosen as a data collection instrument in this study, to identify the participants' comprehension level of the text they read in RE1 and RE2. This was achieved by looking at the level and the quality of the story the participants recalled and/or comprehended. Accordingly, the findings generally indicate that the participants' level of retelling was at a low level as the majority of their retelling level was at Level 2 and none of the participants achieved a Level 4 or 5 in both texts in RE1 and RE2. Retelling richness at Level 2 indicates that the participants could only recall the events in the text they were reading, but at the same time, they were unable to generalize beyond the text or include summarising statements. Retelling findings further indicate that there were differences between the male and female participants' level of retelling and between the *beginner* and *young reader* participants' level of retelling in both texts in RE1 and RE2. The results also show that a higher readability index may have caused a lower level and a higher level of

retelling richness decreasing concurrently. For this reason, it may be concluded that higher readability index texts may not have an effect on the participants' retelling.

4.3.4 Interview

4.3.4.1 Categories and Themes

The main aim of conducting the interviews as a part of this research study, was to probe in depth the nature and underpinning rationale of the participants' feelings about the texts they read, the text elements that helped or hindered their ability to read, and their reading strategies and motivation to read. Two separate interviews were conducted. The first was carried out as a part of RE1 and the second as a part of RE2.

During the interview sessions two interview protocols were used: RE1 Interview Protocol and RE2 Interview Protocol (see section 3.4.5.5). Twelve questions were asked to 32 sample participants throughout each of the two interview sessions. In this research, each participant was treated as a specific Case. For this reason, a cross-case or cross-interview analysis approach was found to be the most appropriate way to analyze the huge set of interview data collected. Through the cross-interview analysis approach, the responses to each interview were organized question by question (Patton, 2002). The interview data were organized using Nvivo7 software. With the *autocoding by heading* function available in the Nvivo7, I managed to group together the responses from different participants to common questions quickly and systematically (see Figure 3.3).

The organized interview data were later analyzed using a content analysis approach. In this research, content analysis of the interview data involved the process of coding, categorizing and theme building. Prior to the coding process, the units of analysis were defined. According to Krippendorff (2004, p. 99-101) units of analysis consist of *sampling units* (*units that are distinguished for selective inclusion in an analysis*), *recording/coding*

units (units that are distinguished for separate description, transcription, recording, or coding) and context units (units of textual matter that set limits on the information to be considered in the description of recording units). Hence, *sampling units* for this research interview data included the interview transcriptions from all 32 participants. *Coding units* are units that are included within *sampling units* and they are units of description.

Accordingly, the *coding units* for this interview data consisted of words, phrases, and sentences that described the nature and underpinning rationale of the participants' feelings about the texts they read, the text elements that helped or hindered their ability to read, and their reading strategies and motivation to read. Finally, the *context units* for the interview data consisted of sentences, a group of sentences, or a paragraph, that *delineated the scope of information that coders need to consult in characterizing the coding units* (Krippendorff, 2004, p.103).

The *sampling units* for this research interview data were analyzed using a *thematic* approach. This involved putting texts into themes and combinations of categories (Krippendorff, 2004). Hence, the first step was to create the unit of analysis by assigning *codes* to the data (Miles, & Huberman, 1984 cited in Cohen, Manion, Morrison & Dawson, 2007). During the coding process it was found that the codes for this data were relatively straight forward and there were no different levels of specificity and generality when defining the participants' answers to common questions. Hence, there were no codes subsumed with others to create a tree like diagram of codes. This was not the case for the categorizing process, nonetheless.

The next step after coding was categorizing. "*Categories are the main groupings of constructs or key features of the text, showing links between units of analysis*" (Cohen, Manion, Morrison, & Dawson, 2007, p. 478). Thus, the categorizing process involved

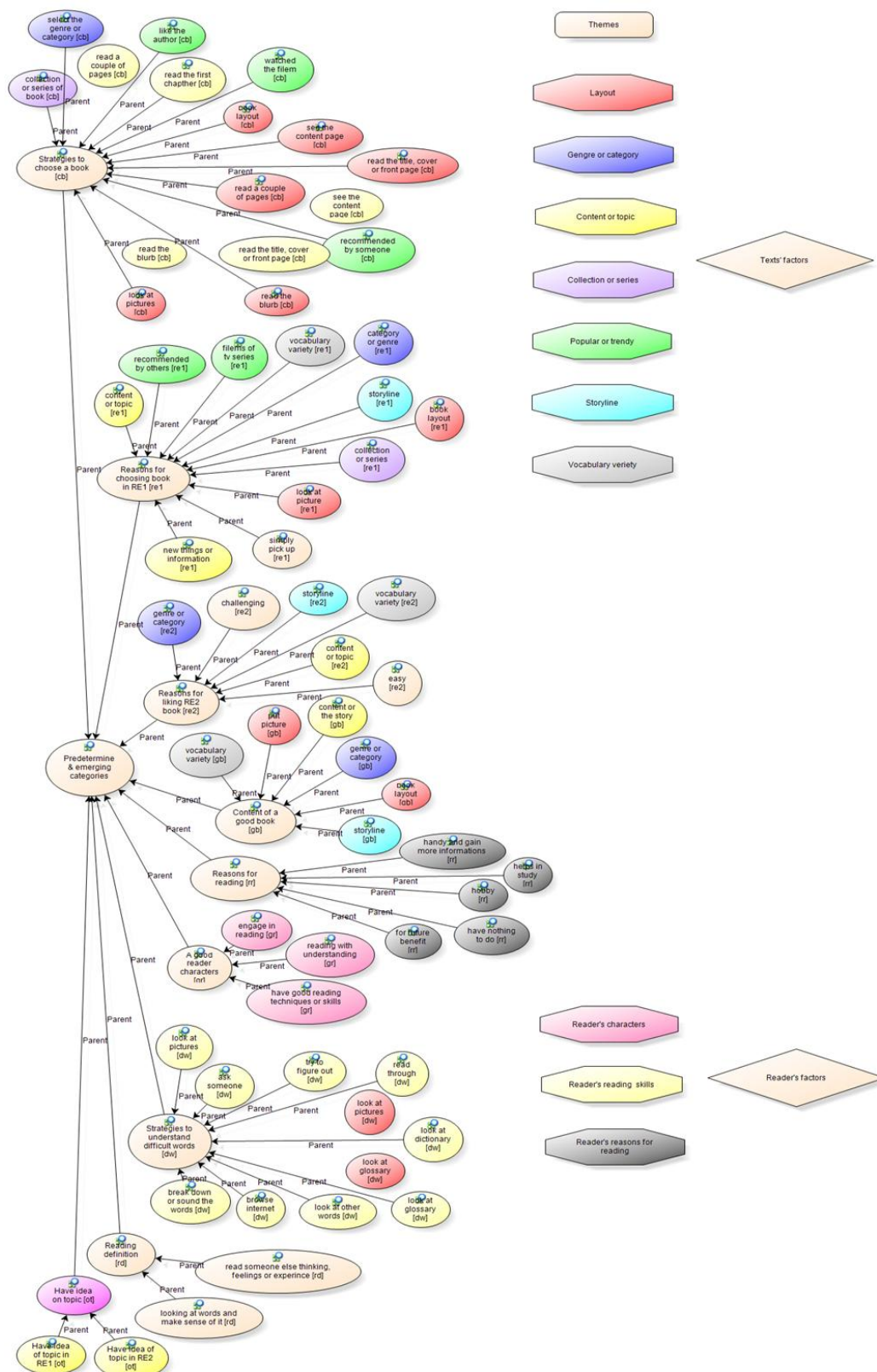
examining codes that were overlapping or redundant and collapsing them into categories. Naturally, categories are more general than codes (Cohen, Manion, Morrison, & Dawson, 2007). Prior the categorising process, I created several *predetermined categories*. These *categories* were established by the variables in the interview questions. There were nine *predetermined categories*: (1) reader characteristic; (2) book characteristic; (3) prior knowledge of the topic; (4) definition of reading; (5) reasons for choosing the book in RE1, 6. reasons for liking the book in RE2; 7. reasons for reading; 8. strategies to choose a book; and 9. strategies to comprehend the text. The reason for having these *predetermined categories* was to direct the categorizing process towards answering the interview main aims. In addition, they allowed a preliminary grouping of codes to certain categories. The categories that were suggested by the data were put under *emerging categories*. During the categorizing process of the interview data, it was found that the categories were at different levels of specificity and generality. Thus, some categories subsumed others and created a tree-like organisation of categories that consisted of subordinate and superordinate categories (see Figure 3.6).

To establish the reliability of the categories judged to appear in the data, inter-rater reliability test was conducted. Two of the participants' interview transcriptions were given to two other independent raters. The procedure for conducting the inter-rater reliability for the interview data has been explained in the *Interview Data Analysis* (see section 3.4.5.5). The two independent raters were two final year EdD students. Both of these students were doing EdDs in Applied Linguistics and TESOL and were also doing research on reading. To determine the consistency between the raters, the marked typescripts by each one were compared and the total of similarly coded categories was counted. To determine inter-rater reliability I used the simple percent-agreement figure. Percent agreement is calculated by

finding the percentage of similarly coded categories. The results showed that 89% of my categorizing was the same as that of the other raters. The results from this inter-rater reliability test indicated that there was consistency in my categorising of the data. Subsequently, I continued to analyze the rest of the interview transcriptions with more confidence that my categorizing was consistent.

The final step in the interview analysis was theme building. This involved combining the *emerging categories* that consisted of the same content or concept into a theme. For example, all the categories that included concepts like *book layout*, *look at glossary*, *look at picture*, *read a couple of page*, *read the title or cover*, *read the blurb*, and *see the content pages*, were put under the theme called *layout*. This theme building process was carried out using the diagramming function available in NVivo7. It was much easier to build the themes using this function because I was able to display all my categories on one page and colour the overlapping categories with the same colour before collapsing them into a theme. Consequently, there were eleven themes which emerged from the interview data: *layout*, *genre or category*, *content or topic*, *collections or series*, *popular or trendy*, *storyline*, *vocabulary variety*, *reader's characters*, *reader's reading techniques*, *reader's reasons for reading* and *reader's definition of reading*(Figure 4.2 illustrates the emerged themes).

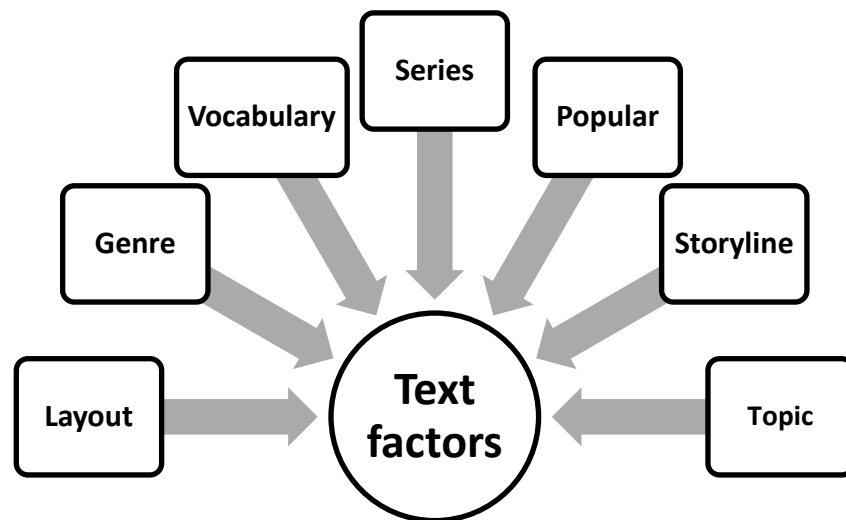
Figure 4.2: Categories and themes of the interview data



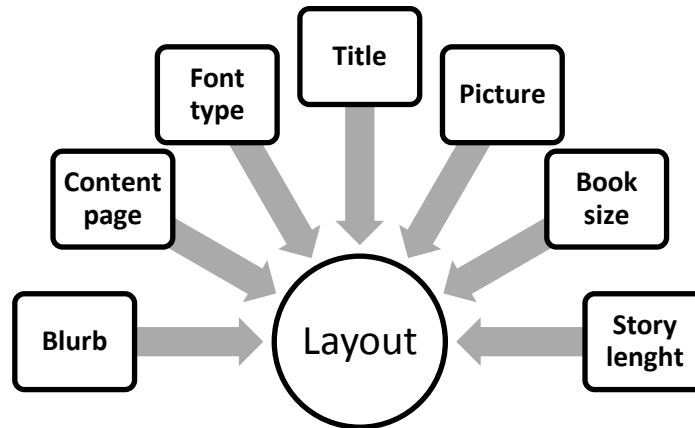
The eleven emerging themes were the factors that operated during the interaction between the participants and the text. In other words, the themes were the factors that influenced the participants' reading. Thus, the themes were divided into two factors: the text factor and the reader factor. The text factor consisted of themes like *layout*, *genre or category*, *topic or content*, *series or collection*, *popular or trendy*, *storyline*, and *vocabulary* (Figure 4.3), while the reader factor consisted of themes like *reader's characters*, *reader's reading techniques*, *reader's reasons for reading* and *reader's definition of reading* (Figure 4.11).

4.3.4.2 Text Factors

Figure 4.3: Text Factors



In this study the term text factor referred to the text features mentioned by the participants during the interview that influenced their decision to choose a specific book. These elements were the factors that motivated them to engage in their reading. The interview data findings have shown that the text features were *layout*, *genre*, *storyline*, *series or collection*, *vocabulary*, *popular*, and *content or topic* (Figure 4.3).

Figure 4.4: Elements that influence layout

The first text factor presented concerns page layout. The elements consisted of *blurb*, *content page*, *font type*, *title*, *picture*, *book size*, and *story length* (see Figure 4.4). The importance of the layout in a reading material was one of the findings of this research. The participants had in mind that the title page was an important element for a good reading material layout. The participants mentioned that they chose to read a book by looking at its front page or the title. It was found that having the blurb at the back of the book was another important element of a good book layout. This was because the participants read the blurb before choosing to read a book. Apart from these, it was found that the participants had reported that a picture was important as an element that made them chose the reading material. This was because some of the pictures show the character of the story that they are reading or the picture of the animal that they are reading that helped them to understand the text and made the book interesting. They further mentioned that the features of the print, such as whether the prints were bold or colourful, was also an important factor that made them chose to read a specific book. Other aspects that were

important to the participants seemed to be the length of the whole reading material that according to them should not be too long or too short, the size of the book that should not be too big, and the structure of the reading material that should be divided into chapters and should have a content page. Below are some examples of the participants' responses are presented:

IC04FY-07RE1

'Size of the book like medium I would read them if it is too big book I wouldn't read them.

IC07MY-06RE1

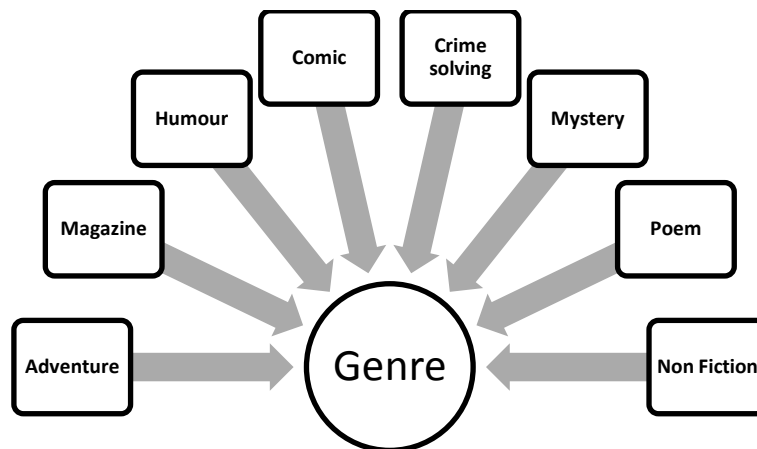
'I look at the blurb and see if it looks like a good story because the blurb tells you what goes on inside then I look at the print to see if the book looks good.'

IC16MY-06RE1

'I'd pick up the book that seems more interesting. I'd look for good pictures and a good title. That's how I'd find out if it was a good book or not. Nothing else.'

'I choose a book to read by making sure it's not too long and not too short. That it's just right for me. I flick through the pages and see 'how it is'.

Figure 4.5: Elements that influence genre



The next factor is related to genre. Genre or category of the book also seemed to play an important role in helping the participants to choose a book to read. Most participants were keen on reading books that were full of adventure, mystery and humour.

(Figure 4.5). They also liked stories full of action like crime solving, and also preferred books that were filled with funny stories and poems. Some examples of participants' comments are presented below.

IC06MY

'I read a book at home that I bought myself. Like poem and adventure.'

IC10MY

'Because it's like a mystery book and there's loads of action and it helps me with writing at school.'

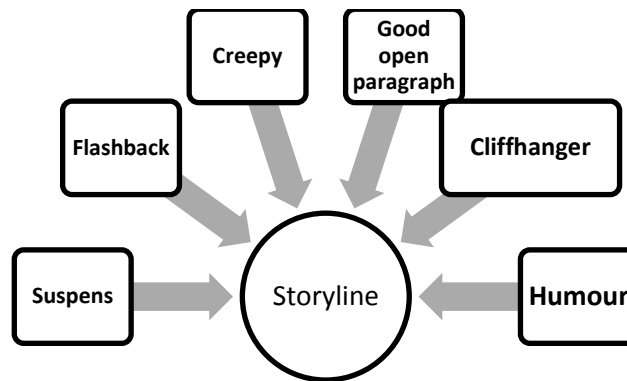
IC25MB

'Read magazine and comics. Football'

IC19MY

Yes, because it's one that I enjoy reading because it's fun. I liked the first bit. It's like a spy book – and that's good

Figure 4.6: Elements that influence storyline



The next factor concerns the storyline. Storyline was one of the factors that had influenced the participants to choose book or a text. The participants reported that they enjoyed reading books that the storyline included, such as *suspense*, *flashback*, *cliffhanger*, *creepy*, *good open paragraph* and *funny* (see Figure 4.6). These elements seemed very

important to the participants, as they kept them reading the book until the end. Hence, these were the elements that facilitated them to engage in their reading. The participants also reported that a good opening paragraph was very important. According to them, the first paragraph of the book was the most important part as it is the point where they decided to continue or totally abandon reading the text. Some of participants' comments are presented below.

IC04FY

'Not really. It just weird. Because it's like tells you everything in the first paragraph and talking about his birthday and him.'

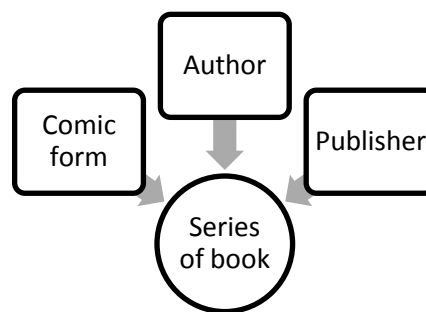
IC05FY-RE1

'It really interesting good suspense going some part and she managed it really good and they have a little flash back of it. It is good to sometimes explain them.'

IC06MY

'Suspense and I don't like it when it goes on and on for ages. I like it when it just go on a little and suspense and it slowly drip to what it is.'

Figure 4.7: Elements that influence series of book



The next factor regards whether the books were written in series. These book series were either written by a certain publisher (see Figure 4.7). Apart from a series of books most participants (8 out 15 male participants) reported enjoying reading series of comics

such as ‘*Ben Ten*’. The participants mentioned that the reasons they chose to read books by the same author or publisher included their style of writing, the storyline, or because the series had been adapted into a movie or a television series. The participants also mentioned that they enjoyed reading books written by famous authors like *J.K., Rowling, Stephanie Mayer, Enid Blyton* and *Christopher Paolini*. The *beginner reader* participants seemed to like reading a series of books written by a certain publishers such as *Oxford Press*. They also enjoyed reading *Oxford Reading Tree* series especially written by a famous author like *Roderick Hunt*. The reason for this was that the series had maintained the same characters like *Biff, Chipp, Kipper, Mom, and Dad* in all their episodes. The participants became familiar and attached to the characters and this was a factor that made them engage in their reading. Some examples of participants’ voices follow.

IC01FY

‘Like mostly I like my Twilight books that I was talking about before cause I saw the film and everything and on the back of the DVD it says like find Twilight books at bookshop near you if you like it. I went ask mom can you really really buy this. I bought the first two books and read on and like them and I bought the other two books and finished them all now. And I like the author Stephanie Mayer. And I’m going to ask them could I buy the whole stage of books that she writes. I think it is going to be a good one because she wrote Twilight.’

IC24MB

‘I read “Ben Ten”. Because I look “Ben Ten” at TV and I have “Ben Ten” DVD.’

IC24MB

‘Yes. Horrid Henry. Because I watch it on TV and start to collect the books.’

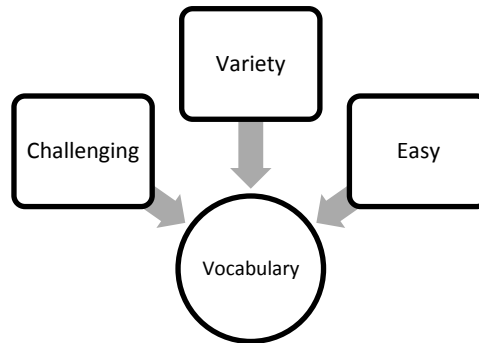
IC05FY

‘Well I like Enid Blyton’s book so found out there were collections of it so I kind like and try to read them.’

IC02FY

‘I look at the front and the writer as well. Like if you would read of all the collection.’

Figure 4.8: Elements that influence vocabulary



The participants have also stated that the vocabulary used in the book was another factor that they considered before choosing the book. They mentioned that the vocabulary used in books should be varied, challenging, and some mentioned that it should be easy. The participants mentioned that the books should have a variety of vocabulary to express the characters' condition. Apart from this, there were participants who preferred to read books that did not contain difficult words, whereas others preferred to read books with difficult words that challenged their knowledge. Some examples are presented below.

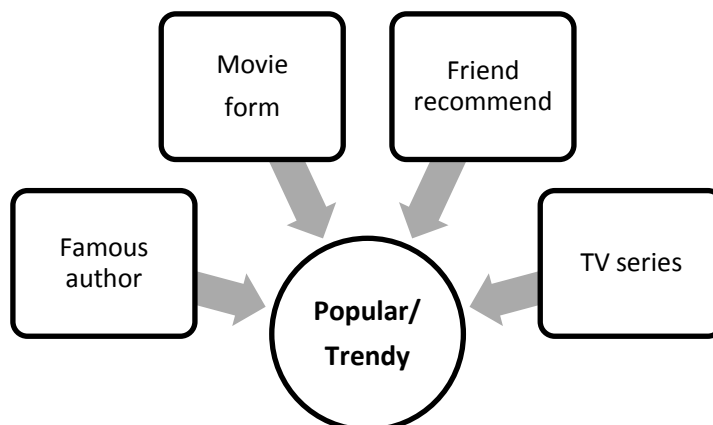
IC18MY

'A good book should have exciting words – and like the one I'm reading – with disgusting things and slimy.'

'Because it has good words. Words that I don't know and that makes it interesting.'

IC15FY

'Because it is good book and easy then other.'

Figure 4.9: Elements that influence popular / trendy

The next finding was under the term of popular or trendy. In this study, the term popular or trendy refers to popular and trendy elements that come along with the book, and that made the participants chose to read it. In this study the popular and trendy elements involved four aspects: whether the author of the book was famous; if the book had been adapted to a movie; if the characters in the book had been turned to characters in popular television series; and whether the book was read by the participants' peer groups and they recommended it to each other if they thought it was good (see Figure 4.9). Among the favourite authors mentioned by the participants were J.K. Rowling the author of *Harry Potter* and Roderick Hunt the author of books for *beginner readers* under the Oxford Reading Tree series. Apart from this, the books read by most participants that had been adapted to a movie were *Marley: A dog like no other*, *Eragon*, *Twilight*, and *Harry Potter*. Finally, the characters that appeared in the books read by the participants were those characters that were turned into popular television series: *Ben Ten*, *Horrid Henry*, and *Hanna Montana*. A few examples are presented below.

IC01FY-RE1

'Well because my cousin did recommend it to me and I have watched the film and it looked good.'

IC08MY

'I've read every single Harry Potter book... I saw the first movie a long time ago when I was very little... the first movie and then I've read every book since. On the first movie there's an event where they go down into a tunnel ...where they have to drink a potion that will get them through the fire. In the film or video that isn't there that bit is skipped so I like to see what's in the book that's different.'

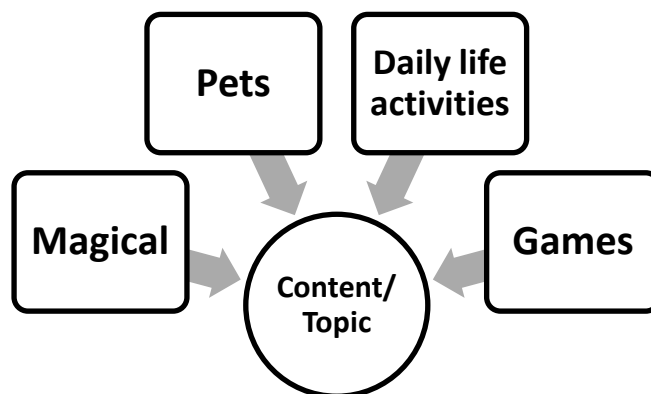
IC14FY

'My cousin gave me the book to read... it's really fun... it's like this little boy he wanted to join this club but this little boy fainted so he couldn't do it.'

IC01FY

'And like friend and they said this book (Eragon) like the Twilight book and they said really good. And that so when my cousin he like 14-15 like that he read this one (Eragon) and said he read it lots of times and he doesn't read it anymore and I can borrow one.'

Figure 4.10: Elements that influence content / topic



A further factor that motivated the participants choice of books was its content and topic. Most participants chose to read books when the content and topic were interesting to them. Topics that seemed most interesting to them included pets, games, magic and daily life activities. However, there were participants who chose to read books that were full of

new things presented in an informative way like an encyclopaedia. Some examples are presented next.

IC12FY-01RE1

'Because I'm into reptiles and things and stuff. It got interesting text and lots of pages of information. And I like the picture in it. Because it shows what a crocodile teeth looked like so you know what they explaining.'

IC13FY-12RE2

Because I've got books at home like this about magic. I really like them

IC31MB-01RE1

I like the book because I like crab.

IC03FY

'I really like dog and the book is pretty good.'

IC09MY

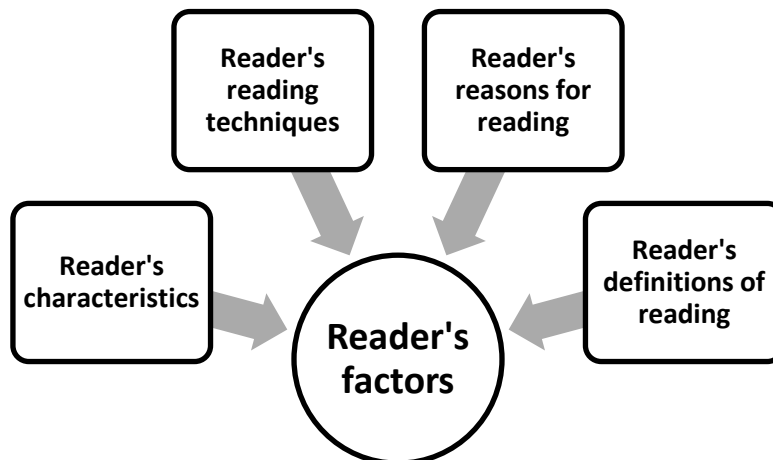
'I quite like fish. It's interesting because I didn't know what it was talking about before.'

IC16MY

'My Dad likes cricket so I choose this book because I thought I'd find it more interesting.'

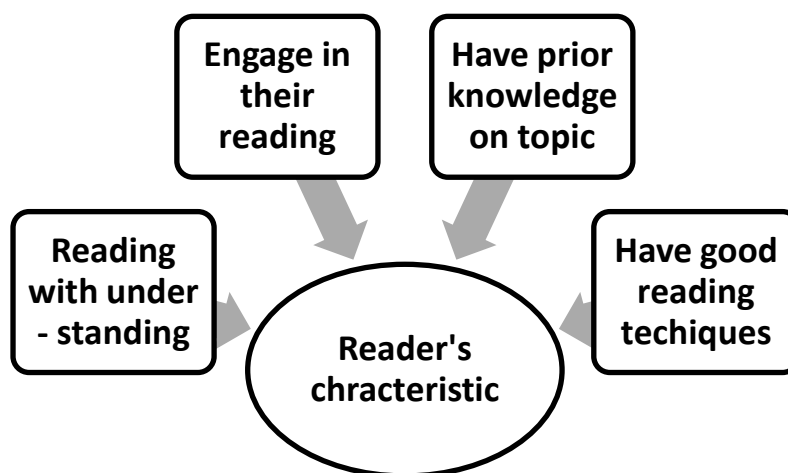
3.3.4.3 Readers Factors

Figure 4.11: Readers Factors



In this study, the reader factor referred to the characteristics of a good reader reported by the sample participants during the interviews. The interview data findings have shown that the characteristics of a good reader included *reader's reading techniques*, *reader's characteristics*, *reader's reason for reading* and *reader's definition of reading* (see Figure 4.11).

Figure 4.12: Elements that influence reader's characteristic



The first characteristic of a good reader concerned the reader's own characteristics like *engaging in their reading*, *having good reading techniques*, *reading with understanding*, and *having an idea or knowledge of the topic that they were reading* (Figure 4.12). According to more than half of the participants, *reading with understanding* meant knowing everything about the book; understanding difficult words and being able to explain the meaning of the words they read. Some have further mentioned that it was important to have an idea or knowledge of the topic that they were reading. To the participants, *having an idea or prior knowledge* of the topic meant that they themselves somehow had experienced an event similar to the story in their lives. Apart from this, the

participants mentioned having an idea or prior knowledge about the topic meant that they had learned about the topic in school, heard about it from their parents or others, and had watched similar events in television or movies. Here are a few excerpts from the interview conducted.

IC05FY-13RE2

'Because in history we doing like war and staff and they all would have to evacuate all the children from places.'

IC06MY-13RE2

'Because in a car there is a cruise control like you could put on a motor way and then the wheel can go carry on at the same speed for you. So the same as the autopilot.'

IC12FY-02RE1

'I have seen some in the zoo. My cousin and my aunt cause they live in America and they sent me video on the internet of the crocodile'

IC19MY

'I know it because my mum and dad have said it and brother have said it.'

The next reader's characteristic is related to reader's own *engagement in their reading*. The participants described that readers who were *engaged in their reading* were those who were concentrated while reading and not easily distracted. They then agreed that those who were engaged in their reading, read with full expression and fluency. Some have also stated that those who are engaged in their reading seemed to involve themselves in the story. They could imagine they are one of the characters of the story that they are reading, and they could voice out the dialog of the story with full expression.

IC02FY

*'No I think all of us is a good reader it just some of us need help. They read to a confident reader. ***, she can't get distracted like me. Like people mess around when we read, *** like didn't pick up any notice. She like get into the book.'*

IC06MY

‘*** cause I used to be in the same group and I heard her read. She like... you can like get into the story what actually happen in it. She like speaks like the characters going to say it. Like if they are angry or sad.’

*** Participant name had been taken out to assure anonymity

Another characteristic identified is the need to practice *good reading techniques*.

The participants all (100%) agreed that *having good reading techniques* meant having the ability to control the speed of their reading; being able to pronounce the words accurately; being able to sound the difficult words and knowing when making mistakes. Those *having good reading techniques* read a variety of book genre and enjoy reading; they do not struggle during reading; use the dictionary when necessary; and have the ability to read the next line and understand what follows (see some examples below).

IC02FY

‘Should be able to know when they sound wrong. Like be able to understand not like pick a book because of the cover but actually read it. Read different set of book and enjoy reading’.

IC05FY

‘I think I’m OK. Well they should understand word and be able to read quickly. They don’t have to stop and good back over it.’

‘*** a good reader because she reads quick quickly but not too quick and she explained the word.’

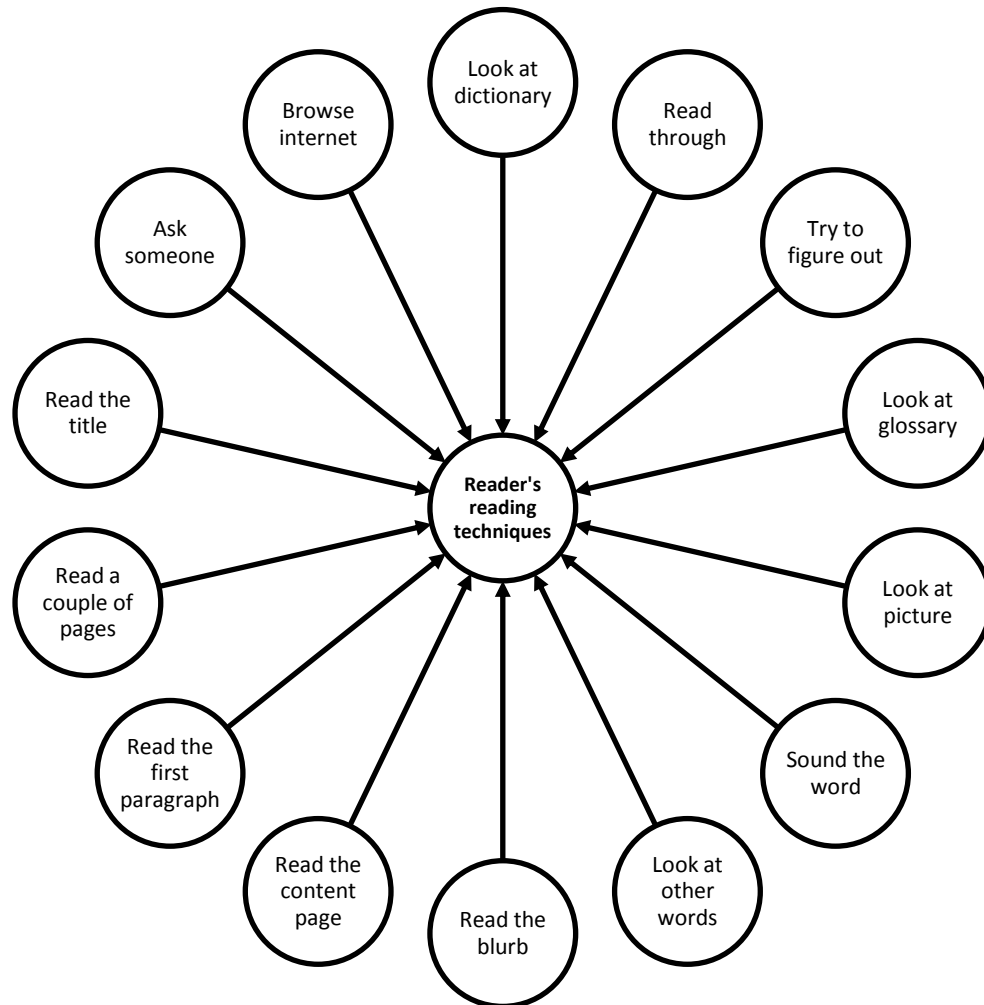
IC07MY

‘*** is a good reader because he can read very well looking on the next line ahead and looks what is coming.’

IC09MY

‘He or she can read big words and they don’t struggle to read and they read quickly. People can read well if they can pronounce words easily.’

*** Participant name had been taken out to assure anonymity

Figure 4.13: Elements that influence reader's reading techniques

The second characteristic of a good reader is related to the reader's own reading techniques, such as *asking someone, browsing on the internet, looking at the dictionary when reading, trying to figure out something, looking at the glossary, looking at the pictures, sounding the words, looking at other words, reading the blurbs, reading the content page, reading the first paragraph, reading couple of pages, and reading the title* (Figure 4.13). The term reader's reading techniques used in this study, refers to the techniques that the participants had used in order to overcome their difficulties while reading, and the steps they had taken to choose a book. The participants agreed that the

easiest way to help them overcome their difficulties while reading was to ask someone else to help them (mostly a close family member or their teacher). Next, they mentioned that looking at the dictionary and glossary could help them overcome their difficulties while reading. They mentioned that using word association (looking at other words) and pronouncing the word in syllables, helped them to surmount their reading difficulties. Apart from that, some of them stated that if they did not understand a certain word, it was important to read through or look at the next word or sentence and try to make sense of its meaning. The participants also browsed on the internet and looked at the pictures in order to be helped to overcome their reading difficulties.

IC01FY

'I don't know cause some of the words has announcement at the back of the book got like a glossary cause it really tells us how to pronounce and everything and it's like really like the medieval like that.'

'I just like break it down and I think like words that might mean the same as then and if it doesn't make sense I read the rest of the sentence and eventually I get it. And if not that I just ask mom.'

IC02FY

'At home I looked at the dictionary or open my laptop to find out the meaning. I ask stuff to my mom at home and ask teacher at school. Like you type the word in Google to find the meaning.'

IC20MY

'I'd look at the pictures and look at other words to figure it out or otherwise I don't really know.'

Next, according to the participants, one of the steps that they had taken in order to choose a book was reading the blurb. They mentioned that by reading the blurb, they got to know a small part of the story and to predict whether the story would be interesting or boring. They used the blurb in order to decide whether to continue or abandon reading the book. They further mentioned that another technique they used was reading a couple of

pages or the first paragraph to get a brief idea about the story because according to them, sometimes the blurb did not fully explain the story. Apart from this, the participants also read the title and content page and looked at the pictures in the reading material before deciding to read them.

IC09MY

'I look to see if they're 'fiction or non-fiction' and try to find something that I'd enjoy reading.'

'I'd read the blurb on the back or a few pages.'

'I read the first paragraph when I choose a book so I can see if I'd get lost in the book. I read the cover too because it tells you about the story.'

IC26MB

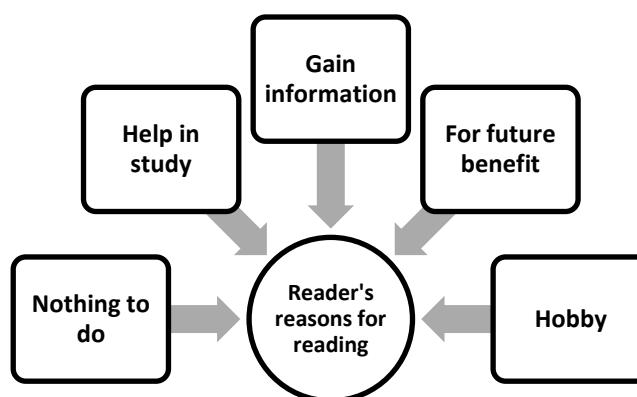
'If come to a library and first we sometime read blurb of the book and then decide if we like it and whether we are allow to take it home.'

'Well sometimes I look inside and read a little bit or I just look at the front page if it look good.'

IC04FY

'Read the blurb or a chapter or read sentences. Because it tells you the main story. Like it can be boring like the blurb can tells you something else so sometimes you have to read the front part.'

Figure 4.14: Elements that influence reader's reasons for reading



The third characteristic of a good reader concerns the reader's reasons for reading, such as *helping in their studies, gaining information, for their future benefit, handy, hobby, and having nothing else to do* (see Figure 4.14). The participants mentioned that the main reason they read was that reading helped them in their studies. They stated that by reading, they learned new words and this helped them in their spelling and writing. They further mentioned that they read in order to gain information and learn new things. There were a few participants who reported that they read for their future benefit. They explained that by reading they could have a better future like getting a job, preparation to attend college and preparation to go to the next Year higher class. The participants also reported that they read because it was fun, and an enjoyable hobby. They added that reading was a handier hobby compared to watching television as they could bring the book with them anywhere, and they can read in a quiet place. Finally, they read because they were bored and had nothing else to do.

IC5FY-09RE1

'Well just a hobby because I like reading quite interesting so that to get education.

IC06MY-09RE1

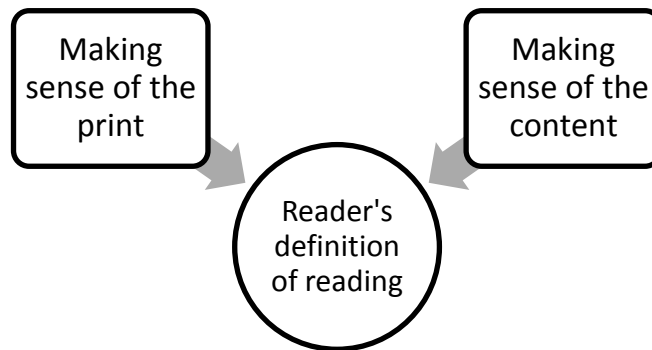
'It's help you with spellings and it help you to say better words and explain.'

C31MB-09RE1

'Why...that's an easy question. I've got to learn to read so I can be in Year One and I can move it and get good at reading.'

IC20MY

'I read because I get bored and reading cheers me up. I like to find new books.'

Figure 4.15: Reader's definition of reading

The fourth characteristic of a good reader concerned the *reader's definitions of reading* including *making sense of the content and making sense of the print* (see Figure 4.15). In this research, the *reader's definition of reading* refers to the participants' understanding of the meaning of the word *reading*. The definitions of reading by the participants were divided into two concepts. The first concept was related to *reading as a process of making sense of the content of the text*. These participants believed that reading is a process of understanding someone else's thinking, feelings and experiences through the text. . The second concept was related to *reading as a process of making sense of the print of the text that they read*. These participants considered reading as a process of looking at words and make sense of them. The way the participants defined reading suggests that different readers look at the same text differently. The first suggestion was that a reader looks at the surface of the text that includes the print, and tries to make sense of it. The second suggestion was that a reader looks beyond the print and tries to understand the content of the text. Successful reading is accomplished when the reader is able to understand the content of the text, but however, without making sense of the print, the reader would not be able to understand it. Consequently, successful reading comes through

a combination of the two processes of making sense of the print and of the content of the text.

IC02FY

'It is reading what someone else think, their imagination & feeling.'

IC05FY-10RE1

'It just like you share your feeling and write it down on a paper and someone else read about it.'

IC22FB

'Something to keep worth trying. Something teaching you about some thing. Really, like every book like this book just like nearly just teach you about something.'

IC10MY-10RE1

'Reading is when you look at words and it's like a movie but printed on paper.'

IC04FY

'Like learning more words. Read like what other people do.'

IC01FY-10RE1

'It just words work together and make sentences.'

1C08MY-10RE1

'It's like looking at words and they add up to become a story.'

IC09MY-10RE1

'It is looking at letters and knowing what they mean.'

To sum up, the interview analysis results were divided into two stages. The first stage involved the explanation of how the data were analyzed using the content analysis approach. Next, important explanations as to the findings of the data were given. The results were divided into two factors: the text factor and the reader factor. The text factor included *layout, genre, storyline, series or collection, vocabulary, popular, and content or topic*. The reader factor consisted of the *reader's reading techniques, characteristics, reasons for reading and definition of reading*.

4.4 Conclusion

In this chapter, I have sought to examine the reliability of the six readability formulae used in the present study. The results have shown that there was consistency among the SMOG, FOG, Spache, Flesch-Kincaid and ATOS formulae in predicting the level of text difficulty. Nevertheless, the consistency levels among the five formulae varied. In addition, the Dale Chall (1948) formula was found to be inconsistent in predicting the level of text difficulty, as compared to rest of the formulae.

Next, I investigated the text feature characteristics that influenced the participants' comprehension. The results reveal that there were few differences in the participants' typography preferences according to their gender, but there have been several differences spotted according to their age. Furthermore, the text feature analysis has shown that there were differences in the text feature elements appearing in the participants' chosen books, according to their gender and age. Subsequently, I examined the participants' miscues during their reading aloud activity in both RE1 and RE2. Results have demonstrated that a readability index text have had an impact to the participants. Statistical analysis has indicated that the participants were unable to construct meaning in the higher readability index text compared to the lower readability index text. This was followed by the investigation on the participants retelling quality. The results have indicated that a higher readability index text had maybe caused the lower level and higher level of retelling richness decreasing concurrently. Therefore, the higher readability index texts did not seem to have an effect on the participants' retelling quality.

Finally, I explored the participants' interview responses. Results suggest that two factors might affect the participants' comprehension: the text factor and the reader factor. The text factor consists of the layout, genre, storyline, series or collection, vocabulary,

popularity, and content or topic. The reader factor consisted of the reader's reading techniques, characteristics, and reasons for reading and definitions of reading.

Chapter 5 – Discussion

5.1 Introduction

This chapter aims to bring together the findings of this research and to discuss their meaning and implications. This chapter begins with a comparison of the findings in Chapter 4 with those derived from the previous literature, and differences will be discussed in detail. The findings will then be used to address the research aims and questions:

Aims

The main aims of this research study are as follows:

- To explore the factors operating during the interaction between a reader and a text that might influence the concept of readability.
- To develop a preliminary new theoretical model and a new definition of readability.

Research Questions

The study addressed the following research question:

1. What influences the reader's comprehension during the interaction between him/her and a text that might help develop a concept of readability?

Sub questions

- a. What are the text factors that help or hinder the reader's comprehension?
- b. What are the factors that help or hinder the reader's comprehension?

- c. How do text and reader factors interact to help or hinder the reader's comprehension?
- d. What are the implications of the above for a renewed concept of readability?

The data collection instruments of the study consist of:

- readability formulae analysis,
- text feature analysis,
- miscue analysis,
- retelling analysis, and
- analysis of the themes arising from the interview with the participants.

The results of data collection have been presented with an emphasis on the interaction between the participants and the texts they read. The research data and other empirical and theoretical studies were included in order to support the main arguments towards the development of a preliminary new theoretical model and a new definition of readability.

Having presented the research questions and a summary of the collected data, this discussion is organized as follows: (1) concepts of readability; (2) text factors; (3) reader factors; and (4) new theoretical model of readability and new definition of readability. Firstly, the concept of readability is explained and discussed. Then, the stances taken by previous research and by the present study on the concept of readability are explored. This is followed by an overview of the text factors that are seemed to influence the concept of readability. The text features that help or hinder the participants' comprehension during their interaction with the text are also explored. Next, the myriad of

reader factors that influence the concept of readability are discussed. The participants' reading strategies to comprehend a text, the elements that motivate the participants to engage with the text, the impact of prior knowledge on the participants' comprehension, and the impact of gender and age factors on the participants' comprehension, are also discussed. Finally, an attempt is made to formulate a new theoretical model of readability and a new definition of read ability through a process of blending text factors and reader factors.

5.2 Quantitative Findings Discussion

5.2.1 Concepts of Readability

The standpoints of previous and present studies on the concept of readability have been presented and discussed. Accordingly, a brief definition of readability as it is currently reported is given. Ideally, the term readability refers to the level of comprehension, fluency and interest within a given piece of printed material that affect the success which a group of readers have with the material (Chall, 1949) or the “*ease with which a reader can read and understand a given text*” (Okland & Lane, 2004, p.244). However, the measurement of readability does not generally reflect the definitions of readability (Gilliland, 1972). Readability usually focuses on what makes the language in materials easy or difficult to read (Bormuth, 1968), or the attributes of text that relate to comprehensibility (Harrison, 1977 & 1984). It can be argued that definitions of readability which generally refer to the reading difficulty of a text, as measured objectively, are a long way from its original definitions:

‘Readability continues to be among the most discussed, misunderstood, and misused concepts in reading. It is all too commonly, but erroneously, thought to be a precise numerical score, obtained through the use of readability “formulas,” that indicates the level of difficulty of a text’ (Pikulski, 2010, p.1).

Previous studies have shown that readability, in this limited sense, can be measured through a variety of techniques. For example, Gilliland (1972) has reported that the methods for grading a text are: (1) *subjective judgement*; (2) *sentence completion and cloze procedure*; (3) *comprehension question (objective question and answer)*; (4) *tables and charts*; and (5) *readability formulae* (p.83). Nevertheless, other researchers have suggested that readability can be accessed through: (1) *cohesion analysis* (Binkley, 1988); (2) *underlying structure analyses* (Templeton, Cain, & Miller, 1981); (3) *using the nomograph* (Zakaluk, 1988); (4) *checklist approach* (Irwin & Davis, 1980); (5) *text levelling* (Clay, 1991); and (6) *text processing variables* (Meyer, Marsiske & Willis, 1993). Although there is a vast array of techniques to assess readability, the most popular and commonly used technique, even today, is to employ readability formulae (Fry, 2002; Klare, 1974; Okland & Lane, 2004; Paz, Lui, Fongwa, Morales & Ron, 2009).

A readability formula is a mathematical equation derived through regression techniques to assess readability (Chall, 1974; McLaughlin, 1969; Redish & Selzer, 1985; Stokes, 1978). Most readability formulae are based on two measures: sentence length and word difficulty (Bruce, Rubin & Starr, 1981; Duffy, 1985; Fry, 2002; Klare, 1974 ; Okland & Lane, 2004; Sydes & Hartley, 1997). The predictors variables (sentence length and word difficulty) on which the formulae are built have been criticized in terms of their validity and reliability. The primary criticism has been that the formulae may fail to measure comprehension (Duffy, 1985) by failing to include a range of comprehension components such as reading skills, subject matter knowledge, motivation for reading, genre being read, context for the reading, and the purpose of reading as their variables (Schriver, 2000). In addition, there are research findings which show that various readability formulae tend to produce significantly different results on the same text and an average score, taken over a

passage, can conceal a wide range of variations of difficulty within a passage (Sydes & Hartley, 1997).

The findings of the present study support Sydes's and Hartley's research findings. The analysis of the sample of 64 texts that were used with the application of six readability formulae (ATOS; Dale-Chall, 1948; Flesch-Kincaid, FOG, SMOG, and Spache) have demonstrated significantly different readability indices for the same text. Through the consistency estimation of the six formulae, it was found that there was consistency among the SMOG, FOG, Spache, Flesch-Kincaid and ATOS formulae. Nevertheless, the results have also shown that the consistency levels among the five formulae varied. In addition, it was found that the Dale Chall (1948) formula was not consistent in predicting the level of text difficulty, compared to rest of the formulae.

The present study's results seem to be consistent with Stoke's (1978) results in his analysis of the reliability of seven readability formulae. In his research, Stokes (1978) used 350 passages from eleven books and seven formulae: the Dale Chall (1948); Farr-Jenkins-Paterson; Flesch Reading Ease Formula; FOG; Power-Sumner-Kearl; and the SMOG, and simple count. High correlations were found among the seven formulae in Stoke's study. Nonetheless, his findings have also shown a variety of complex relations among the formulae, suggesting non-linear relation among them. Stoke's results, as well as the present study's results, may in other words suggest that among these formulae, there may be some which can classify a text as easy, whereas others can classify it as difficult, and vice versa.

Next, the results of the present study have revealed the extent to which the six formulae agreed in predicting the grade level of the 64 texts. Accordingly, statistical differences were found in the mean grade level of the text assigned by the six formulae. In

order words, the six formulae assigned the same text to a different grade level. This finding relates to those of Fuchs (1983), McConnell (1983), and Stokes (1978), to the fact that the readability formulae that these researchers used also produced statistically significant differences in the mean grade levels assigned to texts. Fuchs (1983) has also used in her research three passages and six readability formulae: the Coleman, Far-Jenkins-Petterson, Gilliland, Gunning, Lorge, and Spache, and she has found that the formulae poorly predicted the difficulty rank order of the passages, and therefore she claimed that the formulae failed to agree meaningfully with each other. Based on the present study's results, and taking into consideration other empirical studies on readability and readability formulae, it can be argued that not only the readability formulae may vary in consistency, but also, different formulae appear to assign the same text to a different grade level.

As a corollary to these findings, it can be also argued that there may be problems when using readability formulae to predict the level of text difficulty. This argument can be supported by a range of studies that have also demonstrated the failure of readability formulae (e.g. Bruce, Rubin & Starr, (1981); Chambers, (1983); Davison & Kantor, (1982); Duffy, (1985); Fuchs, (1983); Meade & Smith, (1991); McConnell, (1983); Maxwell; (1978); Pichert & Elam, (1985); Perera, (1980); Redish & Selzer, (1985); Redish, (2000); Schrivers, (2000); Stokes, (1978); Sydes & Hartley, (1997). Debates in these studies mainly focus on the failure of readability formulae through the absence of certain factors in the formulae, the formulae's lack of statistical basis, and the misuse of the formulae.

Looking at the present study's results, it can be suggested that the participants' comprehension decreased during their reading of a higher readability indexed text. The participants' comprehension was assessed through their miscues while reading aloud and retelling afterwards. The miscue analysis results have shown that a higher readability

indexed text seemed to result in a lower score in the mean percentages for the participants' understanding of grammatical relations and meaning construction. Therefore, the participants were more likely to be unable to construct meaning in the higher readability indexed texts than in the lower readability indexed texts. Results from the retellings have indicated that a higher readability indexed text caused a lower level of retelling richness. For this reason it was concluded that the higher readability indexed text had an effect on the participants' comprehension as it appeared to make participants to be able to relate only a few major ideas of the story that they were reading, and not able to relate the most important major ideas, similar to Durham's (1982) and Wright's (1980) studies. Nevertheless, other scholars have produced contradictory results (e.g. Kintsch & Vipond, 1977; Slovak, 1975; Sullivan, 1979). Kintsch and Vipond (1977) investigated the ability of college students to recall information from different paragraphs that had the same readability scores, and found that although the readability scores of the texts were the same, the comprehension scores of the students were not. Such contradictions suggest that there may be other factors than the level of text difficulty, as assessed by a readability formula, that can affect a reader's comprehension.

The above arguments concerning the definition of readability, the reliability of readability formulae and certain contradictory results regarding the readers' comprehension achievement when tested with high and low readability indexed texts, may imply that there may be problems in readability research. Subsequent to these findings, the results of the present study can suggest that such problems in readability research not only result from the failure of the formulae, but also on other factors like : (1) text factors that affect readability do not only deal with sentence and vocabulary elements, but may consist of other elements; (2) certain reader's factors; (3) the definition of readability itself, because

several existing definitions which generally refer to the reading difficulty of a text as measured objectively, can be regarded as far different from its original definition.

Following on from these suggestions, and considering the present study's results, it can be argued that there may be gaps in the way of looking at readability research that needs to be filled. Such gaps may be: (1) What are the text features that affect readability? (2) What are the reader's characteristics that affect readability? and (3) How can the interaction between the text and the reader renew the concept of readability? Hence, an attempt to provide answers to these questions is made, in the following sections, by starting this discussion with the paradigm of readability research.

It has been discussed above and in the literature review Chapter that readability research has generally been based on the view that readability exists independently of a particular reader, and that the reader's comprehension can be predicted through the level of text difficulty. Considering such arguments, and looking at the present study's findings, it can be suggested that readability research studies have been carried out within the positivist paradigm. Within this paradigm the concept of comprehension is regarded as an input and output process. It is a simple idea of getting meaning from the page. However, in the literature review chapter of this thesis report, it was shown that there has been a change in the definitions of reading as reading has been being viewed as a meaning-construction process (Ruddell, 2006). Therefore, meaning no longer comes from the text, but from the readers bringing their social and cultural background to the interaction with the text. Accordingly, the movement in reading research has shown that interpretivism is an intentional alternative methodological means of doing research in reading.

Thus, this new paradigm provides a new way of tackling research in reading. Taking into account this paradigm, reading research also tends to focus on what happens in

the readers' mind during reading, for example in the 'error and miscue analysis' study. The analysis of oral reading errors can be used to increase the understanding of the reading process. It may not be important how many miscues a reader makes, but what their effect on meaning is (Goodman, 1973). A conclusion that can be made here is that the ways of looking at the reading process have changed. The reading process is now closer to how readers process the meaning in their mind, through the language used. There is also other research that focuses on the human mind during reading, and this has been called the '*Think Aloud Protocol*'. Such studies in the 'think aloud protocol' research have shown how the processes of the human mind can be predicted by asking the participants what they are thinking about during the reading process (Pressley & Afflerbach, 1995). However, it may not be so simple to get evidence about what happens in peoples' minds. This is because human beings cannot really see what is happening in their head and they only talk about the things they think about during the reading process (Xu, Cui & Chen, 2007). Thus, the 'think aloud protocol' may also have limitations. Additionally, there are theoretical problems associated with how psycho-linguistically based measures of oral reading can be related to comprehension (O'Brien, 1988). Drawing upon the limitations in the methods described above, it seems that there may be still weaknesses in this paradigm.

As a corollary to these arguments, the results of the present study have revealed that there is a gap between the paradigms of reading and the paradigm of readability research. Thus, it is argued that since research in readability is closely related to research in reading, the changes in the paradigm of the reading research might affect the paradigm in readability research. In other words, since there are changes in the assessment of comprehension that is made through the reader, it is suggested that the way to assess readability might also change, not only through the text but also through the reader.

Accordingly, it can be suggested that readability research can also be based on the interpretivist paradigm. However, the above arguments have shown that there are still weaknesses in the interpretive paradigm when it is applied to reading research. For this reason, readability research may be based on the point of view of the positivist and interpretivist paradigms.

In sum, this section has shown that there may be problems when conducting readability research within the positivist paradigm. Apart from this, it has also shown the changes in reading research. Upon the changes in reading research it is argued that there is a gap between the paradigm of reading research and the paradigm of readability research. Finally, it has been suggested that research in readability could be based on both point of views, that is, the positivist and interpretivist paradigms mixed together.

5.2.2 Text Factors

In the previous section, it was stated that readability research could exist within the positivist and interpretivist paradigms. Hence, this section considers the discussion on the topic of text factors that may influence the concept of readability that has been analysed through both positivist and interpretivist paradigms.

In terms of data collection and analysis through the positivist paradigm, these have been carried out quantitatively, by counting the frequency of the text features that appeared in the text chosen by the participants in RE1 (see section 3.1). At this stage the text features that helped or hindered the participants' comprehension were predicted through the observation of the text features within the text that were chosen by the participants themselves. Earlier it was argued that readability research may also be based on the interpretive paradigm. Hence, in the present study, another effort was made to look at text

difficulty through the readers' /participants' perspective, by asking them which text features they preferred when reading their own choice of text.

Research on readability shows that text difficulty level is generally identified through certain text features: syntax and vocabulary (Bormuth, 1988; Chall, 1975; Klare, 1974). The syntax aspect refers to the grammatical complexity that is usually measured by sentence length, whereas the vocabulary aspect refers to word meaning that is commonly measured through word length and word familiarity (Fry, 2002). The limited text feature that has been used to assess the text difficulty level has gone through vast criticism regarding readability research credibility because it does not include other text factors that may also affect text difficulty (Bruce, Rubin & Starr, 1981; Chambers, 1983; Davison & Kantor, 1982; Duffy, 1985; Fuchs, Fuchs & Deno, 1983; Meade & Smith, 1991; McConnell, 1983; Maxwell, 1978; Pichert & Elam, 1985; Perera, 1980; Redish & Selzer, 1985; Redish, 2000; Schrivers, 2000; Stokes, 1978; Sydes & Hartley, 1997).

The results of the present study try to fill in the gap by presenting other text features that may affect the text difficulty level. There are scholars that have referred to text features that can affect readability. For example Harrison (1984, p. 14) has reported that such features may be: (1) legibility of print; (2) illustration and colour; (3) vocabulary; (4) conceptual difficulty; (5) syntax; and (6) organisation. More recently Oakland and Lane (2004, p. 248) referred to: (1) syntax; (2) vocabulary; (3) idea density; and (4) cognitive load, and lastly, Zakaluk and Samuel (1988, p. 133) referred to: (1) text readability level; and (2) adjunct comprehension aids. However, these lists of text features were based on a theoretical point of view. Therefore, the results of the present study are an attempt to fill another gap by providing empirical findings regarding text features that may affect readability.

The present study's findings regarding text features that influence the concept of readability consist of: (1) features of the book: nature of the front and back cover, size and length of the story; (2) content; (3) genre; (4) author or series; (5) features of the text: syntax, vocabulary, paragraphing; (6) legibility elements: font type and size, and justified or unjustified composition; (7) illustration and colour: pictures, drawings, colours or no colours; (8) organisation: typographical effects, headings, content pages, glossary, extra information. This list of text features that influence the concept of readability includes different elements from the list that has been provided by Harrison (1984), Okland and Lane (2004), and Zakaluk and Samuel (1988). In the present study, features of the book, content, genre, and the author or series were also included. The rest of text features found in the present study are similar to other scholars like syntax, vocabulary, legibility, illustration and organisation. Hence, the next sub section discusses the features of the book that have influenced the concept of readability.

5.2.2.1 Physical Feature of Book

The text features that influence the concept of readability have included the features of the book factors. The feature of the book factors consist of the nature of the front and back cover, size and length of the book. These factors derive from the analysis of the 32 texts chosen by the participants in RE1 and from the interview session with the participants.

As with many previous studies, findings show that *beginner* and *young readers* are attracted to look at the cover page either the front or the back of the book before making the decision to read it (Carter, 1987; Fresch, 1995; Gilmore, 1985; Gali, 1995; Kragler, 2000; Mohr, 2003; Mohr, 2006; Reutzel & Gali, 1997; Robison, Larsen, Haupt & Mohlman, 1997). The present study finding mirrored those researches findings. The participants of the present study mentioned that they were attracted to look at the front

cover was because they can predict whether the content is going to be interesting or boring. Through the observations of the texts, it was found that 64% of them chose books with a short title that was not more than three words. Their text selections also show that 90% of them chose the front cover of the reading material with a colour drawing form of illustration. Another motivating factor that draws the participants (90%) to look at the cover was the blurb, mostly located at the back of the book. The participants of the present study said that reading the blurb helped them to get an overview of the whole story.

Next, the participants of the present study were looking at the level of the book difficulty or reading band guideline at the back cover of the book as part of their strategies to choose their reading material. This finding contradicted the finding in Mohr (2006) research where her participants were not concerned with whether the reading materials that they chose were easy or difficult. Apart from that, Fresch (1995) and Kragler (2000) mentioned that their participants did not usually select books at appropriate levels. Although Robinson, Larsen, Haupt & Mohlman, (1997) mentioned their participants' seem more interested if the text closely matched their developmental level, they did not mention how the participants worked out the concerned. However, the present study participants mentioned that by looking at the level of the book difficulty guideline, they felt comfortable reading the book. This is because they felt they were going to read a book that was not too difficult or too easy for them. From the observation of the texts chosen by them, it was found that 55% of the books have level of the book difficulty or reading band guideline. Related to these arguments, the present study speculates that the reasons the participants were concern with the level of the book match with their reading ability level may be because they were trying to reduce their anxiety in reading. Another reason might

also be because they have been told by their teacher that this is the level at which they should be reading.

The next discussion is on the subject of the participants' preference on the nature of the book cover according to their gender and age categories. Related to this subject, there are previous studies that have proved gender (Gilmore, 1985; Mohr, 2003; Mohr, 2006; and Robinson, Larsen, Haupt & Mohlman, 1997) and age (Reutzel & Gali, 1997; and Robinson, Larsen, Haupt & Mohlman, 1997) similarities and differences when it comes to text features preference. Thus, the present study findings show some similarities and differences between male and female, and between the *beginner* and *young reader* participants' preference in terms of the nature of the cover, size and length of reading material.

The male and female participants of the present study show similarities in their preferences of front cover. Both male and female participants preferred the cover of the book with a short title that is not more than three letters words. They also choose the cover that is full of colourful drawing. Almost the same percentages were found for male and female participants on the subject of their preference for reading the blurb. Nonetheless, there are differences between the male and female preferences on the subject of looking at the level of the book difficulty before deciding to read it. It was found the male participants are more concerned than the female participants on this matter, with 37% of male participants choosing books that have reading level guidelines compared to only 18% of female participants. Hence, the present study suggests the readability of such texts is influenced by whether the reader is male or female. This finding shows a very different perspective from other studies of gender reading preference, such as Gilmore, 1985; Mohr, 2003; Mohr, 2006; Robinson, Larsen, Haupt & Mohlman, 1997. Therefore, the present

study suggests that readability is affected by the gender factor. For this reason the present study suggests that further research could explore how the gender factor affects the concept of the readability.

The next discussion is on the subject of the participants' preference in terms of the nature of the cover according to their age differences. The present study findings show that *beginner* and *young reader* participants similarly chose a cover of a book with a colourful drawing. Regardless of age differences, both groups of participants agreed that the blurb is the elements they look at before choosing to read a book. However, there were differences in the way the present study *beginner* and *young reader* participants looked at the length of the book title. The present study findings shows that *beginner reader* participants (47%) chose to read the book with the cover having a long title, whereas the *young reader* participants (47%) chose a short title. Apart from this, the *beginner reader* participants (42%) were more concerned than the *young reader* participants (16%) on the subject of looking at the level of the book difficulty before deciding to read it.

Consequently, the present study assumed the reasons for these differences may be because the *beginner reader* participants have a higher reading anxiety compared to the *young reader* participants. In other words, it may be that the more mature the reader, the less concerned they are with the readability of the text. The present study continues to assume that the reasons for the older reader being less concern with text readability might be because they are more concerned or influenced by their peer group assumption that certain reading material is good. This peer group assumption might have affected the reader's interest in reading the reading material and at the same time, might reduce reading anxiety or reduce their concern as to text readability. The present study reasons and assumptions are supported by the findings that show that one of the participants' reasons

for choosing a reading material is because of friends or close family recommendations. For these reasons, the present study proposes another suggestion, namely that the concept of the readability is affected by the age of the reader. Consequently, the present study suggests further research to investigate the age factor that influences readability.

The next discussion is on the subject of the factors that affect the participants in choosing reading material related to the size and length of the reading material. There are studies that show that the size and length of the reading material can serve the participants to attract or dissuaded them (Carter, 1987; Gilmore, 1985). The present study findings fall into the same pattern as these previous studies. Related to this reason, the present study participants mentioned they preferred to read books whose size was not too big. According to the participants, since reading is their hobby, they like to read when or where they feel like doing so. For this reason, they preferred the size of the book to be small, so that it was handy to carry it around. Through the observations of the texts that the participants chose in RE1, it was found that 88% of them chose small sized books. The small sized book is approximately 7.0 x 5.0” (198 x 129mm). The participants, in addition, mentioned that they would choose reading material whose length was neither too long nor too short. Through the observations of the texts that they chose in RE1, it was found that 64% of them chose to read books that were no more than 100 pages long. Subsequently, the present study suggests the size and length of the reading material has an effect on readability.

The next discussion is on the subject of the participants’ preference in terms of the size and length of the reading material, according to their gender and age categories. Accordingly, the present study findings show there was no difference between male and female participants’ preference on the subject of the size of the reading material. Nonetheless, there were differences between the male and female participants’ preference

for the ideal length of the reading material. Through the observations of the texts that the participants chose, it was found that of the 64% of participants that chose to read books of less than 100 pages, 48% of them were the male participants. In addition, the present study findings show there were no difference between the *beginner* and *young reader* participants' preference on the subject of the size of the book. Both age groups preferred the small size book. Nevertheless, there were differences between the *beginner* and *young reader* preferences' on the subject of the length of the reading material. Thus, through observation of the texts chosen by the participants, it was found that of the 64% of the participants that chose to read a book of less than 100 pages, 42% of them were the *beginner reader* participants.

It may be concluded that regardless of the gender and age categories, the small size book was preferable. Apart from this, it can also be concluded that the male *beginner reader* group was the group that preferred to read a short length of story. Related to this conclusion, the present study suggests that the reasons behind these characteristic may be that they [the readers] could easily get bored if the story was too long.

The conclusions of this section are that the physical features of the book that include the cover, size and length did effect the participants' decision to choose to read the book. Related to this, the present study suggests that the physical features such as the cover, size and length might have increased the interest of the participants in the reading material. The participants' interest increase might be because the information appearing on the cover especially the reading level guideline might have helped to reduce the reading anxiety of the participants, and perhaps because of this, they found the reading material easy to read. In addition, this might also be the case because the participants felt they were prepared to read the reading material by getting an overview of the story from reading the

blurb. The overview of the story may have prepared them in the sense of the content knowledge, or the overview might have provided information that the story was related to their content interest as well. The present study thus suggests that the physical feature of the book might have an effect on its readability because it might have an effect on the ease of the participant when reading the material. A further suggestion that the present study put forward is that the gender and age factors might also have an effect on the concept of readability. The next discussion is related to the content factors that affect the concept of readability.

5.2.2.2 Content

The focus of this section is on the content of reading material as a possible influence on the concept of the readability. Previous studies that have listed factors that affect the level of text difficulty, e.g. Harrison (1984) and Zakaluk & Samuel (1988), did not include the content of reading material as one of their factors. Okland & Lane (2004), on the other hand, used the term *idea density* to describe (1): the substantial prior knowledge required; (2) familiar concepts; and (3) objectiveness of the ideas that appeared in reading material. Although Okland & Lane (2004) mentioned that these were factors that may influence text difficulty, they did not present any empirical evidence as to how this influence occurred. Related to these arguments the present study recognised the need to explore the content of reading material and its relationship to the concept of the readability.

Research on the subject of the children's text-selection has suggested that the content of reading material is one of the criteria that makes children choose their reading material (Baldwin, Peleg-Brucker & McClintock, 1985; Coles & Hall, 2002; Kragler 2000; Mohr, 2003; Mohr, 2006; Moss, 2004; Reuter & Druin 2004; Reutzel & Gali, 1998; and Robinson, Larsen, Haupt & Mohlman, 1997). The findings of the present study suggest the

same. The participants in this study mentioned that they chose books with content and topics that were of interest to them. Findings from the interview sessions show that things that were of interest to them mostly referred to pets, games, magic and daily life activities. In addition, there were some participants who said that they preferred books that presented material in an informational way, such as the encyclopaedia.

Through the analysis of the content of the books that had been chosen by the participants in RE1 it was found that 28% of them were *Goosebumps* and mystery solving stories. Another 38% were family or daily life activities stories followed by 19% stories of friendship and 9% stories related to animals. Many previous studies have suggested that children usually choose stories based on things or activities in their daily lives (Coles & Hall, 2002; Kragler 2000; Mohr, 2003; Mohr, 2006; Moss, 2004; Reuter & Druin, 2004; Reutzels & Gali 1997; and Robinson, Larsen, Haupt & Mohlman, 1997). According to Mohr (2006, p. 97) children want books that *mirror them* and serve as *windows on the world around them*. As such, participants in the present study have shown that their choice of reading material related to things around them and a high percentage of stories that they chose to read were about family or daily life activities. The title of stories such as (1) *Andy the hero*; (2) *Disgusting Denzil*; (3) *William's mistake*; (4) *The broken roof*; (5) *Creepy-crawly*; and (6) *Strawberry jam* reflect how closely related the content of the stories were to the participants' daily life activities.

An important finding of the present study is that the reasons these participants chose their reading material were based on their prior knowledge and on content that was of interest to them. This statement is based on findings that show that participants were reading the blurb to find out whether the content of the reading material related to their prior knowledge, or was of interest to them. According to Baldwin, Peleg-Bruckner &

McClintock (1985) and Tobias (1994) prior knowledge and content interest have an additive effect on reading comprehension. In other words prior knowledge and content interest are elements that could increase comprehension. As such, the present study suggests that prior knowledge and content interest are factors that have an effect on the concept of the readability of texts.

Previous research has suggested that there are differences in preference for the content of reading material, depending upon the gender and age of the reader (Baldwin, Peleg-Bruckner & McClintock, 1985; Coles & Hall, 2002; Kragler 2000; Mohr, 2003; Mohr, 2006; Moss, 2004; Reuter & Druin, 2004; Reutzel & Gali, 1997; and Robinson, Larsen, Haupt & Mohlman, 1997). The present study has confirmed this, in that it shows that the male participants (23%) preferred stories related to family activities compared to female participants (15%). Female participants' (18%) preferred stories that contained mystic elements such as ghost stories, fairies, and super human elements compared to male participants' (10%). A small percentage of male (3%) and female (6%) participants preferred stories that related to animals.

The study findings, namely that the female participants read more adventure related content, are similar to those of Coles and Hall (1999). Coles's and Hall's research findings suggest that girl readers read comparatively more adventure, horror or ghost and animal related stories. On the one hand, Reuter and Druin (2004) reported scary or horror content related stories were more popular among boy readers compared to girl readers who preferred cute animal related stories. Mohr (2006) found that boy readers' preferred animal related stories compared to family activity related stories. These findings show that while there are contradictions in the actual differences between male and female child readers' preferences, on the whole, there do seem to be gender differences in this factor.

The findings of the present study also show that there were differences in preference for the content of reading material according to the age of the participants. The findings show the *beginner reader* participants (23%) preferred family activities stories compared to *young reader* participants (15%). Meanwhile, the *young reader* participants (16%) enjoyed more the reading of mystic related stories compared to the *beginner reader* participants (12%). It is suggested that the reason for these differences in preferences might be because of the familiarity factor. The *beginner reader* participants felt that it was much easier to read things that they were familiar with, such as stories related to family activities, whereas the older readers seemed to have more confidence to explore other topic. These suggestions are supported by Robinson, Larsen, Haupt & Mohlman, (1997, p. 301) who found in their research that story *embeddedness and familiarity seemed to override other attributes* of the books in younger children's book selection. This is also supported by the findings from Reuter and Druin (2004), namely that the variability of the titles selected was greater for older children.

To conclude this discussion on readers' preferences for the content of reading material relating to their genders and ages, the findings of this study did suggest that the content of reading material did have an effect on the readers' choice of reading material. They tended to choose reading material based on whether the content of this material fitted their prior knowledge or was of interest to them. As previous studies have suggested, prior knowledge and content interest are elements that can increase comprehension (Baldwin, Peleg-Bruckner & McClintock, 1985 & Tobias, 1994); therefore, the present study suggests that prior knowledge and content interest could also be factors that affect the concept of the readability of texts. In addition, the present study suggests differences in preferences for

reading material across gender and age. Again, this suggests that gender and age factors might also have an effect on the concept of the readability.

5.2.2.3 Genre

This section discusses genre as a factor that may influence the concept of readability.

Several earlier researchers in the field of children text selection have shown that genre may be an important factor to the children readers in choosing their reading material (e.g. Coles & Hall, 2002; Leemans & Stokmans, 1991; Mohr, 2003; Mohr, 2006; Moss, 1999; Oakhil & Petrides, 2007; Reuter & Druin, 2004; Robinson, Larsen, Haupt & Mohlman, 1997; and Summers & Lukasevich, 1983). Related to this, the results of the present study have shown that the participants have their own genre preference. During the interview sessions, the participants reported that they preferred books that have certain elements like for example humour, action, adventure, crime solving and mystery. They also mentioned that they preferred stories that had suspense, *flashbacks*, *cliffhanger*, and *creepy*, *good open paragraph* and were *funny*. Thus, further observations were made on the books the participants chose in RE1, aiming to indentify the genre of the reading materials.

The results of the present study have revealed that 51% of the participants chose an illustrated book to read, and 30% of them were males, and 22% females. It has also been shown that almost the same percentage (12%) of both male and female participants chose stories under the genre of modern fantasy, science fiction and fairy tales. Nevertheless, there were differences in percentages for choosing temporary realistic fiction genre. It was found that 12% of the females and none of the males chose temporary realistic genre. These findings show that there are both similarities and differences between male and female participants regarding their preferable reading material genre. This finding is in accordance with several previous studies that have shown that more boy readers preferred

nonfiction stories compared to girls, boys read more comics and jokes compared to girls, and both boys and girls equally preferred to read crime and detective stories (Coles & Hall, 2002; Mohr, 2003; Mohr, 2006; Reuter & Druin, 2004; and Robinson, Larsen, Haupt & Mohlman, 1997).

In addition, the results of the present study indicate that there are differences in the genre choice according to the participants' age. The results have shown that ten out of twelve of the beginner reader participants chose an illustrated book, whereas the *young reader* participants chose a wider variety of genres. Coles and Hall (2002) and Mohr (2006) have shown in their studies that through age, genre preference increases from a focus on fantasy fiction to more realistic diverse genres.

To sum up, the results of the present study seem to be in accordance with several previous studies in terms of the fact that there may be differences in the preferences of genre of reading material related to gender and age. Studies focusing on this field have shown that interest tends to assist the reader's comprehension, and this interest can be elicited by text elements like segment, topics and themes (Hidi, 2001). Therefore, it can be suggested that the genre of the reading material may be one the factors that can influence the concept of readability. This is because genre is one of the text elements that can stimulate interest, and interest is an attribute that can facilitate comprehension. The next discussion is related to the author or series as factors that affect the concept of readability.

5.2.2.4 Author's Style

Harrison (1984), Okland and Lane (2004), and Zakaluk and Samuel (1988) lists of text features that may influence the concept of readability do not actually mention the author or series of reading materials as factors. Studies in children's text-selection have shown that familiar author or series may be important criteria for children in choosing their reading

material (Greenlee, 1992; Coles & Hall, 2002; Kragler, 2000; Leemans & Stokmans, 1991; Moss, 2004; and Russell, 1941). Hence, the author or series of the reading material, as factors that might affect comprehension and readability, are discussed next.

The results of the present study have shown that the participants chose their reading materials based on familiar authors or series, and this was based on the observation of the books chosen by them in RE1. It has been shown that 61.1% of the books chosen by the participants were in series. Of this percentage, the female participants (34.4%) had a higher percentage than the male participants (26.7%). In addition, a higher percentage of books chosen by the *beginner readers* (37.5%) were in series, compared to the *young readers* (26.3%).

During the interview sessions, the participants stated that they preferred to read books by the same author or publisher because of the author or series' style of writing, the storyline, or because of the fact that the series had been adapted into a movie or television series. The participants also reported that they enjoyed reading books written by famous authors, such as *J.K., Rowling, Stephanie Mayer, Enid Blyton* and *Christopher Paolini*. The *beginner reader* participants seemed to enjoy reading the *Oxford Reading Tree* series, especially written by the famous author *Roderick Hunt*. The reason for this was that these series maintained the same characters like for example *Biff, Chipp, Kipper, Mom, and Dad* in all *Roderick Hunt* series. Apart from this, in some of the series, the stories were written in sequence and sometimes at the end of the sequence, the story had no ending. This made the participants look forward to finding out what was going to happen next and made them want to read the rest of the series, like for example *Harry Potter* series by *J.K., Rowling*. Additionally, the participants reported that they preferred to read materials that have suspense and cliffhanger elements. According to these results, it can be argued that the

familiarity with the characters in the story made the participants attached to these characters. They also became familiar and attached to the sequence of the story in the series.

Thus, the familiarity and attachment towards the characters and the sequence of the story in the reading materials are thought to have made the participants become more engaged with their reading. Participants' engagement in their reading means involving themselves actively in the story. For this reason, it can be argued that the author or series of the reading material style of writing may have made the participants familiar, *attached* and *involved* with the story they were reading, and these elements could actually have attributed to their reading engagement. Research by Wigfield, Guthrie, Perencevich, Taboada, Klauda & McRae, *et al* (2008) and Guthrie & Wigfield (2000) have shown that reading engagement and reading comprehension are correlated. Thus, it is suggested in the present study that the author or series of the reading material may influence the concept of readability, as they can affect the readers' comprehension.

5.2.2.5 Vocabulary and Syntax

The focus of this section is on vocabulary and syntax as factors which influence the concept of readability. These factors have been widely studied by earlier researchers in this field, such as Bormuth (1966), Dale and Chall (1948), Dale and Chall (1949), Chall (1974), Chall (1988), Chall and Dale (1995), Klare (1969), Klare (1976), McLaughlin (1969) and Zakaluk (1988). Researchers into readability have tended to claim that the number of different words in a piece of reading material was the most significant criterion in its reading difficulty. Studies have suggested that the smaller the number of different words, the easier the material and the larger the proportion of unfamiliar or long words in a text, the harder it was for the readers to grasp the meaning of that text (Dale & Chall, 1948; Dale

& Chall, 1949; Dale & Tyler, 1934; Lively & Pressey, 1923; Lorge, 1944; Patty & Painter, 1931; and Thorndike, 1921).

Another way that researchers into readability have predicted readers' comprehension of reading material was by looking at sentence structure. Sentence structure has been found to be significantly related to comprehension difficulty (Chall, 1974). The best way to measure sentence structure was thought to be by sentence length. Generally, the longer the sentences were, the harder the text was thought to be. In addition, the ratio of complex sentences to simple sentences has also been claimed to be significantly related to reading difficulty (Dale & Tyler, 1934; Lorge 1944; and Ojemann, 1934).

Nevertheless, some studies have found that vocabulary and syntax factors failed to assess text difficulty (Bruce, Rubin & Starr, 1981; Chambers, 1983; Davison & Kantor; Fuchs, Fuchs & Deno, 1983; Maxwell, 1978; Meade & Smith, 1991; Perera, 1980; Pichert & Elam, 1985; Redish & Selzer, 1985; Schriver, 2000; Stahl, 2003; Sydes & Hartley, 1997; and Templeton, Cain & Miller, 1981). Some of these studies argue that '*short or familiar words are not easy to read in all contexts, and long sentences are sometimes easier than short ones*' (Perera, 1980, p. 151) and some argue that '*it is not the mechanical counts of "easy" or "difficult" words in a text that make a text easy or difficult, but what the reader knows about the words in a text*' (Stahl, 2003, p. 241).

Researchers who have studied children's text-selection have used vocabulary and syntax for different purposes. For example, Johnston (1984) used a measure of subjects' knowledge of related vocabulary to investigate the effects of topic familiarity, while Langer (1984) investigated vocabulary knowledge that affected readers' ability to interpret and recall what had been read. Kendeou et al (2010) explored whether readers with more sophisticated epistemic beliefs would spend more time reading sentences in refutation

texts. It appears, therefore, that there is some measure of agreement in research into readability and into children's text-selection that vocabulary and syntax are important factors to take account of in assessing text difficulty, although from previous findings it seems that the way to utilise the factors of vocabulary and syntax may need to be given greater attention.

As such, the findings of the present study draw attention to the physical characteristics of vocabulary and syntax that attracted the participants to choose their reading material. Linked to this, the present study has examined whether there were differences in the texts chosen by participants in terms of the mean number of sentences per paragraph, words per sentence, and characters per word according to the participants' gender and age categories. From the 32 books chosen by the participants, it was found that the mean number of sentences per paragraph was three sentences, the mean number of words per sentence was 16, and the mean number of characters per word was 4. The present findings also show there were no differences at all for the mean number of sentences per paragraph, words per sentence and characters per word depending on the participants' gender. Nonetheless, there were some slight differences in the mean number of sentences per paragraph and words per sentence, depending on participants' ages. The findings show that the texts chosen by *beginner reader* participants had a smaller number of sentences per paragraph and words per sentence than those chosen by *young reader* participants.

From these findings, it seems that the participants in this study preferred reading material with short paragraphs. They also preferred reading material with short words. Nonetheless, the sentence lengths of the reading material that they chose were quite long. Therefore, the present study supports a contention that vocabulary and syntax are factors

that affect the concept of readability, as they affect the way readers choose their reading material. However the way in which the factors are used in the concept of readability may need to be rethought.

5.2.2.6 Legibility

This section describes and discusses issues regarding legibility elements in texts and their relation to the concept of readability. The term *legibility* has probably never come to a precise definition. It can be seen that there has been confusion and interchange in the use of the terms legibility and readability (Lund, 1999; Watts & Nisbet, 1974). Therefore, in terms of the present research, legibility refers to the accessibility of the typography of the text, and readability refers to the comprehensibility of the content of the text. Accordingly, legibility deals with the distinctness of one letter from another in a particular typeface (Lund, 1999; Tinker, 1966; Waller, 1991; Watts & Nisbet, 1974). *Typeface* is a particular design of a printing type. Legibility inspects more than just type size and type design. It also distinguishes between san serif and serif, italic, bold type, colour contrast, the design of right and left hand edge, justification, letter spacing, word spacing, and line separation (Arditi & Cho, 2005; Lund, 1999; Wilkins, Cleave, Grayson & Wilson, 2009; Waller, 1991; Watts & Nisbet, 1974).

Studies in the area of legibility have shown the importance of the above elements in helping children to read more effectively (e.g. Hughes & Wilkins, 2000; Lund, 1999; Wilkins, Cleave, Grayson & Wilson, 2009; Watts & Nisbet, 1974). Studies in the area of children's text selection have shown that legibility elements can be factors which may influence children in choosing their reading materials. According to Weiss (1982) the main reasons underpinning children's text preferences are concerned with legibility. As a corollary of these research findings, the need to explore legibility elements as factors that

influence the concept of readability has been taken into consideration in the present study. To address this argument, the degree to which there are typography elements which participants seem to prefer and how such preferences affect their choice of reading material have been explored in the present study. Accordingly, participants' typography element preferences were explored through an interview session and an observation of the books that they chose to read. During the interviews, the participants were asked about elements such as *uppercase* and *lowercase* print, *serif* and *san serif* typeface, *font size 12* and *14*, and *justified* and *unjustified* text composition.

The results have shown that a high number of participants (22 out 32) preferred *lowercase* to *uppercase* print. The participants reported that the reasons for preferring this type print were that they could not really see the *uppercase* words, they forgot what they had really read when the text was in *uppercase* print, and they felt uncomfortable in pronouncing with full expression each of the *uppercase* print words (in their literacy classes the participants are expected to pronounce the capital letter words in the text with appropriate expression when reading). Other research has shown that *uppercase* letters are generally harder to read than mixed-case text (Lund, 1999). Nevertheless, Arditi and Cho (2007) have found that *uppercase* text is more legible in terms of reading speed for readers with reduced acuity due to visual impairment. The present research findings have also shown that both male and female participants preferred *lowercase* print. Nevertheless, there were differences in *lowercase* and *uppercase* print preferences related to the participants' age. More *beginner reader* participants' (29%) preferred *uppercase* print, as compared to young *readers* participants (5.25%). These different research findings can suggest that legibility may not have an impact on the reader. The fact is that the reader tends to become uncomfortable or unmotivated to continue reading the text if the print is *uppercases*.

Apart from *lowercase* and *uppercase*, there are other factors that may affect text legibility. Studies in typography have shown that *serif* and *san serif* typeface can affect legibility (Arditi & Cho, 2005; De Lange, Esteruizen & Beatty 1993; Eyles, Skelly & Schmuck, 2003; Silver & Braun, 1993). In addition, studies in the area of children's text selection show that type style may affect the way the reader chooses their reading materials (Weiss, 1982). According to Weiss (1982) this may be because the children are concerned with legibility, a preference is based on the beauty of the print or on the amount of print on the page, familiarity, or on previous experience with a particular type style. Accordingly, in the present study, an investigation was carried out in order to find whether there are differences regarding *serif* and *san serif* typeface preference related to the participants' gender and age.

Therefore, it was considered whether the participants could spot if there were differences between the two texts given to them that were printed with *serif* typeface (Times New Roman) and *san serif* typeface (Arial). Later, the participants were asked to report these differences. The participants were also asked to point out which typeface they preferred, and to give their reasons. Accordingly, the results show that 20 out of 32 of the participants preferred to read a *san serif* typeface text. Of these, 40% of female participants preferred the *san serif* typeface, compared to 30% of male participants. A high percentage were spotted among the *beginner reader* participants (45%) who preferred the *san serif* typeface, compared to only 30% of the *young reader* participants. Through the interview sessions they stated that the reason they preferred the *san serif* typeface was that it looked bigger. These findings are in accordance with other research. For example, Eyles, Skelly & Schmuck, (2003) found that *san serif* was generally a preferable typeface for patient handout. Similarly, Silver and Braun (1993) found that the *san serif* typeface was perceived

as more readable on warning labels with shorter amounts of text, whereas recently Wilkins, Cleave & Grayson, (2009) reported that most typefaces for children's reading materials are *san serif* typeface.

On the one hand, the observation of the 32 reading materials chosen by the participants in RE1 in the present study has shown different results. It was found that 100% of the 32 reading materials were with *serif* typeface. The contradiction in these findings may lie in the fact that the school library provided more *serif* typeface reading materials compared to *san serif* typeface ones. This can raise awareness regarding the participants' typeface preference and the choice that they had in choosing their preferred typeface. The limited choice of reading materials with *san serif* typeface may be caused by the notion that the *serif* typeface is easier to read. As Arditi and Cho (2005) have reported '*serif might thus enhance legibility of individual letters by providing an additional cue to the location of stroke ends*' (p. 2927). Nonetheless, De Lange, Esteruizen & Beatty, (1993) in their research found that *serif* and *san serif* typeface equally legible, and similarly Cooper, Daglish & Adams, (1979) found that *serif* typeface does not affect legibility.

Considering these findings, it is argued here that either *serif* or *san serif* typeface might have an effect on text legibility. It also needs to be highlighted in the present study that the legibility of the text typeface may affect text readability. This is because the legibility of the text typeface can influence the participants' preference for choosing their reading material. Previously, in this discussion, it has been shown that participants' preferences for certain features of the text influence the concept of readability. As such, the factors that influence the participants' preference, in this case the legibility of the typeface of the text, can also influence the concept of readability.

Text legibility is also influenced by the size of the font (Arditi & Cho, 2005 and 2007; Eyles, Skelly & Schmuck, 2003; Feely, Rubin, Ekstrom & Perera, 2005; Garcia & Caldera 1996; Hughes & Wilkins 2000; Pillai, Katsikeas & Presib, 2011; Silver & Braun, 1993; and Wilkins, Cleave, Grayson & Wilson, 2009). Studies have shown that by increasing the font size the percentage of fluent reading is also increased (Feely, Rubin, Ekstrom & Perera, 2005); font size is closely related to reading speed and accuracy (Arditi & Cho, 2007; Mansfield, Legge & Bane 1996); and small font sizes are thought to make reading increasingly difficult, and are more stressful to the visual system (Wilkins, Cleave, Grayson & Wilson, 2009). Studies in children's text selection show that there are children who select or reject a book based on the difficulty of the words, as gauged by print size (Reutzel & Gali, 1997). Accordingly, in the present study, it was investigated whether there were differences in the participants' preferences related to the subject of the size of *font 12* and *font 14* according to their gender and age. The results have revealed that 19 out of 32 of the participants chose the text with font size *14*. Of these, more male participants chose the text with font *size 14* (37%), compared to female participants (29%). Findings also show that there was not much difference between the *beginners* and *young* readers' preferences regarding font size.

The results of the present study show that the participants mostly preferred large font size. This has been explained by several researchers (e.g. Arditi & Cho, 2007; Feely, Rubin, Ekstrom & Perera, 2005; Mansfield, Legge & Bane, 1996; Reutzel & Gali, 1997; Wilkins, Cleave, Grayson & Wilson, 2009). Based on these researchers' results and taking into consideration the results of the present study, it can be argued that the legibility of the font size may affect the reader's ease of reading. Therefore, it can be suggested that the legibility of the font size might also affect readability.

Finally, according to the results of the present study, the participants preferred a text with bold font type and justified composition, because as they reported, these capture their attention. In addition, they preferred the justified composition because they felt they knew where the next line began, and there was no empathy space at the end of the line. Based on these participants' arguments preferences towards the bold font type and the justified composition text, it can be argued that these factors can affect the readers' strategies and ease of reading. Thus, it may be suggested that the legibility of elements like boldness of the font and justified composition might have an effect on the concept of readability. It seems, therefore, that legibility is a key element in a renewed concept of readability.

5.2.2.7 Illustration and Colour

Research has shown that the importance of illustrations to the concept of readability arises from several facts. For example, it has been reported that illustration can help an idea get across (Pichert & Elam, 1985) and the combination of illustration and text can build background concepts (Pikulski, 2010). Although research has shown the importance of illustrations to readability, there are research findings which suggest that illustrations are not assessed by readability formulae (e.g. Gunning, 2003; Redish & Selzer, 1985). Several studies in the area of children text selection have shown that illustrations are a major reason for children when making their reading material choice (e.g. Amsden, 1960; Brookshire, Scharff & Moses, 2002; Goldstone, 2001; Mohr, 2003 & 2006; Reutzel & Gali, 1997; Weiss, 1982). Hence, in the present study, the degree to which illustration was an important fact taken into consideration by the participants, when choosing their reading materials, has been examined. Moreover, the types of illustrations that appeared in the reading materials that the participants chose in RE1 were also explored.

Accordingly, the sample participants in the present study reported that illustration was one of the criteria that they take into account upon choosing their reading material. They also mentioned that illustration helps them to overcome their reading difficulties. When observing the books that the participants chose in RE1, it was found that 87% of them included illustrations, and 64% of the illustrations were coloured. In addition, it was found that 77% of the illustrations were in a drawing form, whereas 23% were in a picture form. A very low percentage of the books (3%) contained diagrams. Of these figures it was found that both male and female participants chose books which included coloured illustrations. They also chose books with illustrations in drawing form. The results have also shown that both *beginner* and *young reader* participants chose books which contained coloured illustrations. However, it was found that the books chosen by the *beginner reader* participants (46%) contained a higher amount of coloured illustrations, compared to the books chosen by *young reader* participants (26%).

Thus, the results of the present study are in accordance with previous research, which has shown that illustration is one of the criteria the children readers take into account when choosing their reading materials (e.g. Amsden, 1960; Brookshire, Scharff & Moses, 2002; Goldstone, 2001; Mohr, 2003 & 2006; Reutzel & Gali, 1997; Weiss, 1982), and that illustrations help the readers in the whole reading process (e.g. Pichert & Elam, 1985; Pikulski, 2010). Although the present research results show that there were no differences between the male and female participants' preferences regarding the illustrations of the books, there have been studies which show that girls generally pay more attention to the illustrations of a reading material, compared to boys (Mohr, 2006). It needs to be emphasized here that most of the books chosen by the *beginner reader* participants contained illustrations that maintained the same appearance or features of the characters,

like for example *Chip, Biff, Kipper* (dog), *mom* and *dad* in the books written by Roderick Hunt for Oxford Reading Tree Series. Hence, it can be argued that the participants may have become familiar with the illustrations of the same characters, and because of this, they were attached to these characters. As a result, it is speculated that the reading process became easier for beginner *readers* when reading texts that contained illustrations of the characters that they were familiar with. This speculation can be made based on the participants' reason for choosing materials with illustrations, which according to them, was to help them get through difficult words. Fang (1996) has mentioned that illustrations can stimulate and promote children's interest in books, and can display familiar experiences which children are likely to be identified with more easily. Based on Fang's study findings, and alongside the findings of the present study, it can be suggested that illustrations may be important for young children in their reading process, because they stimulate interest and display familiar experiences that make reading easier. As readability is closely related to reading, factors that influence reading are likely to affect readability as well. Considering these arguments, it can be reported that illustrations may influence readability.

5.2.2.8 Organisation

This section discusses the issue of text organisation, whether this can affect text difficulty, and what its relation with readability is. According to Harrison (1984) the organisation of a text focuses on the effect of manipulating logical or conceptual structure. There have been studies to suggest that the number of prepositions in a text is an important determinant for comprehension and recalling (Kintsch, Kozminky, Streby, McKeon & Keenan, 1975). Nevertheless, it has been reported that this research area is rather complicated, because of the '*lack of an adequate grammar with which to represent the internal structure of stories and text*' (Harrison, 1984, p. 26). Based on the above

arguments, the more-transparent aspects of organisation have been explored within the present study. These are: heading and subheading, typographical effects, content page, glossary, and further information on the book.

The rationale behind this is based on the notion that the appearance of a simple clear organisation structure of a chapter through the use of common and meaningful headings and subheading is a familiar contributor to improve comprehension (Harrison, 1984). Furthermore, it is based on the view that an early statement of main ideas or basic themes in the discussion of any topic promotes comprehension (Irwin & Davis, 1980). In addition, research into children's text selection has shown that headings can facilitate prior knowledge (e.g. Spyridakis & Wenger, 1991; Wilhite, 1989), glossaries can help children enhance their reading skills (e.g. Guthrie, Van Meter, McCann, Wigfield, Bennett, Poundstone *et al* 1996 and Guthrie, Solomon & Rinehart, 1997), and headings and bold font type can give signals as to the organisation of knowledge in the text (e.g. Guthrie, 2004).

Accordingly, the sample participants in this study stated that they often had to look at the glossary to help them understand certain words, and also, that they firstly read parts of the book to see if it was interesting to continue reading it. Therefore, in the present study it was observed whether the reading materials that the participants chose to read contained headings, subheadings, typographical effects, content pages, glossary and extra information. The results have shown that 100% of the chosen books contained typographical effects. Typographical effects are effects on the text that are generally used to place emphasis on certain words, like for example *bold* effect (100%), *italic* effect (35%) and *capital letter* effect (19%). Results also show that the chosen books contained headings and subheadings (35%), content pages (35%), glossary (3%) and other information, such as

information about the author (18%) and information about adapting a movie based on the book (6.2%). Further findings suggest that there were differences in the existence of organisation elements in the books chosen by the male and female participants. The books chosen by the female participants contained more organisations elements as compared to the male participants' books. Additionally, the books chosen by the *young reader* participants contained many more organisation elements, compared to the *beginner reader* participants.

Additional findings show that the organisation elements affected the participants' choice, as the chosen reading materials revealed the existence of such elements. Therefore, it is speculated that certain organisation elements helped the participants in their reading process. This argument is also based on the studies by Spyridakis and Wenger (1991) and Wilhite (1989) which have shown that elements like headings can facilitate the reader's prior knowledge. Harrison (1984) has also shown that headings and subheadings can contribute to improving comprehension, whereas Guthrie (2004) indicates that heading and bolding can help the organisation of knowledge in the text. It is argued here that organisation elements can influence the readers' comprehension and as a result, can affect readability.

The observation also shows that all the books chosen by the participants have a definite beginning, middle and ending organisation. This means of content organisation is a linear writing form (Goldstone, 2002; Kotmel, 1996), which requires the reader to read from the beginning and move through the text in a fixed, linear sequence (Moss, 2004). On the one hand, nonlinear writing is more associative, and involves many different paths (Goldstone, 2002; Kotmel, 1996; Moss, 2004). In nonlinear writing, conversely, there may or may not be a beginning and there is rarely a definite path or a single ending (Goldstone,

2002; Kotmel, 1996; Moss, 2004). Another prime example of nonlinear text is that of web-based hypertext. Hypertext is the text which is displayed on the screen and has linking features that connect words in one document to places in other documents (Dillon, McKnight & Richardson, 1990, Dillon, 1991 & 1992; Kotmel, 1996; Price, Golovchinsky & Schilit, 1998).

Although, the present study's findings show that linear writing style stories are more preferred by the participants, there are other research findings which show that nonlinear books are more often checked out of the libraries (Mohr, 2006; Moss, 2004). Therefore, it can be argued here that the linear writing style stories are preferred among the participants, possibly because the participants find it difficult to understand the nonlinear story, or perhaps they were not exposed to those types of story books, or because there are not many nonlinear story books that they can choose from their school library. It is also argued that the linear and nonlinear writing styles are important to readability because they can affect the way the reader reads the text. The nonlinear text especially the text on the screen, exposes the reader to a different level of reading skills. It is suggested that the different way the readers look at a text and the different skills needed to understand it require changes in the concept of readability.

The current study did not investigate the postmodernist text. Nevertheless, the following section will discuss a little about it, so as to draw awareness to the existence of the postmodernist text and its influence in reading. The changes in the organisation of the postmodernist books as related to children's books, particularly the postmodern picture book, needs to be highlighted as well. It is argued that the changes happening in the postmodern picture books mostly concern organisation aspects, rather than illustration forms. The characteristics of the postmodern books include: (1) Non-traditional plot

structure or nonlinear (Anstey, 2002; Serafini, 2005); (2) the pictures or the texts are used to situate the readers in a certain way, so that they can read the story through a character's eyes or point-of view (Anstey, 2002; Goldstone 2001); (3) the reader is actively involved in constructing the meaning from the text (Anstey, 2002; Serafini, 2005); (4) cross text reference where the reader is required to make connection with other sources or knowledge in order to understand the text better (Anstey, 2002; Serafini, 2005); and (5) a variety of style of illustration and design layout (Anstey, 2002, Goldstone, 2001; Hellman, 2003; Serafini, 2005). Based on the postmodern picture book characteristics, it can be argued that the reading process has changed significantly. The meaning of a text can differ from single reader if they position themselves in a different point of view when reading it. Apart from this, the meaning of the text can also be different among readers when they read from different point of view. Thus, it is suggested that it may be difficult at the moment to consider how far the reader understands a certain text. Hence, this justifies the need for a new model of readability that will include all the changing factors in the reading process that may influence comprehension.

5.3 Qualitative Findings Discussion

5.3.3 Readers factors

It was argued previously that the concept of readability is at the moment far from its original definition, which includes certain reader's factors. In a previous section, that is the text factors section it was shown that the concept of readability mainly focuses on matters related to language elements that make the materials easy or difficult to read (Bormuth, 1968) or to text elements that are related to comprehensibility (Harrison, 1977 & 1984). Based on this argument, this section discusses the multitude of possible reader factors that

can influence the concept of readability. The participants' reading strategies to comprehend a text are explained, elements that can motivate the participants to engage with a text are discussed, and the possible impact of the participants' prior knowledge on their comprehension is emphasized. The arguments in this section are based on the interview and text analysis data collected in the present study. The interviews include the qualitative data collected by asking the participants to report the strategies they used in order to comprehend the text; the elements that motivated them to engage in their reading; and whether any of their prior knowledge was important for text comprehension. On the other hand, the text analysis includes the quantitative data collected by the observation of the elements of the strategies, motivation and prior knowledge stated by the participants that appeared in the text chosen by them.

Several studies have suggested that certain reader factors can affect the concept of readability such as: (1) overall reading ability (Gunning, 2003; Harrison, 1984;); (2) familiarity with written and oral language structures (Harrison, 1984; Kotula, 2003); (3) world or background knowledge (Gunning, 2003; Harrison, 1984; Kotula, 2003; Okaland & Lane, 2004); (4) motivation (Gunning, 2003; Harrison, 1984; Kotula, 2003; Okland, 2004; (5) reading fluency (Okland & Lane, 2004); (6) interest (Gunning, 2003; Kotula, 2003); (7) study / work habits (Gunning, 2003); (8) readers' characteristics (Kotula, 2003); (9) intelligence (Kotula, 2003); (10) word recognition (Kotula, 2003); (11) comprehension strategies (Kotula, 2003); (12) purpose of reading (Kotula, 2003).

In terms of the present study, the term reader factor refers to the characteristics of a good reader, as reported by the participants during the interview sessions. Hence, the results consist of: (1) reader's characteristics; (2) reader's reading techniques; (3) reader's reasons for reading; and (4) reader's definition of reading.

5.3.3.1 Reader's Characteristics

Studies in the field of reader characteristics have shown that a variety of terms have been used to describe different types of reader. These terms include *proficient*, *successful*, *fluent*, *skilled*, and *fast* reader characteristics. These terms somehow show a specific attribute of reader behaviour. Thus, in the present study the term good reader characteristic was used to include several variables that are related to the reader's behaviour. Similar to other research results on the reader's characteristics, Pang (2003) has described the characteristics of good and poor readers using three attributes, namely: (1) language knowledge and processing ability; (2) cognitive ability; and (3) metacognitive strategic competence. On the other hand, Spaulding (1988) focuses on three dimensions to describe reader's characteristics, which are: (1) the reader knowledge structure; (2) cognitive process; and (3) personal attitudes. As a contribution to the research on the reader's characteristics, four types of good readers' characteristics can be reported in the present study, which are: (1) reading with understanding; (2) engaging in reading; (3) prior knowledge on the topic; and (4) good reading skills.

Accordingly, the results of the present study have shown that an important characteristic of a good reader is reading with understanding. The participants in the present study defined reading with understanding as reading and understanding everything about the book, including understanding difficult words and being able to explain the meaning of the words. Based on these findings, it is argued that the participants were aware and concerned that reading is a process of understanding and being able to use the knowledge obtained through a text in any other context. Thus, a good reader's characteristics involve not only the ability to recognize the word, but also being able to understand it by being able to explain it.

The next important criteria of good reader's characteristics are having an idea or prior knowledge of the topic. The participants defined having an idea or prior knowledge about the topic as having experienced an event similar to the story, having learned about the topic in school, having heard about it from close family members or others, and having watched a similar event in the television or movies. Based on these findings, it is suggested that the participants were aware of the importance of prior knowledge during reading. They also suggested a variety of ways to gain prior knowledge, which not only depends on the reading, but also includes all the sources around them. Hence, the results of the present study are in accordance with other research that have also shown that prior knowledge can be an important attribute in the reading process as it helps the reader to become familiar with the topic of the text (e.g. Alexander, Kulikowich & Jetton, 1994; Baldwin, Peleg-Bruckner & McClintock, 1985; Langer, 1984; Spaulding, 1988; Spyridakis & Wenger, 1991, Stahl, Jacobson, Davis & Davis, 1989; Tobias, 1994) and increase their interest in reading (e.g. Anmarkrud & Braten, 2009; Hidi, 2001; Tobias, 1994) which can allow them to comprehend the text better.

The present study results have also indicated that good reader's characteristics include their full engagement in reading. The participants reported that readers who are really engaged in their reading are those who read with full concentration, and are not easily distracted. They also mentioned that an engaged reader is one who reads with full expression and fluency. Some of them have further mentioned that an engaged reader seems to immerse themselves in the story. Studies in the engagement model of reading comprehension propose that reading engagement is the joint function of motivational processes and cognitive strategies during reading comprehension (e.g. Guthrie & Wigfield, 2000). Moreover, other studies have shown that there are two types of motivation, namely

intrinsic and extrinsic (e.g. Guthrie, Solomon & Rinehart, 1997). One of the intrinsic motivations includes being able to become immersed in a literacy task (Reed & Schallert, 1993).

In addition, researchers have stated that engaged readers are self-determining, meaning that they are able to choose a wide range of literacy activities for aesthetic enjoyment (e.g. Guthrie, Van Meter, McCann, Wigfield, Bennett, Poundstone *et al* 1996). Based on the present study's results and other research results, it may be argued that the reason the engaged readers can immerse themselves in the story is the fact that they have intrinsic motivation that manages to make them ignore distractions during reading. They also have self determination that enables them to enjoy reading by reading with full expression and fluency. Hence, it is suggested that the ability to read with full expression and fluently might be the elements that help readers to engage in their reading.

The final reader's characteristic that is proposed in the present study is having good reading skills. Accordingly, the results have shown that good reading skill refer to the ability of the reader to control the speed of their reading; being able to pronounce the words accurately; being able to sound the difficult words and knowing when they make mistakes; reading a variety of book genre; enjoying reading; not struggling during reading; using the dictionary when necessary; and having the ability to read the next line and understand what follows. Based on these findings, it can be argued that having a variety of reading skills is important in order to become a good reader.

To sum up, certain characteristics might influence the success of the interaction between the readers and the text they are reading. This argument is based on the present study's findings that have shown that a good reader tends to read with understanding. Good readers are able to understand all the words they read and use these words in other

contexts. Furthermore, good readers have prior knowledge about the topic they are reading. Hence, they become familiar with the topic of the text, and increase their interest and comprehension. In addition, good readers seem able to immerse themselves in the story they are reading. Finally, they also have a variety of reading skill that can equip them to read successfully. In this respect, it is also argued that reader's positive characteristics might influence the concept of readability as they may affect the interaction between the reader and the text.

5.3.3.2 Reader's Reading Techniques

The factors examined in the present study also included elements such as the reader's readings techniques. The results have shown that these reading techniques include asking someone, browsing on the internet, looking at the dictionary when reading, trying to figure out something, looking at the glossary, looking at the pictures, sounding the words, looking at other words, reading the blurbs, reading the content page, reading the first paragraph, reading couple of pages, and reading the title. The techniques listed by the participants show that they used a variety of techniques to overcome difficulties during their interaction with the text. Most of the techniques listed by the participants show how they overcame difficulties when reading difficulties words. The techniques they reported using are: asking someone, browsing on the internet, looking at the dictionary when reading, trying to figure out something, looking at the glossary, looking at the pictures, sounding the word, and looking at other words. The participants also integrated one or two of these techniques when they encountered difficulties while reading.

The participants also reported that they used a variety of techniques to select their reading material. They mentioned that reading the blurbs, reading the content page, reading the first paragraph, reading couple of pages, and reading the title, were the techniques they

used when choosing their reading materials. The participants' reading techniques seem to have influenced the text elements that appeared in the reading materials that they chose to read in RE1. The participants mentioned that they read the blurb and content page before choosing their book. Through text observation, it was shown that a large number of participants chose to read books with blurbs and content pages.

Studies have shown that good reader have skills in metacognition, which includes awareness of, and ability to choose, manage and apply cognitive strategies to complete a given task (Callery, 2005; Pang, 2008). They are also able to self-monitor their own reading comprehension by making decisions at all stages in the reading process (Callery, 2005; Pang, 2008). More fundamentally, they have decoding skills include letter identification, word decoding and having knowledge of syntax (Callery, 2005; Pang, 2008; Perfetti 1985). These skills show the readers' ability to read, including their ability to control most of the reading process. The current study findings shows the participants did manipulate their reading techniques during their interaction with the text. Thus, we may speculate that these manipulations of reading techniques show the participants are monitoring their reading process to ensure its success. We may also speculate that reading techniques might affect the concept of the readability. This speculation is based on the assumptions that readers' reading techniques affect the way that the reader interact with the text.

5.3.3.3 Reader's Reason for Reading

The next reader factor examined is related to the purpose of reading. The participants of the present study mentioned that the reasons they read included the following facts: it helps in their studies, to gain information, for future benefit, it is handy, as a hobby, and having nothing else to do. Based on these findings it can be stated that there are two major ideas

underpinning the participants' reason for reading: academic purposes and entertainment. The argument regarding reading for academic purposes is based on the fact that some participants read because it helps them in their spelling and writing. Apart from this, they mentioned that reading helps them to gain information and learn new things. In addition, they mentioned that by reading, they can obtain good grades and they are prepared to attend college and at the end, are helped to get a job. The argument stating that the participants read for entertainment is based on their statement that they read as a hobby, they have nothing else to do, and book is handy to carry around.

It is also argued here that the purposes of the readers' reading might have an effect on how they interact with the text. This argument is based on several other studies. For example Narvaez, van den Broek & Ruiz (1999, p. 493-494) have found that: (1) reading purposes influence the pattern of inferences that readers generate as they read; and (2) reading purposes influence the inferential activity during reading for both study and entertainment purposes. Similarly, Braten & Samuelstuen (2004, p. 332-334) has reported that (1) the students adjust their strategic processing for study-related purposes; (2) reading purpose may depend on the students' prior knowledge about the topic of the text. Additionally, McCrudden and Schraw (2007, p.133) have found that goal focusing presumably helps readers to confer the relevance of text information. Finally, Broek & Samuelstuen, (2001, p. 1085) have found that readers' goals influence the type of inferences generated during reading.

Based on the findings of the present study and the results of the above research studies, it is argued that there may be a difficulty at the moment in evaluating comprehension, because the same text might be understood a different way according to the readers' different purpose for reading the text. Thus, it is argued that the concept of

readability needs to be reconsidered in order to cater for the different (levels of) understanding of the reader towards the same text when they have different purposes for reading.

5.3.3.4 Reader's Definition of Reading

The final factor examined in the present study is the readers' definition of reading. This can be divided into two concepts: reading as making sense of the content and making sense of the print. Reading as making sense of the print is when the participants believe that reading is a process of looking at words, phrases and sentences and trying to make sense of them. Reading as making sense of the content is when the participants believe that reading is a process of understanding someone else's thoughts, feelings and experiences. Based on these findings, it can be argued that the way a reader defines reading can have an effect on the way he/she interacts with the text. It is speculated that a reader reads at a low level when reading merely to make sense of the print and this is because they are unable to grasp the information or message the author intends to share with them. Furthermore, it is speculated that a reader reads at a higher level when reading to make sense of the content, and this is because they are not only able to grasp the information and messages of the author, but they are also able to evaluate and judge the author's intention of writing the specific text. Thus, it is argued that there may be difficulties in evaluating comprehension, as different readers might have different values in terms of the definition of reading. In addition, it is argued in this thesis that the concept of readability needs to be thought of as the way the reader interacts with the text, since it does not only depend on the meaning of the text but also on the purposes for which the text is read.

5.4 Reader and Text Interaction

This section focuses on providing answers to the fourth sub-research question:

How do text and reader factors interact to help or hinder the reader's comprehension?

As such, the participants' comprehension was assessed by applying two methods: *miscue analysis* and *retelling*. Miscue analysis has been used by many studies for various reasons such as: (1) to obtain the grade level and reading ability on children's miscue patterns (Christie, 1981); (2) the miscue analysis assessment in the classroom (Valencia, Rhodes & Shanklin, 1990); (3) the relationship of substitution miscues to comprehension (Beebe, 1980; Englert & Semmel, 1981); and (4) the effects of insertion and omission miscues on readers comprehension (Dangelo & Wilson, 1979; D'Angelo & Mahlios, 1983). In this current research, miscue analysis is used to assess the participants' comprehension. In order to assess the participants' comprehension two sets of reading sessions were compared. The first session was carried out during RE1. The texts used in RE1 were chosen by the participants themselves. Based on the text analysis and interview findings, it has been shown that the texts used in RE1 were taken according to the participants' reading level, prior knowledge and interest. On the other hand, the second reading sessions were carried out within RE2. The texts used in RE2 were chosen by me, as the researcher of this study. The texts that I chose were at a slightly higher readability level, and had never been read by the participants before. The rationale behind this was to provide texts that were not at the participants' reading level, prior knowledge and interest.

Accordingly, the results show that the participants made more miscues in RE2. Since this research did not investigate the effect of readability level, prior knowledge and interest individually, it is argued that the participants' amount of miscues were affected by the integration of these three factors. Apart from this, the results also show that the female

participants made more miscues than male participants and the *beginner reader* participants made more miscues than the *young reader* participants. Thus, it can be suggested that the amount of miscues was also affected by the participants' gender and age. However, the findings regarding the amount of miscues made by the participants did not show how the participants comprehended the texts. Hence, further investigations were made in order to explore the approaches the participants used to construct meaning while reading, and to identify how they comprehended the texts. To examine this, the participants' cueing systems were explored. These cueing systems consisted of *graphophonic*, *syntactic* and *semantic acceptability* (see section 3.4.5.3).

Accordingly, the results suggest that almost three quarters of the participants relied on the *graphophonic* cueing system in texts in both RE1 and RE2. It was also found that the texts in RE2 caused a lower score in the mean percentages of the participants' grammatical relation and meaning construction. Therefore, it was concluded that the participants were unable to construct meaning from the texts in RE2. Based on these findings, it can be stated that the texts which were at a higher readability level and were not within the participants' prior knowledge and interest, may have caused the readers' comprehension.

Studies have shown that retelling has been used to assess reading comprehension. Retelling has been used: (1) to find out how the reader understands narrative text structures (Mandler & Johnson, 1977); (2) tap into what the reader has independently constructed and accessed from transacting with the text (Kucer, 2010); (3) to investigate the causal connection among segments of a text (Kendou & Broek, 2005). In this current study, as with miscue analysis, the retelling sessions were conducted with the aim of assessing the participants' comprehension, and were divided into two parts i.e. in RE1 and RE2. The results have

shown that the quality of the participants' retelling decreased in RE2. It was found that in RE2, the majority of the participants achieved retelling richness of Level 2. Retelling richness at Level 2 shows that the participants were only able to recall the events in the text they were reading, but at the same time, they were unable to generalize beyond the text or include summarising statements. Based on these findings, it may be concluded that the texts which were at a higher readability level and were not in the participants' prior knowledge and interest might have made the participants able only to recall the event in the text, but unable to comprehend the text (itself).

Bearing the above arguments in mind, it is speculated that there may be differences in the way the participants interacted with the texts in RE1 and RE2. It can further be suggested that the different ways the participants interacted with the texts might have caused the different comprehension results i.e. comprehension results in RE1 were better than in RE2. Related to this speculation and suggestion, the next discussions focus on the phenomenon that contributes to the success of the interaction between the participants and the texts in RE1.

The reading sessions in RE1 took place with the participants having the freedom to choose the text themselves. Thus, it can be speculated that this gave them the opportunity to choose a text that was within their prior knowledge. To ensure the content lay within their prior knowledge, the participants read the blurbs of the books. Apart from this, it can be seen that the freedom to choose the text themselves gave the participants the chance to select the content according to their interest. Related to this, the findings show that the topics that were interesting to the participants were related to their daily life activities. Hence, it is assumed that successful interaction between the participants and the texts in RE1 depended on the existence of the participants' prior knowledge and interest when

reading the texts. As Baldwin, Peleg-Bruckner & McClintock (1985) and Tobias (1994) have stated, prior knowledge and content interest are elements that can increase comprehension.

It is further suggested that because of the prior knowledge and interest in the topic, the participants became familiar with the characters, structure and illustrations of the stories. The familiar feelings towards certain characters and story structure might have made the participants choose to read books that had been written by specific authors or were included in series. An example of this is the series of *Harry Potter* written by J.K Rowling. Apart from this, the illustrations may also have helped the participants to become more familiar with the characters in the story. An example of this is the texts read by the *beginner reader* participants that contained illustrations that maintained the same look of the characters such as *Chip*, *Biff*, *Kipper* (dog), *mom* and *dad* in books written by Roderick Hunt for Oxford Reading Tree Series. Thus, it is assumed that the participants' familiarity with the characters, structure and illustrations of the story might have helped them to become more fully immersed in the story. Readers who can become immerse in their reading are engaged readers. Studies have shown that engaged readers are self-determined, and able to choose a wide range of literacy activities for aesthetic enjoyment (Guthrie, van Meter, McCann, Wigfield, Bennett, Poundstone *at al* 1996). Hence, based on the findings of the present study, it is suggested that an engaged reader has self determination that makes him/her able to enjoy reading by getting themselves attached to a familiar character, structure and illustration of a story. Earlier studies have shown that reading confidence could be built in/up through familiar reading (e.g. Fresch, 1995). Therefore, it is presumed that the familiarity of the characters, structure and illustrations of the story might have

helped the participants to engage in their reading and build a positive reading attitude that helped in the success of their reading in RE1.

Since the texts in RE1 were chosen by the participants, it is assumed that the participants may have been able to choose their preferable materials: genre, physical features of the book, legibility, organisation of the book, illustrations and features of the text. It is speculated that the existence of these elements might have influenced the interaction between the participants and the texts in RE1. Hence, the interaction between the participants with each of the element is discussed in detail next. Genre is a style or category of art, music, or literature. Thus, the participants' choice of genre included picture books, traditional literature, modern fantasy, contemporary realistic fiction, and information books. Studies have shown that genre is one of the major factors for children readers to select their reading materials (e.g. Coles & Hall, 1999; Leemans & Stokmans, 1991; Mohr, 2003; Mohr, 2006; Moss, 1999; Oakhil & Petrides, 2007; Reuter & Druin, 2004; Robinson, Larsen, Haupt & Mohlman, 1997; Summers & Lukasevich, 1983). The present study's findings show that the reason the participants preferred certain genre was that some of it included elements like humour, *action*, *adventure*, *crime solving*, *mystery*, *suspense*, *flashback*, and *creep*, that made them keen to continue reading the material. Previous studies have shown that interest can be elicited by text elements like text segment, topics, and themes (e.g. Hidi, 2001) and interest can also be influenced by story preference (e.g. Zimet, 1966). Therefore, it may be considered that genre is one of the elements that can stimulate a reader's interest. Taking into account that studies have shown that interest is one of the attributes that can facilitate reading comprehension (Baldwin, Peleg-Bruckner & McClintock, 1985; Tobias, 1994), the results of the present study show that the genre of the book also facilitated reading comprehension. Thus, it is suggested that genre might

have had an effect on the interaction between the participants and the texts they used.

Therefore, it is assumed that the books' genre might have contributed to the success of the participants' reading in RE1.

It may also be reported that the interactions between the participants and the texts in RE1 were rather influenced by the physical features of the texts. The physical features refer to the size, length and nature of the cover of the texts. Studies have also shown that readers are attracted to the cover page, either the front or the back of a book, before making the decision to read it (Carter, 1987; Fresch, 1995; Gilmore, 1985; Gali, 1995; Kragler, 2000; Mohr, 2003; Mohr, 2006; Reutzel & Gali, 1997; Robinson, Larsen, Haupt & Mohlman, 1997). The present study's results show that the reasons that made the participants look at the cover of the books included: they wanted to read the blurb, to find out the reading band/level and to look at the title of the story, because they wanted to ensure the book they chose lay within their prior knowledge, content interest and reading band/level. Thus, it can be proposed that the interaction between the participants and the physical features of the texts may have helped to reduce the participants' reading anxiety and build up their confidence when reading these texts. Relevant to this, other studies have shown that confident readers show a greater sense of relatedness or belonging in their reading (Furrer & Skinner, 2003). As such, the results of the present research suggest that the feeling of confidence probably made the readers successful in their reading. Based on these findings and arguments it is suggested that the physical features of the texts might have contributed to the participants' successful reading in RE1.

It is also believed that the legibility elements of the texts have played an important role in the interaction between the texts and the participants. The term legibility refers to the accessibility of the typography of the text (Lund, 1999; Watts & Nisbet, 1974). It

distinguishes between *san serif* and *serif, italic, bold* type, colour contrast, the design of right and left hand edge justification, letter spacing, word spacing and line separation (Arditi & Cho, 2005; Lund, 1999; Wilkins, Cleave, Grayson & Wilson, 2009; Waller, 1991; Watts & Nisbet, 1974). The present study's findings have demonstrated that the participants' readings were affected by legibility elements like for example the *san serif* and *serif* typeface, *lowercase* and *uppercase* print, *font size 12* and *14* and the design of right and left edge justification. The results have shown that the participants became uncomfortable and unmotivated to continue reading when legibility elements were disliked by them. Studies have shown that legibility elements can affect the reader's reading in many ways. For example Hughes and Wilkins (2000, p. 322) found that reading *speed and accuracy could be increased by presenting children with a text having a larger, more widely spaced, typeface*. More recently, Wilkins, Grayson & Wilson (2009) found in their study that the increase of the font size increased the reading speed and accuracy of the samples. These researchers reported that typographic features may have an effect on the reader's reading skills, reading ability and comprehension. Based on the present study's results, as well as Hughes and Wilkins, (2000) and Wilkins, Grayson & Wilson at al.'s (2009) findings, it is highlighted that legibility elements might affect the interaction between the reader and the text. It is also highlighted that illustrations may have been involved during the interaction between the text and the participants. Pictures are used in books for many reasons and purposes, to facilitate children readers in their reading. The present study's findings show that illustration was one of the participants' criteria in choosing their reading material. Apart from this, most participants have reported that pictures help them to overcome their reading difficulties. Studies have shown that (1) illustration affects the children readers inference making, which is an important component

in comprehension (e.g. Pike, Barnes & Barron, 2010), and (2) the presence of illustrations can affect comprehension (e.g. Brookshire, Scharff & Moses, 2002). Thus, it is believed that illustrations might have had an important role in the interaction between the participants and the texts because the illustrations helped them with their reading difficulties. As such, it is believed that the effect the illustrations may have on the interaction between the participants and the texts is a contributing factor to the success of the participants' reading in RE1.

Next, the influence of vocabulary and syntax of the text that might have an impact on the interaction between the participants and the texts is discussed. The present study's results show that the participants chose to read texts with short words (four characters per word) and short sentences (16 words per sentence). Previous studies have shown that (1) vocabulary is used to investigate the effect of topic familiarity to the reader (e.g. Johnston, 1984); (2) vocabulary knowledge is used to investigate the readers' ability to interpret and recall what had been read (e.g. Langer, 1984); and (3) readers with more sophisticated epistemic beliefs would spend more time reading sentences in refutation texts (e.g. Kendeou, Muis & Fulton, 2010). Based on the findings of the present study and previous studies such as the ones mentioned above, it can be suggested that the vocabulary and syntax of the text might affect the interaction between participants and text. Therefore, it is believed that vocabulary and syntax are contributing factors to the success of the participants' reading in RE1.

The interaction between the participants and the text is also believed to have been influenced by the organisation of the text. The term organisation of the text refers to the effect of manipulating logical or conceptual structure in a text (Harrison, 1984). The present study's findings have shown that aspects of organisation like the use of headings,

subheadings, typographical effects, content pages, and glossary had an effect on the participants' reading. The participants reported that the glossary was very useful in helping them understand unknown words, and that they had read a chapter of the book to see whether it would be interesting for them to continue reading it. Similarly, previous studies have shown that elements like headings can facilitate the prior knowledge (e.g. Spyridakis & Wenger, 1991; Wilhite, 1989); a glossary can help children enhance their reading skills (e.g. Guthrie, Solomon & Rinehart, 1996; Guthrie, van Meter, McCann, Wigfield, Bennett, Poundstopn *et al* 1997); headings and bolding may give signals to the organisation of knowledge in the text (e.g. Guthrie, 2004); and the familiarity with the discourse organisation enhances the reader's comprehension processing (e.g. Pang, 2008). Based on the present study's results, as well as results from previous studies like the ones mentioned above, it may be seen that the organization of the book probably had an effect on the interaction between the participants and the text because the organization elements can affect their reading skills. Therefore, it is presumed that the organization of the book might have contributed to the success of the participants' reading in RE1.

It can also be reported that the participants' reading purposes might have had an effect on the interaction between the participants and the texts. This argument is based on the present study's results, which have demonstrated that the participants' reading purposes mostly regarded academic and entertainment issues. According to the participants, reading for academic purposes includes the reading activities that help them become better in their spelling, writing and school grades, whereas, reading for entertainment includes activities related to reading as a hobby or as a passing time activity. As such, it is presumed that the purpose of reading might affect the participants' reading strategies. Previous studies have shown that reading purpose can influence the interaction between the reader and the text.

For example, Narvaez, van Broek & Ruiz, (1999, p. 493-494) have argued that (1) reading purposes may influence the pattern of inferences that readers generate while they read; and (2) reading purposes may influence the inferential activity during reading for both study and entertainment targets. Similarly, Braten and Samuelstuen (2004, p. 332-334) has noted that (1) students adjust their strategic processing according to their study-related purposes; and (2) reading purposes may depend on the students' prior knowledge about the topic of the text. Additionally, McCrudden and Schraw (2007, p.133) have reported that goal focusing seems to help readers to infer the relevance of text information, whereas van den Broek & Lorch, (2001, p. 1085) have argued that readers' goals can influence the type of inferences generated during reading. These studies have generally shown that the purpose of reading may change the way the reader infer from the text. Thus, based on the present study's results, as well as on the studies mentioned above, it is argued that reading purposes might have an effect on the interaction between the participants and the text they read, because their action towards the text might be different when they are reading for different purposes. As such, it is assumed that reading purposes played an important role in the success of the participants' reading in RE1.

The interaction between the participants and the text is also believed to have been influenced by the participants' reading ability. Pang (2008) has compartmentalised reader's abilities into three dimensions:

Readers' abilities in terms of three dimensions: linguistic, cognitive, and metacognitive. Linguistic knowledge and processing ability refer to readers' formal knowledge of vocabulary, syntax, and discourse and their abilities to use this knowledge in their interaction with texts. Cognitive ability is concerned with readers' use of prior knowledge and various strategies in their efforts to construct meaning in the comprehension process. Metacognitive strategic competence reflects readers' monitoring and control of reading strategies (Pang, 2008, p.2)

Accordingly, several terms have been used to describe reader's abilities: *good* or *poor*, *proficient* or *less-proficient*, *successful* or *unsuccessful*, *fluent* or *non-fluent*, *skilled* or *unskilled*, and *fast* or *slow* reader. McCrudden and Schraw (2007) has mentioned that a good reader recalls more relevant information than a poor reader, and a good reader actively interacts with the text looking for text signals and actively monitoring comprehension compared to a poor reader. The present study's findings have revealed that a good reader is a skilful reader who is able to use a variety of techniques to overcome any reading difficulties. Based on the present study, as well as previous studies' results, it is suggested that reading ability might affect the interaction between the readers and the texts, because good readers might use more reading strategies and look at the text differently than poor readers. Hence, it is assumed that reading ability is another contributing factor that has led to the success of the participants' reading in RE1.

Furthermore, there are studies that show that the reader's attitude and reading ability can have a significant interrelationship (Martinez, Aricak & Jewell, 2008). Taking this argument into consideration, it can be argued that the participants' reading attitudes in the present study might also have influenced the interaction between them and the text. Reading attitudes are dominated by feelings about reading, actions preparedness for reading, and evaluative beliefs about reading (Mathewson, 1994). Some studies have demonstrated that positive reading attitude may lead to the likelihood of being engaged in, and motivated to read (e.g. Martinez, Aricak & Jewell, 2008) and reading attitudes have an important role in controlling the reader's level of motivation and intension to read, whilst mediating the connection between the reader's beliefs and reading activities (e.g. Petscher, 2010). Taking into account the above research results, it is argued that the present study participants' definitions of reading might have contributed to their attitudes towards

reading. This is because such factors might be attributes to their beliefs towards reading. The participants who defined reading as *making sense of the print* are most likely to have less positive reading attitudes as they evaluate themselves as able to regard reading just as spelling and sounding of the print and just knowing its meaning. On the other hand, those who define reading as *making sense of the content* presumably have positive reading attitudes, because they view themselves as capable of constructing the meaning of the whole text. Therefore, it can be suggested that this study's participants' definitions of reading might have had an effect on the interaction between them and the texts they read. It is then believed that the readers' reading attitudes are maybe contributing factors to the success of their reading in RE1.

Moreover, it is believed that gender might also have had an influence on the interaction between the participants and their texts. This is based on the present study's findings that show that the male and female participants had different priorities regarding their choice of reading material. Findings have revealed that: (1) Male participants usually look at the reading band/level of the book which they believe is very important, whereas it is not so important for the female participants. (2) Male participants read shorter stories compared to the female participants. (3) Male participants like to read stories related to family activities, whereas female participants like to read ghost stories, fairies, and super human kind of stories. (4) Female participants have their favourite authors or series, but not the male participants. (5) Female participants prefer san serif typeface whereas the male participants are more flexible on the choice of the typeface. (6) Female participants' choice of reading material contains a variety of typographical effects compared to the male participants.

Accordingly, it is argued that the differences in the participants' priorities of text feature elements in their choice of reading material can lead to different strategies used during the interaction with the text. Also, the female participants read a variety of story types and their choice of reading material contains a variety of typographical elements. This shows that the female participants have more reading strategies compared to male participants, and this supports the fact that the female participants' comprehension results were better than the males' ones. Related to this, previous studies have shown that boys are less motivated in reading compared to girls (e.g. Baker & Wigfield, 1999; Wigfield, 1997; McKenna, Kear & Ellsworth, 1995), and boys often have less capability beliefs in reading compared to girls (e.g. Baker, Scher & Mackler, 1997; Wigfield, 1997). Moreover, boys have less positive attitudes towards reading than girls (e.g. McKenna, Kear & Ellsworth, 1995; Martinez, Aricak & Jewell, 2008) and girls enjoy reading more than boys (e.g. Merisou-Storm, 2006). It has also been found that girls are more persistent in reading than boys (Oakhill & Petrides, 2007).

Based on the present study's results as well as previous studies' findings, it is argued that perhaps the different choice of reading materials and reading strategies between the boys and girls readers might have caused different attitudes, motivation, interest, competence beliefs and levels of enjoyment in reading. It is also argued that the different gender of the participants have probably made them interact differently with the text. Therefore, it is proposed that gender has affected the interaction between them and the texts and gender can be another contributing factor to the success of the participants' reading in RE1.

The interaction between the participants and the text is also supposed to have to have been influenced by the participants' age. This is based on the present study's findings,

which show that the *beginner reader* and *young reader* participants like different text feature elements when it comes to their choice of reading material. Specifically: (1) *Beginner reader* participants read books with short length stories compared to *young reader* participants. (2) *Beginner reader* participants are more concerned compared to the *young reader* participants regarding reading the level/band of the book before choosing to read it. (3) *Beginner reader* participants like to read stories related to family activities whereas *young reader* participants like to read ghost stories, fairies and super human kind of stories. (4) *Beginner reader* participants are keener on reading books that are in series compared to *young reader* participants. (5) *Beginner reader* participants prefer bigger size font compared to *young reader* participants. (6) More *beginner reader* participants chose books with illustrations compared to *young reader* participants. (7) *Beginner reader* participants' choice of books has less typography effect elements compared to *young reader* participants.

Consequently, it is argued that the differences among the beginner and young reader participants text feature elements preference in their choice of reading material might have led to different strategies used during the interaction with the text. Apart from this, findings also show that the *young reader* participants read a longer and greater variety of stories, and their choice of reading material contains a variety of typographical elements. This shows that the *young reader* participants have more reading strategies when compared to the *beginner reader* participants, and this supports the fact that the *young reader* participants' comprehension results and retelling quality were better than the *beginner reader* participants. Related to this, previous studies have shown that children's motivation in reading becomes less positive as they grow older (e.g. Paris & Oka, 1986; and Wigfield, 1997) and children's attitudes to reading are declined as they grow older (e.g. Kirby, Ball

& Geier, 2010; Baker & Wigfiels, 1999; McKenna, Kear & Ellsworth, 1995). Additionally, it has been found that genre preferences increase from focusing on fantasy fiction to more realistic diverse genres as children grow older (Coles & Hall, 2002; and Mohr, 2006) and reading strategies increase as children grow older (Paris & Oka, 1986). Moreover, metacognition and self-perception change with age (Paris & Oka, 1986).

Therefore, based on the present study's results, together with results from other previous studies it can be argued that the different choice of reading material and reading strategies among the beginner and the *young readers* might have caused different attitudes, motivation, interest, competence beliefs and an increase of variety of genre preference. It is also argued that the fact that the different ages of the participants may have caused them to interact differently with the text. As such, it is proposed that the participants' age affected the interaction between them and the texts. Thus, it is assumed that age is one of the contributing factors to the success of the participants' reading in RE1.

It is worth pointing out here that the suggestions made above on the subject of the gender and age of the participants and possible influences on their comprehension were based on only a small size sample of 16 male *beginner* and young participants and 16 female *beginner* and young participants.

To sum up, the reader and text interaction can be influenced by text factors and reader factors concurrently. Text factors include *physical features of the text, genre, content, author, vocabulary and syntax, legibility, illustrations, and organization of the text*. Reader factors include *prior knowledge, interest, motivation, attitudes, reading ability, and purpose of reading, definition of reading, gender, and age*.

5.5 Implications of the Reader and Text Interaction

The implications regarding the reader's interaction with the text address the final sub-research question:

What are the implications of the above for a renewed concept of readability?

Considering all the above discussion regarding the reader and text interaction new findings can lead to an entirely different perspective regarding the concept of readability. According to the earlier researchers, ideally readability is a sum total of comprehension, fluency and interest within a given piece of printed material, which affects the success which a group of readers has with the material (Chall, 1949) or the '*ease with which a reader can read and understand*' a given text (Okland & Lane, 2004, p.244). However, the current practice of assessing the readability of a piece of text does not yet reflect the definitions of readability itself. Readability has customarily focused on what makes the language in materials easy or difficult to be read (Bormuth, 1968) or the attributes of a text that relate to comprehensibility (Harrison, 1977 & 1984).

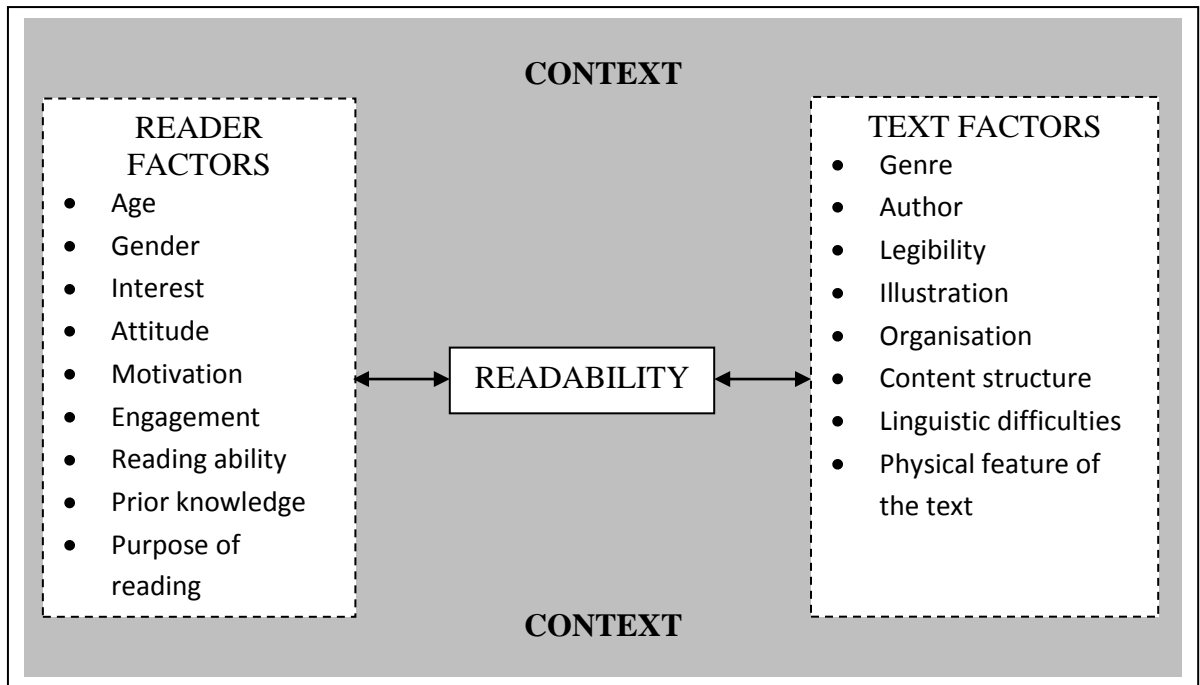
The results of the present study have demonstrated that there may be several issues taking place during the interaction between the reader and the text. The interaction between the reader and the text is a dynamic phenomenon, which can be influenced by issues which regard the reader (*prior knowledge, interest, motivation, attitudes, reading ability, purpose of reading, engagement, gender, and age*) and the text (*physical features of the text, genre, content, author, linguistic difficulties, legibility, illustrations, and organization*) concurrently.

In addition, during the interaction, some of these factors dominate and overrule others. As such, sometimes the difficulties of the text might depend on factors that relate to the reader or to the text, depending on which factor is the dominant one. Accordingly, the

concept of readability could now be characterized as a dynamic phenomenon and in individual form by nature.

Although this study has not explored the context where the interaction between the reader and the text took place, it is assumed that this context might have influenced the nature of the interaction. This assumption is based on different scenario that takes place during the reading process at home or at school. Reading at home is within a pleasure environment, with no constraints or pressures in terms of the skills that need to be achieved, whereas, reading at school focuses more on academic purposes that have an objective to be achieved. Therefore, reading at school is driven by certain goals that have been set by the curriculum that needs to be fulfilled. Hence, the reading process is set in a way to achieve certain reading skills and strategies. On the other hand, reading at home depends on the environment or the background of the family, and is not pressured by the need to achieve any form of reading skills or strategies. As such, the different purposes of reading at school or at home and the different forms of reading skills and strategies are integrated during the reading process, and might cause different forms of interaction between the reader and the text being read. Therefore, it is proposed that the concept of readability is governed by the reading context.

To sum up, through the present study, it may be proposed that the concept of readability is an individual dynamic phenomenon relating to the interaction between reader factors and text factors that are governed by the reading context. As such, it is proposed that the concept of readability can be visualised by the following figure.

Figure 5.1: The new model of readability

This new model of readability proposes that the concept of the readability is influenced by the reader and text factors, and is bound by the context. This model is a dynamic model that can change when any component in the model changes. Thus, the elements in the reader and text factors are not fixed. The list of elements in the reader and text factors depend on the individual interaction between the readers and the text and its context. Given this, the term readability is defined as a complex matching process of dynamic interaction between the reader and the text factors that are bound by certain contexts.

5.6 Summary

This chapter has discussed the meaning and implications of the current study findings. The discussion began with the concept readability, which shows that there may be problems

when conducting readability research within the positivist paradigm. Thus, it is suggested that readability could be based on both points of views of the positivist and interpretivist paradigms mixed together. Next was the discussion regarding the factors that influence the concept of readability, which were influenced by the reader and text factors. The interaction between the reader and the text were also discussed, and followed by a further discussion of the implications of the interaction of the reader and the text and its influence on the concept of readability.

Chapter 6 – Conclusion

6.1 Introduction

This research has set out to explore the main factors operating during the interaction between a reader and a text that might influence the concept of readability. The research also aimed to develop a preliminary new theoretical model and a new definition of readability. The current chapter provides a summary of the key research findings from miscue analysis, retelling, interviews and legibility analysis. This chapter also considers the implications of the study for theory and practice. Finally, it acknowledges the limitations of this study, and suggests several recommendations for future research.

6.2 Overview of Key Research Findings

Chapter 5 presented in detail the research findings. In relation to the concept of readability the findings showed that readability research is still largely conducted in the positivist paradigm. There may, however, be problems when conducting readability research within the positivist paradigm. These problems are related to the reliability and validity of the formulae used to assess readability. Findings suggest that various readability formulae tend to produce significantly different results on the same text. In the study of the six formulae used in the present study, it was found that there was some consistency among the formulae. Nevertheless, the results showed that the consistency levels among the five formulae varied, and one of the formulae was not consistent in predicting the level of text

difficulty, as compared to rest of the formulae. In addition, findings also showed not only that the readability formulae vary in consistency, but also different formulae appear to assign the same text to a different grade level.

Aside from the above, the problems of conducting readability research within the positivist paradigm arise from the belief that the meaning of a text lies within the text itself and that the difficulty of the text can be counted using an objective estimation. These beliefs no longer appear to be relevant. This is because of paradigm shifts in research on reading and reading comprehension that have suggested that meaning construction is an interactive process, whereby the reader transacts with the text in a certain context. In other words, the meaning no longer lies within the text, and can no longer be estimated objectively only. Therefore, it can be seen that reading and reading comprehension research has moved to the interpretive paradigm. As such, since readability, reading and reading comprehension are closely related, it is suggested that readability research could be based on both point of views, namely the positivist and interpretivist paradigms mixed together.

This study concludes that the concept of readability is the process of matching the interaction between reader characteristics and text factors. This interaction is a dynamic phenomenon, as it can change depending on different contexts. Reader factors refer to a complex relationship of nine embedded elements within the reader, namely *interest, prior knowledge, attitudes, reading ability, motivation, purpose of reading, definition of reading, age, and gender*. Text factors include eight elements, namely *physical features of the text, genre, content, author's style, linguistic difficulties, legibility, illustrations, and text organization*. The term *context* refers to a variety of contexts that can influence the reader during reading, such as *current reading trend, environment, location, cultural and social*

background, social economic background, school policy, and government policy.

Therefore, readability needs to be conceived as a complex matching process involving the dynamic interaction between reader and text factors bounded by a certain context.

6.3 Concept of Readability

The overview of key research findings of this present study has indicated that previously the concept of readability has been derived only from research in the positivist paradigm and this has invited wide criticism. At some point the concept of readability appears to have lost its perceived utility in the matching of reader and text. Realising the limitations of previous research into readability, and the theoretical paradigm in which it has been conducted, in this study it has been suggested that a new conception of readability should be based on a combination of positivist and interpretivist paradigms.

Through the experience of conducting readability research by combining the positivist and interpretivist paradigms it has been found that conceptions of the interaction between a reader and a text seem to have changed because of changes in the way reading and reading comprehension are viewed. The concept of readability needs a fresh look.

In addition, the past decade or so has also seen vast changes in the nature of reading material itself, with concepts such as postmodernist text and electronic text having significant influence. New trends in reader-centred publishing have also emerged, one example of this being one UK based publisher (see www.barringtonstoke.co.uk) which has taken the step of sampling the reactions of their targeted audience as one way of judging the suitability (readability) of their publications for this audience.

Arising from this present study, therefore, I would like to argue that the concept of readability is still highly relevant albeit more complex than it was. The relevance stems

from the continuing need for an enhanced understanding of, and a more effective mechanism for, matching readers with texts in the light of huge changes in the concepts of reading and reading comprehension, the development of new types of text and the creative development of new ways to produce a suitable reading material. By developing a new definition and concept of readability that takes into consideration the reader, the text and the context in the matching process, I would argue that the notion of the readability is not outdated but amenable to new uses and fresh investigation. The concept of readability will be out of date when there is no longer the need to match a reader and a text, an activity in which teachers engage on most days of their professional lives. In addition, as long as there are new developments in types of text and in the ways in which readers interact with text, then an understanding of the process of reader-text matching, readability, will remain relevant.

6.4 The Contributions of the Research

The present study, despite its limitations, has contributed to the field of readability research in particular, and to reading and reading comprehension research in general. Important implications are described below.

6.4.1 Theoretical Contribution

This study has contributed to the understanding of the need for a paradigm shift in readability research. It has been argued that the current paradigm of readability research belongs mainly to the positivist paradigm with the belief that meaning is embedded in the text, and that the reader's role is to construct this meaning from the text. Therefore, readability within the positivist paradigm regards text difficulties as an objective estimation of the difficulty level of the reading material, derived from a specific formula, which takes

into account sentence and vocabulary difficulty. The results of the present study have shown that there may be several difficulties when conducting readability research within the positivist paradigm, for example, the fact that objective estimation of text difficulty level through readability formulae may face reliability and validity problems, and it does not include reader factors when considering text difficulties. In addition, the literature on the nature of reading and reading comprehension suggests a shift from the positivist to the interpretivist paradigm. As such, meaning is no longer seen to reside simply within the text, but appears when the reader transacts with the text in a certain context. However, the results of the present study have shown that there are still weaknesses when conducting readability research within the interpretive paradigm. These weaknesses concern the reliability and validity of the phenomenon of extracting reading and comprehension processes from the human mind. Evidence has shown that human beings cannot readily see what is happening in their head, and they can only talk about the things that they think about during the reading process (Xu, Cui & Chen, 2007). Related to all the above arguments, the present study's contributions can provide evidence of the need for a paradigm shift in readability research. Given this, it is suggested that readability research might be more effective when based on the combination of the positivist and interpretive paradigms. It is hoped that this evidence may be useful for future research.

6.4.2 Methodological Contribution

The present study, despite its limitations, has added methodological value to readability research, through the exploration of new methodological approaches to conducting such research. It may be suggested that readability research can be more effective when it is based on the combination of positivist and interpretive paradigms. The

positivist and interpretive paradigm both have their own methodological research approaches. As such, the combination of these two paradigms may provide opportunities for an exploration of new methodological approaches in readability research. Indeed, in the present study, it was assumed that within the positivist paradigm text difficulty and comprehensibility lay in the text itself, and readability formulae and text feature analysis were used to evaluate these, both objectively and quantitatively. On the other hand, it was also assumed that within the interpretive paradigm, text difficulty and comprehension lay with the reader of the text, and miscue analysis, retelling, and interviewing were used to elicit the reader's difficulties and comprehension qualitatively. Therefore, both the positivist and interpretive paradigms were applied in the present research design, such that readability research was conducted by using both paradigms concurrently and both approaches were given equal status. It is hoped that this new framework can be further developed and tested in future studies exploring readability research.

6.5 Implications for Practice

The current project has outlined a number of problems when matching readers and texts by using the positivist paradigm, and has indicated a potential solution through using both the positivist and interpretive paradigms complementarily. The implications of these findings are divided into the following sub-sections: (1) *Community of research*; (2) *Community of school*; and (3) *Community of the public*.

6.5.1 Community of Research

- The results of the present study invite researchers to look back and further explore the topic, as there are so many changes in reading and reading comprehension research which are closely related to and affected by the concept of readability.

- It was shown that the changes in the definitions of reading can affect the way readers comprehend. The changing ways in comprehension involve new reading skills and strategies. The involvement of new skills and strategies during reading affected the way readers interacted with the texts. Thus, it is argued that when the interaction between the reader and the text change, the way in which reader and text are matched must change as well. Therefore, since readability is research on matching the reader with the text, this can be an invitation for further research to explore a new perspective of readability, while taking into account the vast changes in reading and reading comprehension research.
- The results of the present study created consideration about text factors that can influence the concept of readability that can be more than just linguistic difficulties. The current study has highlighted that text factors that can affect the concept of readability include genre, author, legibility, illustrations, organization, content structure and physical features. These factors have been widely researched as elements that can make a text interesting; can made the readers chose to read the text or make the reader get engaged in their reading; that may reduce reader's difficulties in reading; influence the reader's comprehension; and may distinguish readers' reading preferences. Nevertheless, these issues have not been explored as elements that can affect the concept of readability, an argument which invites a new area of research to be conducted.
- A new dimension of the factors that influence the concept of readability has been created. The results of the present study have revealed that reader factors can be an important element in influencing the concept of readability. The embedded factors within the readers, such as their age, gender, interest, attitudes, motivation,

engagement, readability, prior knowledge, and purpose of reading, seemed to be the factors that most influenced readability. Research has shown that these factors are related to reader comprehension and reading achievement. Nonetheless, they have not been investigated as elements that influence readability. This also calls for future research to explore a new perspective of reader factors associated with the concept of readability.

- Queries were created regarding the current practice of doing research on text difficulty, which has been conducted separately from the research on the readers' difficulties. This can draw attention to the need for a combination of these two research fields, in order to establish more prominent findings regarding the causes that make the reading process to be a success or a failure.
- The findings of the current study further suggest that reader and text factors that can influence readability are bounded by a certain context, in which attention is drawn to the need to explore the context that can influence readability. Thus, a new area of research is invited for the investigation of context, which could change the way the readers and the text are matched.
- The results of the present study have shown a strong association between text factors preferences and readers' gender and age. Additionally, strong evidence regarding the difference of readers' factors that hindered or helped them to interact with the text was found. Thus, these differences are highlighted, so as to invite future research and to explore ways to overcome factors that hinder or help the successful process of reading caused by gender and age differences.
- Finally, another aim of the present study was to draw a theoretical model of readability. As such, it is suggested that future research can use this new theoretical

model of readability to the next level to investigate how to apply it into practice for anyone trying to find ways to match the readers with the texts.

6.5.2 Community of Education

- Policy makers like the regulators involved in providing books to schools, as well as schools' head teachers need to become aware of the concept of readability. They must know the general idea of the concept of readability, in order to generate the process of providing suitable reading materials in schools, by taking into consideration both reader and text factors.
- Policy makers need to develop their funding schemes, in order to allow further research on readability and find better solutions in providing suitable reading texts to pupils and schools, so that the reading process can be successful.
- Teacher training course organizers need to become aware of the need to include knowledge of the concept of readability as a part of their teachers' curriculum trainers in order to prepare their trainees with basic practice to provide suitable reading materials to their pupils.
- Teachers and teachers' trainees need to be exposed to the factors that influence the concept of readability. They must be aware of how each of these factors can affect text difficulty. They need to know about the importance of elements like genre, author, legibility, illustration, organization, content structure, and physical features of the text that can create difficulties for them when reading. In this way, they can provide suitable reading texts to their pupils. These expositions can be made with the teachers and the teachers' trainees' participation in short courses to update their knowledge on the latest practice for assessing text difficulty.

- Teachers and teachers' trainees should also become aware of the readers' factors that can have an important role in text difficulty. They must become aware of factors that are embedded within their pupils and that can affect text difficulties. They must know that certain factors are 'hidden' within their pupils, such as age, gender, interest, attitudes, motivation, engagement, readability, prior knowledge and purpose of reading, can highly influence text readability. It is important for teachers and teachers' trainees to know and understand the different factors embedded within the pupils and the pupils' different characteristics, so as to consider such factors when choosing texts and materials.
- Teachers and teachers' trainees need to become aware of the fact that there are different text preferences and elements that may hinder or help their pupils' ability to read, and these can be influenced by the pupils' age or/and gender. By considering the different needs of the pupils according to their age and gender, they can avoid forcing pupils to read inappropriate texts, and may have a better opportunity to provide effective and suitable texts to their pupils.

6.5.3 Community of the Public

- Librarians need to become more alert when stocking reading materials in their libraries. They need to become aware of the needs of their users by considering especially the users' age, gender, interests, attitudes, motivation, engagement, readability, prior knowledge, and purposes of reading, issues that may provide them with useful information when they consider different types of reading materials to be available in their libraries. Furthermore, librarians need to be familiar with text factors such as genre, authors, legibility, illustrations, organization, content

structure, and physical features of the texts so that to ensure they can make correct choice when selecting reading materials for their libraries.

- Publishers may consider the present study's results regarding the factors that made the participants choose a specific reading material. They may acknowledge that the majority of participants preferred to read small size books and the length of the stories should rather be below 100 pages. They can also benefit from the current study's results, which showed that the participants' preferences on the types and size of the font were influenced by their age and gender. Also, they may consider that readers' first impression regarding book covers can be an important element that makes them choose to read a specific book. In addition, the majority of the participants chose reading materials that included a blurb at the back of their covers. These findings regarding text physical features may benefit publishers in producing reading materials that can fulfil the needs of their audience and avoid issues that may prevent readers from choosing their published materials. Publishers can also consider the results of the present study, which regarded readers' factors that helped and hindered them from reading. By considering issues that can make the readers interested, motivated, and engaged in reading, they may use these issues to produce materials that would have a better chance of being chosen by the readers. In addition, by considering the different needs of their audience according to their age and gender, they may use such information to produce materials that are not designed strictly for a certain gender, and make these materials chosen by more readers.
- As with publishers, the authors of the books may also need to be aware of the concept of readability. By knowing readers and texts factors that can affect text

difficulty, they can become more aware of their audiences' needs when writing their stories.

6.6 Limitations of the Research

Several limitations of the current research study need to be acknowledged. Firstly, the distribution of the sample needs to be reconsidered. Although the sample included children from various age categories (six to eleven years old), teenagers and adult readers were not included. As such, the proposed new model of readability in the current study cannot portray a model for the whole age group of readers.

Secondly, although 32 children-participants were included, this sample number may be considered as limited for the purposes of statistical generalizations. In addition, the characteristics of the participants were considered according to their age and gender, without including other elements such as cultural and social background and location. Therefore, the results may lack evidence regarding contexts that can influence readability.

Another limitation that needs to be considered is related to the types of analyzed texts, which were only traditional texts. In the present study, the term traditional referred to the texts that were printed on the paper. Thus, the proposed readability model may only be related to traditional texts. Nowadays, multimodal texts have emerged. Multimodal texts are those that combine words with moving images, sounds, colours, and a range of photographs that are drawn or digitally created (Bearne & Wollstonecraft, 2007). This range of different types of texts requires different sets of skills and strategies for reading. The changes in reading skill and strategies can affect the way readers interact with the text, and therefore they can affect readability.

Also, postmodern texts were not included in the present study. A postmodern text is a text that is in traditional form, but has a non-traditional plot structure or nonlinear (Serafini, 2007). Like the multimodal text, the postmodernism text requires changing sets of skills and strategies while reading, which can affect readability.

A third limitation of the present study is related to the data collection methods, which included only miscue analysis, retelling, text analysis and interview, to observe the interaction between the participants and the texts. It could be more beneficial to video tape the interactions between participants and their texts. The recorded actions of the interactions could enrich the collected data, as it could provide elements regarding the gestures of the participants when they encounter difficulties when reading, or when they get excited when reading a certain part of the story. A further data collection method that could be used is the retrospective miscue analysis. This could explain the reasons that made the participants make their specific miscues, and could enrich the data regarding the struggle of the participants while reading certain words. Finally, think aloud methods could also help to better understand the strategies used by the participants during the interaction between themselves and the texts.

6.7 Recommendations for Future Research

Several recommendations may be made to strengthen the relevance and the validity of the present study's results. Firstly, future researchers can conduct further relevant studies with larger sample numbers, to achieve more generalizable results and to ensure validity and reliability. Moreover, future research can include a variety of participants' characteristics, including different social background, ethnicity, and location. Meanwhile, future research can include teenagers and adult reader participants in their sample, to

investigate the factors that may help or prevent them from reading, as well as to examine whether such data collected by teenagers, adults, and children readers have similarities or differences, and if so, how these can affect the proposed model of readability. Future research could also examine multimodal and postmodernism texts, in order to explore further factors or elements that can influence readability. In addition, comparison studies could be conducted, in order to explore similarities and differences in the factors or elements that affect readability in traditional, postmodernism and multimodal texts.

Thirdly, future research could explore the concept of readability by combining other research methods, such as video recording, think-aloud protocols and retrospective miscue analysis. With collected video recording data researchers can explore in depth readers' gestures when trying to overcome reading difficulties, or to examine the good practice of a good reader that can be related to readability. In addition, think-aloud protocol methods could enrich researchers' knowledge regarding the strategies the readers use during their interaction with the texts. The retrospective miscue analysis could also help researchers understand the quality of the readers' miscues and linguistic elements that help or hinder readers' comprehension.

Moreover, future research could explore this topic in different languages that use the alphabet to form their words and sentences, such as French, Spanish, German, Dutch and Malay. Next, researchers could carry out comparison studies to explore whether the concept of readability can be affected by different kinds of languages. In addition, future research could explore the topic in languages that use logographic figure to form their words and sentences, such as Mandarin, Japanese, and Korean, or Arabic languages to investigate factors that affect readability. Next, future researchers could conduct

comparison studies to examine readability in different types of language that use different types of word and sentence forms.

Lastly, future research coming from fields other than education, such as business, law, games, and *Human Computer Interaction* (HCI), could be conducted in order to examine the concept of readability according to different scientific fields. Next, researchers from different fields could cooperate and carry out comparison studies regarding the concept of readability to explore similarities and differences, and also to examine whether there is a unique concept of readability that can cross multidiscipline fields of research. Finally, future research can be conducted by combining text difficulties and readers' difficulties. This may ensure more noteworthy findings relating to the causes that make the reading process a success or a failure.

In conclusion, the present study has provided useful evidence regarding the changes in reading and reading comprehension research that in turn invites changes in the concept of readability. The present study's results can thus be considered as a starting point in the process of rethinking the debate on the concept of readability, which has remained 'neglected' and untouched by literacy communities for a number of years.

References

- Afflerbach, P., Pearson, P. D., & Paris, S. G. (2008). Clarifying Differences between Reading Skills and Reading Strategies. *The Reading Teacher*, 61(5), 364-373.
- Alexander, J. E., Filler, R. C., & International Reading, A. (1976). *Attitudes and reading*. Newark, Del: International Reading Association.
- Alexander, P. A., & Fox, E. (2004). A Historical Perspective on Reading Research and Practice. In R. B. Ruddell & N. Unrau (Eds.), *Theoretical Models and Processes of Reading* (Vol. 5th Edition, pp. 33-68). Newark, DE: International Reading Association.
- Alexander, P. A., Kulikowich, J. M., & Jetton, T. L. (1994). The Role of Subject-Matter Knowledge and Interest in the Processing of Linear and Nonlinear Texts. *Review of Educational Research*, 64(2), 201-252.
- Alexander, P. A., Kulikowich, J. M., & Schulze, S. K. (1994). The influence of topic knowledge, domain knowledge, and interest on the comprehension of scientific exposition. *Learning and Individual Differences*, 6(4), 379-397.
- Alvermann, D. E., Smith, L. C., & Readence, J. E. (1985). Prior Knowledge Activation and the Comprehension of Compatible and Incompatible Text. *Reading Research Quarterly*, 20(4), 420-436.
- Amsden, R. H. (1960). Children's Preferences in Picture Story Book Variables. *The Journal of Educational Research*, 53(8), 309-312.
- Anderson, G. J. (1990). *Fundamentals of educational research*. London: Falmer Press.
- Anmarkrud, Ø., & Bråten, I. (2009). Motivation for reading comprehension. *Learning and Individual Differences*, 19(2), 252-256.
- Anstey, M. I. (2002). "It's Not All Black and White": Postmodern Picture Books and New Literacies. *Journal of Adolescent & Adult Literacy*, 45(6), 444-457.
- Arditi, A., & Cho, J. (2005). Serifs and font legibility. *Vision Research*, 45(23), 2926-2933.
- Arditi, A., & Cho, J. (2007). Letter case and text legibility in normal and low vision. *Vision Research*, 47(19), 2499-2505.
- Arnold, H. (1982). *Listening to children reading / Helen Arnold*: Hodder and Stoughton in association with the United Kingdom Reading Association.

- Arnold, J. E., Brown-Schmidt, S., & Trueswell, J. (2007). Children's use of gender and order-of-mention during pronoun comprehension. *Language and Cognitive Processes*, 22(4), 527-565.
- Arnold, N., & Saules, T. d. (1996). *Blood, bones and body bits*. London: Hippo.
- Bachfischer, G., Robertson, T., & Zmijewska, A. (2006). *A framework towards understanding influences on the typographic quality of text*. Paper presented at the IADIS International Conference e-Society
- Badgett, B. A. (2010). *Toward the development of a model to estimate the readability of credentialing examination materials*. University of Nevada, Las Vegas.
- Baker, L., & Scher, D. (2002). Beginning readers' motivation for reading in relation to parental beliefs and home reading experiences. *Reading Psychology*, 23(4), 239-269.
- Baker, L., Scher, D., & Mackler, K. (1997). Home and family influences on motivations for reading. *Educational Psychologist*, 32(2), 69-82.
- Baker, L., & Wigfield, A. (1999). Dimensions of Children's Motivation for Reading and Their Relations to Reading Activity and Reading Achievement. *Reading Research Quarterly*, 34(4), 452-477.
- Baldwin, R. S., Peleg-Bruckner, Z., & McClintock, A. H. (1985). Effects of Topic Interest and Prior Knowledge on Reading Comprehension. *Reading Research Quarterly*, 20(4), 497-504.
- Barc, S. I. (1998). *Teaching Reading From Process To Practice*. Belmont, California: Wadworth Publishing Company.
- Barr, R. (1974). The Effect of Instruction on Pupil Reading Strategies. *Reading Research Quarterly*, 10(4), 555-582.
- Bazalgette, C. (2011). *Rethinking Text*. Paper presented at the UKLA 47th International Conference, Empowerment Through Literacy: Literacy Shaping Futures.
- Bearne, E., & Wolstencroft, H. (2007). *Visual approaches to teaching writing : multimodal literacy 5-11*. London: Paul Chapman.
- Beaugrande, R. A. d., & Dressler, W. U. (1981). *Introduction to text linguistics*. London: Longmans.
- Becker, M., McElvany, N., & Kortenbruck, M. (2010). Intrinsic and Extrinsic Reading Motivation as Predictors of Reading Literacy: A Longitudinal Study. *Journal of Educational Psychology*, 102(4), 773-785.

References

- Beebe, M. J. (1976). Case Studies of Grade-Level Effects on Children's Miscues and Reading Comprehension. *Canadian Journal of Education*, 1(2), 51-62.
- Beebe, M. J. (1980). The Effect of Different Types of Substitution Miscues on Reading. *Reading Research Quarterly*, 15(3), 324-336.
- Bieger, G. R. (1996). *Educational research : a practical approach / George R. Bieger, Gail J. Gerlach*: Delmar Publishers.
- Binkley, M. R. (1988). Readability It's Past, Present & Future. In B. L. Zakaluk & S. J. Samuels (Eds.), *Readability It's Past, Present & Future* (pp. 98-120). Newark, Delaware: International Reading Association.
- Blaikie, N. W. H. (2000). *Designing social research : the logic of anticipation*. Cambridge; Malden, Mass; Polity Press.
- Blishen, E., & Littlewood, K. (2003). *Science fiction stories*. London: Kingfisher.
- Blyton, E., & Digby, A. (1999). *The naughtiest girl: Keeps a secret*: London: Hodder Children's Book.
- Bormuth, J. R. (1966). Readability: A New Approach. *Reading Research Quarterly*, 1(3), 79-132.
- Bormuth, J. R. (1967). Cloze readability procedure. CSEIP Occasional Report No.1, Feb. 1967, University of California, Los Angeles.
- Bormuth, J. R. (1968). *Readability*. Paper presented at the New York: National Conference on Research in English.
- Bortolussi, M., Dixon, P., & Sopčák, P. Gender and reading. *Poetics*, 38(3), 299-318.
- Bragard, D. (2011). *Texts that Teach*. Paper presented at the UKLA 47th International Conference, Empowerment Through Literacy: Literacy Shaping Futures.
- Bråten, I., & Samuelstuen, M. S. (2004). Does the Influence of Reading Purpose on Reports of Strategic Text Processing Depend on Students' Topic Knowledge? *Journal of Educational Psychology*, 96(2), 324-336.
- Brooks, F., & Matthews, R. (2002). *Tales of King Arthur*. London: Usborne.
- Brookshire, J., Scharff, L. F. V., & Moses, L. E. (2002). The influence of illustrations on children's book preferences and comprehension. *Reading Psychology*, 23, 323-339.
- Brown, J., & Nash, S. (2003). *Stanley, flat again*. London: Egmont.

References

- Bruce, B., Rubin, A., & Starr, K. S. (1981). Why Readability Formulas Fail. *IEEE Transactions on Professional Communication, PC*(24), 50-52.
- Bryman, A. (2008). *Social research methods / Alan Bryman* (3rd ed. ed.): Oxford University Press.
- Butterworth. (2001). *An Investigation Into The Role Of Pictures In Young Children's Reading Comprehension*. University Of Sussex, Sussex.
- Cabot, M. (2008). *To the nines*. London: Macmillan.
- Cain, K. (2003). Text comprehension and its relation to coherence and cohesion in children's fictional narratives. *British Journal of Developmental Psychology* 21, 335-351.
- Callery, C. F. (2005). *An Investigation of Reading Intervention Programs in a Junior Secondary School Setting*. Australia Catholic University, Victoria.
- Campbell, R. (1973). *Miscue analysis : applications to reading instruction / edited by Kenneth S. Goodman Miscue analysis in the classroom / Robin Campbell*: ERIC Clearinghouse on Reading and Communication Skills United Kingdom Reading Association.
- Campbell, R. (1988). *Hearing children read*. London: Routledge.
- Campbell, R., & United Kingdom Reading, A. (1993). *Miscue analysis in the classroom*. Widnes: United Kingdom Reading Association.
- Carter, B. B. (1987). *A CONTENT ANALYSIS OF THE MOST FREQUENTLY CIRCULATED INFORMATION BOOKS IN THREE JUNIOR HIGH LIBRARIES*. Unpublished Ed.D., University of Houston, United States -- Texas.
- Chall, J. (1953). Ask Him to Try on the Book for Fit. *The Reading Teacher*, 7(2), 83-88.
- Chall, J. (1988). The beginning years. In B. L. Zakaluk & S. J. Samuels (Eds.), *Readability : its past, present, and future* (pp. 2-13). Newark, Del.: International Reading Association.
- Chall, J. S. (1947). This Business of Readability. *Educational Research Bulletin*, 26(1), 1-13.
- Chall, J. S. (1974). *Readability : an appraisal of research and application*. Epping, Essex: Bowker, for The College of Librarianship Wales.
- Chall, J. S., & Dale, E. (1995). *Readability revisited : the new Dale-Chall readability formula*. Cambridge, Mass.: Brookline Books.

References

- Chambers, F. (1983). Readability Formulae and the Structure of Text. *Educational Review*, 35(1), 3 - 13.
- Chapman, L., & Thompson, A. (2006). *Stolen magic*. London: Puffin.
- Chapman, L. J. (1987). *Reading from 5-11 Years*. London: Open University Press.
- Christie, J. F. (1981). The Effects of Grade Level and Reading Ability on Children's Miscue Patterns. *The Journal of Educational Research*, 74(6), 419-423.
- Clark, C., & Poulton, L. (2011). *Book ownership and its relation to reading enjoyment, attitudes, behaviour and attainment*: National Literacy Trust. (N. L. Trust o. Document Number)
- Clay, M. M. (1991). *Becoming literate : the construction of inner control* Portsmouth, N.H: Heinemann.
- Clay, M. M. (2000). *Running records: for classroom teachers*: Heinemann.
- Cohen, L., Manion, L., Morrison, K., & Dawson, B. (2007). *Research methods in education*. London: Routledge.
- Cohen, S. A., & Steinberg, J. E. (1983). Effects of Three Types of Vocabulary on Readability of Intermediate Grade Science Textbooks: An Application of Finn's Transfer Feature Theory. *Reading Research Quarterly*, 19(1), 86-101.
- Coleman, A., Brychta, A., Smith, S., & Chance, T. J. (2004). *Castles and knights*. Oxford: Oxford University Press.
- Coleman, A., & Brychta, A. C. A. (2004). *William's mistake*. [Oxford]: Oxford University Press.
- Coleman, A., & Levers, J. C. A. (2004). *The discovery*: Oxford University Press.
- Coleman, A., McKenna, T., & Littlewood, V. (1992). *The chimney sweep*. Oxford: Oxford University Press.
- Coles, M., & Hall, C. (2002). Gendered readings: learning from children's reading choices. *Journal of Research in Reading*, 25(1), 96-108.
- Cooper, M. B., Daglish, H. N., & Adams, J. A. (1979). Reader preference for report typefaces. *Applied Ergonomics*, 10(2), 66-70.
- Creswell, J. W. (2003). *Research design : qualitative, quantitative, and mixed methods approaches / John W. Creswell* (2nd ed. ed.): Sage.

References

- Creswell, J. W. (2008). *Educational research : planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
- Crossley, S. A. G., Jerry; McNamara, Danielle S. (2008). Assessing Text Readability Using Cognitively Based Indices. *TESOL Quarterly*, 42, 475-493.
- Crotty, M. (1998). *The foundations of social research : meaning and perspective in the research process / Michael Crotty*: SAGE.
- Dale, E., & Chall, J. (1949). The concept of readability. *Elementary English*, 26(19-26).
- Dale, E., & Chall, J. S. (1948). A Formula for Predicting Readability. *Educational Research Bulletin*, 27(1), 11-28.
- Dale, E., & O'Rourke, J. (1981). *The living word vocabulary : a national vocabulary inventory*. Chicago: World Book-Childcraft International.
- Dale, E., & Tyler, R. (1934). A Study of the Factor Influencing the Difficulty of Reading Materials for Adults of Limited Reading Ability In W. H. Dubay (Ed.), *Unlocking Language The Classic Readability Studies* (pp. 80-107). Costa Mesa, California: Impact Information.
- D'Angelo, K., & Mahlios, M. (1983). Insertion and Omission Miscues of Good and Poor Readers. *The Reading Teacher*, 36(8), 778-782.
- Dangelo, K., & Wilson, R. M. (1979). How Helpful Is Insertion and Omission Miscue Analysis? *The Reading Teacher*, 32(5), 519-520.
- Davenport, M. R. (2002). *Miscues not mistakes : reading assessment in the classroom*. Portsmouth, NH: Heinemann.
- Davey, B. (1988). The Nature of Response Errors for Good and Poor Readers When Permitted to Reinspect Text during Question-Answering. *American Educational Research Journal*, 25(3), 399-414.
- Davison, A., & Kantor, R. N. (1982). On the Failure of Readability Formulas to Define Readable Texts: A Case Study from Adaptations. *Reading Research Quarterly*, 17(2), 187-209.
- De Lange, R. W., Esteruizen, H. L., & Beatty, D. (1993). Performance differences between Times and Helvetica in a reading task. *Electronic Publishing*, 6(3), 241-248.
- Delanty, G. (2005). *Social science : philosophical and methodological foundations / Gerard Delanty* (2nd ed. ed.): Open University Press.

- Deshpande, R. (1983). "Paradigms Lost": On Theory and Method in Research in Marketing. *The Journal of Marketing*, 47(4), 101-110.
- Dillon, A. (1991). Readers' Models of Text Structures: the case of academic articles. *International Journal of Man-Machine Studies*, 35, 913-925.
- Dillon, A. (1992). Reading from paper versus screens: a critical review of the empirical literature. *Ergonomics*, 35(10), 1297-1326.
- Dillon, A., McKnight, C., & Richardson, J. (1990). Navigation in hypertext: a critical review of the concept. In D. Diaper, D. Gilmore, G. Cockton & B. Shackel (Eds.), *Human-Computer Interaction-INTERACT'90*. (pp. 587-592). North Holland: Amsterdam.
- Dole, J. A., Duffy, G. G., Roehler, L. R., & Pearson, P. D. (1991). Moving from the Old to the New: Research on Reading Comprehension Instruction. *Review of Educational Research*, 61(2), 239-264.
- Dubay, W. H. (2004). *The Principle of Readability*. Retrieved November 2009, from <http://www.impact-information.com/impactinfo/readability02.pdf>
- Dubay, W. H. (2007b). *Smart Language: Readers, Readability, and the Grading of Text*: Booksurge Llc.
- DuBay, W. H. (2007a). *Unlocking Language: The Classic Readability Studies*: Booksurge Llc.
- Duffy, T. M. (1985). Readability formulas: What's the use? . In T. M. Duffy & R. M. Waller (Eds.), *Designing Usable Texts* (pp. 113-143). New York: Academic Press.
- Durham, A. M. H. (1982). *THE EFFECTS OF READABILITY OF MATHEMATICAL MATERIALS ON ACHIEVEMENT IN AN EIGHTH GRADE MATHEMATICS CLASS*. Unpublished Educat.D., Texas Woman's University, United States -- Texas.
- Edwards, R. P. A., & Gibbon, V. (1964, 1973 2nd revised ed). *Words Your Children Use* London: Burke Books.
- Englert, C. S., & Semmel, M. I. (1981). The Relationship of Oral Reading Substitution Miscues to Comprehension. *The Reading Teacher*, 35(3), 273-280.
- Evans, J. (2011). *Picturebooks Shape Our Thoughts and our Futures: Exploring Controversial Picturebooks As Multimodal Texts*. Paper presented at the UKLA 47th International Conference, Empowerment Through Literacy: Literacy Shaping Futures.

References

- Eyles, P., Skelly, J., & Lou Schmuck, M. (2003). Evaluating patient choice of typeface style and font size for written health information in an outpatient setting. *Clinical Effectiveness in Nursing*, 7(2), 94-98.
- Fang, Z. (1995). On paradigm shift in reading/literacy research. *Reading Psychology*, 16(2), 215-260.
- Fang, Z. (1996). Illustrations, text, and the child reader. What are pictures in children's storybooks for? *Read. Horizons*, 37, 130-142.
- Feely, M., Rubin, G. S., Ekstrom, K., & Perera, S. (2005). Investigation into font characteristics for optimum reading fluency in readers with sight problems. *International Congress Series*, 1282, 530-533.
- Ferstl, E. C., & Cramon, v. D. Y. (2001). The role of coherence and cohesion in text comprehension: an event-related fMRI study. *Cognitive Brain Research* 11, 325-340.
- Filstead, W. J. (1979). Qualitative Methods: A Needed Perspective in Evaluation Research. In T. D. Cook, and Reichardt, Charles S (Ed.), *Qualitative and Quantitative Methods in Evaluation Research* (pp. 33-48). Beverly Hills, CA: Sage.
- Fisher, S. R. (2003). *A History of Reading*. London: Reaktions Book.
- Flesch, R. F. (1951). *How to test readability*. New York: Harper.
- Flowerday, T., Schraw, G., & Stevens, J. (2004). The Role of Choice and Interest in Reader Engagement. *The Journal of Experimental Education*, 72(2), 93-114.
- Fox, E., & Alexander, P. A. (2009). Text Comprehension: A Retrospective, Perspective, and Prospective. In S. E. Israel & G. G. Duffy (Eds.), *Handbook of Research on Reading Comprehension* (pp. 227-239). New York: Routledge.
- Frederick, H. V., & Stower, A. F. H. V. (2006). *For your paws only*. London: Puffin.
- French, V., & Collins, R. (2007). *The robe of skulls*. London: Walker.
- Fresch, M. J. (1995). Self-Selection of Early Literacy Learners. *The Reading Teacher*, 49(3), 220-227.
- Fry, E. (1977). Fry's Readability Graph: Clarifications, Validity, and Extension to Level 17. *Journal of Reading*, 21(3), 242-252.
- Fry, E. (1990). A Readability Formula for Short Passages. *Journal of Reading*, 33(8), 594-597.
- Fry, E. (2002). Readability versus Leveling. *The Reading Teacher*, 56(3), 286-291.

- Fry, E. B. (1987). The Varied Uses of Readability Measurement Today. *Journal of Reading*, 30(4), 338-343.
- Fuchs, L. S., Fuchs, D., & Deno, S. L. (1983). *The nature of inaccuracy among readability formulas*. Minneapolis: Institute for Research on Learning Disabilities. Minnesota Universityo. Document Number)
- Furrer, C., & Skinner, E. (2003). Sense of Relatedness as a Factor in Children's Academic Engagement and Performance. *Journal of Educational Psychology*, 95(1), 148-162.
- Gaffney, J. S., & Anderson, R. C. (2000). Trends in Reading Research in United State: Changing Intellectual Currents Over Three Decades. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds.), *Handbook of Reading Research* (Vol. III, pp. 53-98). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Gali, K. A. (1995). *CHILDREN MAKING CHOICES: HOW TWELVE STUDENTS FROM LITERATURE-BASED OR BASAL-BASED CLASSROOMS APPROACH BOOK SELECTION*. Unpublished Ed.D., Brigham Young University, United States -- Utah.
- Gambrell, L. B., Koskinen, P. S., & Kapinus, B. A. (1991). Retelling and the Reading Comprehension of Proficient and Less-Proficient Readers. *The Journal of Educational Research*, 84(6), 356-362.
- Gambrell, L. B., Pfeiffer, W. R., & Wilson, R. M. (1985). The Effects of Retelling upon Reading Comprehension and Recall of Text Information. *The Journal of Educational Research*, 78(4), 216-220.
- Gibson, E. J., & Levin, H. (1975). *The Psychology of reading*. Cambridge, Mass.: MIT Press.
- Gilliland, J., & United Kingdom Reading Association. United Kingdom Reading, A. (1972). *Readability*. London: University of London Press for the United Kingdom Reading Association.
- Gilmore, C. P. (1985). *CHILDREN'S SELECTION PREFERENCES BASED ON THE COLOR, SIZE, AND THICKNESS OF BOOKS*. Unpublished Educat.D., Northern Arizona University, United States -- Arizona.
- Goldstone, B. P. (2001). Whaz up with Our Books? Changing Picture Book Codes and Teaching Implications. *The Reading Teacher*, 55(4), 362-370.
- Goodman, K. S. (1970). Reading: A Psycholinguistic Guessing Game. In H. Singer & R. B. Ruddell (Eds.), *Theoretical Models and Processes of Reading* (pp. 259-271). Newark, DE: International Reading Association.

References

- Goodman, K. S. (1975). The reading process. In F. V. Gollasch (Ed.), *Language and Literacy: Selected Writings of Kenneth Goodman*. London: Routledge.
- Goodman, K. S. (1977). *Miscue analysis : applications to reading instruction*. U.S.A.: Nat. Council of Teachers of English.
- Goodman, K. S. (1981). *Interactive processes in reading / edited by Alan M. Lesgold, Charles A. Perfetti Language & literacy 82*: Lawrence Erlbaum Associates.
- Goodman, K. S. (1996). *On reading*. Portsmouth, NH: Heinemann.
- Goodman, K. S., & Burke, C. L. (1973). *Theoretically based studies of patterns of miscues in oral reading performance* Washington, DC: US: Department of Health, Education, and Welfare, Office of Education, Bureau of Researcho. Document Number)
- Goodman, Y. M., Watson, D. J., & Burke, C. L. (1987). *Reading miscue inventory : alternative procedures*. New York: R.C. Owen Publishers.
- Goodman, Y. M., Watson, D. J., & Burke, C. L. (2005). *Reading miscue inventory: from evaluation to instruction*. Katonah, N.Y.: Richard C. Owen Publishers.
- Graesser, A. C., Haut-Smith, K., Cohen, A. D., & Pyles, L. D. (1980). Advanced Outlines, Familiarity, and Text Genre on Retention of Prose. *The Journal of Experimental Education*, 48(4), 281-290.
- Greenlee, A. A. (1992). *A COMPARISON OF SIXTH-GRADERS' RESPONSES TO WELL-REVIEWED AND FORMULA SERIES BOOKS*. Unpublished Ph.D., University of Minnesota, United States -- Minnesota.
- Gregg, S. (2007). *Mystic and the midnight ride*. London: HarperCollins Children's.
- Gregory, I. (2003). *Ethics in research / Ian Gregory*: Continuum.
- Grimm, J., Grimm, W., Gordon, M., & Kelly, A. (2007). *The magic porridge pot*. London: Usborne.
- Grogan, J. (2009). *Marley : a dog like no other*. Bath: Galaxy.
- Gunning, T. G. E. (2003). The Role of Readability in Today's Classrooms. *Language Disorders* 23(3), 175-189.
- Guthrie, J. (2004). Teaching for Literacy Engagement. *Journal of Literacy Research*, 36(1), 1-29.
- Guthrie, J., & Cox, K. (2001). Classroom Conditions for Motivation and Engagement in Reading. *Educational Psychology Review*, 13(3), 283-302.

- Guthrie, J., & Wigfield, A. (2000). Engagement and Motivation in Reading. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds.), *Handbook of Reading Research* (Vol. 3, pp. 403-424). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Guthrie, J. T., Hoa, A. L. W., Wigfield, A., Tonks, S. M., Humenick, N. M., & Littles, E. (2007). Reading motivation and reading comprehension growth in the later elementary years. *Contemporary Educational Psychology*, 32(3), 282-313.
- Guthrie, J. T., Solomon, A., & Rinehart, J. M. (1997). Literacy Issues in Focus: Engagement in Reading for Young Adolescents. *Journal of Adolescent & Adult Literacy*, 40(6), 438-446.
- Guthrie, J. T., van Meter, P., McCann, A. D., Wigfield, A., Bennett, L., Poundstone, C. C., et al. (1996). Growth of literacy engagement: Changes in motivations and strategies during concept-oriented reading instruction. *Reading Research Quarterly*, 31(3), 306-332.
- Gutteridge, A., & Hudson, A. G. A. (2002). *Cats and hats*. London: Macmillan Children's.
- Hall, K. (2003). *Listening to Stephen read : multiple perspectives on literacy / Kathy Hall*: Open University Press.
- Halliday, M. A. K., & Hasan, R. (1976). *Cohesion in English* Essex: Longman.
- Hammersley, M. (1992). Review: The Paradigm Wars: Reports from the Front. *British Journal of Sociology of Education*, 13(1), 131-143.
- Hammersley, M. (1996). The Relationship between Qualitative and Quantitative Research: Paradigm Loyalty versus Methodological Eclecticism. In J. T. E. Richards (Ed.), *Handbook of Research Method for Pscyhology and the Social Science* (pp. 168). Leicester: BPS Book.
- Hansen, C. L. (1978). Story Retelling Used with Average and Learning Disabled Readers as a Measure of Reading Comprehension. *Learning Disability Quarterly*, 1(3), 62-69.
- Harris, S., Nixon, J., & Rudduck, J. (1993). School Work, Homework and Gender. *Gender and Education*, 5(1), 3-15.
- Harris, T. (1995). Genre. *he Journal of American Folklore*, 108, 509-527.
- Harris, T. L., Hodges, R. E., & International Reading, A. (1995). *The literacy dictionary : the vocabulary of reading and writing*. Newark, Del.: International Reading Association.

- Harrison, C. (1973). *Psycholinguistics and reading understanding reading development / Colin Harrison*: Holt, Rinehart and Winston SAGE.
- Harrison, C. (1977). Investigating the Readability of Texts. *Research Intelligence*, 3(1), 44-47.
- Harrison, C. (1980). *Readability in the classroom / Colin Harrison*: Cambridge University Press.
- Harrison, C. (1984). Readability in the United Kingdom. *Journal of Reading*, 29(6), 521-529.
- Harrison, C. (2000). Reading Research in the United Kingdom. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds.), *Handbook of Reading Research* (Vol. III, pp. 17-28). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Harrison, C. (2004). *Understand reading development*. London: Thousand Oaks: SAGE.
- Harrison, S., & Bakker, P. (1998). Two new readability predictors for the professional writer: pilot trials. *Journal of Research in Reading*, 21(2), 121-138.
- Hellman, P. (2003). The Role of Postmodern Picture Books in Art Education. *Art Education*, 56(6), 6-12.
- Hempenstall, K. The three-cueing model: Down for the count? [Electronic Version], p.1-21. Retrieved 23rd November 2009, from <http://www.ednews.org/articles/the-three-cueing-model-down-for-the-count.html>
- Heneghan, J. (2002). *The grave*. London: Corgi.
- Hidi, S. (1990). Interest and Its Contribution as a Mental Resource for Learning. *Review of Educational Research*, 60(4), 549-571.
- Hidi, S. (2001). Interest, Reading, and Learning: Theoretical and Practical Considerations. *Educational Psychology Review*, 13(3), 191-209.
- Hiebert, E., & Mesmer, H. A. E. (2006). Perspectives on difficulty of beginning reading Texts. In D. K. Dickinson & S. B. Neuman (Eds.), *Handbook of Early Literacy Research* (Vol. 2, pp. 395-409). London: Guilford.
- Hinton, N., & Sharp, A. H. N. (1997). *Beaver Towers : the dangerous journey*. London: Puffin.
- Hissey, J. (1994). *Old Bear*. London: Red Fox.
- Hoffman, & Library, A. (1997). *Stacks of stories : a Library Association anthology*. London: Hodder Children's.

- Hoffman, M. (2003). *Stravaganza : city of stars*. New York: Bloomsbury.
- Hofman, R., & Van Oostendorp, H. (1999). Cognitive Effects of a Structural Overview in a Hypertext. *British Journal of Educational Technology*, 30(2), 129-140.
- Hollyer, B. (2007). *Secrets, lies and my sister Kate*. London: Orchard.
- Hooper, M., & Straaten, H. v. (1999). *The never-ending birthday*. Hove: Macdonald Young.
- Horn, R. v. (2004). Typefaces. *The Phi Delta Kappan*, 85(10), 727-795.
- Hughes, L. E., & Wilkins, A. J. (2000). Typography in children's reading schemes may be suboptimal: Evidence from measures of reading rate. *Journal of Research in Reading*, 23(3), 11.
- Hunt, R., & Brychta, A. (1995). *Oxford reading tree. Stage 2 : More wrens: Who did that?* Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (1999). *The broken roof*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2002). *Andy the hero*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2003). *Dutch adventure*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Can you see me?* Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Creepy-crawly!* Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *The dragon dance*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Look smart*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *The magic key*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Oxford reading tree. Stage 3: More stories pack A: The snowman*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Strawberry jam*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Underground adventure*. Oxford: Oxford University Press.
- Hunt, R., & Brychta, A. (2008). *Who did that?* Oxford: Oxford University Press.
- Hutton, S., & Jones, A. F. (2004). *Kiss & kill*. London: Collins.

- Irwin, J. W., & Davis, C. A. (1980). Assessing Readability: The Checklist Approach. *Journal of Reading*, 24(2), 124-130.
- Irwin, P. A., & Mitchell, J. N. (1983). A Procedure for Assessing the Richness of Retellings. *Journal of Reading*, 26(5), 391-396.
- Israel, S. E., & Duffy, G. G. (2009). *Handbook of research on reading comprehension*. New York ; London: Routledge.
- James, R. (2010). An Assessment of the Legibility of Google Books. *Journal of Access Services*, 7(4), 223 - 228.
- Janan, D., Pope, M., & Wray, D. (2010). Paradigms in readability. In *International Journal of Art and Sciences*, IJAS CD-ROM G 3[17]:19-29 [2010]
- Janan, D., Pope, M., & Wray, D. (2011). The Paradigms in Readability Research. In G. Socarras & A. Medina (Eds.), *Philological Research* (pp. 91-101). Athens, Greece: Athens Institute of Education and Research.
- Janan, D. & Wray, D. (2011). *Principles of language accessibility for test developers in charge of writing test items for National Curriculum Assessments*. Coventry, United Kingdom. (Ofqual: Office of Qualifications and Examinations Regulation: Ofqual/11/4855)
- Johnson, B., & Christensen, L. B. (2008). *Educational research : quantitative, qualitative, and mixed approaches*. London: SAGE.
- Johnston, P. (1984). Prior Knowledge and Reading Comprehension Test Bias. *Reading Research Quarterly*, 19(2), 219-239.
- Just, M. A., & Carpenter, P. A. (1987). *The psychology of reading and language comprehension*. Boston ; London: Allyn and Bacon.
- Kamil, M. L., Afflerbach, P., Pearson, P. D., & Moje, E. B. (2011). Preface: Reading Research in a Changing Era: An Introduction to the Handbook of Reading Research. In M. L. Kamil, P. Afflerbach, P. D. Pearson & E. B. Moje (Eds.), *Handbook of Reading Research* (Vol. IV, pp. xiii-xxvi). New York: Routledge.
- Keenan, J., Baillet, S., & Brown, P. (1984). The Effects of Causal Cohesion on Comprehension and Memory. *Journal of Verbal Learning and Verbal Behaviour*, 23, 115-126.
- Keith, J. (1998). Readability [Electronic Version]. Retrieved April 2011, from <http://www.timetabler.com/reading.html>
- Kendeou, P., Muis, K. R., & Fulton, S. Reader and text factors in reading comprehension processes. *Journal of Research in Reading*, no-no.

- Kendeou, P., Muis, K. R., & Fulton, S. (2010). Reader and text factors in reading comprehension processes. *Journal of Research in Reading* 2010(2), 1-19.
- Kendeou, P., & van den Broek, P. (2005). The role of readers' misconceptions on comprehension of scientific text. *Journal of Educational Psychology*, 97(2), 235-245.
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research* London: Harcourt College Publishers.
- Kintsch, W. (1980). Learning From Text, Levels Of Comprehension, Or: Why Anyone Would Read A Story Anyway. *Poetics* 9, 87-98.
- Kintsch, W., Kozminsky, E., Streby, W. J., McKeon, G., & Keenan, J. (1975). Comprehension and Recall of Text as a Function of Content Variables. *Journal of Verbal Learning and Verbal Behavior*, 14, 196-214.
- Kintsch, W., & van DIJK, T. A. (1978). Towards a Model of Text Comprehension and Production. *Psychological Review*, 85, 363-394.
- Kintsch, W., & Vipond, D. (1977). *Reading comprehension and readability in educational practice and psychological theory*. Paper presented at the Proceedings of the Conference on Memory.
- Kintsch, W., & Vipond, D. (1979). Reading Comprehension and Readability in Educational Practice and Psychological Theory. In L. G. Nilson (Ed.), *Memory Processes and Problems* (pp. 329-365). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Kirby, J. R., Ball, A., & Geier, B. K. (2010). The development of reading interest and its relation to reading ability. *2010*, 33(1), 1-17.
- Klare, G. R. (1963). *The Measurement of Readability. [With a bibliography.]*. Ames: Iowa State University Press.
- Klare, G. R. (1969). *The measurement of readability*. Ames, Iowa: Iowa State University Press.
- Klare, G. R. (1974). Assessing Readability. *Reading Research Quarterly*, 10(1), 62-102.
- Klare, G. R. (1976). A second look at the validity of readability formulas. *Journal of Reading Behavior*, 8(2), 129 - 152.
- Klare, G. R. (1988). The formative years. In B. L. Zakaluk & S. J. Samuels (Eds.), *Readability It's Past, Present & Future* (pp. 14-34). Newark, Delaware.

- Klare, G. R. (1996). *Introduction to social psychology : a European perspective / edited by Miles Hewstone, Wolfgang Stroebe, Geoffrey M. Stephenson How to write readable English / George R. Klare* (2nd ed.5th ed. ed.): Blackwell Hutchinson.
- Koenke, K. (1971). Another Practical Note on Readability Formulas. *Journal of Reading*, 15(3), 203-208.
- Kotmel, A. (1996). Hypertext vs. Papertext: Linear vs. Non-Linear. from <http://www.rpi.edu/dept/llc/webclass/web/filigree/kotmel/linear.html>
- Kotula, A. W. E. Matching Readers to Instructional Materials: The Use of Classic Readability Measures for Students with Language Learning Disabilities and Dyslexia. *SO - Topics in Language Disorders July/August/September 2003;23(3):190-203*.
- Kragler, S. (2000). Choosing Books for Reading: An Analysis of Three Types of Readers. *Journal of Research in Childhood Education*, 14(2), 133-141.
- Krippendorff, K. (2004). *Content analysis : an introduction to its methodology / Klaus Krippendorff* (2nd ed. ed.): Sage.
- Kucer, S. B. (2010). Going beyond the author: what retellings tell us about comprehending narrative and expository texts. *Literacy*, 44(2), 1-8.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Kuhn, T. S. (1977). *The essential tension : selected studies in scientific tradition and change / Thomas S. Kuhn*: University of Chicago Press.
- Kuzu, E. B., & Ceylan, B. (2010). Typographic properties of online learning environments for adults. *Procedia Social and Behavioral Sciences*, 9, 879-883.
- Langer, J. A. (1984). Examining Background Knowledge and Text Comprehension. *Reading Research Quarterly*, 19(4), 468-481.
- Leemans, H., & Stokmans, M. (1991). Attributes used in choosing books. *Poetics*, 20, 487-505.
- Leslie, L., & Cladwell, J. (2009). Formal and Informal Measures of Reading Comprehension. In S. E. Israel & G. G. Duffy (Eds.), *Handbook of Research on Reading Comprehension* (pp. 677). New York: Routledge.
- Lewis, D. H. (1994). *The Metafictive In Picture Books: A Theoretical Analysis Of The Nature And Origins Of Contemporary Children's Picture Books. With Case Studies Of Children Reading Picture Book Texts*. University of London London.

References

- Linderholm, T. & Van Den Broek, P. (2002) The effects of reading purpose and working memory capacity on the processing of expository text. *Journal of Educational Psychology*, 94(4), 778-784.
- Lively, B. A., & Pressey, S. L. (1923). A Method for Measuring the "Vocabulary Burden" of Textbooks. In W. H. Dubay (Ed.), *Unlocking Language the Classic Readability Studies* (pp. 46-55). Costa Mesa, California: Impact Information.
- Lively, P., & Lewis, A. (1995). *A Martian comes to stay*. Hemel Hempstead: Macdonald Young Books.
- Livingston, J. E. (2006). *EXPLORING DIFFERENCES IN CHILDREN'S ORAL READINGS OF AUTHENTIC CHILDREN'S LITERATURE AND COMMERCIALY PUBLISHED LEVELED TEXTS*. Unpublished Ed.D., Wayne State University, United States -- Michigan.
- Logan, S., & Johnston, R. (2009). Gender differences in reading ability and attitudes: examining where these differences lie. *Journal of Research in Reading*, 32(2), 199-214.
- Logan, S., Medford, E., & Hughes, N. The importance of intrinsic motivation for high and low ability readers' reading comprehension performance. *Learning and Individual Differences*, 21(1), 124-128.
- Lorge, I. (1944). Predicting Readability. In W. H. Dubay (Ed.), *Unlocking language the classic readability studies* (pp. 168-187). Costa Mesa, California: Impact Information.
- Lund, O. (1999). *Knowledge construction in typography: the case of legibility research and the legibility of san serif typeface*. University of Reading, Reading.
- Lustig, C., & Hasher, L. (2002). Working Memory Span: The Effect of Prior Learning. *The American Journal of Psychology*, 115(1), 89-101.
- MacDonald, A., & Cope, J. (2005). *The goalie from nowhere*. Oxford: Oxford University Press.
- MacDonald, A., & Smy, P. (2006). *Nothing but trouble*. London: A & C Black.
- Mackey, M. (2011). *Powerful Spaces, Changing Times, and Grounded Literacies*. Paper presented at the UKLA 47th International Conference, Empowerment Through Literacy: Literacy Shaping Futures.
- Mandler, J. M., & Johnson, N. S. (1977). Remembrance of things parsed: Story structure and recall. *Cognitive Psychology*, 9(1), 111-151.

- Mandler, J. M. J. (1977). Remembrance of things parsed: Story structure and recall. *Cognitive Psychology*, 9, 111-151.
- Mansfield, S., Legge, G. E., & Bane, M. C. (1996). Psychophysics of Reading XV: Font Effects in Normal and Low Vision. *Investigative Ophthalmology & Visual Science*, 37(8), 1492-1501.
- Martínez, R. S., Aricak, O. T., & Jewell, J. (2008). Influence of reading attitude on reading achievement: A test of the temporal-interaction model. *Psychology in the Schools*, 45(10), 1010-1023.
- Mason, J., & Stephens, S. H. (2005). *Who's the fairest? (Princess school)*. London: Scholastic.
- Mathewson, G. C. (1994). Model of attitude influence upon reading and learning to read. In R. B. Ruddell, M. R. Ruddell & H. Singer (Eds.), *Theoretical models and processes of reading* (pp. 1131-1161). Newark, DE: International Reading Association.
- Maxwell, M. (1978). Readability: Have We Gone Too Far? *Journal of Reading*, 21(6), 525-530.
- McConnell, C. (1983). Readability: Blind Faith in Numbers? *The Journal of Economic Education*, 14(1), 65-71.
- McCrudden, M. T., & Schraw, G. (2007). Relevance and Goal-Focusing in Text Processing. *Educational Psychology Review*, 19, 113-139.
- McDonough, J. (2003). *Materials and methods in ELT : a teacher's guide / Jo McDonough and Christopher Shaw* (2nd ed. ed.): Blackwell Pub.
- McDonough, J., & Shaw, C. (1993). *Materials and methods in ELT : a teacher's guide*. Oxford, UK ; Cambridge, USA: Blackwell.
- McKenna, M. C., Kear, D. J., & Ellsworth, R. A. (1995). Children's Attitudes toward Reading: A National Survey. *Reading Research Quarterly*, 30(4), 934-956.
- McKenna, M. C., & Picard, M. C. (2006). Assessment: Revisiting the Role of Miscue Analysis in Effective Teaching. *The Reading Teacher*, 60(4), 378-380.
- McLaughlin, G. H. (1968). Proposals for British readability measures in The Third International Reading Symposium [Electronic Version], 186-205. Retrieved June 2011, from http://webpages.charter.net/ghal/Proposals_for_British_Readability_Measures.pdf
- McLaughlin, G. H. (1969). SMOG grading - a new readability formula. *Journal of Reading*(13), 639-646.

- McNamara, S. G. (1980). *RESPONSES OF FOURTH AND SEVENTH GRADE STUDENTS TO SATIRE AS REFLECTED IN SELECTED CONTEMPORARY PICTURE BOOKS*. Unpublished Ph.D., Michigan State University, United States -- Michigan.
- Meade, C. D., & Smith, C. F. (1991). Readability Formulas: Cautions and Criteria. *Patient Education and Counseling*, 17, 153-158.
- Melling, D. (2004). *The ghost library*. London: Hodder Children's.
- Merisuo-Storm, T. (2006). Girls and Boys Like to Read and Write Different Texts. *Journal of Educational Research*, 50(2), 111-125.
- Mesmer, H. A. E. (1984). *Handbook of reading research / editor, P. David Pearson [and] section editors, Rebecca Barr, Michael L. Kamil, Peter Mosenthal Tools for matching readers to texts : research-based practices / Heidi Anne E. Mesmer*. Longman Guilford Press.
- Meyer, B. J. F. (2003). Text Coherence and Readability. *Topics in Language Disorders*, 23(3), 204-224.
- Meyer, B. J. F., & Freedle, R. O. (1984). Effects of Discourse Type on Recall. *American Educational Research Journal*, 21(1), 121-143.
- Meyer, B. J. F., Marsiske, M., & Willis, S. L. (1993). Text Processing Variables Predict the Readability of Everyday Documents Read by Older Adults. *Reading Research Quarterly*, 28(3), 235-249.
- Meyer, B. J. F. P. Text Coherence and Readability. *SO - Topics in Language Disorders July/August/September 2003;23(3):204-224*.
- Miles, M. B. (1994). *Qualitative data analysis : an expanded sourcebook / Matthew B. Miles, A. Michael Huberman* (2nd ed. ed.): Sage.
- Millard, E. (1993). *Reading the difference : gender and reading in the primary school / edited by Myra Barrs and Sue Pidgeon Differently literate : boys, girls, and the schooling of literacy / Elaine Millard*: CLPE Falmer Press.
- Miller, W. R. (1962). Readability versus Reading Ability. *The Journal of Educational Research*, 56(4), 205-209.
- Milone, M. (2008). *The development of ATOS: The renaissance readability formula*. Madison, WI: Renaissance Learning, Inc.o. Document Number)
- Mitchell, D. C. (1982). *The process of reading : a cognitive analysis of fluent reading and learning to read / D.C. Mitchell*: Wiley.

References

- Mohr, K. A. J. (2003). Children's choices: a comparison of book preferences between hispanic and non-hispanic first-graders. *Reading Psychology, 24*(2), 163 - 176.
- Mohr, K. A. J. (2006). Children's Choices for Recreational Reading: A Three-Part Investigation of Selection Preferences, Rationales, and Processes. *Journal of Literacy Research, 38*(1), 81-104.
- Moravcsik, J., E., & Kintsch, W. (1993). Writing Quality, Reading Skills, and Domain Knowledge as Factors in Text Comprehension. *Canadian Journal of Experimental Psychology, 47*(2), 360-374.
- Moret-Tataya, C., & Perea, M. (2011). Do serifs provide an advantage in the recognition of written words? *Journal of Cognitive Psychology, 1*-6.
- Morpurgo, M., & Birmingham, C. (2007). *The butterfly lion*. London: HarperCollins Children's Books.
- Morrow, L. M. (1985). Retelling Stories: A Strategy for Improving Young Children's Comprehension, Concept of Story Structure, and Oral Language Complexity. *The Elementary School Journal, 85*(5), 647-661.
- Morrow, L. M. (1988). Retelling stories as a diagnostic tool. In S. M. Glazer, L. W. Searfoss & L. M. Gentile (Eds.), *Reexamining reading diagnosis : new trends and procedures* (pp. 128 - 149). Newark, Del: International Reading Association.
- Moss, B. (1997). A qualitative assessment of first graders' retelling of expository text. *Reading Research and Instruction, 37*(1), 1-13.
- Moss, B. (2004). Teaching Expository Text Structures through Information Trade Book Retellings. *The Reading Teacher, 57*(8), 710-718.
- Moss, G. (1999). Texts in context: mapping out the gender differentiation of the reading curriculum. *Pedagogy, Culture & Society, 7*(3), 507-522.
- Moss, G., & McDonald, J. W. (2004). The borrowers: library records as unobtrusive measures of children's reading preferences. *Journal of Research in Reading, 27*(4), 401-412.
- Mucherah, W., & Yoder, A. (2008). Motivation for Reading and Middle School Students' Performance on Standardized Testing in Reading. *Reading Psychology, 29*(3), 214-235.
- NAEP. (2009). *Reading Framework for the 2009 National Assessment of Educational Progress*. Washington, DC: National Assessment Governing Board, U.S. Department of Education. (Document Number)

- Narvaez, D., van den Broek, P., & Ruiz, A. B. (1999). The Influence of Reading Purpose on Inference Generation and Comprehension in Reading. *Journal of Educational Psychology*, 91(3), 488-496.
- Nuttall, C. E. (1996). *Teaching reading skills in a foreign language / Christine Nuttall ; with a chapter on testing reading by J. Charles Alderson* (New ed. ed.): Heinemann.
- Nuttall, C. E., & Alderson, J. C. (2005). *Teaching reading skills in a foreign language*. Oxford: Macmillan Education.
- Oakhill, J. V., & Petrides, A. (2007). Sex differences in the effects of interest on boys' and girls' reading comprehension. *British Journal of Psychology*, 98(2), 223-235.
- Oakland, T., & Lane, H. B. (2004). Language, Reading, and Readability Formulas: Implications for Developing and Adapting Tests. *International Journal of Testing*, 4(3), 239-252.
- O'Brien, D. G. (1988). The relation between oral reading miscue patterns and comprehension a test of the relative explanatory. *Journal of Psycholinguistic Research*, 17, 379-401.
- Oppenheim, A. N. (1992). *Questionnaire design, interviewing, and attitude measurement*. London: Pinter.
- Oppenheim, A. N. (2000). *Questionnaire design, interviewing and attitude measurement / A.N. Oppenheim* (New ed. ed.): Continuum.
- Oxridge, P. (2006). *Justin Thyme (Tartan of Thyme)*: Great Britin: Interrobang.
- Ozuru, Y., Dempsey, K., & McNamara, D. S. (2009). Prior knowledge, reading skill, and text cohesion in the comprehension of science texts. *Learning and Instruction*, 19(3), 228-242.
- Pallant, J. (2007). *SPSS survival manual*. Maidenhead: Open University Press.
- Pang, J. (2008). Research on good and poor reader characteristics: Implications for L2 reading research in China. *Reading in a Foreign Language* 20(1), 1-18.
- Paolini, C. (2004). *Eragon* Paolini, Christopher. London: Doubleday.
- Pappas, C. C. (1990). *Young Children's Discourse Strategies in Using the Story and Information Book Genres: An Analysis of Kindergartners' Understandings of Co-Referentiality and Co-Classification*.

References

- Paris, S. G., & Hamilton, E. E. (2009). The Development of Children' Reading Comprehension. In S. E. Israel & G. G. Duffy (Eds.), *The Development of Children's Reading Comprehension* (pp. 32-53). New York: Routledge.
- Paris, S. G., & Oka, E. R. (1986). Children's reading strategies, metacognition, and motivation. *Developmental Review*, 6(1), 25-56.
- Patton, M. Q. (1975). *Alternative Evaluation Research Paradigm*: Center for Teaching and Learning, University of North Dakota, Grand Forks, North Dakota 58201 (\$2.00).
- Patton, M. Q. (1987). *How to use qualitative methods in evaluation / Michael Quinn Patton*: Sage.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods / Michael Quinn Patton* (2nd ed. ed.): Sage.
- Patton, M. Q. (1997). *Utilization-focused evaluation : the new century text / Michael Quinn Patton* (3rd ed. ed.): SAGE.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods / Michael Quinn Patton* (3rd ed. ed.): Sage.
- Patty, W. W., & Painter, W. I. (1931). A Technique for Measuring the Vocabulary Burden of Textbooks. In W. H. Dubay (Ed.), *Unlocking Language The Classic Readability Studies* (pp. 69-77). Costa Mesa, California: Impact Information.
- Paz, S. H., Liu, H., Fongwa, M. N., Morales, L. S., & Ron, D. H. (2009). Readability Estimates for Commonly Used Health-Related Quality of Life Surveys. *Quality of Life Research*, 18(7), 889-900.
- Pearman, C. J. (2008). Independent Reading of CD-ROM Storybooks: Measuring Comprehension with Oral Retellings. *The Reading Teacher*, 61(8), 594-602.
- Pearson, P. D. (2009). The Roots of Reading Comprehension Instruction. In S. E. Israel & G. G. Duffy (Eds.), *Handbook of Research on Reading Comprehension* (pp. 3-31). New York: Routledge.
- Pearson, P. D., Barr, R., & Kamil, M. L. (1996). *Handbook of reading research*. Mahwah, N.J.: Lawrence Erlbaum Associates.
- Pearson, P. D., & Hamm, D. N. (2005). The Assessment of Reading Comprehension: A Review of Practices - Past, Present, and Future. In S. G. Paris & S. A. Stahl (Eds.), *Children's Reading Comprehension* (pp. 13-70). Mahwah, New Jersey Lawrence Erlbaum Associates, Inc., Publishers.
- Perera, K. (1980). The Assessment of Linguistic Difficulty in Reading Material. *Educational Review*, 32(2), 151 - 161.

- Perfetti, C. A. (1985). *Reading ability*: Oxford University Press.
- Petscher, Y. (2010). A meta-analysis of the relationship between student attitudes towards reading and achievement in reading. *Journal of Research in Reading*, , 33(4), 335-355.
- Pettersson, R. (1993, June 25-29). *Comprehensibility*. Paper presented at the Verbo-Visual Literacy: Understanding and Applying New Educational Communication Media Technologies. Selected Readings from Symposium of the International Visual Literacy Association, Delphi, Greece.
- Pichert, J. W., & Elam, P. (1985). Readability formulas may mislead you. *Patient Education and Counseling*, 7(2), 181-191.
- Pike, M. M., Barnes, M. A., & Barron, R. W. (2010). The role of illustrations in children's inferential comprehension. *Journal of Experimental Child Psychology* 105(243-255).
- Pikulski, J. J. (2002). Readability [Electronic Version], 1-12. Retrieved February 2009, from <http://www.eduplace.com/state/author/pikulski.pdf>
- Pillai, K. G., Katsikeas, C. S., & Presib, C. (2011). Print advertising: Type size effects. *Journal of Business Research*.
- Postgate, D. (2000). *Ghost train* Postgate, Daniel. London: Penguin.
- Potter, M. (2000). *The titanic story*: London: Dorling Kindersley Books.
- Poulton, M. (2004). *Haunted houses*. Oxford: Oxford University Press.
- Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading : the nature of constructively responsive reading*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Price, M. N., Golovchinsky, G., & Schilit, B. N. (1998). Linking By Inking: Trailblazing in a Paper-like Hypertext. In *Proceedings of Hypertext '98* (pp. 30-39). Pittsburgh, PA: ACM Press.
- RAND. (2002). *Understanding Toward an R&D Program in Reading Comprehension*. Pittsburg: Office of Educational Research and Improvement (OERI), U.S. Department of Education. (RAND o. Document Number)
- Rayner, K., & Pollatsek, A. (1989). *The psychology of reading*. London: Prentice-Hall International.
- Reed, J. H. & Schallert, D. L. (1993) (1993). The nature of involvement in academic discourse. *Journal of Educational Psychology*, 85(253-266).

- Redish, J. (2000). Readability formulas have even more limitations than Klare discusses. *ACM J. Comput. Doc.*, 24(3), 132-137.
- Redish, J., & Selzer, J. (1985). The place of readability formulas in technical communication. *Journal Of Reading Behavior*, 32(4), 46-52.
- Renaissance Institute, S. (2000). *The ATOS™ Readability Formula for Books and How it Compares to Other Formulas*. Madison, WI: School Renaissance Institute, Inco. Document Number)
- Renninger, K., & Wade, S. (2001). Engaging Students in Reading: Implications for Research and Practice. *Educational Psychology Review*, 13(3), 187-190.
- Retelsdorf, J., Köller, O., & Möller, J. (2011). On the effects of motivation on reading performance growth in secondary school. *Learning and Instruction*, 21(4), 550-559.
- Reuter, K. (2007). *"CHILDREN SELECTING BOOKS IN A LIBRARY": EXTENDING MODELS OF INFORMATION BEHAVIOR TO A RECREATIONAL SETTING*. Unpublished Ph.D., University of Maryland, College Park, United States -- Maryland.
- Reuter, K., & Druin, A. (2004). Bringing together children and books: An initial descriptive study of children's book searching and selection behavior in a digital library. *Proceedings of the American Society for Information Science and Technology*, 41(1), 339-348.
- Reutzel, D. R., & Gali, K. (1998). The art of children's book selection: a labyrinth unexplored. *Reading Psychology*, 19(1), 3-50.
- Rist, R. C. (1977). ON THE RELATIONS AMONG EDUCATIONAL RESEARCH PARADIGMS: FROM DISDAIN TO DETENTE2. *Anthropology & Education Quarterly*, 8(2), 42-49.
- Robeck, M. C. (1974). *Psychology of reading : foundations of instruction / [by] Mildred C. Robeck, John A.R. Wilson*: Wiley.
- Roberts, C. W. (1997). *Text analysis for the social sciences : methods for drawing statistical inferences from texts and transcripts*. Mahwah NJ.: Erlbaum.
- Robinson, C. C., Larsen, J. M., Haupt, J. H., & Mohlman, J. (1997). Picture book selection behaviors of emergent readers: Influence of genre, familiarity, and book attributes. *Reading Research and Instruction*, 36(4), 287-304.
- Robson, C. (2002). *Real world research : a resource for social scientists and practitioner-researchers / Colin Robson* (2nd ed. ed.): Blackwell.

References

- Rosenblatt, L. M. (1994). The Transactional Theory of Reading and Writing. In R. B. Ruddell, M. R. Ruddell & H. Singer (Eds.), *Theoretical Models and Processes of Reading* (Vol. 4th Edition). Newark, Delaware: International Reading Association.
- Ruddell, R. B., & Unrau, N. (2004). Reading as a Meaning-Construction Process: The Reader, the Text, and the Teacher. In R. B. Ruddell & N. Unrau (Eds.), (Vol. 5th Edition, pp. 1462-1521). Newark, Delaware: International Reading Association.
- Ruddell, R. B., Unrau, N., & International Reading, A. (2004). *Theoretical models and processes of reading*. Newark, DE: International Reading Association.
- Rush, R. T. (1985). Assessing Readability: Formulas and Alternatives. *The Reading Teacher*, 39(3), 274-283.
- Russell, D. H. (1941). Reading Preferences of Younger Adolescents in Saskatchewan. *The English Journal*, 30(2), 131-136.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- Samuels, S. J. (1983). A cognitive approach to factors influencing reading comprehension. *Journal of Educational Research*, 76(5), 261-266.
- Samuels, S. J., & Dahl, P. R. (1975). Establishing Appropriate Purpose for Reading and Its Effect on Flexibility of Reading Rate. *Journal of Educational Psychology*, 67(1), 38-43.
- Sarantakos, S. (1997). *Social research*. Basingstoke: Macmillan.
- Schraw, G., & Dennison, R. S. (1994). The Effect of Reader Purpose on Interest and Recall. *Journal of Reading Behavior* 26(1), 1-18.
- Schriver, K. A. (2000). Readability Formulas in the New Millennium: What's the Use? *ACM Journal of Computer Documentation* 24(3), 138-140.
- Serafini, F. (2005). Voices in the park, voices in the classroom: Readers responding to postmodern picture books. *Reading Research and Instruction*, 44(3), 47-64.
- Serafini, F. (2011). Understanding visual images in picturebooks. In J. Evans (Ed.), *Talking beyond the page* (pp. 10-25). London: Routledge.
- Shanahan, T., Kamil, M. L., & Tobin, A. W. (1982). Cloze as a Measure of Intersentential Comprehension. *Reading Research Quarterly*, 17(2), 229-255.
- Silver, N. C., & Braun, C. C. (1993). Perceived readability of warning labels with varied font sizes and styles. *Safety Science*, 16(5-6), 615-625.

- Silverman, D. (1993). *Interpreting qualitative data : methods for analysing talk, text and interaction*. London: SAGE.
- Silverman, D. (2000). *Doing qualitative research : a practical handbook / David Silverman*: SAGE.
- Silverman, D. (2001). *Interpreting qualitative data : methods for analysing talk, text and interaction*. London: SAGE.
- Silverman, D. (2006). *Interpreting qualitative data : methods for analyzing talk, text and interaction / David Silverman* (3rd ed. ed.): Sage.
- Silverman, D. (2008). *Doing qualitative research : a comprehensive guide / David Silverman, Amir Marvasti*: SAGE Publications.
- Simon, F., & Ross, T. (2000). *A handful of Horrid Henry*. London: Dolphin.
- Slovak, P. A. (1975). *THE READING ACHIEVEMENT LEVELS OF COMMUNITY COLLEGE FRESHMEN ENROLLED IN A MODULAR ENGLISH COURSE COMPARED WITH THE READABILITY LEVELS OF BOOKS ASSIGNED IN THE COURSE*. Unpublished Educat.D., East Texas State University, United States -- Texas.
- Smith, D. (1989). *CHECK-OUT RATES OF BOOKS WITH BOOK JACKETS VERSUS BOOKS WITHOUT BOOK JACKETS*. Unpublished M.S., University of Wyoming, United States -- Wyoming.
- Smith, F. (1988). *Understanding reading : a psycholinguistic analysis of reading and learning to read / Frank Smith* (4th ed. ed.): Lawrence Erlbaum Associates.
- Spache, G. (1953). A New Readability Formula for Primary-Grade Reading Materials. *Elementary School Journal*, 53, 410-413.
- Spaulding, C. L. (1988). *Understanding How Reader Characteristics Affect Comprehension of Text* o. Document Number)
- Spaulding, S. (1956). A Spanish Readability Formula. *The Modern Language Journal*, 40(8), 433-441.
- Spyridakis, J. H., & Wenger, M. J. (1991). An Empirical Method of Assessing Topic Familiarity in Reading Comprehension Research. *British Educational Research Journal*, 17(4), 353-360.
- Stahl, K. A. D. (2009). Assessing the Comprehension of Young Children. In S. E. Israel & G. G. Duffy (Eds.), *Handbook Research on Reading Comprehension* (pp. 677). New York: Routledge.

- Stahl, S. A. (1998). Understanding Shifts in Reading and Its Instruction. *Peabody Journal of Education*, 73(3/4), 31-67.
- Stahl, S. A. (2003). Vocabulary and Readability: How Knowing Word Meanings Affects Comprehension. *Topic in Language Disorders*, 23(3), 241-247.
- Stahl, S. A., Jacobson, M. G., Davis, C. E., & Davis, R. L. (1989). Prior Knowledge and Difficult Vocabulary in the Comprehension of Unfamiliar Text. *Reading Research Quarterly*, 24(1), 27-43.
- Stahl, S. A. E. Vocabulary and Readability: How Knowing Word Meanings Affects Comprehension. *SO - Topics in Language Disorders July/August/September 2003;23(3):241-247*.
- Stamps, A. E. (2004). Mystery, complexity, legibility and coherence: A meta-analysis. *Journal of Environmental Psychology*, 24(1), 1-16.
- Stanovich, K. E., & Cunningham, A. E. (1993). Where Does Knowledge Come From? Specific Associations Between Print Exposure and Information Acquisition. *Journal of Educational Psychology*, 85(2), 211-229.
- Stemler, S. E. (2004). A comparison of consensus, consistency, and measurement approaches to estimating interrater reliability. [Electronic Version]. *Practical Assessment, Research & Evaluation*, 9 (4). Retrieved Retrieved January 28, 2010 from <http://PAREonline.net/getvn.asp?v=9&n=4>
- Stenner, A. J., & Burdick, D. S. (1997). The Objective Measurement of Reading Comprehension: In Response to Technical Questions Raised by the California Department of Education Technical Study Group.
- Stenner, A. J., Burdick, H., Sanford, E. E., & Burdick, D. S. (2006). How Accurate Are Lexile Text Measures. *Journal of Applied Measurement*, 7(3), 307-322.
- Stokes, A. (1978). The reliability of readability formulae. *Journal of Research in Reading*, 1(1), 21-34.
- Sullivan, V. J. (1979). *A STUDY TO DETERMINE THE OPTIMUM READABILITY LEVEL OF A TEXT IN RELATION TO STUDENTS' READING LEVELS AND ACHIEVEMENT IN A COMMUNITY COLLEGE INTRODUCTORY PSYCHOLOGY COURSE*. Unpublished Educat.D., The Florida State University, United States -- Florida.
- Summers, E. G., & Lukasevich, A. (1983). Reading Preferences of Intermediate-Grade Children in Relation to Sex, Community, and Maturation (Grade Level): A Canadian Perspective. *Reading Research Quarterly*, 18(3), 347-360.
- Sutcliffe, R., & Keeping, C. (2003). *The capricorn bracelet*. London: Red Fox.

- Sydes, M., & Hartley, J. (1997). A Thorn in the Flesch: Observations on the Unreliability of Computer-Based Readability Formulae. *British Journal of Educational Technology*, 28(2), 143-145.
- Taboada, A., Tonks, S., Wigfield, A., & Guthrie, J. (2009). Effects of motivational and cognitive variables on reading comprehension. *Reading and Writing*, 22(1), 85-106.
- Taylor, B., & O'Shea, M. (2006). *The great big book of snakes and reptiles*. London: Hermes House.
- Templeton, S., Cain, C. T., & Miller, J. O. (1981). Reconceptualising Readability: The Relationship between Surface and Underlying Structure Analyses in Predicting the Difficulty of Basal Reader Stories. *The Journal of Educational Research*, 74(6), 382-387.
- Thorndike, E. L. (1921). Word Knowledge in the Elementary School. In W. H. Dubay (Ed.), *Unlocking Language The Classic Readability Studies* (pp. 9-43). Costa Mesa, California: Impact Information.
- Tinker, M. A. (1966). The Ten More Important Legibility Studies: An Annotated Bibliography. *The Reading Teacher*, 20(1), 46-53.
- Tobias, S. (1994). Interest, Prior Knowledge, and Learning. *Review of Educational Research*, 64(1), 37-54.
- Tuckman, B. W. (1994). *Conducting educational research* (Vol. 4th Edition). London: Harcourt.
- Tunmer, W. E., & Hoover, W. A. (1993). Phonological recoding skill and beginning reading. *Reading and Writing*, 5(2), 161-179.
- Tyson, H., & Woodward, A. (1989). Why students aren't learning very much from textbooks. *Educational Leadership*, 14-17.
- Vacca, J. A. L., Vacca, R. T., & Gove, M. K. (2000). *Reading and learning to read*. New York ; Harlow: Longman.
- Valencia, S. W., Rhodes, L. K., & Shanklin, N. L. (1990). Assessment: Miscue Analysis in the Classroom. *The Reading Teacher*, 44(3), 252-254.
- van den Broek, P., & Lorch, R. F. (2001). The effects of readers' goals on inference generation and memory for texts. *Memory & Cognition*, 29(8), 1081-1087.
- van Schooten, E., de Glopper, K., & Stoel, R. D. (2004). Development of attitude toward reading adolescent literature and literary reading behavior. *Poetics*, 32(5), 343-386.

- Vellutino, F. R. (1991). Introduction to three studies on reading acquisition: Convergent findings on theoretical foundations of code-oriented versus whole-language approaches to reading instruction. *Journal of Educational Psychology*, 83(4), 437-443.
- Vogel, M., & Washburne, C. (1928). An Objective Method of Determining Grade Placement of Children's Reading Material. In W. H. Dubay (Ed.), *Unlocking language the classic readability studies* (pp. 58-66). Costa Mesa, California: Impact Information.
- Wade, S. (2001). Research on Importance and Interest: Implications for Curriculum Development and Future Research. *Educational Psychology Review*, 13(3), 243-261.
- Walcutt, C. C. (1967). Reading-A Professional Definition. *The Elementary School Journal*, 67(7), 363-365.
- Wallace, C. (1992). *Reading*. Oxford: Oxford University Press.
- Wallace, C. (2001). Reading. In R. A. N. Carter, D (Ed.), *Teaching English to Speakers of Other Languages* (pp. 21-27). Cambridge: Cambridge University Press.
- Waller, R. (1991). Typography and Discourse. In R. Barr, M. L. Kamil, P. B. Mosenthal & P. D. Pearson (Eds.), *Handbook of Reading Research* (Vol. 2, pp. 341-380). Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Waller, T. G. (1976). Children's Recognition Memory for Written Sentences: A Comparison of Good and Poor Readers. *Child Development*, 47(1), 90-95.
- Wang, Y., & Gafurov, D. (2003). *The cognitive process of comprehension* Paper presented at the Proceedings The Second IEEE International Conference On Cognitive Informatics London, England.
- Warburton, N., & Goffe, T. (1996). *Janey's giants*. Oxford: Oxford University Press.
- Watts, L., & Nisbet, J. (1974). *Legibility in children's books : a review of research* Windsor: NFER.
- Weaver, B. (2000). *Levelling books k-6, Matching readrs to text*. New York: International Reading Association.
- Weiss, M. J. (1982). Children's Preferences for Format Factors in Books. *The Reading Teacher*, 35(4), 400-406.
- Wigfield, A. (1997). Reading motivation: A domain-specific approach to motivation. *Educational Psychologist*, 32(2), 59-68.

- Wigfield, A., Guthrie, J. T., Perencevich, K. C., Taboada, A., Klauda, S. L., McRae, A., et al. (2008). Role of reading engagement in mediating effects of reading comprehension instruction on reading outcomes. *Psychology in the Schools*, 45(5), 432-445.
- Wigfield, A., Guthrie, J. T., Tonks, S., & Perencevich, K. C. (2004). Children's Motivation for Reading: Domain Specificity and Instructional Influences. *The Journal of Educational Research*, 97(6), 299-310.
- Wilhite, S. (1989). Headings as Memory Facilitators: The Importance of Prior Knowledge. *Journal of Educational Psychology*, 81(1), 115-117.
- Wilkins, A., Cleave, R., Grayson, N., & Wilson, L. (2009). Typography for children may be inappropriately designed *Journal of Research in Reading*, 32(4), 11.
- Williams, M., & Hughes, A. (2003). *Penguin Young Readers A Practical Teacher's Guide*. Essex, England: Pearson Education Ltd.
- Wilson, J. C. (2001). *A guide to interviewing children : essential skills for counsellors, police, lawyers and social workers / J. Clare Wilson and Martine Powell*: Routledge.
- Wray, D. (2004). *Teaching literacy : using texts to enhance learning / David Wray*: David Fulton.
- Wray, D. (2007). *The SAGE handbook of grounded theory / edited by Anthony Bryant and Kathy C. Charmaz Literacy & awareness / David Wray*: SAGE Hodder & Stoughton.
- Wray, D. (2007). Validity and reliability in educational research. Handout presented at a Foundation Research Methodology (FRM) Seminar Institute of Education, University of Warwick.
- Wray, D., & NetLibrary, I. (2004). *Teaching literacy : using texts to enhance learning*. London: David Fulton.
- Wray, D., & United Kingdom Reading, A. (1993). *Literacy : text and context*. Widnes: United Kingdom Reading Association.
- Wright, J. D. (1980). *THE EFFECT OF REDUCED READABILITY TEXT MATERIALS ON COMPREHENSION AND BIOLOGY ACHIEVEMENT*. Unpublished Ph.D., The University of North Carolina at Chapel Hill, United States -- North Carolina.
- Wu, H. Y., & Hu, P. (2007). Major factors influencing reading comprehension: A factor analysis approach. *Sino-US English Teaching*, 4(9), 14-19.

References

- Xu, S., Cui, Z., & Chen, X. (2007). *Empirical Evaluation of the Dialog-Based Protocol and Think-Aloud Protocol*. Paper presented at the Canadian Conference on Electrical and Computer Engineering, Vancouver, Canada.
- Yin, R. K. (2003). *Case study research : design and methods* / Robert K. Yin (3rd ed. ed.): Sage Publications.
- Yin, R. K. (2009). *Case study research : design and methods*. London: SAGE.
- Zakaluk, B. L., & Samuels, S. J. (1988). *Readability : its past, present, and future*. Newark, Del.: International Reading Association.
- Zakaluk, B. L., & Samuels, S. J. (1988). Toward a New Approach to Predicting Text Comprehensibility. In B. L. Zakaluk & S. J. Samuels (Eds.), *Readability, Its Past, Present & Future* (pp. 121-140). Newark, Delaware: International Reading Association.
- Zimet, S. F. (1966). Children's Interest and Story Preferences: A Critical Review of the Literature. *The Elementary School Journal*, 67(3), 122-130.

Appendices

Appendix 2.1

Irwin – Davis (1980) Readability Checklist

This checklist is designed to help you evaluate the readability of your classroom texts. It can best be used if you rate your text while you are thinking of a specific class. Be sure to compare the textbook to a fictional ideal rather than to another text. Your goal is to find out what aspects of the text are or are not less than ideal. Finally, consider supplementary workbooks as part of the textbook and rate them together. Have fun!

Rate the questions below using the following rating system:

5 - Excellent

4 - Good

3 - Adequate

2 - Poor

1 - Unacceptable

NA - Not applicable

Further comments may be written in the space provided.

Text book title: _____

Publisher: _____

Copyright date: _____

Understandability

- A. _____ Are the assumptions about students' vocabulary knowledge appropriate?
- B. _____ Are the assumptions about students' prior knowledge of this content area appropriate?
- C. _____ Are the assumptions about students' general experiential backgrounds appropriate?
- D. _____ Does the teacher's manual provide the teacher with ways to develop and review the students' conceptual and experiential backgrounds?
- E. _____ Are new concepts explicitly linked to the students' prior knowledge or to their experiential backgrounds?
- F. _____ Does the text introduce abstract concepts by accompanying them with many concrete examples?
- G. _____ Does the text introduce new concepts one at a time with a sufficient number of examples for each one?
- H. _____ Are definitions understandable and at a lower level of abstraction than the concept being defined?
- I. _____ Is the level of sentence complexity appropriate for the students?
- J. _____ Are the main ideas of paragraphs, chapters, and subsections clearly stated?

- K. _____ Does the text avoid irrelevant details?
- L. _____ Does the text explicitly state important complex relationships (e.g., causality, conditionality, etc.) rather than always expecting the reader to infer them from the context?
- M. _____ Does the teacher's manual provide lists of accessible resources containing alternative readings for the very poor or very advanced readers?
- N. _____ Is the readability level appropriate (according to a readability formula)?

Learnability

Organization

- A. _____ Is an introduction provided for in each chapter?
- B. _____ Is there a clear and simple organizational pattern relating the chapters to each other?
- C. _____ Does each chapter have a clear, explicit, and simple organizational structure?
- D. _____ Does the text include resources such as an index, glossary, and table of contents?
- E. _____ Do questions and activities draw attention to the organizational pattern of the material (e.g., chronological, cause and effect, spatial, topical, etc.)?
- F. _____ Do consumable materials interrelate well with the textbook?

Reinforcement

- A. _____ Does the text provide opportunities for students to practice using new concepts?
- B. _____ Are there summaries at appropriate intervals in the text?
- C. _____ Does the text provide adequate iconic aids such as maps, graphs, illustrations, etc. to reinforce concepts?
- D. _____ Are there adequate suggestions for usable supplementary activities?
- E. _____ Do questions and activities draw attention to the organizational pattern of the material (e.g., chronological, cause and effect, spatial, topical, etc.)?
- F. _____ Do these activities provide for a broad range of ability levels?
- G. _____ Are there literal recall questions provided for the students' self review?
- H. _____ Do some of the questions encourage the students to draw inferences?
- I. _____ Are there discussion questions which encourage creative thinking?
- J. _____ Are questions clearly worded?

Motivation

- A. _____ Does the teacher's manual provide introductory activities that will capture student's interest?
- B. _____ Are chapter title and subheading concrete, meaningful, or interesting?
- C. _____ Is the writing style of the text appealing to the students?
- D. _____ Are the activities motivating? Will they make the student want to pursue the topic further?
- E. _____ Does the book clearly show how the knowledge being learned might be used by the learner in the future?
- F. _____ Are the cover, format, print size, and pictures appealing to the students?

- G. _____ Does the text provide positive and motivating models for both sexes as well as for other racial, ethnic, and socioeconomic groups?

Readability analysis

Weaknesses

1. On which items was the book rated the lowest?
2. Did these items tend to fall in certain categories?
3. Summarize the weaknesses of this text.
4. What can you do in class to compensate for the weaknesses of this text?

Assets

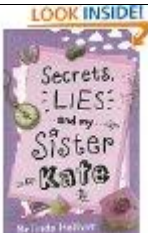
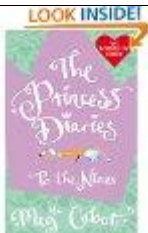
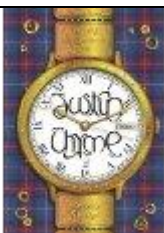

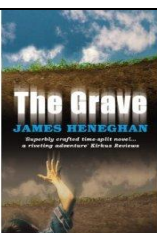
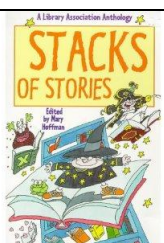
1. On which items was the book rated the highest?
2. Did these items fall into certain categories?
3. Summarize the assets of this text.
4. What can you do in class to take advantage of the assets of this text?

Appendix 3.1

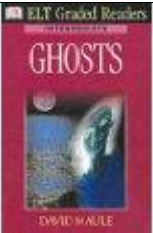
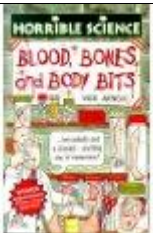


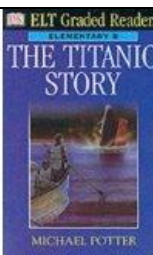
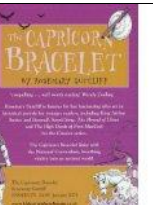
Cases and texts

	Code	Front cover images	Reference	SMOG, FOG, Flesch-Kincaid, Spache and Dale-Chall Index
1	C01 – RE1		Paolini, C. (2004). <i>Eragon</i> . London: Doubleday.	Smog 6.79 Fog 6.07 Flesch 4.39 Spache 4.82 Dale Chall 9.92 ATOS 3.9
2	C01 – RE2		Hoffman, M. (2003). <i>Stravaganza: city of stars</i> . New York: Bloomsbury.	Smog 9.35 Fog 9.32 Flesch 6.77 Spache 4.88 Dale Chall 9.15 ATOS 4.2
3	C02 - RE1		Simon, F., & Ross, T. (2000). <i>A handful of Horrid Henry</i> . London: Dolphin.	Smog 6.29 Fog 4.76 Flesch 4.09 Spache 3.5 Dale Chall 10.55 ATOS 2.8
4	C02 – RE2		Gregg, S. (2007). <i>Mystic and the midnight ride</i> . London: HarperCollins Children's.	Smog 7.63 Fog 7.44 Flesch 6.22 Spache 4.63 Dale Chall 8.89 ATOS 3.9
5	C03 – RE1		Grogan, J. (2009). <i>Marley : a dog like no other</i> . Bath: Galaxy.	Smog 8.5 Fog 7.67 Flesch 5.37 Spache 4.38 Dale Chall 9.13 ATOS 3.5


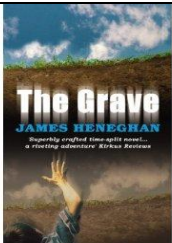
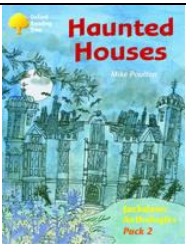
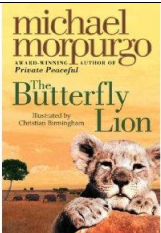
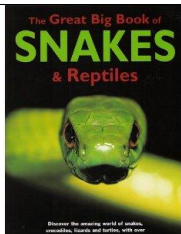

Appendices

6	C03 – RE2		Hollyer, B. (2007). <i>Secrets, lies and my sister Kate</i> . London: Orchard.	Smog 8.11 Fog 8.7 Flesch 6.24 Spache 4.54 Dale Chall 8.79 ATOS 3.7
7	C04 – RE1		Cabot, M. (2008). <i>To the nines</i> . London: Macmillan.	Smog 8.17 Fog 7.16 Flesch 5.24 Spache 4.39 Dale Chall 9.99 ATOS 3.2
8	C04 – RE2		Oxridge, P. (2006). <i>Justin Thyme (Tartan of Thyme)</i> : Great Britin: Interrobang.	Smog 10.17 Fog 10 Flesch 7.76 Spache 5.41 Dale Chall 9.85 ATOS 4.4
9	C05 – RE1		Blyton, E., & Digby, A. (1999). <i>The naughtiest girl: Keeps a secret</i> : London: Hodder Children's Book.	Smog 8.21 Fog 7.29 Flesch 5.35 Spache 4.2 Dale Chall 9.04 ATOS 3.2
10	C05 – RE2		Heneghan, J. (2002). <i>The grave</i> . London: Corgi.	Smog 8.84 Fog 9.08 Flesch 6.83 Spache 4.87 Dale Chall 9.04 ATOS 4.2
11	C06 – RE1		Hoffman, & Library, A. (1997). <i>Stacks of stories : a Library Association anthology</i> . London: Hodder Children's.	Smog 8.43 Fog 7.49 Flesch 5.76 Spache 5.06 Dale Chall 10.38 ATOS 3.6



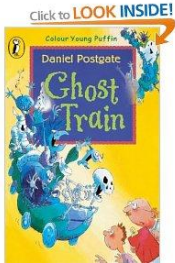


Appendices

12	C06 – RE2		Maule, D. (2002). <i>Ghosts</i> : London: Dorling Kindersley Bookss.	Smog 8.58 Fog 7.9 Flesch 4.79 Spache 4.26 Dale Chall 9.43 ATOS 3.6
13	C07 – RE1		Arnold, N., & Saules, T. d. (1996). <i>Blood, bones and body bits</i> . London: Hippo.	Smog 8.4 Fog 7.42 Flesch 4.95 Spache 4.45 Dale Chall 9.65 ATOS 3.0
14	C07 – RE2		Blishen, E., & Littlewood, K. (2003). <i>Science fiction stories</i> . London: Kingfisher.	Smog 7.17 Fog 5.74 Flesch 4.24 Spache 4.38 Dale Chall 10.61 ATOS 3.1
15	C08 – RE1		French, V., & Collins, R. (2007). <i>The robe of skulls</i> . London: Walker.	Smog 7.85 Fog 6.93 Flesch 5.01 Spache 4.38 Dale Chall 9.68 ATOS 3.6
16	C08 – RE2		Potter, M. (2000). <i>The titanic story</i> : London: Dorling Kindersley Books.	Smog 9.47 Fog 9.12 Flesch 6.02 Spache 4.31 Dale Chall 9.03 ATOS 3.8
17	C09 – RE1	Fish Encyclopaedia	No reference	
18	C09 – RE2		Sutcliff, R., & Keeping, C. (2003). <i>The Capricorn bracelet</i> . London: Red Fox.	Smog 9.77 Fog 12.46 Flesch 10.46 Spache 5.83 Dale Chall 8.19 ATOS 3.9

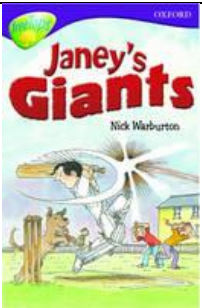
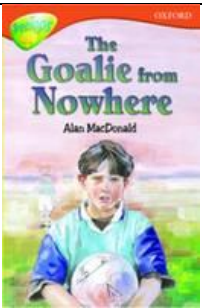


Appendices

19	C10 – RE1		Bradman, T., & Chatterton, M. (2007). <i>Tommy Niner and the moon of doom</i> . London: Happy Cat.	Smog 8 Fog 6.82 Flesch 4.93 Spache 4.45 Dale Chall 10.46 ATOS 3.0
20	C10 – RE2		Heneghan, J. (2002). <i>The grave</i> . London: Corgi.	Smog 8.84 Fog 9.08 Flesch 6.83 Spache 4.69 Dale Chall 9.08 ATOS 9.0
21	C11 – RE1		Poulton, M. (2004). <i>Haunted houses</i> . Oxford: Oxford University Press.	Smog 6.11 Fog 4.71 Flesch 2.9 Spache 3.43 Dale Chall 8.77 ATOS 3.6
22	C11 – RE2		Morpurgo, M., & Birmingham, C. (2007). <i>The butterfly lion</i> . London: HarperCollins Children's Books.	Smog 7.43 Fog 7.2 Flesch 5.03 Spache 4.13 Dale Chall 8.9 ATOS 4.6
23	C12 – RE1		Taylor, B., & O'Shea, M. (2006). <i>The great big book of snakes and reptiles</i> . London: Hermes House.	Smog 9.37 Fog 9.13 Flesch 6.24 Spache 4.78 Dale Chall 9.7 ATOS 4.3
24	C12 – RE2		Lincoln, C. (2009). <i>Billy Bones : a tale from the secrets closet</i> . London: Macmillan Children's.	Smog 9.12 Fog 8.51 Flesch 6.49 Spache 4.97 Dale Chall 10.19 ATOS 8.0

Appendices

25	C13 – RE1		Hunt, R., & Brychta, A. (2002). <i>Andy the hero</i> . Oxford: Oxford University Press.	Smog 5.48 Fog 4.1 Flesch 3.02 Spache 3.78 Dale Chall 10.34 ATOS 3.3
26	C13 – RE2		Chapman, L., & Thompson, A. (2006). <i>Stolen magic</i> . London: Puffin.	Smog 7.69 Fog 6.55 Flesch 4.69 Spache 4.08 Dale Chall 9.61 ATOS 4.1
27	C14 – RE1		Postgate, D. (2000). <i>Ghost train</i> . London: Penguin.	Smog 6.79 Fog 5.68 Flesch 4.88 Spache 4.25 Dale Chall 11.02 ATOS 2.7
28	C14 – RE2		Rees, G., & Hudson, A. (2003). <i>Fairy dust</i> . London: Macmillan Children's.	Smog 8.67 Fog 7.85 Flesch 5.99 Spache 4.4 Dale Chall 9.56 ATOS 3.5
29	C15 – RE1		Lively, P., & Lewis, A. (1995). <i>A Martian comes to stay</i> . Hemel Hempstead: Macdonald Young Books.	Smog 8.44 Fog 7.81 Flesch 5.51 Spache 4.28 Dale Chall 8.84 ATOS 3.2

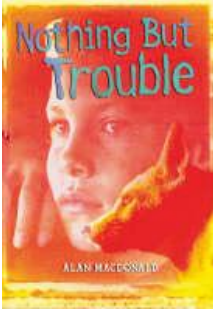
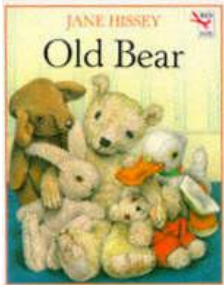

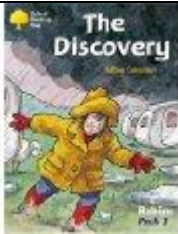

Appendices

30	C15 – RE2		Chapman, L., & Thompson, A. (2006). <i>Stolen magic</i> . London: Puffin.	Smog 8.2 Fog 7.2 Flesch 4.33 Spache 4.33 Dale Chall 8.91 ATOS 4.1
31	C16 – RE1		Warburton, N., & Goffe, T. (1996). <i>Janey's giants</i> . Oxford: Oxford University Press.	Smog 5.32 Fog 4.51 Flesch 3.75 Spache 4.24 Dale Chall 10.78 ATOS 2.7
32	C16 – RE2		MacDonald, A., & Cope, J. (2005). <i>The goalie from nowhere</i> . Oxford: Oxford University Press.	Smog 7.39 Fog 6.14 Flesch 4.3 Spache 4.04 Dale Chall 9.32 ATOS 3.1
33	C17 – RE1		Hunt, R., & Brychta, A. (2003). <i>Dutch adventure</i> . Oxford: Oxford University Press.	Smog 4.59 Fog 2.71 Flesch 0.32 Spache 3.18 Dale Chall 9.48 ATOS 2.4
34	C17 – RE2		Gutteridge, A., & Hudson, A. G. A. (2002). <i>Cats and hats</i> . London: Macmillan Children's.	Smog 5.65 Fog 4.38 Flesch 2.81 Spache 3.78 Dale Chall 9.25 ATOS 2.5


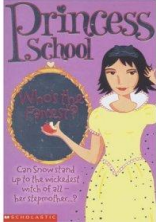

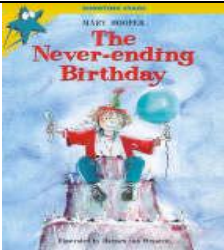
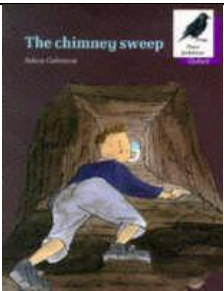
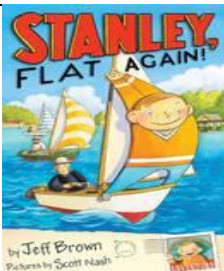
Appendices

35	C18 – RE1		Coleman, A., Brychta, A., Smith, S., & Chance, T. J. (2004). <i>Castles and knights</i> . Oxford: Oxford University Press.	Smog 7.12 Fog 5.62 Flesch 2.31 Spache 3.27 Dale Chall 8.79 ATOS 4.1
36	C18 – RE2		Brooks, F., & Matthews, R. (2002). <i>Tales of King Arthur</i> . London: Usborne.	Smog 7.23 Fog 6.54 Flesch 4.94 Spache 4.37 Dale Chall 9.54 ATOS 3.7
37	C19 – RE1		Krailing, T., & Phillips, M. (2007). <i>Disgusting Denzil</i> . Oxford: Oxford University Press.	Smog 5.79 Fog 4.21 Flesch 3.64 Spache 3.72 Dale Chall 10.42 ATOS 3.1
38	C19 – RE2		Frederick, H. V., & Stower, A. F. H. V. (2006). <i>For your paws only</i> . London: Puffin.	Smog 7.59 Fog 6.39 Flesch 4.42 Spache 4.44 Dale Chall 9.7 ATOS 5.2
39	C20 – RE1		Coleman, A., & Brychta, A. C. A. (2004). <i>William's mistake</i> . [Oxford]: Oxford University Press.	Smog 5.26 Fog 3.63 Flesch 2.9 Spache 3.6 Dale Chall 10.4 ATOS 2.8

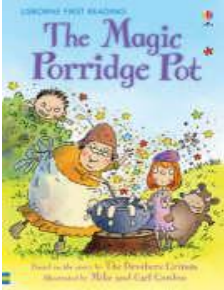
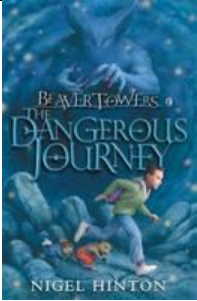
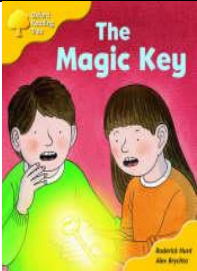

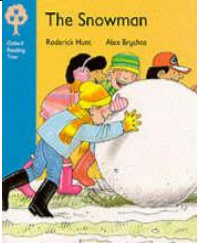
Appendices

40	C20 – RE2		MacDonald, A., & Smy, P. (2006). <i>Nothing but trouble</i> . London: A & C Black.	Smog 6.22 Fog 4.43 Flesch 2.99 Spache 3.77 Dale Chall 9.88 ATOS 3.1
41	C21 – RE1		Hissey, J. (1994). <i>Old Bear</i> . London: Red Fox.	Smog 7.4 Fog 6.36 Flesch 4.57 Spache 3.98 Dale Chall 9.51 ATOS 2.7
42	C21 – RE2		Chapman, L., & Thompson, A. (2006). <i>Stolen magic</i> . London: Puffin.	Smog 8.12 Fog 7.13 Flesch 4.18 Spache 4.26 Dale Chall 8.89 ATOS 3.0
43	C22 – RE1		Coleman, A., & Levers, J. C. A. (2004). <i>The discovery</i> : Oxford University Press.	Smog 7.53 Fog 6.35 Flesch 4.18 Spache 3.64 Dale Chall 9.75 ATOS 2.3
44	C22 – RE2		Hutton, S., & Jones, A. F. (2004). <i>Kiss & kill</i> . London: Collins.	Smog 7.84 Fog 6.59 Flesch 4.49 Spache 4.71 Dale Chall 10.51 ATOS 3.0

Appendices

45	C23 – RE1		Melling, D. (2004). <i>The ghost library</i> . London: Hodder Children's.	Smog 6.63 Fog 5.25 Flesch 4.2 Spache 4.07 Dale Chall 9.67 ATOS 3.1
46	C23 – RE2		Mason, J., & Stephens, S. H. (2005). <i>Who's the fairest? (Princess school)</i> . London: Scholastic.	Smog 7.06 Fog 6.28 Flesch 4.3 Spache 4.55 Dale Chall 9.36 ATOS 5.2
47	C24 – RE1		Hunt, R., & Brychta, A. (1999). <i>The broken roof</i> . Oxford: Oxford University Press.	Smog 4.24 Fog 3.19 Flesch 2.1 Spache 2.87 Dale Chall 8.19 ATOS 2.3
48	C24 – RE2		Hooper, M., & Straaten, H. v. (1999). <i>The never-ending birthday</i> . Hove: Macdonald Young.	Smog 6.94 Fog 5.79 Flesch 4.78 Spache 4.32 Dale Chall 10.06 ATOS 2.4
49	C25 – RE1		Coleman, A., McKenna, T., & Littlewood, V. (1992). <i>The chimney sweep</i> . Oxford: Oxford University Press.	Smog 4.69 Fog 4.19 Flesch 2.88 Spache 3.92 Dale Chall 9.69 ATOS 5.2
50	C25 – RE2		Brown, J., & Nash, S. (2003). <i>Stanley, flat again</i> . London: Egmont.	Smog 7.38 Fog 6.02 Flesch 5.22 Spache 4.7 Dale Chall 9.78 ATOS 3.3




Appendices

51	C26 – RE1		Grimm, J., Grimm, W., Gordon, M., & Kelly, A. (2007). <i>The magic porridge pot</i> . London: Usborne.	Smog 5.99 Fog 4.92 Flesch 4.17 Spache 3.36 Dale Chall 8.23 ATOS 1.9
52	C26 – RE2		Hinton, N., & Sharp, A. H. N. (1997). <i>Beaver Towers : the dangerous journey</i> . London: Puffin.	Smog 6.92 Fog 6.33 Flesch 4.1 Spache 3.76 Dale Chall 7.63 ATOS 4.5
53	C27 – RE1		Hunt, R., & Brychta, A. (2008). <i>The magic key</i> . Oxford: Oxford University Press.	Smog 4.14 Fog 2.55 Flesch 0.72 Spache 3.01 Dale Chall 9.59 ATOS 1,3
54	C27 – RE2		Hunt, R., & Brychta, A. (2008). <i>Look smart</i> . Oxford: Oxford University Press.	Smog 4.14 Fog 2.42 Flesch 0.37 Spache 3.01 Dale Chall 9.59 ATOS 1.0
55	C28 – RE1		Hunt, R., & Brychta, A. (2008). <i>Oxford reading tree. Stage 3 : More stories pack A: The snowman</i> . Oxford: Oxford University Press.	Smog 5.9 Fog 3.91 Flesch 3.22 Spache 3.87 Dale Chall 10.99 ATOS 0.8

Appendices

56	C28 – RE2		Hunt, R., & Brychta, A. (2008). <i>Look smart</i> . Oxford: Oxford University Press.	Smog 4.14 Fog 2.42 Flesch 0.37 Spache 3.01 Dale Chall 9.59 ATOS 1.0
57	C29 – RE1		Hunt, R., & Brychta, A. (2008). <i>Who did that?</i> Oxford: Oxford University Press.	Smog 0.0 Fog 1.6 Flesch -0.26 Spache 3.42 Dale Chall 12.61 ATOS 0.4
58	C29 – RE2		Hunt, R., & Brychta, A. (2008). <i>Strawberry jam</i> . Oxford: Oxford University Press.	Smog 3.98 Fog 1.97 Flesch -2.63 Spache 2.47 Dale Chall 8.93 ATOS 1.0
59	C30 – RE1		Hunt, R., & Brychta, A. (2008). <i>The dragon dance</i> . Oxford: Oxford University Press.	Smog 5.22 Fog 3.15 Flesch 4.14 Spache 3.24 Dale Chall 10.73 ATOS 1.0
60	C30 – RE2		Hunt, R., & Brychta, A. (2008). <i>Underground adventure</i> . Oxford University Press.	Smog 4.96 Fog 2.63 Flesch 0.73 Spache 2.74 Dale Chall 10.19 ATOS 1,3
61	C31 – RE1		Hunt, R., & Brychta, A. (2008). <i>Creepy-crawly!</i> Oxford: Oxford University Press.	Smog 4.6 Fog 2.1 Flesch 1.95 Spache 4.0 Dale Chall 14.88 ATOS 0.7

Appendices

62	C31 – RE2		Hunt, R., & Brychta, A. (2008). <i>Who did that?</i> Oxford: Oxford University Press.	Smog 0.0 Fog 1.6 Flesch -0.26 Spache 3.42 Dale Chall 12.61 ATOS 0.4
63	C32 – RE1		Hunt, R., & Brychta, A. (2008). <i>Who did that?</i> Oxford: Oxford University Press.	Smog 0.0 Fog 1.6 Flesch -0.26 Spache 3.42 Dale Chall 12.61 ATOS 0.4
64	C32 – RE2		Hunt, R., & Brychta, A. (2008). <i>Can you see me?</i> Oxford: Oxford University Press.	Smog 0.0 Fog 1.6 Flesch -0.26 Spache 3.42 Dale Chall 12.61 ATOS 0.7

Text feature comparison sheets [Reception]

Compare between upper and lower case.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

The Sandcastle

Chip had a box.
He put sand in it.
“Pat it flat,” he said.
Kipper had a box.
He put sand in it.
Biff had a bucket.
She put sand in it.
Biff put the bucket on top.
“Good,” she said.
It was a sandcastle.
It was a good sandcastle.
It was the best sandcastle.

THE SANDCASTLE

CHIP HAD A BOX.
HE PUT SAND IN IT.
“PAT IT FLAT,” HE SAID.
KIPPER HAD A BOX.
HE PUT SAND IN IT.
BIFF HAD A BUCKET.
SHE PUT SAND IN IT.
BIFF PUT THE BUCKET ON TOP.
“GOOD,” SHE SAID.
IT WAS A SANDCASTLE.
IT WAS A GOOD SANDCASTLE.
IT WAS THE BEST SANDCASTLE.

Text feature comparison sheets [Reception]

Compare between serif and san serif typeface.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

The Sandcastle

Chip had a box.
He put sand in it.
“Pat it flat,” he said.
Kipper had a box.
He put sand in it.
Biff had a bucket.
She put sand in it.
Biff put the bucket on top.
“Good,” she said.
It was a sandcastle.
It was a good sandcastle.
It was the best sandcastle.

The Sandcastle

Chip had a box.
He put sand in it.
“Pat it flat,” he said.
Kipper had a box.
He put sand in it.
Biff had a bucket.
She put sand in it.
Biff put the bucket on top.
“Good,” she said.
It was a sandcastle.
It was a good sandcastle.
It was the best sandcastle.

Text feature comparison sheets [Reception]

Compare between font size 12 and 14.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

The Sandcastle

Chip had a box.
He put sand in it.
“Pat it flat,” he said.
Kipper had a box.
He put sand in it.
Biff had a bucket.
She put sand in it.
Biff put the bucket on top.
“Good,” she said.
It was a sandcastle.
It was a good sandcastle.
It was the best sandcastle.

The Sandcastle

Chip had a box.
He put sand in it.
“Pat it flat,” he said.
Kipper had a box.
He put sand in it.
Biff had a bucket.
She put sand in it.
Biff put the bucket on top.
“Good,” she said.
It was a sandcastle.
It was a good sandcastle.
It was the best sandcastle.

Text feature comparison sheets [6-8 years old]

Compare between upper and lower case.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not find the little tiger's presence alarming; he was no bigger than a piglet. However, when spring came, he had grown into the size of a calf, showing a full set of teeth and claws. The women told their hunter husbands and the men came to kill the young tiger.

AND SO, CHEN MA UNTIED THE ROPE FROM THE LITTLE TIGER'S NECK AND FED HIM A PASTE OF COOKED ROOTS WITH HER FINGERS. HER SON HAD A GOOD SUPPLY OF GRAINS AND ROOTS IN THE ATTACHED SHED AND SHE PLANNED TO STRETCH THE FOOD OUT TO LAST THE WINTER.

WHEN THE STORE OF THE FIREWOOD WAS RUNNING LOW, CHEN MA WAS UNABLE TO KEEP HER BEDROLL ON TOP OF THE KANG WARM (A KANG IS A BED BASE BUILT OF BRICKS WITH SPACE FOR A SMALL FIRE). SO SHE SLEPT CURLING AGAINST THE BABY TIGER, WHOSE SOFT FUR WAS COZY AND WARM.

ONCE EVER SO OFTEN, WOMEN FROM NEARBY VILLAGES WOULD BRING SEWING FOR CHEN MA TO DO. SHE WAS VERY HANDY WITH A NEEDLE. THEY PAID HER FOR HER LABOR WITH DRIED VENISON AND SMALL SACKS OF GRAIN. AT FIRST THEY DID NOT FIND THE LITTLE TIGER'S

Text feature comparison sheets [6-8 years old]

Compare between serif and san serif typeface.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not find the little tiger's presence alarming; he was no bigger than a piglet. However, when spring came, he had grown into the size of a calf, showing a full set of teeth and claws. The women told their hunter husbands and the men came to kill the young tiger.

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not find the little tiger's presence alarming; he was no bigger than a piglet. However, when spring came, he had grown into the size of a calf, showing a full set of teeth and claws. The women told their

Text feature comparison sheets [6-8 years old]

Compare between font size between 12 and 14.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not find the little tiger's presence alarming; he was no bigger than a piglet. However, when spring came, he had grown into the size of a calf, showing a full set of teeth and claws. The women told their hunter husbands and the men came to kill the young tiger.

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not

Text feature comparison sheets [6-8 years old]

Compare between justified and unjustified paragraph.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not find the little tiger's presence alarming; he was no bigger than a piglet. However, when spring came, he had grown into the size of a calf, showing a full set of teeth and claws. The women told their hunter husbands and the men came to kill the young tiger.

And so, Chen Ma untied the rope from the little tiger's neck and fed him a paste of cooked roots with her fingers. Her son had a good supply of grains and roots in the attached shed and she planned to stretch the food out to last the winter.

When the store of the firewood was running low, Chen Ma was unable to keep her bedroll on top of the kang warm (a kang is a bed base built of bricks with space for a small fire). So she slept curling against the baby tiger, whose soft fur was cozy and warm.

Once ever so often, women from nearby villages would bring sewing for Chen Ma to do. She was very handy with a needle. They paid her for her labor with dried venison and small sacks of grain. At first they did not find the little tiger's presence alarming; he was no bigger than a piglet. However, when spring came, he had grown into the size of a calf, showing a full set of teeth and claws. The women told their hunter husbands and the men came to kill the young tiger.

Text feature comparison sheets [9-11 years old]

Compare between upper and lower case.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Dooroo actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Dooroo's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where it came.

After one dive, Miena was content to stay on the surface and enjoy the young beavers enjoying themselves. She was impressed that animals so young would be so industrious, but eventually their playfulness got the better of them. It was after Dooroo's fifth dive that his baby brothers

HE TOOK THEM TO THE BOTTOM OF THE POND WHERE HE SHOWED THEM HOW TO SCOOP UP ARMFULS OF MUD, OLD LEAVES AND PEBBLES. HIS FOREPAWS WITH THEIR FIVE TOES AND STRONG CLAWS WERE PARTICULARLY DEXTEROUS, AND WITH THE SUPPORT OF HIS PADDLE-LIKE TAIL HE COULD WALK ON HIS HIND LEGS UNDERWATER. ARMS FULL, DOORO ACTUALLY WALKED UP THE SIDE OF THE EIGHT-FOOT DAM TO THE SURFACE WHERE HE BEGAN SHOVING MUD INTO PLACE WITH PAWS AND SNOUT. IN FOLLOWING HIS EXAMPLE, THE BEAVER KITS WERE BARELY SUCCESSFUL. BECAUSE OF THEIR SIZE AND UNDERDEVELOPED COORDINATION, MUD MELTED FROM THEIR GRASP AND THEY QUICKLY DISCOVERED STEALING DOORO'S WAS AN EASIER WAY TO PLASTER. HE GOOD-NATUREDLY ALLOWED IT,

Text feature comparison sheets [9-11 years old]

Compare between serif and sans serif typeface.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Dooro actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Dooro's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where it came.

After one dive, Miena was content to stay on the surface and enjoy the young beavers enjoying themselves. She was impressed that animals so young would be so industrious, but eventually their playfulness got the better of them. It was after Dooro's fifth dive that his baby brothers

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Dooro actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Dooro's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where it came.

After one dive, Miena was content to stay on the surface and enjoy the young beavers enjoying themselves. She was

Text feature comparison sheets [9-11 years old]

Compare between font size between 12 and 14.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Doorro actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Doorro's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where it came.

After one dive, Miena was content to stay on the surface and enjoy the young beavers enjoying themselves. She was impressed that animals so young would be so industrious, but eventually their playfulness got the better of them. It was after Doorro's fifth dive that his baby brothers

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Doorro actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Doorro's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where

Text feature comparison sheets [9-11 years old]

Compare between justify and unjustified paragraph.

Question:

1. Can you see any difference in these two texts? 2. What are the differences? 3. Which one do you prefer to read? 4. Why do you choose that text?

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Dooro actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Dooro's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where it came.

After one dive, Miena was content to stay on the surface and enjoy the young beavers enjoying themselves. She was impressed that animals so young would be so industrious, but eventually their playfulness got the better of them. It was after Dooro's fifth dive that his baby brothers

He took them to the bottom of the pond where he showed them how to scoop up armfuls of mud, old leaves and pebbles. His forepaws with their five toes and strong claws were particularly dexterous, and with the support of his paddle-like tail he could walk on his hind legs underwater. Arms full, Dooro actually walked up the side of the eight-foot dam to the surface where he began shoving mud into place with paws and snout. In following his example, the beaver kits were barely successful. Because of their size and underdeveloped coordination, mud melted from their grasp and they quickly discovered stealing Dooro's was an easier way to plaster. He good-naturedly allowed it, although a lot of mud seemed to be drifting back from where it came.

After one dive, Miena was content to stay on the surface and enjoy the young beavers enjoying themselves. She was impressed that animals so young would be so industrious, but eventually their playfulness got the better of them. It was after Dooro's fifth dive that his baby brothers

Appendix 3.3







Text feature analysis observing sheet

Physical features	
Title	
Author (s)	
Illustrator	
Year	
Publisher	
Length of book	
<p>Sizes</p> <ul style="list-style-type: none"> • Large (297 x 210mm / 11.7 x 8.3") • Medium (246 x 189mm / 9.7 x 7.4") • Small (198 x 129mm / 7.8 x 5.0") <p>Sizes as suggested by Penguin Reader</p>	
<p>Legibility</p> <ul style="list-style-type: none"> • Upper or lower case • The use of serif or san serif • Size of type • Justified or unjustified composition • Typographic effects <ul style="list-style-type: none"> - Bold - Underline - Italic - Capital letters 	
<p>Illustration</p> <ul style="list-style-type: none"> • Photograph – black & white/colour • Illustration - black & white / colour • Diagram 	
<p>Organization</p> <ul style="list-style-type: none"> • Content page • Chapter/Heading • Glossary • Organiser material • Cover 	

Content	
Genre <ul style="list-style-type: none"> • Picture book • Traditional literature • Fiction • Non-fiction • Biography • Poetry 	
Back ground knowledge of story / topic	
Other considerations	
Series <ul style="list-style-type: none"> • Book • TV series or movie 	

Appendix 3.4

Miscue coding guideline

Miscue	Symbol	
Substitution		<p>The substituted word is written above the appropriate part of the text.</p> <p>Write the substituted word exactly how it was pronounce.</p>
Insertion		<p>Use the insertion sign and write the word above</p>
Omission		<p>Circle the word, words or parts of words missing</p>
Repetition		<p>Underline the words repeated</p>
Correction		<p>Place a small c beside the corrected word or mc for miscorrection</p>
Hesitation / pause		<p>Indicates hesitation between two words</p> <p>Indicates extra long hesitation</p>

Appendix 3.5

Sample of miscues

C01 MARE1 [1.34-5.01]

Wind ^{hound} howled through the night, carrying a scent that would change the world. A

tall Shade lifted his head and sniffed the air. He looked human except for his

crimson hair and maroon eyes.

He blinked in surprise. The message ^{have} had been correct: they were here.

Or was it a trap? He weighed the odds, then said icily, "Spread out; hide behind

trees and bushes. Stop whoever is coming ... or die."

Around him shuffled twelve ^{ur} Urgals with short swords and round iron

shields painted with black symbols. They resembled men with bowed legs and

thick, ^{bru} brutish arms made for crushing. A pair of twisted horns grew ^{from} above their

small ears. The monsters hurried into the brush, grunting as they hid. Soon the

rustling ^{quiet} quieted and the forest was silent again.

The Shade peered around a thick tree and looked ^{from} up the trail. It was too

dark for any human to see, but for him the faint moonlight ^{his} was like sunshine

C01 MARE1 [1.34-5.01]

streaming ^{through} between the trees; every detail was clear and sharp to his searching gaze. He remained unnaturally quiet, a long pale sword in his hand. A wire-thin scratch ^{curved} down the blade. The weapon was thin enough to slip ^{slice} between a pair of ribs, yet stout enough to ^{stuck} hack through the hardest armor.

The Urgals could not see as well as the Shade; they ^{grouped} groped like blind beggars, fumbling with their weapons. An owl screeched, ^{cut-} cutting through the silence. No one relaxed until the bird flew past. Then the monsters shivered in the cold night; one snapped a twig with his heavy boot. The Shade ^{was} hissed in anger, and the Urgals shrank back, motionless. He suppressed his ^{and} distaste—they smelled like ^{fetid} meat—and turned away. They were tools, nothing more.

The Shade forced back his impatience as the minutes became hours. The scent must have wafted far ahead of its owners. He did not let the Urgals get up or warm, themselves. He denied himself those luxuries, too, and stayed behind

C01 MARE1 [1.34-5.01]

the tree, watching the trail. Another gust of wind rushed through the forest. The
smell was stronger this time. Excited, he lifted a thin lip in a snarl.

"Get ready," he whispered, his whole body ^{vibrated} vibrating. The tip of his
sword moved in small circles, It had taken many plots and much pain to bring
^{He} himself to this moment. It would not do to lose control now.

Eyes brightened under the Urgals' thick brows, and the creatures gripped
their weapons tighter; Ahead of them, the Shade heard a ^{clicking} clink as something hard
struck a loose stone. Faint smudges emerged from the darkness and advanced
down the trail.

Three white horses with riders ^{cantoned} cantered toward the ambush, their heads
held high and proud, their coats rippling in the moonlight like liquid silver.

[462 words]

C01 MARE2 [0.00- 3.40]

Cesare had hardly left the stables for days. His favourite mare, Starlight, was heavy with foal and until she gave birth, his place was with her. He even slept in the straw in the empty stall beside hers, with the result that his brown hair was and turning blond with straw dust and his clothes itching itched and prickled.

Now, after bolting his dinner before running back in to the stables, he hiccupped as he groomed his the grey mare, swiftly softly to her between his teeth. Starlight's mane was silver and in the twilight and, as he brushed it, she huffed and at him through her nostrils. She stirred restlessly in her stall.

Nothing mattered but Starlight. Cesare's family lived near the Ram stables with Popo and his father, Paolo, was the Horse master for the Twelfth of the Ram.

Polopo has Paolo had given him the responsibility of looking after Starlight and Cesare was determined not to let him down.

C01 MARE2 [0.00- 3.40]

'Not long, now, my beauty,' he whispered ^{as} and she ^{whispered} whickered back at ^{to} him, seeming to nod ^{with} her white head in the ^{darkness} darkening stables. The other horses were unsettled too. They were all ^{of} part Arab and highly strung, ^{and} the Ram was interested only in racing animals. In a stall on the other side, ^{Arcon} ^{Ar} Arcangelo the ^{uc} ^{gelding} ^{gelded} chestnut ^{geld} ^{gelding} shifted about in his sleep and ^{shifly} twitched his ears ^{twitching} in as if dreaming of victory.

^{C-lare} Cesare settled down to sleep in the straw and ^{his} his dreams were of victory too. He dreamed of the same thing, ^{with} by day and by night - to ride the Ram's horse in the Race of the Stars and to win.

A small grey cat ^{twinned} twined round the stable door and made her delicate way across to where Cesare was sleeping. Slowly, carefully, she ^{uc} ^{insinuated} ⁱⁿ insinuated herself into the ^a crook of his arm and began to purr.

C01 MARE2 [0.00- 3.40]

Just before midnight the sound's in the stable changed. Starlight was restless. At the same time Cesare woke up and was aware of his father's presence.

In ^{inervng} ^{that per}
It was unnerving the way Paolo did that. He always knew where he was needed

and when. He had brought a ^{sock} torch with him ^{and} which he ^{twisted} thrust into a ^{breaket} ^{uc bre} bracket set

high up in the wall so that sparks wouldn't set the straw on fire. Cesare sprang

lightly to his feet, dislodging the disgruntled cat, who went to wash in the

doorway.

By the flickering light of the torch, father and ^{his} son attended quietly to the

mare, whose time had come. It was an easy delivery, not her first. But as the foal

^{recorded}
slipped out into Cesare's hands, he recoiled as if it had been burning hot.

[430 words]

Appendix 3.6

Modified version of the In-Dept Procedure adapted from Goodman, Y., et al. (2005)

Example of CO1 for RE1

Participant			1	2	3	4	See 2,3,4			See 1,2,4				5			6		
			Syntactic acceptability	Semantic acceptability	Meaning change	Correction	Meaning construction	Partial loss	Loss	Grammatical relations	Overcorrection	Weakness	Strength	Graphic similarity	Some degree	No degree	Sound similarity	Some degree	No degree
Reader	Text																		
1	hound	howled	Y	Y	N	Y	/			/				/			/		
2	sense	scent	Y	Y	N	N	/			/				/			/		
3	have	had	Y	Y	N	N	/			/				/			/		
4	Ur	Urgals	N	N	-	Y	/			/				/			/		
5	bru	brutish	N	N	-	Y	/			/				/			/		
6	from	above	Y	Y	Y	N	/			/				/			/		
7	quiet	quieted	Y	Y	N	Y	/			/				/			/		
8	his	the	N	N	-	N	/			/				/			/		

Appendices

9	cerves	curved	N	N	-	Y	/			/					/			/	
10	through	between	Y	Y	Y	N		/		/						/			/
11	slice	slip	Y	Y	Y	N		/		/					/			/	
12	stuck	hack	Y	Y	Y	N		/		/					/				/
13	grouped	groped	Y	Y	Y	N		/		/				/			/		
14	cut	cutting	Y	Y	N	Y	/			/					/			/	
15	was	hissed	Y	Y	Y	N		/		/						/			/
16	and	they	P	P	-	N			/				/			/			/
17	vibrated	vibrating	Y	Y	N	N	/			/				/			/		
18	He	It	P	P	-	N			/				/			/			/
19	clicking	clink	Y	Y	N	Y	/			/				/			/		
20	cantoned	cantered	N	N	-	N			/				/		/		/		
a. Total miscue 20 b. Total words 462 a ÷ b x 100= 4.3 MPHWS			Column total				10	6	4	15	-	1	4	5	9	6	6	7	7
			Pattern total				20			20				20			20		
			Percentage				50	30	20	75	-	5	20	25	45	30	30	35	35

Retelling grading sheet

Example of CO1 retelling comparison sheets			
Case	Original Text	Participant's Retelling	Analysis / Assessments Level
C01 RE1	<p>Paolini, C. (2005). Eragon. London: Corgi Books.</p> <p>Wind howled through the night, carrying a scent that would change the world. A tall Shade lifted his head and miffed the air. He looked human except for his crimson hair and maroon eyes.</p> <p>He blinked in surprise. The message had been correct: they were here. Or was it a trap? He weighed the odds, then said icily, "Spread out; hide behind trees and bushes. Stop whoever is coming ... or die."</p> <p>Around him shuffled twelve Urgals with short swords and round iron shields painted with black symbols. They resembled men with bowed legs and thick, brutish arms made for crushing. A pair of twisted horns grew above their small ears. The monsters hurried into the brush, grunting as they hid. Soon the rustling quieted and the forest was silent again.</p> <p>***** Part of the text*****</p>	<p>Oh well there is a Shade in a place call Local Place Spine in Local Bit Field. And he is with this like a monster and they got horn that coming from behind of their ears and they are call Urgals. And then they taking over the villages. But haven't got the time where it says why.</p>	

Appendix 3.8

Irwin and Mitchell (1983) retelling criteria: *Judging Richness of Retellings*

Level	Criteria for establishing level
5	Student generalizes beyond text; includes thesis (summarizing statement), all major points, and appropriate supporting details; includes relevant supplementation; show high degree of coherence, completeness, comprehension.
4	Student includes thesis (summarizing statement, all major points, and appropriate supporting details; includes relevant supplementations; shows high degree of coherence, completeness, comprehension.
3	Student relates major ideas; includes appropriate supporting details and relevant supplementations; shows adequate coherence, completeness, comprehension.
2	Student relates a few major ideas and some supporting details; includes irrelevant supplementations; show some degree of coherence; some completeness; the whole is somewhat comprehensible.
1	Student relates details only; irrelevant supplementations or none; low degree of coherence; incomplete; incomprehensible.

Appendix 3.9

Quantitative assessment of retelling (Morrow, 1988, p. 139)

Quantitative: Evaluating Free Recall*

1. Divide the passage to be read into units of your own choosing for instance, by phrases or clauses. Mark the end of each unit with a slash. Be consistent in your unit definitions and divisions from passage to passage.
2. On a sheet of paper, list your units in sequence, with empty lines to the left and to the right of each unit, forming three columns down the sheet.
3. Assign each unit a number from 1 to 3 and write the number in the blank to the left of each unit: 1 for important unit like a main idea, 2 for moderately important unit, and 3 for an unimportant detail.
4. Let the student read or listen to the story in its original format, then ask the student to retell it, using prompts as necessary.
5. Record the student's retelling on tape.
6. Analyse the student's recorded retelling by numbering the units on the right hand side of your guide sheet in the sequence in which the student has recalled them. Leave a blank by those units the student did not recall.
7. Compare the sequence in which the student has recalled the units with their sequence in the original story.
8. Tabulate the number units the student recalled.
9. Note the assigned level of importance of each unit the student recalled.
10. To quantify the data, divided the number of recalled units at each level of importance by the total number of units at that level in the original story. The resulting three percentages indicate how closely the student's comprehension is biased toward the more important units.

Appendix 3.10

Qualitative assessment of retelling (Morrow, 1988, p. 140-141)

Directions Indicate with checkmark the extent to which the reader's retelling includes or provided evidence of the following information.

		None	Low degree	Moderate degree	High degree
1.	Retelling includes information directly stated in text.				
2.	Retelling includes information inferred directly or indirectly from text.				
3.	Retelling includes what is important to remember from the text.				
4.	Retelling provides relevant content and concepts.				
5.	Retelling indicates reader's attempt to connect background knowledge to text information.				
6.	Retelling indicates reader's attempt to make summary statements or generalizations based on text that can be applied to the real world. Retelling indicates highly individualistic and creative impressions of or reactions to the text.				
8.	Retelling indicates the reader's affective involvement with the text.				
9.	Retelling demonstrates appropriate use of language (vocabulary, sentence structure, language conventions).				
10.	Retelling indicates reader's ability to organise or compose the retelling.				
11.	Retelling demonstrates the reader's sense of audience or purpose.				
12.	Retelling indicates the reader's control of the mechanics of speaking.				

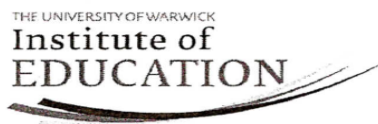
Interpretations item 1-4 indicate the reader's comprehension of textual information; items 5-8 indicate metacognitive awareness, strategy use, and involvement with text; item 9-12 indicate facility with language and language development.

Appendix 3.11

Interview data reliability sheet

Num	Participants statement	Categories	Tick
1	IC02FY-08RE1 <i>'No I think all of us is a good reader it just some of us need help. They read to a confident reader. [REDACTED], she can't get distracted like me. Like people mess around when we read, [REDACTED] like didn't pick up any notice. She like get into the book.'</i>	Layout	
		Content or topic	
		Genre or categories	
		Storyline	
		Popular or trendy	
		Vocabulary variety	
		Collection or series	
		Reader's characters	
		Reader's reading techniques	
		Reader's reason for reading	
	Your category suggestion		
2	IC06MY-08RE1 <i>'[REDACTED] cause I used to be in the same group and I heard her read. She like... you can like get into the story what actually happen in it. She like speak like the characters going to say it. Like if they are angry or sad.'</i>	Layout	
		Content or topic	
		Genre or categories	
		Storyline	
		Popular or trendy	
		Vocabulary variety	
		Collection or series	
		Reader's characters	
		Reader's reading techniques	
		Reader's reason for reading	
	Your category suggestion		
3	IC02FY-08RE1 <i>'Should be able to know when they sound wrong. Like be able to understand not like pick a book because of the cover but actually read it. Read different set of book and enjoy reading'.</i>	Layout	
		Content or topic	
		Genre or categories	
		Storyline	
		Popular or trendy	
		Vocabulary variety	
		Collection or series	
		Reader's characters	
		Reader's reading techniques	
		Reader's reason for reading	
	Your category suggestion		

Ethical approval for Research Degree



**Application for Ethical Approval for Research Degrees
(MA by research, MPHIL/PhD, EdD)**

Name of student

MISS DAHLIA JANAN

MA
By
research

EdD

PhD
✓

Project title:

A New Model of Readability

Supervisor

PROFESSOR DAVID WRAY

Funding Body (if relevant)

Minister of Higher Education Malaysia

Please ensure you have read the Guidance for the Ethical Conduct of Research available in the handbook.

Methodology

Please outline the methodology e.g. observation, individual interviews, focus groups, group testing etc.

Individual Interview.

Participants

Please specify all participants in the research including ages of children and young people where appropriate. Also specify if any participants are vulnerable e.g. children; as a result of learning disability.

Children (5-6 years old)

Children (9-10 years old)

Adult (above 18 years old)

Respect for participants' rights and dignity

How will the fundamental rights and dignity of participants be respected, e.g. confidentiality, respect of cultural and religious values?

Work in the school policy and guidelines.

How will confidentiality be assured? Please address all aspects of research including protection of data records, thesis, reports/papers that might arise from the study.

How will you ensure that all methods used are undertaken with the necessary competence?

Recruitment of participants

How will participants' safety and well-being be safeguarded?

Will a CBB check be needed? Yes/No (If yes, please attach a copy.)

Addressing dilemmas

Even well planned research can produce ethical dilemmas. How will you address any ethical dilemmas that may arise in your research?

I will seek advice from school head teacher and will also consult my supervisor and the Head of Institute ethics committee.

Misuse of research

How will you seek to ensure that the research and the evidence resulting from it are not misused?

I will follow the BERA codes and guideline.

Support for research participants

What action is proposed if sensitive issues are raised or a participant becomes upset?

I will follow the help list recognised by the ethical principles in research as outline in BERA codes.

Integrity

How will you ensure that your research and its reporting are honest, fair and respectful to others?

I will follow the recognised ethical principles in research as outline in BERA codes.

What agreement has been made for the attribution of authorship by yourself and your supervisor(s) of any reports or publications?

Yes

Other issues?

Please specify other issues not discussed above, if any, and how you will address them.

Appendices

Because of the young age of children will be involved, obtaining prior consent was not thought to be appropriate. The children therefore would be ask at the start of each session, whether they will be willing to participate. They will be told that they can leave at anytime during the session.

Signed

Research student D

Date 5/9/08

Supervisor

ptv

Date 5/9/08

Action

Please submit to the Research Office (Louisa Hopkins, room WE132)

Action taken



Approved



Approved with modification or conditions – see below



Action deferred. Please supply additional information or clarification – see below

Name

G. LINDSAY

Date

17/9/08

Signature

aff


Stamped

Notes of Action

CRB Check Certificate

Enhanced Disclosure

Page 1 of 2



Applicant Personal Details

Surname: JANAN

Forename(s): DAHLIA

Other Names: NONE DECLARED

Date of Birth: [REDACTED]

Place of Birth: [REDACTED]

Gender: FEMALE

Disclosure Number 001184380686

Date of Issue: 04 JANUARY 2008

Employment Details

Position applied for:
EDUCATION/SCHOOLS VOLUNTEER

Name of Employer:
THE UNIVERSITY OF WARWICK

Countersignatory Details

Registered Person/Body:
UNIVERSITY OF WARWICK

Countersignatory:
JAMES DARWEN

Police Records of Convictions, Cautions, Reprimands and Final Warnings

NONE RECORDED

Information from the list held under Section 142 of the Education Act 2002

NONE RECORDED

Protection of Children Act List information

NONE RECORDED

Protection of Vulnerable Adults List information

NONE RECORDED

Other relevant information disclosed at the Chief Police Officer(s) discretion

NONE RECORDED


Enhanced Disclosure

This document is an Enhanced Criminal Record Certificate within the meaning of sections 113B and 116 of the Police Act 1997.

Use of Disclosure information

Continued on page 2

THIS DISCLOSURE IS NOT EVIDENCE OF IDENTITY


 Criminal Records Bureau, PO Box 165, Liverpool, L69 3JD Helpline: 0870 90 90 844

© Crown Copyright 2008

Enhanced Disclosure		disclosure	
Page 1 of 2			
		Disclosure Number	001229235882
		Date of Issue:	13 MARCH 2009
Applicant Personal Details		Employment Details	
Surname:	JANAN	Position applied for:	EDUCATION/SCHOOLS VOLUNTEER
Forename(s):	DAHLIA	Name of Employer:	THE UNIVERSITY OF WARWICK
Other Names:	NONE DECLARED	Countersignatory Details	
Date of Birth:		Registered Person/Body:	UNIVERSITY OF WARWICK
Place of Birth:		Countersignatory:	JAMES DARWEN
Gender:	FEMALE		
Police Records of Convictions, Cautions, Reprimands and Final Warnings			
NONE RECORDED			
Information from the list held under Section 142 of the Education Act 2002			
NONE RECORDED			
Protection of Children Act List information			
NONE RECORDED			
Protection of Vulnerable Adults List information			
NONE RECORDED			
Other relevant information disclosed at the Chief Police Officer(s) discretion			
NONE RECORDED			
Enhanced Disclosure			
This document is an Enhanced Criminal Record Certificate within the meaning of sections 113B and 116 of the Police Act 1997.			
Continued on page 2			
THIS DISCLOSURE IS NOT EVIDENCE OF IDENTITY			
Criminal Records Bureau, PO Box 165, Liverpool, L69 3JD Helpline: 0870 90 90 844			
© Crown Copyright 2009			

Appendix 3.14

Certificate of Good Conduct


 **MINISTRY OF FOREIGN AFFAIRS**
Wisma Putra, No. 1, Jalan Wisma Putra,
Presint 2, 62602 Putrajaya,
Malaysia.

Tel : 603 - 8889 2849
Fax : 603 - 8889 2923


(050)380/2-2
2 JULY 2007

TO WHOM IT MAY CONCERN

**THIS IS TO CERTIFY THAT THE GOVERNMENT OF MALAYSIA HAS NO
ADVERSE RECORD ON MS. DAHLIA BINTI JANAN, HOLDER OF
MALAYSIAN PASSPORT NO. [REDACTED]**

 **MINISTRY OF FOREIGN AFFAIRS
CONSULAR**

**for SECRETARY GENERAL
MINISTRY OF FOREIGN AFFAIRS
MALAYSIA**



Information sheet



Information Sheet

Project Title: *“A New Model of Readability”*

Date: *1st October 2008*

Dear Head Teachers,

Your school is invited to take part in a research study which is being conducted as part of a PhD degree at the Institute of Education, the University of Warwick. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please feel free to contact us if you would like more information or you have any concerns regarding this research. Take time to decide whether or not you wish to take part.

1) What is the purpose of this study?

The purpose of this study is to develop a new theory of readability.

2) Why is the study being done?

Choosing what sorts of materials to provide for pupils is a huge challenge for educators and other professionals. Providing pupils with suitable materials to work with can give rise to various concerns one of which is the issue of readability. Hence, this research being done to gather data or evidence the interaction between the readers and the text and its relationship with readability.

3) Why do your school been invited to participate?

Your school has been invited to take part in this study because this study intends to collect data from pupils in Reception and Key Stage 2 classes.

4) Do your school have to take part?

It is up to you to decide whether your school will or not to take part. If your school decide to take part, I should be very grateful if you could sign a consent form for this study. Your school will be free to withdraw at any time and without giving a reason. This decision will not affect you or your rights in any way.

5) What will happen during the research?

During the research I will visit your school occasionally to interview the chosen pupils who have agreed to participate. There will be two interview session and each interview session it will take approximately one hour. There will be gap of one to two week between the two interview sessions.

Throughout the interview session the participant will be asked to read some reading material which they prefer and a discussion will take place after that. The aim of the reading and interview session is to find out the interaction between the text and the reader. Those sessions are not an assessment to judge the reading level of the participant.

To gather the appropriate participant for this research I will need some small help from the class teacher to identify a pupil who can read. I would also like to work with student from various ethnic groups.

6) Will my school taking part in the study be kept confidential?

The use of any information that identifies the participant and your school name during the course of the research will be kept strictly confidential. This information will be kept in a secure place and only people involved in the study or authorised individuals will have access to it.

7) What happens when the research stops?

The data obtained will be used for internal publication of a PhD Project and submitted for assessment with a view to being published at a later date in academic journals/ conferences. We can also send participants a summary of the study results on request.

8) Contact details

If you would like any further information please contact:

Phd Research Student
Dahlia Janan
Institute of Education
University of Warwick
Coventry, CV4 7AL

Supervisor
Professor David Wray
Deputy Director
Professor of Literacy Education
Institute of Education

Mobile: 07747525355
Email: d.janan@warwick.ac.uk
Web: <http://go.warwick.ac.uk/ep-edrhah>
<http://www.warwick.ac.uk/staff/D.J.Wray/>

Tel: 0276522057
Email: d.wray@warwick.ac.uk
Web:

Thank you for taking the time to read this information

Appendix 3.16

School consent letter



Research on a New Model of Readability

Dear,

.....

My name is Dahlia Janan and I am a PhD research student at the Institute of Education, University of Warwick. I will be carrying out a research study for my doctoral thesis on: “*A New Model of Readability*”. The aims and objectives of my study are explained in the information sheet that is attached to this email/letter.

I am writing to you as your school is one of the University of Warwick partnership schools, to kindly ask for your permission to conduct my research study in your school. If you would agree to give me permission and to participate in my study, there would be only a commitment required from the staff involved, that is the class teachers, and this would largely entail conversation around the achievement and background of the pupils who would be engaged as participants in the research.

For the purpose of this research study, I would like to interview a few pupils from your school. The pupils that I am keen work with are students from the reception and Year 6 classes. During the study, both the school’s and the participants’ names will be respected and will be confidential, and I will make sure that both your school and the individuals that I will work with will not be identified in any way.

My research study is divided into two stages. The first and the second stage will include an interview with the participants and each interview will take approximately an hour. In the interview sessions the participants will be asked to read some reading material and answer a few questions regarding this material and their preference towards it.

Whilst there are no direct benefits to your school for participating in this study, the information from the interviews should help all of us learn more about the educational needs for providing suitable reading materials to our pupils. The University of Warwick appreciates the participation of professionals who help its excellent operation by developing knowledge through research.

If you have any questions about this research study, you may always contact me at: Dahlia Janan; 07747525355; d.janan@warwick.ac.uk, or my supervisor Professor David Wray at: 0276522057; d.wray@warwick.ac.uk.

If you agree to participate in this research study, please return a signed copy of this form to me in the enclosed envelope. You may keep the other copy for your future reference.
 “I have read this permission form and I agree that my school will participate in this research study”.

 Name of School

 Printed Name of Head teacher

 Signature of Head teacher

 Date

Appendix 3.17

Parents consent letter

School goal

School address

22nd May 2009

Dear Parent/Guardian of

Your child has been selected to join a small group of children given the opportunity to take part in aiding a Warwick University research project. They will be given reading materials and asked to give their opinion.

This will be carried out during the school day and will involve the child being recorded. The recordings will be anonymous and used for research at the university.

If you are happy for your child to take part, please return the form below by Tuesday 2nd June. Children will not be included if a form has not been received.

Yours sincerely

School office
manager signature

Class teacher name

I give my permission for to be given
materials and be anonymously recorded by a Warwick University

Signed Date

Please print name



Appendix 4.1

Text grade levels

Grade scores and means predicted by six formulae applied to 63 texts used in this study

Texts	SMOG	FOG	Flesch-Kincaid	Spache	Dale-Chall	ATOS
1	6.79	6.07	4.39	4.82	9.92	3.9
2	9.35	9.32	6.77	4.88	9.15	4.2
3	6.29	4.76	4.09	3.5	10.55	2.8
4	7.63	7.44	6.22	4.63	8.89	3.9
5	8.5	7.67	5.37	4.38	9.13	3.5
6	8.11	8.7	6.24	4.54	8.79	3.7
7	8.17	7.16	5.24	4.39	9.99	3.2
8	10.17	10	7.76	5.41	9.85	4.4
9	8.21	7.29	5.35	4.20	9.04	3.20
10	8.21	7.29	5.35	4.2	9.04	3.2
11	8.84	9.08	6.83	4.87	9.04	4.2
12	8.43	7.49	5.76	5.06	10.38	3.6
13	8.58	7.9	4.79	4.26	9.43	3.6
14	8.4	7.42	4.95	4.45	9.65	3.1
15	7.17	5.74	4.24	4.38	10.61	3.6
16	7.85	6.93	5.01	4.38	9.68	3.6
17	9.47	9.12	6.02	4.31	9.03	3.8
18	9.77	12.46	10.46	5.83	8.19	3.9
19	8	6.82	4.93	4.45	10.46	3
20	8.84	9.08	6.83	4.69	9.08	9
21	6.11	4.71	2.9	3.43	8.77	3.6
22	7.43	7.2	5.03	4.13	8.9	4.6
23	9.37	9.13	6.24	4.78	9.7	4.3
24	9.12	8.51	6.49	4.97	10.19	8
25	5.48	4.1	3.02	3.78	10.34	3.3
26	7.69	6.55	4.69	4.08	9.61	4.1
27	6.79	5.68	4.88	4.25	11.02	2.7
28	8.67	7.85	5.99	4.4	9.56	3.5
29	8.44	7.81	5.51	4.28	8.84	3.2
30	8.2	7.2	4.33	4.33	8.91	4.1
31	5.32	4.51	3.75	4.24	10.78	2.7
32	7.39	6.14	4.3	4.04	9.32	3.1
33	4.59	2.71	0.32	3.18	9.48	2.4

Appendices

34	5.65	4.38	2.31	3.78	9.25	2.5
35	7.12	5.62	4.94	3.27	8.79	4.1
36	7.23	6.54	4.94	4.37	9.54	3.7
37	5.79	4.21	3.64	3.72	10.42	3.1
38	7.59	6.39	4.42	4.44	9.7	5.2
39	5.26	3.63	2.9	3.6	10.4	2.8
40	6.22	4.43	2.99	3.77	9.88	3.1
41	7.4	6.36	4.57	3.98	9.51	2.7
42	8.12	7.13	4.18	4.26	8.89	3
43	7.53	6.35	4.18	3.64	9.75	2.3
44	7.84	6.59	4.49	4.71	10.51	3
45	6.63	5.25	4.2	4.07	9.67	3.1
46	7.06	6.28	4.3	4.55	9.36	5.2
47	6.47	4.88	2.1	3.98	9.06	2.3
48	6.94	5.79	4.78	4.32	10.06	2.4
49	4.69	4.19	2.88	3.92	9.69	5.2
50	7.38	6.02	5.22	4.7	9.78	3.3
51	5.99	4.92	4.17	3.36	8.23	1.9
52	6.92	6.33	4.1	3.76	7.63	4.5
53	4.14	2.42	0.72	3.01	9.59	1.3
54	4.41	2.55	0.37	2.33	10.43	1
55	5.9	3.91	3.22	3.87	10.99	0.8
56	4.41	2.55	0.37	2.33	10.43	1
57	0	1.6	-0.26	3.42	12.61	0.4
58	3.98	1.97	-2.63	2.47	8.93	1
59	5.22	3.15	4.14	3.24	10.73	1
60	4.96	2.63	0.73	2.74	10.19	1.3
61	4.6	2.1	1.95	4	14.88	0.7
62	0	1.6	-0.26	3.42	12.61	0.4
63	0	1.6	-0.26	3.42	12.61	0.4
64	0	1.6	-0.26	3.42	12.61	0.7
Mean	6.64	5.80	3.96	4.05	9.88	3.13