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**EXPLORING TEACHERS'
CONCEPTIONS AND IMPLEMENTATION
OF
DIFFERENTIATED READING
IN
PRIMARY AND ELEMENTARY SCHOOLS.**

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TABLE OF CONTENTS

List of Tables.....	x
List of Figures	xiii
List of Appendices	xiv
Acknowledgements	xv
Declaration	xvi
Abstract	xvii
Summary	xviii
Glossary	xx
Acronyms	xxi
Chapter One: Introduction.....	1
1.0 Chapter Overview	1
1.1 Introduction.....	1
1.2 Context and Rationale of this Research	3
1.3 Purpose of this Research	4
1.4 Key Concepts	5
1.4.1 Differentiated Reading (DR)	5
1.4.2 Zone of Proximal Development (ZPD).....	6
1.4.3 Content, Process, and Product	7
1.5 Overview of Dissertation	7
Chapter Two: Framing an Analysis of Differentiated Reading using Vygotskian Learning Theory	9
2.0 Introduction.....	9
2.1 Theories of Learning	9
2.2 Vygotsky's Theories on Learning and Development	10
2.2.1 Cultural Historical (CH) Theory.....	11
2.2.2 Dialectical Synthesis.....	12
2.2.3 Role of Language.....	14
2.2.3.1 Ego-centric Speech	15
2.2.3.2 Inner Speech.....	15
2.2.4 Zone of Proximal Development (ZPD).....	18
2.2.4.1 The Social Situation of Development (SSD).....	18
2.2.5 The Relationship of the ZPD to CH Theory	20
2.3 ZPD and Collaboration	21
2.4 ZPD and Differentiated Reading.....	23
2.4.1 Establishing ZPD through Collaboration	24
2.4.2 Oral Language	25
2.4.3 Establishing ZPD through Imitation	26
2.4.4 Creating Meaning through Dialogue	27
2.4.5 Consciousness and Dialogue	29
2.5 Relationship of DR to Vygotsky and Reading	32
2.5.1 Similarities between the ZPD and DR	34
2.5.2 Discrepancies between Traditionally Accepted View of ZPD and DR	35

2.6 Perceived Difficulties with Vygotsky's Theories on Education.....	36
2.7 Key Messages from Vygotsky's Literature	37
2.8 Interpretations of Vygotsky's Literature by Vygotskian Scholars	39
2.9 Conclusion.....	41
Chapter Three: Educational Systems in Dublin, Ireland and in Houston, Texas, US.	43
3.0 Introduction	43
3.1 Education System in Dublin, Ireland.....	43
3.1.1 Primary Education.....	43
3.1.2 The Primary Curriculum	44
3.1.3 The Cultural Historical Context of Irish Primary (National) Education	45
3.1.3.1 The Influence of Church and State	45
3.1.3.2 The Irish Language	46
3.1.4 Delivering Equality of Opportunity in Schools, (DEIS)	47
3.2 The Education System in the United States.....	49
3.2.1 The Education System in Texas.....	50
3.2.2 The Elementary Curriculum.....	51
3.2.3 Elementary Schools.....	51
3.2.4 Cultural Historical Context of Elementary Education in the US.....	52
3.2.4.1 European Settlers/Colonists	52
3.2.4.2 Native Americans	53
3.2.4.3 African Americans	53
3.2.4.4 Eugenics	54
3.2.5 Disadvantaged Schools in the US	55
3.2.6 Education Programmes for Disadvantaged Students in the US	56
Chapter Four: Literature Review – Differentiated Reading	59
4.0 Introduction	59
4.1 Differentiated Instruction	60
4.2 Differentiated Reading (DR)	61
4.3 Differentiated Reading Models	63
4.3.1 The Response to Intervention (RTI) Model	65
4.3.1.1 Response to Intervention (RtI) Research	67
4.3.2 Schoolwide Enrichment Model (SEM-R)	68
4.3.2.1 Schoolwide Enrichment Model (SEM-R) Research	68
4.4 DR Research Studies	72
4.4.1 Limitations of Selected DR Studies	75
4.4.2 Key Messages Emanating from the Empirical Review	76
4.4.3 Impact of Research on Current Study	78
4.4.4 Irish Primary Education Policy in Relation to DR Research	79
4.5.1 Teachers' Conceptions of DR	82
4.5.2 DR Implementation.....	83
4.5.3 Teachers' Response to Students' Learning Needs	86
4.6 Reading	86
4.6.1 Effective Teachers and the Teaching of Reading.....	90
4.6.2 Reading Policy in Irish Primary Schools	93

4.7 Modification of Content, Process, and Product.....	95
4.7.1 Content.....	97
4.7.2 Process	98
4.7.3 Product.....	98
4.7.4 Learning Environment	99
4.8 Obstacles to DR	100
4.9 Facilitating Factors.....	103
4.9.1 Assessment	105
4.9.2 Flexible Group-work.....	108
4.10 Elements Associated with Vygotsky’s ZPD that are Relevant to DR	110
4.10.1 Oral Language	110
4.10.2 Modelling/Imitation	112
4.10.3 Collaboration	113
4.10.4 Comprehension and Meaning-Making.....	115
4.11 Chapter Four Summary	118
Chapter Five: Methodology	121
5.0 Introduction.....	121
5.1 Research Structure	121
5.1.1 Study Design guided by the Literature Review	123
5.1.2 Theoretical Considerations	125
5.1.3. Case Study	128
5.2 The Questionnaire	129
5.2.1 Questionnaire – First Pilot Study.....	129
5.2.2 Questionnaire – Second Pilot Study	129
5.2.3 Main Questionnaire	130
5.2.4 Research Sampling and Procedure.....	131
5.2.5 Questionnaire Data Analysis	133
5.3 Lesson-Plan Evaluations	133
5.3.1 Lesson-Plan Evaluation Design and Content.....	134
5.3.2 Lesson-Plan Pilot Study.....	134
5.3.3 Lesson-Plan Procedure	135
5.4 Semi-Structured Interviews.....	136
5.4.1 Semi-Structured Interview Design and Content	136
5.4.2 Interview Pilot Study	137
5.4.3 Interview Procedure.....	137
5.4.4 Lesson-Plan Evaluation and Interview Analysis.....	138
5.5 Ethics, Confidentiality, Reliability and Validity	140
5.5.1 Research Approval.....	140
5.5.2 The Hawthorne Effect.....	141
The Hawthorne effect, ...	141
5.5.3 Validity, Reliability and Possible Threats to Data Interpretation	141
5.5.4 Minimising the Researcher’s Impact on Participants.....	142
5.6 Chapter Summary	143

Chapter Six: Findings from the Dublin Case Study	144
6.0 Introduction	144
6.1 Participating Schools and Teachers.....	145
6.1.1 Profile of Survey Participants	146
6.1.2 Profile of Lesson–Plan Evaluation Participants (B1-5).....	147
6.1.3 Profile of Dublin Interviewees (C1-5)	147
6.2 Results	148
6.3 Teachers Conceptions about DR	149
6.3.1. Teachers’ Understanding of DR.....	149
6.3.2 Impact of DR on Reading and Comprehension.....	150
6.3.3 DR Implementation.....	150
6.3.4 The DR Environment	151
6.3.5 Assessment.....	152
6.3.6 Evaluating Students’ Reading Readiness	154
6.4 Factors Informing DR	155
6.4.1 Reading	156
6.4.2 Class Texts	157
6.4.3 Flexible Grouping	158
6.4.4 Summary	161
6.5 Differentiating Content, Process and Product	162
6.5.1 Differentiation by Content	163
6.5.2 Differentiation by Process.....	164
6.5.3 Differentiation by Product.....	165
6.5.4 Resources	166
6.5.5 Thematic Analysis of Five Lesson-plan Evaluations and Five Interviews.....	166
6.5.6 Summary	168
6.6 Factors Facilitating DR	169
6.7 Perceived Obstacles to DR	171
6.7.1 Summary.....	173
6.8 Elements Associated with Vygotsky’s ZPD that are Relevant to DR	173
6.8.1 Language as a Tool	173
6.8.2 Modelling/Imitation	175
6.8.3 Collaboration.....	176
6.8.4 Comprehension and Meaning-making	176
6.8.5 Summary	178
6.9 Chapter Summary.....	179
Chapter Seven: Findings from the Houston Case Study	182
7.0 Introduction	182
7.1. Participating Schools and Teachers.....	182
7.1.1 Profile of Survey Participants	183
7.1.2 Profile of Lesson–Plan Evaluation Participants (Y1-5)	184
7.1.3 Profile of Five Houston Interviewees (Y1-5).....	184
7.2 Results	185
7.3 Teachers Conceptions about DR	185

7.3.1. Teachers' Understanding of DR	185
7.3.2 Impact of DR on Reading and Comprehension	186
7.3.3 DR Implementation	187
7.3.4 The DR Environment.....	187
7.3.5 Assessment	189
7.3.6 Evaluating Students' Reading Readiness.....	191
7.4 Factors Informing DR	193
7.4.1 Types of Reading.....	194
7.4.2 Class Texts.....	195
7.4.3 Flexible Grouping.....	196
7.4.4 Summary.....	197
7.5 Differentiating Content, Process and Product	198
7.5.1 Differentiation by Content	198
7.5.2 Differentiation by Process	200
7.5.3 Differentiation by Product	201
7.5.4 Resources.....	203
7.5.5 Thematic Analysis of Lesson-plans and Interviews.....	203
7.5.6 Summary of DR implementation through Content, Process and Product	204
7.6 Factors Facilitating DR	205
7.7 Perceived Obstacles to DR.....	206
7.8 Elements Associated with Vygotsky's ZPD that are Relevant to DR	208
7.8.1 Language as a Tool	208
7.8.2 Modelling/Imitation.....	210
7.8.3 Collaboration	210
7.8.4 Comprehension and Meaning-making.....	212
7.8.5 Summary.....	214
7.9 Chapter Summary	215
Chapter Eight: Case Study Analysis.....	219
8.0 Introduction.....	219
8.1 Participating Schools and Teachers.....	220
8.1.1 Similarities.....	220
8.1.2 Differences.....	221
8.1.3 Less-experienced and Experienced Teachers.....	222
8.1.4 Teachers in Advantaged and Disadvantaged Schools.....	223
8.2 Conceptions about DR and DR implementation	226
8.2.1 Teachers Conceptions about DR.....	226
8.2.2 Impact of DR on Reading and Comprehension	228
8.3 Reasons for DR Implementation	229
8.3.1 Differences in Reasons for DR Implementation	229
8.4 Differentiating Content, Process and Product	230
8.4.1 Similarities in Relation to Content, Process and Product	230
8.4.2 Differences in differentiating Product, Process and Content	232
8.5 DR Environment	233
8.5.1 Similarities in a DR Environment.....	233

8.5.2 Differences in a DR Environment	234
8.5.3 Flexible Groups	235
8.5.4 Assessment	236
8.5.5 DR Elements	238
8.5.5.1 Similarities in DR Elements	238
8.5.5.2 Differences in DR Elements	239
8.5.6 Reading Practices	239
8.5.7 Class Texts	241
8.6 Factors that Facilitate and Hinder DR	242
8.6.1 Similar Factors found in Dublin and Houston	242
8.6.2 Different Factors in Dublin and Houston	243
8.6.3 Perceived Obstacles to DR	244
8.6.3.1 Similar Obstacles	244
8.6.3.2 Differences in Obstacles	245
8.6.4 Teachers' DR Practices: Summary	246
8.7 Elements Associated with Vygotsky's ZPD that are Relevant to DR	248
8.7.1 Oral Language - Language as a Tool	248
8.7.1.1 Similarities	249
8.7.2 Modelling/Imitation	249
8.7.2.1 Similarities	251
8.7.2.2 Differences	251
8.7.3 Collaboration	251
8.7.3.1 Similarities	252
8.7.3.2 Differences	253
8.7.4 Comprehension and Meaning-making	253
8.7.4.1 Comprehension Strategies - Similarities	254
8.7.4.2 Differences	256
8.7.4.3 Meaning-Making	256
8.7.4.4 Discussion	257
8.7.4.5 Literacy Circles	259
8.7.5 Summary	261
8.7.5.1 Similarities	262
8.7.5.2 Differences	262
8.8 Differences between the Survey Data and the Qualitative Data	262
8.8.1 Survey Data - Differences between Dublin and Houston	263
8.8.2 Qualitative Data - Differences between Dublin and Houston	264
8.9 Chapter Summary	265
8.9.1 Similarities	265
8.9.2 Differences	267
Chapter Nine: Conclusions and Implications	269
9.0 Introduction	269
9.1 Context of this Study	269
9.2 Overall Conclusions	269
9.3 Conclusions in relation to the Research Questions	270

9.3.1 Question One: Teachers' Conceptions about DR	271
9.3.2 Question Two: Modification of Content, Process, and Product Related to DR Practices.....	271
9.3.3 Question Three: Factors that Facilitate and Hinder DR Implementation.....	273
9.3.4 Question Four: Elements Associated with Vygotsky's ZPD that are Relevant to DR.....	273
9.4 Significance and Contribution of Current Thesis	276
9.5 Personal Reflection on the Research Journey	278
9.6 Limitations of this Research.....	280
9.7 Recommendations	280
9.8 Conclusion	281
Bibliography	283
Appendix A-1: Final Questionnaire Dublin	349
Appendix A-2: Final Questionnaire Houston Extract p. 12.....	355
Appendix A-3: Pilot Questionnaire.....	357
Appendix A-4: Pilot Survey Feedback Sheet	361
Appendix B-1: Final DR Lesson-plan Evaluation Template	362
Appendix B-2: Lesson-plan Email and Consent Form.....	364
Appendix B-3: Pilot Lesson-plan Feedback Sheet	365
Appendix B-4: Lesson-plan Evaluation Sample - Houston (Y2)	366
Appendix B-5: Lesson-plan Sample – Houston - Y2	369
Appendix C-1: Final Interview Questions.....	370
Appendix C-2: Interview Email and Consent Form.....	371
Appendix C-3: Pilot Interview Feedback Sheet	372
Appendix C-4: Interview Sample Transcript - Dublin.....	373
Appendix D: Research Ethics Approval, Trinity College Dublin	374
Appendix E: Letters and Correspondence	375
Appendix E-1: Letter to Principal/Headteacher	375
Appendix E-2: ISD Research Approval Letter	376

LIST OF TABLES

Table 2.1: DR Concepts and Learning Theorists	9
Table 2.2: Differences between Vygotsky and Piaget	11
Table 2.3: Similarities between the DR and ZPD	34
Table 2.4: Discrepancies between DR and ZPD and Possible Solutions	35
Table 3.1: Similarities between the Two Educational Systems	57
Table 3.2: Differences between Dublin and Houston Educational Systems	58
Table 4.1: DR Models.....	63
Table 4.2: Grade-level Differentiation Plan (Walpole & McKenna, 2009, p. 7)	66
Table 4.3: Six Categories That Motivate Children’s Reading (Opitz & Ford (2008, p. 13) based on Edmunds and Bauserman (2006)	88
Table 4.4: Four Perspectives on Reading	89
Table 4.5: Practices of Effective Teachers across Eight Reviews and Studies	91
Table 4.6: DR Component Modification	95
Table 5.1: Mixed Method Approach.....	122
Table 5.2: Different Terms between Dublin and Houston	131
Table 5.3: Sample Schools and Teachers	132
Table 5.4: Lesson-Plan Evaluation Participants (B1-5); (Y1-5).....	135
Table 5.5: Ten Interviewees (C1-5); (Z1-5).....	138
Table 6.1: Coding of Respondents (n=645).....	144
Table 6.2: Dublin (n=330) Teacher Gender and Class Size (percentage).....	146
Table 6.3: Dublin Lesson-Plan Evaluation Participants (B1-5).....	147
Table 6.4: Dublin: Five Interviewees (C1-5).....	148
Table 6.5: Dublin: Themes based on Research Questions and Literature Review	148
Table 6.6: Dublin: Teachers’ Conceptions of DR (n=227 – 69%).....	149
Table 6.7: Dublin: DR Implementation	151
Table 6.8: Dublin (n=330): DR Environment %.....	151
Table 6.9 Dublin (n=330): Assessment Employed in DR.....	153
Table 6.10: Dublin (n=330): Evaluating Children’s Reading Readiness (%)	154
Table 6.11: Dublin (n=330): Factors Informing Teachers’ DR (percentage)	155
Table 6.12: Dublin (n=10): LP Respondents and Interviewees: Types of Reading Employed.....	156
Table 6.13: Dublin (n=330): Importance of Flexible Groups	158
Table 6.15: Dublin (n=330): Flexible Groups for Different Activities	159
Table 6.15: Dublin (n=330): Frequency of Flexible Groups (%).	159
Table 6.16: Dublin (n=330): Groupings used by LP Respondents and Interviewees	160
Table 6.17: Dublin (n=330): Process, Product and Content. (% Teachers).....	162
Table 6.18: Dublin (n=330): Differentiation by Content (% Teachers).....	163
Table 6.19: Dublin (n=330): Differentiation by Process. (% Teachers)	164
Table 6.20: Dublin: Differentiation by Product (% Teachers).....	166
Table 6.21: Dublin (n=10): Themes of LP Respondents and Interviewees	167
Table 6.22: Dublin (n=10): Themes - Interviewees and LP respondents.....	167
Table 6.23: Dublin (n=330): Factors Facilitating DR.....	169

Table 6.24: Dublin: Interviewees: DR Facilitating Factors	170
Table 6.25: Dublin (n=330): Obstacles to DR	171
Table 7.1: Houston: Coding of Respondents (n=315)	182
Table 7.2: Houston (n=315): Teacher Gender and Class Size (Percentage)	183
Table 7.3: Houston: Lesson-Plan Evaluation Participants (Y1-5)	184
Table 7.4: Houston: Interviewees (Z1-5)	184
Table 7.5: Houston: Teachers' Conceptions of DR	186
Table 7.6: Houston: DR Implementation	187
Table 7.7: Houston (n=315): DR Environment (Percentage)	187
Table 7.8: Houston (n=315): DR Facilitating Factors (Percentage)	188
Table 7.9: Houston (n=315): Assessment data employed in DR (Percentage)	189
Table 7.10: Houston (n=315): Evaluating Children's Reading Readiness	191
Table 7.11: Houston (n=315): Factors Informing DR (percentage)	193
Table 7.12: Houston: LP Respondents and Interviewees: Types of Reading Employed	194
Table 7.13: Houston (n=315): Importance of Flexible Groups	196
Table 7.14: Houston (n=315): Flexible Groups for Different Activities	196
Table 7.15: Houston (n=315): Frequency of Flexible Groups	196
Table 7.16: Houston: Five LP Respondents and Five Interviewees - Groupings Employed	197
Table 7.17: Houston (n=315): Process, Product and Content, (%)	198
Table 7.18: Houston (n=315): Differentiation by Content (%)	199
Table 7.19: Houston: Differentiation by Process (% Teachers)	200
Table 7.20: Houston: Differentiation by Product (% Teachers)	201
Table 7.21: Houston: Themes of Five LP Respondents and Five Interviewees	203
Table 7.22: Houston (n=10): Combined Themes - Interviewees and LP respondents	204
Table 7.23: Houston (n=315): Factors facilitating DR (Percentage)	205
Table 7.24: Houston Interviewees: DR Facilitating Factors	206
Table 7.25: Houston (n=315): Obstacles to DR (Percentage)	206
Table 8.1: Themes based on Research Questions and Literature Review	219
Table 8.2: Coding of Respondents and Schools	220
Table 8.3: Similarities – Teachers and Schools	220
Table 8.4: Differences – Schools and Teachers	221
Table 8.5: Dublin and Houston: Years Teaching Experience %	222
Table 8.6: Dublin and Houston: DR Implementation: Less Experienced and Experienced Teachers	222
Table 8.7: Dublin and Houston: DR Practices: Teachers in Advantaged and Disadvantaged Schools	224
Table 8.8: Similarities: Teachers' Conceptions of DR	227
Table 8.9: Differences: Teachers' Conceptions of DR	227
Table 8.10: Reasons for DR Implementation	229
Table 8.11: Content, Process and Product	230
Table 8.12: Dublin and Houston: Elements in Differentiation by Process	230
Table 8.13: Dublin and Houston: Differentiation by Content	231
Table 8.14: Elements in Differentiation by Product	232
Table 8.15: Dublin and Houston: Elements in a DR Environment	233
Table 8.16: Dublin and Houston: Assessment Types	236

Table 8.17: Frequency of DR Elements Employed by Teachers	238
Table 8.18: LP respondents and Interviewees: Reading Practices Employed	240
Table 8.18: Dublin and Houston: Factors Facilitating DR	242
Table 8.19: Houston and Dublin Interviewees: DR Facilitating Factors.	243
Table 8.20: Dublin and Houston: Obstacles to DR.....	244
Table 8.21: Dublin and Houston: Collaboration	252
Table 8.22: Comprehension Strategies – Ten Interviewees and Ten LP respondents	255
Table 8.23: Survey Data: Differences between Dublin and Houston	264
Table 8.24: Qualitative Data: Differences between Dublin and Houston	265

LIST OF FIGURES

Figure 4.1: Themes Based on Literature Review and Research Questions	59
Figure 4.2: A Differentiation Research Model, adapted from Hall, 2002 (Smit & Humpert, 2012, p. 1154). 60	
Figure 4.3: Differentiated Reading Instruction System (Walpole & McKenna, 2000, p. 160)	62
Figure 4.4: Tiered Instruction (Walpole & McKenna, 2009, p. 5)	66
Figure 4.5: A Continuum of Assessment Methods (NCCA, 2007, p. 13)	106
Figure 4.6: Instructional Cycle Informed by Assessment (Opitz & Ford, 2008, p. 28).	107
Figure 4.7: Fisher and Frey (2007) Adaptation of the ‘GRRM’ (Pearson & Gallagher, 1983).	113
Figure 5.1: An Overview of the Research Design	123
Figure 6.1: Dublin: Participating Schools	145
Figure 7.1: Houston: Participating Schools	182

LIST OF APPENDICES

Appendix A - 1	Final Questionnaire Dublin
Appendix A - 2	Final Questionnaire Houston Extract p. 1-2
Appendix A – 3	Pilot Questionnaire
Appendix A - 4	Pilot Survey Feedback Sheet
Appendix B - 1	Final DR Lesson-plan Evaluation Template
Appendix B - 2	Lesson-plan Email and Consent Form
Appendix B - 3	Pilot Lesson-plan Evaluation
Appendix B - 4	Pilot Lesson-plan Feedback Sheet
Appendix B - 5	Lesson-plan Evaluation Sample - Houston (Y2)
Appendix B - 6	Lesson-plan Sample – Houston - Y2
Appendix C - 1	Final Interview Questions
Appendix C - 2	Interview Email and Consent Form
Appendix C - 3	Pilot Interview Questions
Appendix C - 4	Pilot Interview Feedback Sheet
Appendix C - 5	Interview Sample Transcript – Dublin
Appendix C - 6	Interview Sample Summary - Dublin
Appendix D	Trinity College Dublin Research Approval Letter
Appendix E - 1	Letter to Principal/Headteacher
Appendix E - 2	ISD Research Approval Letter

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Feelings of worth can flourish only in an atmosphere where individual differences are appreciated, mistakes are tolerated, communication is open, and rules are flexible - the kind of atmosphere that is found in a nurturing family (Virginia Satir).

DECLARATION

I declare that this thesis is a presentation of my original work and the investigation and written work is entirely my own work. All contributions from others have been acknowledged and referenced. I declare that no portion of the work has been submitted for a degree or qualification at this or any other university or any institute of learning.

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17/12/2017.

Date

ABSTRACT

Reading is an essential life skill and an important component of learning. Effective teachers encourage and sustain children's desire to read, restructuring teaching and learning activities to meet pupil variance towards the provision of achievable goals and meaningful learning. Demographic changes in recent years have heralded increased cultural diversity in primary, and elementary schools. Recent policy initiatives, including the Primary Language Curriculum (DES, 2015) and the 'Every Student Succeeds Act' (ESSA, 2015) have renewed focus on literacy approaches that promote literacy and accommodate pupil variance in different school contexts. Differentiated reading (DR) is one instructional model that is compatible with these literacy strategies and responds to learner variance.

This study explored teachers' conceptions about DR. It investigated teachers' implementation of DR through content, process and product. It explored the implementation of learner-responsive, teacher-facilitated activities. Two case studies in diverse cultural contexts (Dublin, Ireland and Houston, Texas, US), provided data from questionnaires (n=645), lesson-plan evaluations (n=10) and interviews (n=10) with teachers located in 62 schools. Findings from qualitative data from this case study, using a sequential, mixed method design, supported survey data apart from minor exceptions, thus supporting the validity of the findings.

Findings indicate that most of the teacher participants in Dublin and in Houston employed similar practices, even though they taught in different educational systems in culturally diverse contexts. The majority of teachers implemented DR because of school initiative and personal interest. Most teachers received no pre-service DR professional development while Houston teachers received more DR professional development than Dublin teachers. Teachers demonstrated a fair understanding of DR and defined DR by matching content and process to children's individual needs and setting individual goals. Findings indicate a positive response to DR from teachers while also indicating the desire for relevant DR professional development, especially observation of effective DR lessons. Most teachers differentiated process, some modified product and fewer teachers differentiated content to meet pupil variance. The main facilitating factors in DR were individual goals, positive learning environment, and preparation and structure. The two main obstacles to DR were lack of time and class size. Recommendations are offered on school and policy level to overcome perceived obstacles. These findings can help shape future policies and guidelines for teachers, schools, professional development, and pre-service teacher education. This study is significant for a number of reasons. It provides; the explicit theoretical framing of DR in relation to Vygotsky's ZPD; empirically explored concepts within two unique large datasets, in two diverse locations; and novel insights into teachers' conceptions and implementation of DR in the two specific locations studied in this research.

SUMMARY

Reading is an essential life skill and an important component of learning. Effective teachers encourage and sustain children's desire to read, restructuring teaching and learning activities to meet pupil variance towards the provision of achievable goals and meaningful learning. Demographic changes in recent years have heralded increased cultural diversity in primary, and elementary schools. Recent policy initiatives, including the Primary Language Curriculum (DES, 2015) and the 'Every Student Succeeds Act' (ESSA, 2015) have renewed focus on literacy approaches that promote literacy and accommodate pupil variance in different school contexts. Differentiated reading (DR) is one instructional model that is compatible with these literacy strategies and responds to learner variance.

This research explored teachers' conceptions about DR. It investigated teachers' implementation of DR through content, process and product. It explored the implementation of learner-responsive, teacher-facilitated activities. Two case studies in diverse cultural contexts (Dublin, Ireland and Houston, Texas, US), provided data from questionnaires (n=645), lesson-plan evaluations (n=10) and interviews (n=10) with teachers located in 62 schools. Findings from qualitative data from this case study, using a sequential, mixed method design, supported survey data apart from minor exceptions, thus supporting the validity of the findings.

Findings indicate that most of the teacher participants in Dublin and in Houston employed similar practices, even though they taught in different educational systems in culturally diverse contexts. The majority of teachers implemented DR because of school initiative and personal interest. Most teachers received no pre-service DR professional development while Houston teachers received more DR professional development than Dublin teachers. Teachers demonstrated a fair understanding of DR and defined DR by matching content and process to children's individual needs and setting individual goals. Findings indicate a positive response to DR from teachers while also indicating the desire for relevant DR professional development, especially observation of effective DR lessons. Most teachers differentiated process, some modified product and fewer teachers differentiated content to meet pupil variance. The main facilitating factors in DR were individual goals, positive learning environment, and preparation and structure. The two main obstacles to DR were lack of time and class size. Analysis revealed that the Houston participants incorporated flexible groups, varied teacher support, child-centred activities, activity and text choices, assessment and identified students' needs and interests more frequently than the Dublin participants, and ranked student misbehaviour and pressure to cover standardized test material as significant obstacles. Meanwhile, the Dublin participants incorporated more oral activities and student self-evaluation, engaged in discussion with other teachers and parents, modelled think-alouds, reading aloud and silent reading and emphasised reading for enjoyment more frequently than the Houston participants, and identified a lack of training and resources as major obstacles to DR. The Dublin participants *rated* individual goals and differentiated content more highly

but Houston participants *implemented* individual goals and differentiated concepts/skills more frequently.

Recommendations at a policy level include the provision of relevant, on-going, in-service DR professional development and resources, including teacher observation of effective DR lessons, specific DR group-work management and DR teacher-modelling skills. At a school level, more school support, incorporating a whole school DR policy and additional resources, including sustained teacher support, print-rich environments and a wide range of varied genres and texts, are recommended. Recommendations at a teacher level include teacher modelling of reading, discussion and comprehension skills, flexible groups and literacy circles to facilitate meaning-making and increased, regular integration of varied class texts and genres including award-winning children's publications and peer recommendations towards the creation of collaborative learning environments. These findings and recommendations can help shape future policies and guidelines for teachers, schools, professional development, and pre-service teacher education. This study is significant for a number of reasons as it provides; the explicit theoretical framing of DR in relation to Vygotsky's ZPD; empirically explored concepts within two unique large datasets, in two diverse locations; and novel insights into teachers' perspectives and implementation of DR in the two specific locations studied in this research.

GLOSSARY

This glossary briefly defines key terms employed in this thesis.

Differentiated Instruction (DI) involves a restructuring of teaching and learning activities, directed by continuous assessment, where content, process and product are modified to meet pupil variance. It provides flexible grouping, varied teacher support, tiered and flexible learner-responsive, teacher-facilitated activities. Each child has an achievable, realistic goal.

Differentiated Reading (DR) Teachers match children with appropriate reading tasks, enabling positive experiences in reading and learning that involve meaning-making and reflective reading. Teachers adjust the pace, support, and kind of instruction provided, using flexible groups in response to children's needs, readiness levels, previous learning experience, and interests. Continuous assessment data guides teaching/learning strategies, derived from collaborative activities with students.

Content covers what teachers teach, why they teach it, what learners need to understand/do in a given area and what skills/concepts are essential. Teachers can differentiate the content material and also differentiate how pupils can access that material.

Process demonstrates how skills/concepts are taught and the methods and activities employed. It covers the different activity types/levels/methods that children use to acquire and practice key concepts/skills. Process begins when children stop receiving information and start to work on 'sense-making activities'.

Product enables children to demonstrate what they know, understand, can do, explain, simulate or transfer/extend the learned knowledge to new contexts.

Zone of Proximal Development (ZPD) applies to the ideas/cognitive skills a child has almost mastered. Intellectual and emotional development of cognitive functions occurs as a single process where children can be the source of their learning. Using the ZPD, the teacher or knowledgeable peer helps the child move from assisted performance through guided apprenticeship to independent attainment.

ACRONYMS

CPD	Continuing Professional Development
CSI	Comprehension Strategy Instruction
DEAR	Drop Everything and Read
DES	Department of Education and Skills
DEIS	Delivering Equality of Opportunity in Schools
DI	Differentiated Instruction
DR	Differentiated Reading
EAL	English as an Additional Language
EAS	Exceptionally Able Students
EFL	English as a Foreign Language
ESSA	Every Student Succeeds Act (2015)
G&T	Gifted and Talented Students
GUI	Growing Up in Ireland Report
GRRM	Gradual Release of Responsibility Model
HMF	Higher Mental Functions
IDEA	Individuals with Disabilities Education Act (2004)
IRA	International Reading Association (now ILA, International Literacy Association)
NA '09	National Assessments of English Reading and Mathematics in Primary Schools
NA '14	National Assessments of English Reading and Mathematics in Primary Schools
NAEP	US National Assessment of Educational Progress
NAERM	National Assessment of English Reading and Maths (2014)
NCCA	National Council for Curriculum and Assessment
NCLB	No Child Left Behind Act (2001)
NCRTI	National Center on Response to Intervention
NCSE	US National Council for Special Education.
NELP	US National Early Literacy Panel.
NICHHD	US National Institute of Child Health and Human Development.
NRP	National Reading Panel (2000)
OECD	Organisation for Economic Co-operation and Development
PDST	Professional Development Service for Teachers
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PLC	Primary Language Curriculum (2015)
PSC	Primary School Curriculum (1999)
PSEC	Primary School English Curriculum (1999)
RAI	Reading Association of Ireland
RtI	Response to Intervention
SEM-R	Schoolwide Enrichment Model–Reading
SEN	Special Educational Needs
SLD	Specific Learning Disabilities
SSP	School Support Programme under DEIS
TEA	Texas Education Agency
TSI	Transactional Strategies Instruction
ZPD	Zone of Proximal Development

Chapter One: Introduction

Reading allows every citizen of this nation and the world to assume civic responsibility... Teachers in every educational setting are the individuals who bear the greatest ethical and political responsibility for promoting the power of reading... It is an aspect of our job to promote literacy... Students who lack basic reading skills cannot learn to their full capacity (hooks, 2010, p. 132).

1.0 Chapter Overview

This thesis explores teachers' implementation of differentiated reading (DR) in two case studies in diverse cultural contexts in primary schools in Dublin, Ireland, and in elementary schools in Houston, Texas, US. The aim of this research is to explore the nature and extent of DR practices, with a view to informing policy, practice and research in this important area. This first chapter outlines the current research and presents the underpinning rationale for this study. Key concepts, related to this research are defined including differentiation, differentiated reading, content, process, product, and zone of proximal development (ZPD). The research framework and four research questions are then presented and the methodology employed is briefly discussed. Finally, an overview of the nine chapters is provided.

1.1 Introduction

Reading is a basic life skill and students' mastery of reading impacts on their academic and career success (Clark, 2014). Teachers attempt to meet curriculum requirements and pupil variance with relevant reading instruction. Teachers need to 'differentiate both reading content and instruction to enable all students to make continuous progress in reading' (Firmender et al., 2013, p.3).

Recent school reforms call for enhanced quality of instruction for all learners. In Ireland, the teaching of reading has been impacted by the 1999 Primary Curriculum (DES), Literacy and Numeracy Strategy (DES, 2011) and the Primary Language Curriculum (PLC), (DES, 2015). In America, literacy initiatives and standards movements include the No Child Left Behind Act (NCLB, 2001) and Every Student Succeeds Act (ESSA, 2015). Conflicting evidence from successive national surveys e.g. US National Assessment of Educational Progress (NAEP, 2009; 2011; 2013); the Irish 2009 and 2014 National Assessments of Mathematics and English Reading (Eivers, Close, Shiel, Millar, Clerkin, Gilleece & Kiniry, 2010; Shiel, Kavanagh & Millar, 2014); international surveys e.g. Programme for International Student Assessment (PISA), (OECD, 2009; 2012; 2015); and Progress in International Reading Literacy Study, (PIRLS), (OECD, 2006; 2011; 2016) surveys in student literacy performance, have resulted in renewed focus on approaches to literacy in primary/elementary schools. In the 2016 PIRLS, Irish Fourth Class pupils' overall reading achievement score improved by 15 points since 2011

while American Fourth Graders' overall reading achievement score declined by seven points since 2011 (Mullis, Martin, Foy & Hooper 2017). While PISA provides data on second-level students' assessment, the PISA's findings prompts reforms at other levels. The PISA literacy results indicated that Ireland had dropped from sixth place (2006), to seventeenth place (2009) and increased to seventh place (2012) and fifth place in 2015 (OECD, 2016). Meanwhile, the US PISA Literacy results reveal that the US had increased from 57th place (2006) to fourteenth place (2009) but dropped down to 24th place in both 2012 and 2015 (OECD, 2016). These conflicting results in literacy levels of fifteen-year-olds renewed focus on improving literacy instruction. The Literacy and Numeracy Strategy (DES, 2011) set targets for schools from 2011 to 2020, resulting in increased time allocation for literacy instruction in schools, increased assessment measures and professional development for teachers. The PLC (DES, 2015) aims to promote language development, reading acquisition, and comprehension development through differentiated progression continua towards increasing children's literacy skills (Kennedy et al., 2012). In the US, the bipartisan 2015 ESSA Act reduced the federal test-based accountability system, expanded individual state responsibility for schools, and aims to ensure that all children receive an education. The 2001 NCLB required that schools make adequate yearly student progress (AYP) and that all pupils be proficient in reading and maths by 2014. The ESSA eliminated both requirements and also included school quality or student success indicators allowing for meaningful differentiation, such as student or educator engagement, or school climate and safety.

Research reports (Eivers et al., 2010; Hall & Harding, 2003; Kennedy, Dunphy, Dwyer, Hayes, McPhillips, Marsh, O'Connor & Shiel, 2012; NRP, 2000; Taylor, Pearson, Peterson & Rodriguez, 2005; Williams & Baumann, 2008) and curriculum reviews (DES, 2013; 2010; 2005a; NCCA, 2010; 2005) have resulted in recent policy initiatives (NCLB, ESSA, Literacy & Numeracy Strategy; PLC) prioritising reading, teaching/learning strategies, the role of assessment, and the provision of achievable goals for all students. Differentiated reading (DR) is one instructional model that is compatible with curricular and literacy policies, while also responding to learner variance in primary/elementary schools. However, mandates from the NCLB (U.S. Department of Education, 2001) resulted in some teachers having very little time or support for DR as they implemented district core reading programmes (Block, Parris, Reed, Whiteley, & Cleveland, 2007; DeWitz, Jones, & Leahy, 2007). Meanwhile, the recent PLC in Ireland supports differentiation and teachers are encouraged to match children's development against 'progression continua' and focus on children's output as opposed to a set curriculum (DES, 2015).

1.2 Context and Rationale of this Research

Differentiated instruction in reading has been implemented in the Interschool Districts (ISDs) in Houston, Texas for over ten years. Continuous professional development on differentiated instruction has been provided by the ISDs for all elementary teachers who participated in this research. The introduction of the PLC, (DES, 2015), officially encourages differentiation in Irish primary schools as teachers match children's levels in language, reading and writing against the eight 'progression continua' and plan instruction accordingly. The PLC aims to help pupils explore, receive and create meaning (DES, 2015). The Professional Development Service for Teachers (PDST), the teacher education section of the DES, provides onsite training days to all primary schools on differentiation following the PLC. The PDST also offers workshops, classroom modelling, summer courses, website resources and publications.

From the 1980s onwards, differentiation was implemented in some primary schools in Ireland but the term 'differentiation' was not widely employed. One consultation paper in Ireland highlighted the differentiated strengths of the 1971 Curriculum which

had a lot to offer in terms of approaches and it would be important not to lose this methodology e.g. the whole approach to planning groupwork enabled students to work away at their own pace. The preparation and training for teachers ensured all students' levels of ability were catered for... Teachers need a differentiated approach (DES/NCCA, 2004, p. 14).

In the national review of the 1999 Curriculum, the Inspectorate reported that differentiation was poor and recommended increased planning for differentiation and more collaboration between mainstream and specialist teachers (DES, 2005). However, there were limited differentiation guidelines or training available to Irish primary teachers during this period. Meanwhile ISDs provided differentiation training and guidelines to all elementary teachers in Houston, US. In this context, the researcher sought to explore teachers' understanding and implementation of DR in both jurisdictions. Houston participants received differentiation training and Houston schools have implemented DR for over ten years. This research, conducted between 2013-2015 preceeded the PLC differentiation training so some Dublin participants received little or no differentiation training. It is possible that Dublin teachers could learn from the Houston teachers' DR practices in terms of classroom management, strategies and policy formation.

How do teachers differentiate reading? The research base in this area is sparse and "further research is required if teachers are to understand the nature of effective differentiated reading instruction" (Ankrum & Bean, 2008, p. 137). One purpose of this research was to examine best differentiation practices and similarities and differences in DR practice, if any, between the two different cultural contexts. This study explored teachers' implementation of DR through content, process, and product and it identified the DR practices employed by teachers. Some research was conducted on DR in the US, but limited research has been done from teachers' perspectives and no research has been

conducted in Ireland to the researcher's knowledge. Demographic changes, academic diversity, special education, inclusion, and children presenting with English as a second language make the challenge of meeting pupil variance an inevitable part of teaching in regular classrooms (Darling-Hammond, Wise, & Klein, 1999; Meier, 1995). Teachers attempt to enhance literacy instruction for learners and to reduce segregation of children with reading problems in regular classrooms (Allington, 2003). Many classrooms have become increasingly diverse in terms of the cultural, linguistic and diverse backgrounds of children attending (Guild, 2001; Hall, 2002; McAdamis, 2001; McCoy & Ketterlin-Geller, 2004). Teachers can use DR to meet the needs of diverse pupil populations. The inclusion of children with special educational needs, (SEN), Ireland; students with English as an additional language, (EAL), Ireland, or English as a foreign language, (EFL), America; exceptionally able students, (EAS), Ireland or gifted and talented students (G&T), America; reflect this growing diversity (Mulroy & Eddinger, 2003; NCCA, 2006; 2007). Every teacher needs to acknowledge the differences among students in a classroom, encouraging students' strengths while accommodating their limitations (Guild, 2001; Mulroy & Eddinger, 2003) in classroom management. This study also explored the facilitating factors and perceived obstacles to DR from teachers' perspectives through a mixed method approach (Mertens, 2010).

1.3 Purpose of this Research

The overall aim of this study is to gain an understanding of teachers' knowledge and implementation of DR through the multiple elements of content, process, and product. This will be the first study, to the researcher's knowledge, to explore teachers' knowledge and implementation of DR within two diverse cultural and educational contexts in two different continents, primary schools in Dublin, Ireland, and elementary schools in Houston, Texas. This will be achieved by:

- Exploring teachers' perspectives on and experiences of DR implementation
- Investigating the degree to which teachers systematically incorporate modification of content, process and product in their DR implementation
- Identifying the school, classroom and individual factors that facilitate and hinder DR
- Relating teachers' understanding and implementation of DR elements associated with Vygotsky's zone of proximal development (ZPD).

The four research questions underpinning this study are:

1. What are teachers' conceptions about differentiated reading and associated pedagogical practices?
2. To what extent is the modification of content, process and product related to differentiated reading pedagogical practices?
3. What factors facilitate and hinder differentiated reading implementation?
4. To what extent are elements associated with Vygotsky's zone of proximal development (ZPD) relevant to teachers' understanding and implementation of differentiated reading?

This section discussed the rationale for this study, the limited DR guidelines, and training available in Ireland and the scarcity of DR research from teachers' perspectives conducted in the US. This will be discussed in more detail in Chapter Four. The context for the research, arising from demographic changes and the need to meet pupil variance, has been discussed, concluding with the four research questions. The next section will define the relevant terminology employed in this research.

1.4 Key Concepts

Key concepts in this research include differentiated reading (DR), the zone of proximal development (ZPD), content, process, and product. These concepts will be defined to provide a working definition for the purpose of this research (see Glossary, p. xviii).

1.4.1 Differentiated Reading (DR)

DR involves a restructuring of teaching and learning activities directed by continuous assessment to provide meaningful and developmentally appropriate learner-responsive, teacher-facilitated activities (Firmender, Reis & Sweeney, 2013). DR is student-oriented and collaborative, where students are successfully and meaningfully challenged (Subban, 2006; Smit & Humpert, 2012). Children's learning needs direct the teacher's instructional planning, derived from thoughtful diagnosis of learning needs, purposeful strategies, and activities, designed to address specific needs (Sharabi, 2009; Shaunessy-Dedrick, Evans, Ferron & Lindo, 2015). Teachers focus on the same key principles for all students, but vary the instructional process, the pace, the product, and the rate toward understanding these concepts (Firmender et al., 2013; Tobin & McInnes, 2008). Research suggests that differentiation is an instructional approach that can benefit pupil variance (Neber, Finsterwald, & Urban, 2001), cultural and linguistic backgrounds (Ankrum & Bean, 2008). Key factors involve the use of continuous formative assessment, children's prior knowledge, readiness, interest levels, motivation, learning styles, and cultural and social factors (Tobin & McInnes, 2008). DR responds to learner variance through the integration of assessment and instruction, modification of content, process, and product and the emphasis on critical skills/concepts in content to meet individual pupil's needs (Tieso, 2003; Tobin & McInnes, 2008). DR employs collaboration, modelling, and meaning-making through

flexible groups, tiered activities, flexible groups, scaffolding, enrichment, acceleration (Firmender et al., 2013), and flexible pacing and teacher support (Ankrum, 2006), station teaching (Daly, 2015), learning centres, compacting, conferencing, discussion and individual goals. Research has shown that providing identical reading instruction for different ability children can adversely affect reading achievement, as low and middle achieving pupils performance suffered and higher ability children produced modest improvement (McGill-Franzen, Zmach, Solic, & Zeig, 2006; Schumm, Moody, & Vaughn, 2000). Other research proposes that the achievement gap in schools can be lowered by differentiation (Allington, 2005). DR is based on principles of good practice grounded in socio-cultural theory, specifically Vygotsky's learning theories and the zone of proximal development (ZPD).

1.4.2 Zone of Proximal Development (ZPD)

Some researchers believe that Vygotsky's social constructivist learning theory is pivotal in the redevelopment and restructuring of classroom management and instructional strategies to accommodate pupil variance and provides a theoretical framework for DR (Goldfarb, 2000; Shambaugh & Magliaro, 2001). Using the ZPD, the teacher helps the child move from assisted performance through guided apprenticeship to independent attainment. Through scaffolding, teacher support/assistance or social mediation, the child internalises the expected concepts/behaviours/strategies to complete a set goal. Children are more receptive to instruction within their ZPD, as it represents the next logical step in their learning, which is just above their current level of independent capability. Cultural contexts, guided participation, and social tools are parts of children's learning processes (Vygotsky, 1962), and DR instruction aims to accommodate these processes. Vygotsky's learning theory incorporates the child's intellectual development, the transitions from one stage of mastery to another and the multifaceted social interactions of learning activities within the classroom (1978). Vygotsky examined the complex relationships between language and thought, as well as learning, imitation and play. Social interactions between children and teachers/significant others in their lives significantly influence children's higher order thought processes and interpretations of events. Vygotsky suggested that children's language develops in interaction with others and is social in origin (1986). He stated that communicating with others was important in developing ways of thinking and abstract thought, interpreting experiences, as well as developing language and peer tutoring (1962). The ZPD considers the development of higher mental or cognitive functions from inside the child. Intellectual and emotional development occurs as a single process within the ZPD (1986). Students become aware of themselves as the source of their actions and activity within the ZPD, so it is important that teachers try to create conditions in which children are the source of their learning. By considering students' potential, teachers can plan strategic instruction that encourages a sequence of inner-developmental processes in children through collaborative interactions, leading to further development. Key components within the ZPD are personal empowerment/transformation, critical thinking and creative problem-solving. The ZPD involves

careful assessment of the child's readiness level, collaboration with the teacher and internalization/transformation of learning to achieve meaningful learning. Guided participation and support, and meaningful learning are core DR elements.

1.4.3 Content, Process, and Product

Content, process, and product are discussed in detail in Chapter Four (Section 4.7). For now, the three terms are briefly defined. Differentiating content refers to changes in the material presented to children, what learners need to learn, or how pupils should access information. It involves modification of the learning rate, including the point at which children begin study, the rate at which they learn, and the point at which they leave an area of study. It also allows for opportunities for learner-selected areas of study within and across disciplines, modifications of the complexity in the study area, and a multidisciplinary approach to learning.

Differentiating process involves methods and activities, where children work to make sense of the content, involving learning and using higher/lower order thinking skills (creative and critical thinking and problem solving). It incorporates the application of abstract thinking skills to pupil-appropriate content, resulting in products at a level appropriate for the children's abilities and integration of core competencies and abstract thinking skills.

Differentiating product involves activities that allow children to apply and extend what they have learned. It uses multiple forms to communicate learning, incorporating different opportunities to present information and assess learning. The next section provides a synopsis of the chapters.

1.5 Overview of Dissertation

Chapter Two offers a theoretical framework for DR. The instructional implications of Vygotsky's theories of learning, where development and learning are viewed as culturally determined and historically situated, are investigated. The collaborative nature of the learning process is discussed, and the implications for DR are outlined. Some similarities and differences between traditionally accepted views of DR and Vygotsky's ZPD are presented and perceived difficulties with the application of Vygotsky's theories on education are discussed.

Chapter Three provides a brief overview of schooling and curricular areas in Primary Schools in Dublin, Ireland, and in Elementary Schools in Houston, Texas. Cultural historical contexts and educational programmes for disadvantaged students in both jurisdictions are briefly discussed. Finally, similarities and differences will be outlined between the two systems.

Chapter Four presents a review of the literature on differentiated instruction, (DR) and effective literacy practices. Various DR models and DR elements including assessment, flexible groups, facilitating factors and perceived DR obstacles will be explored, as well as the modification of content,

process, and product. The role of oral language, collaboration, modelling, comprehension, and meaning-making will be investigated. Differentiation has been acknowledged as helpful in meeting pupil variance, yet research has proven that teachers inconsistently employ differentiation (Reis et al., 2004). Relevant findings from DR research will be discussed.

Chapter Five presents the research design and methodology employed to meet the research objectives. This pragmatic, sequential, mixed method approach (Onwuegbuzie & Teddlie, 2002) is comprised of a questionnaire (n=645), lesson-plan evaluations (n=10), and semi-structured interviews (n=10). The two case studies incorporated a cross-sectional sample of elementary teachers in Houston, Texas, US, and primary teachers in Dublin, Ireland across 62 schools. The initial questionnaire, delivered to a population of 1200, explored and generalised teachers' use of DR, involving a positivist, empirical approach, where DR was reduced to discrete areas of content, process and product. Ten DR lesson-plan evaluations were analysed and provided practical implementation of theory and DR practices. The respondents submitted the completed reflection template with their original lesson-plan. Finally, ten semi-structured interviews enabled in-depth qualitative analysis of teachers' DR conceptions and practices.

The subsequent three chapters present the findings and analysis of this research, including quantitative data and data derived from the thematic analysis. Chapter Six presents the Dublin DR Case Study findings from the Survey (n=330), five lesson-plan evaluations, and five semi-structured interviews. Chapter Seven provides the Houston findings from the survey (n=315), lesson-plan evaluations (n=5), and semi-structured interviews (n=5). Chapter Eight provides an analysis of the quantitative and qualitative findings. Findings identify selected school, classroom and individual related factors that shape teachers' perspectives on and practices in relation to DR. The study highlights key enabling variables that support and facilitate DR in schools. Current research indicates that the teachers' response to DR is positive, while also indicating the desire for more DR guidelines, staff support, and continuing professional development.

Chapter Nine discusses the conclusions and recommendations arising from this research at school, teacher and policy level to overcome perceived obstacles in relation to the four research questions, research and previous literature. The strengths and limitations of this study are discussed. The research findings can help towards the creation of understanding of DR and present practical, workable practices that can be employed in classrooms through content, process and product. The thesis concludes with practical implications of the findings and future research implications.

The next chapter, Chapter Two, presents the theoretical framework underpinning DR and the sociocultural theory of Vygotsky and the zone of proximal development.

Chapter Two: Framing an Analysis of Differentiated Reading using Vygotskian Learning Theory

2.0 Introduction

In this chapter, the theoretical basis for differentiated reading (DR) is examined through Vygotsky's learning theories and the zone of proximal development (ZPD). The chapter examines the classroom instructional implications of Vygotsky's theories of learning, where development and learning are viewed as culturally determined and historically situated. The collaborative nature of the learning process is discussed, and the implications for DR are outlined. Specific elements of the ZPD are discussed in relation to DR, including the role of language, imitation, collaboration, creating meaning through dialogue and children as the source of their own learning. Some similarities and differences between traditionally accepted views of DR and Vygotsky's ZPD are outlined. Perceived difficulties with the application of Vygotsky's theories on education are discussed.

2.1 Theories of Learning

The theoretical works of Vygotsky (1962, 1978, 1986), and others, create a theoretical framework for DR to meet pupil variance. These theories form a philosophical base from which teachers can develop their own philosophy and provide a structured approach to DR (discussed in Chapter Four, section 4.4). Important DR elements share concepts with other learning theories.

Table 2.1: DR Concepts and Learning Theorists

Concept	Theorist
Cultural contexts	Vygotsky, 1986; Bandura, 1986 Bronfenbrenner, 2005;
Formative assessment	Bloom, 1984
Balance between curriculum content and pupils' interests and experiences	Dewey, 1915
Social interaction for effective learning construction of personal meaning, self-regulated learning	Dewey, 1915; Bruner, 1990; Vygotsky, 1986
Teacher as facilitator	Chomsky, 1959; Dewey, 1915; Vygotsky, 1986
Motivation and 'surface' and 'deep' learning	Zimmerman, 1998
Self-efficacy	Bandura, 1986
Influence of thought over action	Zimmerman, 1998

Behaviourism focuses on actions and learning by reinforcement, observation and association e.g. Bloom's formative assessment (1984), and Bandura's modelling (1986). Cognitive theory emphasises understanding a person's thought processes in order to understand that person. Dewey's concept of teachers presenting content to students who construct meaning between the old and the new information is embodied in DR (1915). The concept of the teacher as a facilitator and guide rather than a presenter of knowledge (Dewey, 1915) is important in DR. Affective styles influences students' learning, e.g. flow (Csikszentmihalyi, 1997) and intrinsic motivation (Zimmerman, 1998), are central to DR and in helping students develop into self-directed learners. Differentiated instruction is supported by elements of different learning theories. However, this research will focus on the relevance of Vygotsky's Learning theories to DR.

2.2 Vygotsky's Theories on Learning and Development

Lev Vygotsky (1896-1934), a Russian psychologist and educationalist, conducted rigorous research and proposed that cultural contexts, guided participation and social tools are parts of children's learning processes and mental development (Ivic, 2000). Development must be considered in the social context and occurs in collaboration with more knowledgeable others - teachers/peers who model and provide children with the tools (language, signs and symbols) required to obtain knowledge (Lantolf, 2008). Vygotsky's social constructivist learning theory (1962), developed by Wertsch (1991), poses significant considerations for restructuring of instructional strategies and classroom management to accommodate child variance (Flem, Moen & Gudmundsdottir, 2000; Goldfarb, 2000; Riddle & Dabbagh, 1999; Rueda, Shambaugh & Magliaro, 2001). Development is a process where both affective and cognitive processes are embodied in the sociocultural environment in which the child grows. Vygotsky was interested in identifying cognition and human aspects of behaviour (Kozulin, 1990), including sociocultural history (development of human cultures); ontogenesis (individual development); microgenesis (development occurring during learning/activity); and phylogenesis or human evolution (Wertsch, 1991; Shabani et al., 2010). Development does not happen in a linear fashion and may incur progression and regression. Different functions have different developmental levels and conceptualisation leading to meaning-making. According to Vygotsky, children cannot develop concepts 'unless they are conceptualised within an appropriate conceptual framework,' only then can the child abstract meaning from the experience and 'new similar experiences can then be integrated into the conceptual framework' (Murphy, 2012, p. 178). Both Vygotsky and Piaget argued that children thought differently to adults. According to Vygotsky, learning leads to development while Piaget stated that development leads to learning. Table 2.2 presents important differences between their theories.

Table 2.2: Differences between Vygotsky and Piaget

	Vygotsky	Piaget
Development	Development is internalised from cultural signs, symbols, later used as psychological tools of memory, speech to mediate meaning (Yudina, 2007). Children develop from individuals into social beings.	Internally driven process – predictable stages where children have to reach a certain stage of development before acquiring more complex ideas
Learning and Development	Learning leads to development and teachers should challenge learners (Murphy, 2012, p.178).	Development leads to learning

Both development or internally driven change and learning or externally driven change are in constant interaction and one is not possible without the other, or is more important than the other. Vygotsky rejected the learning theorists' view that development is strictly the accumulation of the child's learning and stated that the mind evolves to reflect society (Ardichvili, 2001). Vygotsky's law of cultural development of higher mental functions (HMF) states that every function in the child's cultural development appears on the stage twice, first on the social plane, between people as an intermental category, and, secondly, on the psychological plane, within the child as an intramental category, (Shabani et al., 2010; Veresov, 2004). This applies to concept formation, to the development of will, to logical memory and to voluntary attention (Vygotsky, 1997). Vygotsky was interested in theatre and the reference to the two 'planes' infers front stage in front of the audience (inter-psychological) and back stage behind the scenes in the mind of the actor (intra-psychological). 'Kategoria,' a pre-1917 Russian word for 'category' means an interactive process - a catharsis, dramatic social situation/collision' with emotional effect leading to a change of behaviour towards a re-organisation of learning. The actual mechanism was not suggested by Vygotsky but the re-organisation influenced the learner's HMF. Different learners experience different catharses as different children recall different memories of a specific event. As egocentric speech (section 2.2.3) fades, children begin to appeal to themselves (intrapersonal) rather than to adults (interpersonal) when using language as a problem-solving tool. 'The history of the process of the internalisation of social speech is also the history of the socialisation of children's practical intellect' (Vygotsky' 1978, p. 27). Vygotsky proposed that mental functioning is an action that can be conducted by individuals or in groups, where the mind, cognition and memory function together intermentally and intramentally. This genetic law of HMF cultural development is central to Vygotsky's cultural-historical theory.

2.2.1 Cultural Historical (CH) Theory

Vygotsky's cultural-historical (CH) theory is a general theory of development which explains the development of higher mental functions (HMF) in people and focuses on the transformative nature of internalisation which is the basis for societal transformation (Robbins, 2010). HMF are cognitive processes that enhance learning, logical reasoning and memory (Costley, 2012). A child's mental functioning is social, even when operating individually, as it encompasses socially organised and

socially evolved cultural tools (Wertsch and Tulviste, 1992), as ‘culture is the product of social life and human social activity’ (Vygotsky, 1981, p. 164). Vygotsky stressed that the factors produced by the historical development of a child’s culture influenced the child’s activities (Ardichvili, 2001). Vygotsky used theory to change individuals’ consciousness and societal structures including education (Robbins, 2010). Vygotsky’s CH theory is developed through dialectical synthesis and combines theory with practice. The dialectical theory relates to practice which in turn expands and enriches the theory culminating in a ‘true balance’ (Robbins, 2010, p. 1).

2.2.2 Dialectical Synthesis

Child development is a complex, dialectical process characterised by periodicity, unevenness in the different functions, metamorphosis or qualitative transformations of one form onto another, intertwining of external and internal factors, and adaptive processes which overcome impediments that the child encounters... (Vygotsky, 1978, p. 73).

Vygotsky’s dialectical synthesis involves ‘constant dynamic and asymmetrical interaction and convergence of opposites’ forming an ever-changing synthesis, focusing on the process rather than the relationship between the parts and the whole (Robbins, 2010, p. 2). The dialectical method focuses on the individual/societal and internal/external connections that cannot be broken down into analysable elements without the loss of characteristics of the whole (Robbins, 2010). Vygotsky’s theory encompasses the way parts relate to the whole while the whole is dependent on the parts for its growth towards the development in the dynamic process of internalisation.

Colette Murphy (2017) provides an example of this dialectical process in the classroom, involving two small groups simulating/analysing a concept from opposing viewpoints, e.g. Group A discuss/probe the importance of tool invention in man’s cognitive development while Group B examine the importance of culture leading cognitive development. After a set time the groups swap roles and discuss/probe the alternate stance. This process leads to a deeper understanding of the influences on and challenges of each standpoint which ideally culminates in a synthesis (cultural signs/symbols as psychological tools). However, it is the process, not the solution that is important. Here, the dialectical process begins with holistic units, capturing their essence whilst scientifically analysing them yet maintaining constant connection to the whole structure. Murphy states that Vygotsky’s method breaks down the whole into units of analysis, which are component parts of the whole, unlike elements, which lose properties of the whole e.g. water. This dialectical frame of reference is neither symmetrical nor linear but remains in constant connection with the ‘whole’ as thinking is completed in word and word is completed in thought in optimal conditions (Murphy, 2017). Word meanings are both concrete and abstract as concepts merge through the transformative nature of internalisation, leading to societal transformation (Murphy, 2017).

Internalisation blends the social component with the ‘conscious and subconscious cultural sign mediation’ resulting in individual regulation (Robbins, 2010, p. 4). Mediation is the employment of tools between people and their environment for enrichment, e.g. farmers plough fields to yield better produce. Vygotsky developed the term ‘cultural tools’ from his work with children with disabilities. He stated that these children needed different tools (from the highest forms of human expression, e.g. art, music and theatre), to develop their capacity to work well in their culture. Cultural tools e.g. books, computers and symbolic tools e.g. language and codes, enable children in society to think, communicate and solve problems. Culturally self-regulated people cannot develop without initial societal structures and children are born into societies with pre-established social conventions and norms. CH theory suggests that different cultures develop different cultural tools to solve problems.

Vygotsky’s CH theory embraces both personal and societal change, constantly mindful of the ‘the ideal of potential human growth’ (Robbins, 2010, p. 3). Vygotsky took consciousness as the highest principle, expanding it to incorporate poetry, theatre, art, philosophy, etc., unifying and synthesising the relationships to the understanding of the unconscious/subconscious (Robbins, 2010). Vygotsky’s internalisation is different from activity theory (which presents external/internal activities as the same phenomena) and also from sociocultural theory (which replaces internalisation with conscious elements of mastery). Vygotsky was influenced by Spinoza yet Spinoza’s philosophy did not incorporate dialectics. Vygotsky viewed the subconscious as a method to solve problems creatively through art and Vygotsky’s method is both concrete and abstract. Individual needs and societal needs are combined to form a unity in Vygotsky’s dialectical and monistic vision. Development can occur through the dialectical process of engagement and separation as thought originates from a pre-intellectual structure and speech from a pre-linguistic structure. In a dialectical process, the ‘whole’ and the parts are connected in an asymmetrical and nonlinear process as ‘thinking is completed in the word and word is completed in the thinking’ and ‘the development of concepts and word meaning function together’ (Robbins, 2010, p.6). Word meaning is Vygotsky’s unit of analysis, the main unit of thinking and speech and incorporates conscious and unconscious components and emotions.

Is word meaning speech or is it thought? It is both ... it is a unit of verbal thinking ... in the same sense that word meaning is a unit of thinking. It is also a unit of both these speech functions... word meaning is an act of thinking in the true sense of the word... however, meaning is an inseparable part of the word; it belongs not only to the domain of thought but to the domain of speech. A word without meaning is not a word, but an empty sound (Vygotsky, 1987, pp. 46-49).

Word meaning blends with psychology and psychological linguistics and word meaning exists within a functional, relational comprehension mode based on a profound understanding of semantics, semiotics and mediation of culture (Robbins, 2010). Language constructs our world, we can generally only express what language enables us to express. However, meaning is relational, arbitrary and subjective - a home can be a hovel or a mansion. Word meaning can only be understood within a functional, relational mode of comprehension. One core aspect of CH theory is the continuous

development of word meanings within personal and social activity. The development of concepts and the study of the problem of generalisation and word meaning led to ‘the ontogenesis of thinking,’ the central part of Vygotsky’s theory (Leontiev, 1997, p. 26).

While Vygotsky urged inclusion and appropriate tools to be employed, the psychological tool of language was the most important (John-Steiner & Mahn, 1996) for effective living (Costley, 2012). Concepts can be used as tools in problem-solving (Vygotsky, 1987). Spontaneous concepts used in everyday activities provide towards the development of scientific concepts of school based knowledge and learning (Lee, 2003) through the use of speech and language. Teachers can model and facilitate discussion and exploration of meaning in DR. Children learn through the collective activity with teachers and peers, using communication and collaboration in small group dialogue and discussion. Here, through the leading activity of discussion, children can reach higher levels of understanding than they would reach reading independently through exploration of meaning of texts, developing a deeper understanding, using themselves and peers as cultural tools, linking text references with culture, previous experiences and knowledge towards the individual activity of transformation/internalisation. The real development is a process that takes place as a result of the tasks/discussion when children make connections between concepts and experience, not in the actual achievement of the tasks. Vygotsky stated that the only good education is one that leads to development incorporating communication and collaboration between learners and teachers.

In summary, CH theory represents a philosophy of language based on speech, thought, environmental semiotics and culture, development, communication and concept formation, all fused with real life. Vygotsky used a dialectical approach positioning thought and speech as instruments in reflecting consciousness, using two phenomena, marking the mediated nature of children with the environment - the use of language as a cultural form of mediation and the use of tools with a socially organised activity.

2.2.3 Role of Language

Language, a verbal expression of culture and a social concept developed through social interactions, is an important tool for learning social knowledge and broadens participation as a social instrument. Vygotsky investigated the relationship between the invisible act of thought and language as a phenomenon of culture and concluded that the mind evolves to reflect society. Language is central to communication, reading and expression of ideas and helps formulate thought, critical thinking skills and problem-solving for the mediation of knowledge (Berger, 2006; Wertsch, 1985), and to mediate social environments (Riddle & Dabbagh, 1999). Through discussion and collaboration with the teacher/peers, children talk to think, understand and learn (Wells, 1986). For Vygotsky, ‘words are a tool for learning that both mentor and child use’ (Berger, 2006, p. 282). The teacher uses language to model learning processes and both teacher and children share language and activity in learning.

Children's language development is crucial to their intellectual development. Language learning evolves through guided discovery and addressing learning potential. When children internalise language skills they are better able to reflect on their thoughts and behaviour as language as a social and individual function helps children to regulate and reflect on their own thinking. Words play a central part in development of thought and historical growth of consciousness as a whole as cognitive dialogue transforms into higher cognitive processes. Thought is complex, multifaceted and a private process (Smith, 2012). Thought is also a social process and society shapes thought and how children think (Vygotsky, 1978). Thought is an important part of reading and learning as reading is 'a type of thinking' (Smith, 2012, p. 21). Children develop meaning and language through a series of functional planes from thought to word and from word to thought through egocentric speech, external speech, word meanings, inner speech and thought. The next section traces this journey from ego-centric speech.

2.2.3.1 Ego-centric Speech

'Egocentric speech', coined by Piaget (1896-1980), is a speech form displayed by young children during play/activities and includes comments on children's thoughts and actions. Piaget considered egocentric speech to be 'verbal accompaniment to private thought' (Willis, 2001, p. 3), but Vygotsky considered it to be a 'transition from external to inner speech' (1934, p. 46) fading around the age of seven as it becomes internalized as inner speech through evolution' (1986, p. 228), demonstrating the child's 'new faculty to think words instead of pronouncing them' (1986, p. 230). Vygotsky found through experiments that children use ego-centric speech in problem-solving, increasing as they confronted obstacles to their play/activities. He concluded that confronting obstacles in problem-solving stimulated children to 'think-aloud' and 'requires the presumption of understanding by others' (Willis, 2001, p3). Vygotsky concluded that egocentric speech is social communication because children assume they are understood by others. Vygotsky stated that both egocentric speech and inner speech 'fulfil intellectual functions; their structures are similar' and he used egocentric speech as the 'key to the study of inner speech' (Vygotsky, 1986, p. 226).

2.2.3.2 Inner Speech

Inner speech interweaves two important processes, the passage from external communication to internal dialogue and the communication of private thoughts in words to others (Kozulin, 1986) and it enables people to plan and regulate their actions (Wertsch and Tulviste, 1992). It is a function in itself that channels thoughts into words and is not an internal aspect of talking (Kozulin, 1986). It is developed through interaction with the environment, as symbols used initially in communication turn inwards in a gradual developmental process to influence and regulate the child's behaviour in line with societal values and social cooperation. In inner speech, children talk to themselves mentally and language is transformed into inner verbal thought. 'Compared with external speech, internal speech

appears disconnected and incomplete' (Vygotsky, 1986, p. 235) as Inner speech follows its own 'syntax (ordering and relationship between words) of word meanings' (saturated with sense) and abbreviates word-meanings (Vygotsky, 1986). Vygotsky's research established three semantic (relating to word meanings) types in inner speech:

- Preponderance of sense of a word over its meaning
- Word combination – agglutination
- Senses of words combine and unite (Vygotsky, 1986, pp. 244-248).

Vygotsky distinguished between a word meaning (*snachenie*), reflecting a generalized concept, and the word sense (*smysl*), which is dependent on the context (Kozulin, 1986). The 'sense' of a word contains an array of understandings derived from experiences and psychological events produced in the consciousness by the word.

(The sense) is a dynamic, fluid, complex whole, which has several zones of sense, the most stable and precise zone. A word acquires its sense from the context in which it appears; in different contexts, it changes its sense. Meaning remains stable throughout the changes of sense...A word in the context means both more and less than the same word in isolation: more, because it acquires new context; less, because its meaning is limited and narrowed by context (Vygotsky, 1986, p. 245).

The 'sense' of a word conveys the true understanding of the word over the dictionary meaning of the word and this is why context is emphasised in DR instruction and why discussion and dialogue are fundamental in facilitating children develop understanding of texts and in interpreting meaning in silent reading. The word meaning is static while the sense of the word is 'almost unlimited' (Vygotsky, 1986, p. 245). The word 'play' can have at least five different senses:

- verb – I *play* the piano;
- verb – children *play* in the garden,
- verb – he wants to *play* football
- noun – Shakespeare wrote the *play* Hamlet
- noun – the team used defensive *play* in the match

The word "play" acquires 'sense' from its position in a sentence, paragraph, etc., and it changes sense in different contexts. In inner speech, sense is the interface between private thoughts and verbal thoughts accessible to others while meaning signifies social discourse (Kozulin, 1986). 'This enrichment of words by the sense they gain from the context is the fundamental law of the dynamics of word meanings' (Vygotsky, 1986, p. 245). Inner speech does not just have predominance of sense over meaning, but also sentence over word and context over sentence. Words and senses are independent of each other as words can change their sense and a sentence is not connected with individual words but with the 'sense' of the sentence (Vygotsky, 1986).

The second semantic type in inner speech involves agglutination, a compound word or merging of several words into one word, common in Japanese but uncommon in the English language e.g. *meaning-less-ness*. The agglutinated word encapsulates a complex idea but includes all the individual words.

The third semantic type in inner speech involves a word combination where the senses of words 'combine and unite,' (Vygotsky, 1986, p. 246). A recurring word in a play can encapsulate various word senses e.g. 'Hamlet', rendering the word 'a concentrate of sense' (Vygotsky, 1986, p. 246). Inner speech can substitute one word for a long discourse, it can decrease vocalization, omit subjects and objects (the person knows both), applying preponderance of sense over meaning. Having briefly discussed the three semantic types in inner speech, the next section addresses moving from inner speech to external speech.

Moving from inner speech to external speech is not just a vocalisation of silent speech as 'thought must pass through meanings and then only through words' (Vygotsky, 1986, p. 252) but is a dynamic, complex process. There is a thought or a subtext in every sentence uttered and thought does not consist of separate units like speech. Thought moves to word through meanings as 'thought does not express itself in words, but rather realises itself in them' (Vygotsky, 1986, p. 251) and is mediated internally by signs and externally by word meanings. Thought is not engendered by thought but by motivation from needs and emotions so motive is the deepest, most inward plane in Vygotsky's model of 'verbal thought' (1986, p. 252). Vygotsky's verbal thought model traces the complex, dynamic relation of thought and word as a 'movement through a series of planes' from the innermost motive engendering thought 'to the shaping of thought, first in inner speech, then in meanings of words, and finally in words' (1986, p. 253). The relationship between thought and word is not constant but emerges and evolves in the course of development, and thought and speech are the 'key to the nature of human consciousness' (Vygotsky, 1986, p. 256).

In summary, the relationship between thought, language and inner speech is central to Vygotsky's inter-relationship of language, development and thought (Ardichvili, 2001). According to Vygotsky, the child, in attempting to communicate with others, develops word meanings that, in turn, form the structure of consciousness and so inner speech cannot exist without social interaction. Vygotsky proposed that inner speech and external speech work in conjunction together. 'Inner speech is for oneself; external speech is speech for others' (Vygotsky, 1986, p. 225). Children use ego-centric speech in real problem-solving in play/activities, 'think-alouds' under the presumption of understanding by others. Thought and language become increasingly interdependent, as children from 7 – 11 years develop the capacity to understand the structures and possibilities of language towards vocabulary, cognition and analytical skills' development, leading to information-processing and metacognition skills development. One important CH concept of Vygotsky's holistic vision and

understanding of the child's development is the zone of proximal development which is part of the process of child development (Chaiklin, 2003).

2.2.4 Zone of Proximal Development (ZPD)

Vygotsky developed the ZPD to consider the learning potential of Soviet children but he never claimed to have invented the concept (Van Der Veer, 2007). Later, the ZPD evolved as an educational concept focused on the conditions required in establishing future development potential (Shabani, 2010). Vygotsky proposed that effective instruction occurs at the student's ZPD and that the teacher designs content to move marginally ahead of the student's actual development level (1962), encouraging the student to work within the ZPD, building on knowledge gained under the teacher's support (MacGillivray & Rueda, 2001; Riddle & Dabbagh, 1999).

Children at the same starting level of actual development can have different sized ZPDs, according to their level of understanding of HMF (Levykh, 2008), as development occurs INSIDE the child (Kravtsova, 2009). The ZPD describes functions that are not yet emergent/visible and are performed under guidance in collaboration with others (Robbins, 2001). These HMF 'are in the process of maturing... 'buds' or 'flowers' of development rather than 'fruits' of development' (Vygotsky, 1978, p. 86). The ZPD applies to the ideas and cognitive skills a child has almost mastered and where he/she can reach with the 'guided participation' of a teacher/knowledgeable peer. Children have to have a certain level of understanding in order to achieve ZPDs, as imitation implies understanding. Learning is not necessarily enjoyable e.g. a boy runner who lost the race but used the learning gained to develop within his ZPD (Vygotsky, 1967, p. 16). Vygotsky described development as incorporating evolution, zigzags, gaps, conflicts, revolution and regression (1987). Joint action experiences can be instrumental in the achievement of ZPD once the child has internalised the learning (Valsiner & Van Der Veer, 1993). A dramatic collision of internalisation with emotional effect occurs in the transition from one 'social situation of development' (SSD) to another in the ZPD. The SSD incorporates the child's specific, comprehensive relationship with the environment (Chaiklin, 2003).

2.2.4.1 The Social Situation of Development (SSD)

The social situation of development (SSD) involves interaction between real/ideal forms, unity of intellect/affect, Vygotskian imitation and regression/recursion. The child is not a passive agent in his/her environment but is selective about perceptions (Chaiklin, 2003) influenced by the maturity of psychological functions according to the specific age period. The SSD, the initial point of the ZPD, characterises 'the interaction between historically-constructed forms of practices' with a child's actions and interests facilitated by the relevant age period (Chaiklin, 2003, p. 6). Vygotsky proposed that children's development from infancy to the teenage years was a series of long stable periods, interspersed with short episodes of crisis at birth and at approximately the stages of 1, 3, 7, 13 and 17 years (Blunden, 2011). These crises depend more on particular structural transformations in children's

relationships with their social environment and mental development rather than specific chronological age. The SSD represents the unique relationship between the child and his/her social environment at the beginning of each period where the social relationships within the SSD are internalised into HMF (neoformations) and externalised into higher forms of behaviour.

A 'neoformation' is a psychological function or type of interaction between children and their social environment involving a particular form of mental activity encompassed in the social interaction at a specific period in children's development and can be peripheral or central. A neoformation is comprised of a relationship between two or more mental functions or systems, e.g. conceptual thinking; self-consciousness, world view, etc. It is facilitated through three stages of action - 'development in itself, for others and for oneself' (Vygotsky, 1989, p. 56). The central neoformation is the dominant psychological function at a specific period in the child's development and steers the restructuring of a child's behaviour and ultimately surmounts limitations. This results in an outmoded SSD when the child generates a new predicament through new modes of interaction (Blunden, 2011). The former central neoformation becomes peripheral and continues to develop as part of the child's activity and is replaced by a new central neoformation in the new period/stage of development. According to Vygotsky, teachers need to be cognisant of the psychological functions within children's ZPDs and also to place instruction within the central neoformation to promote maximum development. Children in the same class have different central neoformations so it is important that children work according to their specific neoformations and not to a general class goal. The new formation is a product of the age period (Vygotsky, 1934/1998, p. 198). The central 'new formation', organised in the SSD in each age period is a contradiction between a child's current capabilities; needs and desires; and the environment's requirements and possibilities (Chaiklin, 2003). The contradiction develops as the child's develops within the ZPD. Specific SSD relations can provide function development, steering a structural reorganisation of the child's psychological functions towards the 'leading activity', 'the main source of development within a period' (Vygotsky, 1967, pp. 15-16). This 'leading activity' encourages the transition of children to the production of the specific age period's central neoformation. Children in realizing this leading activity participate in tasks that develop the psychological functions required to perform the leading activity. It is this process where development occurs and not the actual leading activity itself (Chaiklin, 2003).

As children become aware of new needs, due to development, the existing situation (where children's needs were previously met by adults in response to expectations, etc.) can become restrictive, locking the children into particular modes of activity. Children respond by attempting to change the situation and adopting new roles which actualise development when teachers/adults enter a new mode of interaction with the children. Existing functions can be enriched or new functions can be formed when children engaging in specific interactions and various tangible activities try to overcome this 'contradiction' (Blunden, 2011). At each successive stage, the child experiences a 'predicament'

where the exact situation that previously met the child's needs now 'ensnares' him/her resulting in the child breaking out or developing his/her abilities to maturity making the previous SSD redundant and creating a 'crisis' or contradiction and actualises development if the adult responds to the child with a new type of interaction (Blunden, 2011). Enrichment of current functions or formation of new functions can result from the child's engagement in concrete tasks and specific interactions of the SSD with 'relevant psychological functions that are not yet mature' (Chaiklin, 2003, p. 6). The new needs necessitate a new SSD based on the child's new development. The SSD is the initial stage of the ZPD, both important parts of the CH theory.

2.2.5 The Relationship of the ZPD to CH Theory

The concept of a ZPD is important in CH theory as the ZPD can be understood as different spheres of mental development united in individuality resulting in the unity of affect and intellect (Hakkarainen & Korepanova, 2009; Kravtsova, 2009). Vygotsky introduced the ZPD as part of the internal structure of the process of child development, a unity of material/mental and social/personal development, reflecting the whole child and not just a description of qualities (Chaiklin, 2003). The ZPD identifies the maturing psychological functions required for transition from one period to another and also pinpoints children's current state in relation to developing the necessary functions for a specific transition (Chaiklin, 2003). The ZPD focuses attention on the relation between instruction and development and develops a theoretical basis for relevant pedagogical interventions, identifying possible instructional groupings for all and specific interventions for specific learners (Chaiklin, 2003). Development of the mind and individuality occurs in stages of development which CH theory calls 'lytic periods,' (slow and incremental development) and 'critical periods,' (development occurs abruptly) (Kravtsova, 2009). Every subsequent period of mental development, can be viewed as a ZPD. Kozulin stated that the ZPD can be viewed as a 'place' where children's spontaneous concepts encounter systems and social reasoning/logic of adults in their cultural environment (1986). The ZPD is collaboratively produced in the interaction between children and more knowledgeable others (Van Oers, 2007) and between co-participants – children and teachers (Tudge & Scrimsher, 2003). The concept of ZPD has multidimensionality. Any function within the ZPD matures within a specific internal context that, not only incorporates the function's actual level, but also how susceptible children are to types of help, the sequence in which the help is offered, the rigidity or flexibility of previously formed stereotypes, and the willingness of children to the collaboration (Bozhovich, 2009, p. 48). Vygotsky's 'function' has several meanings, including multifunctional formations of intellect, awareness of one's actions and intellect; skills like literacy and reading; and higher mental functions of thinking and memory. According to Meira and Lerman, the ZPD is a complex, creative symbolic space for interaction and communication, where learning leads development (2001), focusing on student potential (Robbins 2001). This leads to neo-formations development, which form part of the next level of development (Levykh, 2008). The ZPD is a theoretical concept, not merely a simple task to be achieved with assistance but 'must be related to development' (Chaiklin, 2003, p. 3). Teachers

focus on helping children create and communicate meaning, rather than teaching or transferring specific skills (Robbins, 2001). Vygotsky defined the ZPD as:

The distance between the actual level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (Vygotsky, 1978, p. 86).

Through teacher support/assistance (Riddle and Dabbagh, 1999; Blanton, 1998; Kearsley, 1996) and social mediation, children navigate the ZPD through the leading activity leading to neoformation development, predicament, crisis and internalisation or transformation of concepts/behaviours/strategies. Riddle and Dabbagh (1999) cite Vygotsky (1978) as defining the zone of proximal development as the distance between children's actual development level and their level of potential development. The ZPD relates to emotional and intellectual processes and its developmental significance is associated with children's awareness of themselves as the main source of their learning. Therefore, it is important that teachers create conditions (stimulating environment, positive reinforcement, etc.) in which children are the sources of their own learning. Collaboration supports assimilation and the development of other cognitive processes essential to developing students as active agents of their own learning (Zaretskii, 2009).

2.3 ZPD and Collaboration

Collaboration is central to the ZPD and defines the parameters for children's future, independent performance (Moll, 1990). Collaboration has two functions - the capacity to perform an activity in collaboration, and the capacity to collaborate, requiring communicative competence and understanding the teacher's language and logic (Bozhovich, 2009, p. 52). Social interaction is the basis for cognitive growth within the ZPD and communication/interaction between children and more knowledgeable others help children build understanding of concepts. Vygotsky describes four different ways a child can problem-solve through collaboration towards internalised learning and ZPD attainment:

We show the child how the problem should be solved and look to see whether or not, imitating what he's been shown, he completes the problem. Or we begin to solve the problem and allow the child to complete it. Or we give him problems that are beyond the bounds of his mental age to solve in collaboration with another, more developed child or finally, we explain to the child the principles for solving the problem, pose a leading question, break the problem down into pieces (Vygotsky, 1984, p. 264).

The child is presented with an achievable activity, which can be performed in collaboration with a teacher/capable peer, as in group discussions. Leading questions impart indirect guidance and 'direction' provides direct instruction on the correct means of action (Zaretskii, 2009). Carefully chosen questions from the teacher during paired/small group discussions on reading texts encourages children to draw on their personal experiences and to think and draw linkages with other texts and experiences (Britton, 1970), introducing new or previously undiscussed ideas/issues (King and Briggs,

2012). The ZPD has three important, interrelated, instructional implications for teachers. First, effective instruction must be aimed at students' proximal level of development or on 'tomorrow's' development (Vygotsky, 1987, p. 211). Secondly, 'what the child is able to do in collaboration today he will be able to independently tomorrow' (Vygotsky, 1987, p. 21). The child's collaboration with teacher/more able peers is mirrored in small, flexible, problem-solving groups used e.g. in DR text discussions. Thirdly, the child's potential is measured through collaboration with the teacher and is beyond what individuals in the group could learn on their own. Vygotsky encouraged teachers to compare children's ability to independently solve problems with their ability to solve problems with assistance, measuring the potential level of understanding and what children can achieve with scaffolding rather than use standardized tests which measure what children already know/perform independently. Encouraging learners to be the source of their own learning in DR takes place when children participate in direct interaction in small group discussions. Indirect interaction is mediated by teaching tools or the unseen participation of a capable other that is physically absent during an activity. Vygotsky described indirect collaboration in a child's learning:

When a pupil is at home solving problems, after being shown a model in class, he continues to act in collaboration, although ... the teacher is not standing beside him...this collaboration is invisibly present, contained in the child's apparently independent solution (Vygotsky, 1982, pp. 257-258).

Children quietly reading texts or reading in pairs can be described as involved in indirect interaction. Vygotsky's indirect collaboration is mediated by teaching tools in the absence of the teacher through worksheets, textbooks models, etc. (Bozhovich, 2009, p. 52). Collaboration' in relation to the ZPD refers to 'any' interaction with others towards problem-solving and identifying maturing psychological functions, but not to providing constant support to inadequate maturing functions (Chaiklin, 2003). Two pedagogical objectives to collaboration are:

- Subject matter mastery that poses problems for children;
- Experiences acquired in overcoming these problems as the internalisation of learning is more important than the actual problem-solving (Zaretskii, 2007).

These two objectives can be fulfilled in DR when children in pairs/small groups explore understanding of texts, link their personal experiences to the text and negotiate meaning through the tool of dialogue. Findings from literacy research on eight graders highlight the need for choosing the appropriate tools for indirect collaboration in classroom teaching as children's linguistic competence develops unevenly in different linguistic systems including phonetic, syntactic, stylistic, morphological, lexical and phraseological systems (Bozhovich, 2009; Bozhovich, 2002; Bozhovich & Kozitskaia, 1999).

Some researchers claim that the ZPD is created in interaction between child and adult (Davydov, 1998; Mercer and Fisher, 1992). However, Chaiklin (2003) maintains that the maturing functions in

the ZPD are not created in interactions but that interactions provide conditions for identifying their existence and the extent to which they have developed. Both perspectives agree on the importance of interaction in the ZPD where the maturing functions relevant to the next developmental level are developed through performance in collaborative situations (Chaiklin, 2003, p. 58). Vygotsky viewed school instruction as a special learning social interaction, where formal instruction was essential to help the child develop scientific thinking but it was the children's own understanding of these concepts that resulted in enrichment or restructuring of concepts (1962). Instruction in the ZPD created new levels of cognitive development (Van Der Veer, 2007). Children's private intellectual abilities originate in social interactions with more capable peers or adults where children develop specific cultural tools that help problem solving and behaviour control (Vygotsky, 1978). Here students are the source of their own learning and learning involves both affect and cognition (Vygotsky, 1986). Teaching in the ZPD requires personal and relational (affective) aspects of teaching as well as cognitive approaches where students are a community of learners rather than a collection of individuals engage in problem-solving through collaborative discussions (Miller, 2003). DR teaching methodology can align with the ZPD when it 'integrates several approaches to form a comprehensive agenda for research of the genesis, development, function, and structure of the human psyche' (Hedegaard, 1996, p. 229).

2.4 ZPD and Differentiated Reading

DR is based on the theoretical framework of the ZPD and has implications for teaching and learning in diverse classrooms (Kearsley, 2005; MacGillivray & Rueda, 2001; Shambaugh & Magliaro, 2001), as children, through collaboration, create, communicate and internalise 'meaning' from texts towards students' independent performance (Moll, 1992). Reading aloud can 'help children in their search for meaning' (King and Briggs, 2012, p. 5) and group discussions on selected texts can help children understand the context, make connections with other books and experiences, pose new questions or consider new ideas towards a deeper understanding. Reading is a 'complex process where the experiences and attitudes of the reader are likely to be as important as the strategies used to 'read' the words' (King and Briggs, 2012, p. 3). Challenging activities promote maximum cognitive growth (Ormrod, 2008). Vygotsky believed that the child who benefits most from the guided participation of the teacher has more intellectual potential leading to personal transformation/reorganisation, the key element within the ZPD (Robbins, 2001). Rather than simply teaching/transferring specific skills, DR teachers, focus on helping children create and communicate meaning (Robbins, 2001). DR teachers perform four roles in the application of the ZPD in the classroom:

- organise or structuring meaningful social interactions;
- base instruction/activities in sizeable chunks on skills/tasks children can almost perform independently;

- help children master decontextualized, systematic concepts;
- provide flexible support until children can individually perform tasks.

Development levels can be recognised using activities and imitation as part of continuous informal learning and will uncover how the students contextualise and discuss various texts and to what degree of difficulty they are able to problem solve or ‘make meaning’. Reading instruction is socially embedded through discussion and linkages with personal experiences. Children develop HMF (like attention, memory, and perception) which are individual to each learner (Vygotsky, 1962). Learning processes lead developmental processes by occurring first in order to facilitate development that is still in the initial stages of apprenticeship where the teacher provides ‘scaffolding’ to help children master a specific task connecting with what children already know in concepts, previous learning experience and culture. Children may take time to make these linkages/connections through reading and ‘schoolwork’ (Vygotsky, 1962, p. 108). The real development is a process that takes place as a result of the tasks when children make connections between concepts and experience, not in the actual achievement of the tasks. DR incorporates flexibility in content, materials, teacher support, instruction sequence and flexible groupings to maximise children’s development but this support also depends on how susceptible children are to support, texts and peer discussion. This is where activity and text choices can encourage children to engage in meaning-making with peers when the texts/subject matter is aligned to their interests, culture and experiences. Teachers can locate where children are within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints and collaborating with children in tasks. ‘Collaboration is not something that is used in isolation but a generalized name for a variety of techniques that help uncover a child’s potential abilities’ (Bozhovich, 2009, p. 50). Collaboration and interaction with competent assisted performance can be an indicator of the state of HMFs enabling teachers to establish ZPDs (Chaiklin, 2003).

2.4.1 Establishing ZPD through Collaboration

Teachers can establish children’s ZPD through collaboration. Assisted performance through paired discussion or small group dialogue, following reading of text (aloud/silently) helps teachers develop understanding of children’s cognitive development (Costley, 2012). Mutual assistance creates new ways of thinking and talking about texts in teacher-mediated open-forum discussions where teachers created ZPDs ‘through their approaches to literature and interactions’ drawing on methods of ‘reading to mediate students’ meaning making’ using support and ‘questions as strategies’ (Miller, 2003, p. 312). Through the leading activity (discussion, collaboration) assigned by the teacher, and neoformations (predicting/questioning/clarifying/summarising versus analysis of characters/plot), children working through the conflict of comprehension strategies versus analysis can realise themselves through dialogue and linkages with previous knowledge and experiences and create their

own ZPDs. In a discussion on the Magic Treehouse Series by Mary Pope Osborne (suitable for ages 7-11 years) children could discuss the fact that Jack and Annie (the two leading characters), never tell their parents or friends about their travels and adventures. Various groups could discuss the wisdom of keeping 'secrets' and consider the dangers of sharing confidential information online, etc., leading to a restructuring or internalisation of concepts. Here, knowledge is jointly constructed to help students make meaning of texts through narrative reflection and critical narrative thinking using various comprehension strategies. Children, when reading, create mental images or 'other worlds' in their minds and this 'understanding of what they have read can be enhanced through discussion... when such talk happens, the teacher and children negotiate meaning together' (King & Briggs, 2012, p. 30).

Another strategy incorporating the ZPD and DR would be addressing the dialectical process in a DR lesson. This could involve two groups of pupils in Sixth Class/Grade 6 analysing life from opposing viewpoints - the two boys (one Jewish concentration camp inmate and a son of a Nazi concentration camp officer) from the text 'The Boy in the Striped Pyjamas' by John Boyne (2006). The two groups swap roles after ten minutes and examine the alternate stance leading to a deeper understanding of each position. A whole class discussion would provide opportunities for the children to assimilate their own thoughts from this dialectical process leading to a deeper understanding and/or internalisation of new ideas. In DR, children explore the texts and the reading process in ways they cannot do independently, 'the interpersonal dialogic nature of the talk is then internalised to become part of the independent thinking applied to texts read alone' (King and Briggs, 2012, pp. 8-9). Here, children's HMFs are developed to a heightened level of understanding as children discuss and use 'thinking into meaning' and 'exploratory talk to develop as active and collaborative readers seeking meaning that is satisfying both cognitively and affectively' (King & Briggs, 2012, p. 7). Teachers use 'purposeful talk' as a means of 'making meaning' to help students make sense of knowledge and apply it to their own experiences or previous texts as children come to join a community of practice of learning (Wenger, 1999) through dialogue and discussion. Teachers can employ talk to expand and develop learners' thinking and understanding (Mercer, 2000), incorporating Vygotsky's idea of language as a learning tool.

2.4.2 Oral Language

The main function of speech is 'communication, social contact, 'influencing individuals' (Vygotsky, 1934, p. 45) and DR teachers use verbal scaffolding (Ankrum et al., 2013) collaboration and exploratory talk in the classroom (Moll, 1992). Children from 7 – 11 years develop an understanding of language structures towards vocabulary, cognition and analytical skills' development, leading to information-processing and metacognition skills development. Teachers use spoken interactions/oral language and verbal scaffolds, to bridge the gap between what is known and what the child is able to learn, to guide and extend student learning (Mercer, 1995). Knowledge of language and language as a collaborative tool bring texts to life through 'the power of talking about literature together' (King and

Briggs, 2012, p. 37). Teachers share meanings through oral and written language, art, music, literature, etc. and mediate/transform situations children encounter. Teachers communicate a 'lens' of previous generations' through informal conversation and formal schooling and students construct culturally appropriate interpretations of their experiences (Costley, 2012).

Effective talking and learning takes place when teachers and children 'engage collaboratively in the negotiation of meaning' (Wells, 1985, p. 25). In DR, teachers emphasise context or word 'sense' in whole class introductions to texts and read-aloud sessions. Context or word 'sense' is further explored and discussed in small group discussions where children engage in short, focused, meaningful discussions with peers on texts, incorporating linkages with other texts, previous experiences and cultural activities enable children to reach higher levels of understanding than they would reach reading independently. Children acquire knowledge from social interactions within the environment as well as from others, from learning activities and making meaning of their own experiences. Teachers can locate where children are within the ZPD by a combination of methods – discussion, leading questions, observing progress, providing hints, collaboration and imitation.

2.4.3 Establishing ZPD through Imitation

Teachers establish children's ZPDs through collaboration and imitation (Heritage, 2010; Shepherd, 2006) because developing functions (buds) nearing maturity whilst unable to support independent performance, are an indication of children's ZPDs (Chaiklin, 2003, p. 53). Chaiklin stated that the ZPD has two zones, 'the objective zone exists through the SSD' and the subjective zone comprises of the child's ability to imitate (2003, p. 9). Vygotskian imitation implies understanding, and is 'one of the basic paths of cultural development' (Vygotsky, 1931/1997, p. 95). Collaboration is used to assess children's ability to imitate as it provides opportunities for imitation 'by applying the principle of cooperation for establishing' the ZPD (Vygotsky, 1934/1998, p. 203). Imitation is important in children's cultural development towards completion of concepts, as it is 'not mechanical, automatic, thoughtless imitation, but the imitative performance of some intellectual operation that is reasoned and based on understanding' (Vygotsky, 1984, p. 263). Imitation is an internal restructuring and form of practice, based on understanding rather than thoughtless imitation and can be used as a bridge for internalising cultural information (Robbins, 2001). In ZPD, imitation applies to activities completed in cooperation with the teacher or with the help of teacher's leading questions that the student could not do independently (Vygotsky, 1998); 'If I am not able to play chess, I will not be able to play a match even if a chess master shows me how...to imitate, there must be some possibility of moving from what I can do to what I cannot' (Vygotsky, 1987, p. 209). Children can copy actions that exceed their abilities and extend and transform the modelled activities by imitation (Lantolf, 2000) but they cannot imitate concepts/skills that are beyond their comprehension (Van Der Veer, 2007).

In DR, while children can imitate the teacher's modelled reading skills (pronunciation, phrasing etc.), real imitative activity of the 'zone of intellectual imitation' (Vygotsky, 1984, p. 263) is where children use imitation in collaboration with more competent peers/adults (Zaretskii, 2009), leading to development of concepts/ideas resulting in increased understanding incorporates listening, questioning, summarising, evaluating and clarifying in small discussion groups (dialogue skills). As children develop competency, teachers change from instructive roles to facilitative roles in group dialogue, further increasing the children's discursive skills through collaboration.

A development of imitation is 'Memesis,' making visible (including images) what is not visible, involving cognitive and active components towards construction or creation (Robbins, 2010). This includes visualisation of texts through discussion or 'play', role-play/simulations, which facilitate children's development and enact adult roles (Schinke-Llano, 1995). The ZPD is not solely a cognitive zone but involves emotion and can include play (Robbins, 2010). Britton suggested that that reading was similar to play, as it incorporates the play of make-believe (1976). Smith agreed with Britton (1976) that readers take texts to 'this imaginative playground' to create meaning (2012, p. 5). Vygotsky used the concept of leading activity in regard to play, concluding that the relationship between play and development is the same relationship as between learning and development where play is the source of development and creates a ZPD (Vygotsky, 1999). Therefore, play as a leading activity in the pre-schoolers' period of development creates a ZPD for pre-schoolers as play enables children to have the highest achievement possible (Vygotsky, 1999). In DR, play can also incorporate the 'socio-centric' (Erikson) aspect of the child's personality in facilitating various grouping methods in activities, e.g. paired, small group and whole class discussions, collaborative activities and projects. Imitation is pivotal in development of reading skills, critical thinking and analysis. Learning occurs in social interaction.

2.4.4 Creating Meaning through Dialogue

Thought, language and culture are interdependent and central to development (Ardichvili, 2001). Development progresses through the internalization of social interaction through language (Fox, 2008). 'Language, culture and the brain are inextricably linked through the concept of meaning...attending to the meaning and context as we read... rather than just processing words we experience them, in this way they become more meaningful' (Hall et al., 2014, p. 116). Linking text to experiences, previous learning and context during reading and group discussion can help children deepen their understanding of texts. In meaningful discussion, children develop knowledge and meaning under the teacher's guidance.

Meaning, central to any significant human undertaking, is made not in the decoding of characters but from experiences shared between learners and guided by teachers. Where these practices 'match' an individual's previous histories of participation they can employ and develop literacies in practice (Hall et al., 2014, p. 130).

Children do not just reflect and represent what is read but search for meaning and develop their own understanding of information (Glaserfeld, 1989). In the ZPD, children gradually internalise the teacher's directions culminating in them giving themselves directions (Costley, 2012). 'Competence before performance' (Cazden, 1997) summarises the importance of understanding and meaningful learning towards personal transformation or reorganisation, where past knowledge and experience are applied to new texts/problems/circumstances incorporating deep/intrinsic' approach to learning (Zimmerman's, 1998).

Dialogue and expressive talk facilitate the transaction needed between the meanings readers bring to and take from texts (Rosenblatt, 1978) as collaborative discussion on texts brings life and meaning to texts (King and Briggs, 2012). One way to incorporate the ZPD concept into DR is through collaborative dialogue supported by the teacher. Children funnel their interpretation/knowledge of the text, their prior knowledge/experience and combine them in interaction with peers' ideas, questions and thoughts into a synthesis of fluid meanings. The 'Construction Zone' concept is a magical place, where different children have different ideas, where meanings are fluid and where meanings and understandings are interconnected with shared activity to construct new meanings from text interpretations (Newman, Griffin and Cole, 1989). Linkages with previous learning, experiences and other texts can be incorporated into this construction zone in small group discussions on texts in DR. Talking and discussing reading texts 'externalise the thinking processes' involved in reading enabling students to 'internalise cognitive strategies and articulate their thoughts, feelings and ideas' (Warner, 2013, p. 2). Through text discussions, teachers guide children's understanding of the text, ensuring the children make linkages with previous experiences or texts to facilitate meaning-making. Children also transform strategies, ideas and other cognitive tools in the process of internalisation termed 'appropriation' (Costley, 2012).

Learning is viewed as pliable, where the student's thinking can be reshaped through newly created connections, categories and links made with previous ideas/experiences, which teachers can plan through content, process and product. The learning context is also important. Stufflebeam (1971) suggested four kinds of evaluation in his CIPP Model (Context, Input/Content, Process, and Product). Planning differentiated reading instruction, following a ZPD framework, incorporates the following four elements.

- **Context** - including abilities, interests, texts, nature of tasks and school environment; 'identifying unmet needs, unused opportunities, and underlying problems' which prevent the meeting pupils' needs (Stufflebeam, 1971, p. 268).

- **Content** - moves marginally ahead of students' actual development level encouraging work towards ZPD, which does not always involve academic concepts (Chaiklin, 2003) but includes social skills e.g. listening, simulation and discussion skills.
- **Process** - assisted performance towards meaning, understanding; teachers provide guided practice on activity where instruction (obuchenie) is focused on children's maturing HMF, rather than functions already developed (Chaiklin, 2003). Process includes strategies, processes, activities, groupings, pacing and support.
- **Product** - evaluating children's performance in relation to curricular chronological model (Chaiklin, 2003). Children demonstrate what they know/understand/can do.

Planning for context, content, process and product guide the teacher towards appropriate learning tasks in response to pupil variance. Instruction includes skill modelling, simplification of problems to pupil variance, initialising and maintaining interest and motivation (Wood, Bruner and Ross, 1976). Children's learning tasks/concepts may involve discrimination, transformation or construction of real/ideal objects, involving adult assistance, as children's interaction with and exposure to others is critical in their learning (Gallimore and Tharp, 1990; Tudge, 1990).

2.4.5 Consciousness and Dialogue

Vygotsky researched the structure and development of human consciousness and he proposed that teachers should expand the narrow focus of learners' perception through 'intelligent 'social activity' and help students develop reflective consciousness (1971). Vygotsky had a holistic understanding and vision of human development and the ZPD helps us to understand the individuality and uniqueness of each child (Kravtsova, 2009). The ZPD is concerned with the whole child and the internal structure or relationships between psychological functions developing in the child. Paulo Freire believed that learning should be inclusive of lived experience (1973), empowering students to reconstruct knowledge in a meaningful way (Molina, 2012). Freire contested the verticality of student/ teacher relationships (1985, 2000) and proposed that, by reflecting and acting on the world, we can bring about a transformation which he called 'praxis' (2000, p. 51). In the classroom, this can be achieved through dialogue (Lipman, 1993) but cannot be ensured to change from discourse to social action (Kaufmann, 2010). Wenger's core concepts of practice, meaning and identity provide means of talking about learning through dialogue and how we change as we share meanings in social activities, leading to learning in historical and social processes of participation (2008), as 'learning is the engine of practice and practice is the history of that learning' (Hall et al., 2014, p. 205). Lipman (1993) developed the use of dialogue with children in the classroom to encourage active questioning and learning in the child, in a process he termed 'Philosophy for Children', which he pioneered with Margaret Ann Sharpe. Hall et al. (2014, p. 83) define pedagogy as 'our participation in practice as a result of our understanding of the nature of learning'.

In the classroom, students can be empowered to actively contribute to the development of knowledge, as well as to collectively question their habitual views of the world through dialogue, literature circles and a Socratic approach. Lave (1996) claimed that learners, using agency, actively strive for meaning and identity in their social 'world'. Lave and Wenger (1991) view learning as situated with meaning present and developing in social situations. A word is not static, its meaning is mediated and word meaning is the unit of analysis of consciousness. 'Slovo' in Russian can mean a word, but also discourse, verbal expression or the process of language, so, a word in Vygotsky's writing is a dynamic process. Vygotsky used compound phrases such as 'meaningful speech' and 'verbal thought' to identify what he considered to be amalgams of functions and the relation of thought to word is a process, a continual movement back and forth from thought to word and from word to thought (Willis, 2001). One teacher describes 'verbal thought' and meaning-making arising from literacy circles:

I didn't feel as if we were a group of children with a teacher... we were all learners and teachers together. I learned from them and they learned from me. We shared our experience of reading the text...our thoughts. We talked about how the text made us feel...we responded to each other's thoughts and ideas' (King & Briggs, 2012, p. 37).

This dialogue making-meaning from language resonates with Vygotsky's 'verbal thought' and 'meaningful speech' and can be an important strategy and activity in DR; 'Understanding language as the roadmap of culture' social interactions and processes provide new meanings for language' (Hall et al., 2014, p. 132).

Vygotsky, through his research of the structure and development of human consciousness, described how children internalize language through cultural development. Culture is the language that unites humanity and cultural tools are under mediation because we're surrounded by different tools. Language, ways of speaking and active human involvement all makes us human. However, Hall et al. suggest that the 'distributed nature of human thinking, action and meaning-making ... of sociocultural thinking conflicts in various ways with Western individualism, intellectualism and rationality... and the way schools function to categorize, select, differentiate and credentialise students without appropriate reference to opportunities to learn' (2014, p. 2). This can be compounded by a 'teaching to assessment' approach, where schools and teachers can feel pressurised into ensuring students achieve required assessment scores, rather than teaching to pupil variance. Dialogue on texts enables children, in four different ways, to:

- form and express new ideas;
- communicate these ideas to others;
- participate in creating a shared meaning with others;
- create/generate new meanings that could not have been achieved alone (Chambers, 2011).

Students first must develop an understanding of the process of dialogue. They advance from collective discussion to individual learning as they make sense of peer discussion and their own knowledge. Approaches to reading have changed from eliciting ‘static meaning’ from a text (Miller, 2003) to the constructivist approach involving readers ‘active making of meaning’ (Bartholomae and Petrosky, 1986; Rosenblatt, 1978). This strategy using a sociocultural approach, prioritises thinking and discussion through collaborative dialogues, internalising inner speech. Vygotsky's ZPD has been used in research in reading (Dunn & Lantolf, 1998; Lantolf & Pavlenko, 1995) providing valuable information to guide the teacher's classroom planning, instructing, and assessing (Bundoc, 2007). Readers ‘constantly pause, evaluate and measure everything new they read against what they know already’ (Smith, 2012). Using collaborative dialogue and classroom discussions on texts, DR teachers can transform from instructor to mediator of discussions, where students can develop thoughts and ideas or HMF that have not yet matured, requiring different skill sets (Brownstein, 2001). A facilitator emphasizes the role of the learner over the content (Gamoran, Secada and Marrett, 1998), engages in dialogue with students, and asks, guides and encourages children to reach their own meaning and understanding. Student engagement in reading is encouraged when linkages and connections are made with previous experiences and texts. Readers must actively interact socially with peers and teacher through discussion to question and form considered opinions on a selected text.

In DR, the learning process is modified to meet the perceived pupils' needs. Dewey (1902) advised against over-emphasising the ‘child-centred’ curriculum and proposed a balance be maintained between the curriculum content and the students' interests and experiences. Teachers can help students work through their ZPDs through mediated class discussions by employing the listed strategies below:

- encouraging students to sit in circles (Riddle & Dabbagh, 1999)
- encouraging model listening, responding and collaborating with long pauses for thinking time, letting meaning to ‘build and grow’ (Miller, 2003, p. 293)
- encouraging children to talk, as ‘talk can externalise the thinking processes,’ ‘internalize cognitive strategies’ and articulate thoughts, feelings and ideas (Warner, 2013, p. 2)
- encouraging interpretative, evaluative questions to search and to explore text interpretations
- encouraging student-initiated questioning, explanations, evidence and interpretation
- encouraging collaboration to develop ways of knowing and understanding (Miller, 2003)

Children's skills can be developed and enriched through meaningful adult/knowledgeable peer direction (Blanton, 1998; Riddle and Dabbagh, 1999; Rueda et al., 1992). Teachers model connecting personal experiences and/or texts to the text under discussion and then encourage students to contribute their experiences. Students develop understanding of text character's (and their own) actions and motives and learn from their own and others' experiences through these linkages between the text and personal experiences (Polkinghorne, 1995). This interdependent problem-solving strategy,

involving connection-making, encourages students to use their life experiences and social knowledge as a basis for understanding new learning (Miller, 2003; Polkinghorne, 1995).

This section discussed the links between DR and the ZPD through collaboration, imitation, oral language and dialogue and development of human consciousness. The following section briefly reviews some developments in instruction and assessment that incorporate Vygotskian theory that are applicable to DR.

2.5 Relationship of DR to Vygotsky and Reading

The ZPD focuses on the relationship between instruction and development and develops a theoretical basis for relevant pedagogical interventions (Chaiklin, 2003). Arthur Applebee examined literacy instruction and learning to understand how traditions shape discourse and practice. His 1996 construct reconceptualised curriculum as a structured, extended conversation about culturally significant topics in an integrated sequence of reading, discussion and writing. He also proposed that the study of varied genres and literature of interest to children would help develop children as strong, ethically aware thinkers. He wanted to make schooling more engaging, challenging and rewarding for children and teachers. Smagorinsky (2017) developed this idea further and encouraged educationalists to use different genres that are culturally and historically rich in Applebee's notion of the 'curriculum as conversation,' to engage and develop students' thinking from varied genres, not just traditional, teacher-chosen texts. Smagorinsky (2017) incorporated Bakhtin's 'Speech Genres' (1986) with Applebee's 'curriculum as conversation' construct (1996) stating that classroom discussions are usually teacher dominated and should employ broader, more democratic participation from all students. *Heteroglossia*, suggested by Applebee involves the diverse blending of perspectives and voices to help to motivate, sustain, and invigorate classroom conversation. Although Applebee's focus was mainly on classroom interactions, Smagorinsky (2017) suggests that Applebee also included children's ability to draw on prior experiences and knowledge.

Meaningful discussion/conversations incorporating children's ideas, experiences, prior knowledge and experiences helps development and thinking but research (Applebee, Burroughs, & Stevens, 2000) demonstrates that lower ability children have less access to extended conversations. Researchers recommended the use of cultural tools (Vygotsky, 1986) e.g. musical, artistic conventions, and other forms of expression, representation, and communication in children's learning (Smagorinsky, 2017; Wertsch, 1991). DR teachers, incorporating children's culture, traditions, previous experiences, knowledge and interests through conversation/discussion and supporting instruction with cultural tools (music, art, sport and self-chosen texts and genres) help to engage, stimulate and challenge children in classroom activities and drawing from Vygotskian concepts and research.

The ZPD is fundamentally about social interaction where instruction leads development. However, effective instruction requires assessment, because it must be sensitive to what the individual is capable of achieving when acting independently; at the same time, a complete assessment requires instruction,

which follows from Vygotsky's argument that higher mental development finds its source in sociocultural activity rather than in the recesses of the brain (Poehner & Lantolf, 2010, p. 316).

Poehner and Lantolf (2010) argue that Dynamic Assessment (DA) has profound implications for educational practice as it posits a dialectical relation between instruction and assessment in joint activity intended to reveal a learner's ZPD and it also highlights the provision of mediation to support continued development. While DA has been implemented with second language learning education (Mehri & Amerian, 2015; Poehner & Lantolf, 2010), it also can be implemented with DR, specifically in both reading-aloud activities and small focused group discussions incorporating teacher/child collaboration in assessment task completion. DA, introduced by Luria (1961) involves the application of the concept of Vygotsky's ZPD in the dialectical unity of instruction and assessment, where teacher and children interact/collaborate as they jointly complete tasks and work through difficulties that arise (Poehner & Lantolf, 2010). DA enables teachers to instruct and assess at the same time but the goal is to realize the 'full picture' of children's cognitive ability (Mehri & Amerian, 2015, p. 1459) revealing children's fully developed as well as still forming abilities. In DA, teachers work within children's actual and potential zones of the development, merging instruction and assessment as a learning/assessment procedure (Mehri & Amerian, 2015). DA attempts to assess children's abilities through transforming them through dialectical activities between learners and the teacher/mediator (Zhang, 2013). DA works through teacher/child interaction as teachers assess how their intervention (cues, prompts, hints), benefit children while learners strive to achieve performance slightly above their independent attainment level. DA involves both *interventionist* approach (prefabricated, pre-determined fixed set of clues and hints offered to children as they progress through a test) and *interactionist* approach (mediation is negotiated with children and continually adjusted in accordance with children's responsivity (Poehner & Lantolf, 2010, p. 318).

The potential development of the child is revealed by the level of possible change through the teacher's assistance (Mehri & Amerian, 2015) and also in the transferal of this mediated performance to different activities (Poehner & Lantolf, 2005). This interactive process makes DA different from other assessment/instruction models in that teachers consider carefully children's responsiveness and metacognitive awareness (Haywood, 1992). DA requires deep subject knowledge and training to implement this cognitive developing concept (Butler, 1997).

The dualisms facing second language acquisition including explicit versus implicit knowledge, language versus thought, structure versus function, language learning versus language use and (conscious) learning versus (unconscious) acquisition, (Ellis & Larsen-Freeman, 2005), sense versus meaning (Vygotsky, 1987), and instruction/assessment (Poehner & Lantolf, 2010) also challenge DR. The dialectical unity of instruction and assessment within DA through joint interaction/collaboration in assessment task completion can help teachers address these dualisms whilst also revealing children's ZPDs and level/type of mediation provision to support continued development and the

transferral of this development to different activities. This mediation is not simple assistance, but involves *appropriate* assistance, that is not aimed at helping children solve problems (right answers) but to move children towards ‘independent, agentic performance and to be able to transfer what is appropriated in a given circumstance to future situations’ (Poehner & Lantolf, 2010, p. 316).

This section briefly reviewed the incorporation of culture, heteroglossia, cultural tools in classroom activities and the dialectical unity of instruction and assessment within DA to reveal children’s potential development and transferral of mediated performance to different activities in instruction and assessment that incorporate Vygotskian theory and are applicable to DR. The next section briefly reviews perceived similarities and discrepancies between the ZPD and DR.

2.5.1 Similarities between the ZPD and DR

There are important similarities and differences between the Vygotsky’s ZPD concepts and DR. Language is integral to the teaching of reading, as it is the tool to communicate meaning from the text to the reader and the tool in teacher/student and student/student discussions.

Table 2.3: Similarities between the DR and ZPD

Concept	Differentiated Reading	ZPD
Language as a tool	Reading, thinking, communication, imitation, collaboration, meaning-making, Context, word ‘sense’, Analytical skills’ development	Tool in imitation and collaboration. Motive? thought? inner speech? word meaning? external speech
Relevant content, resources & tools,	Modify content, process, product, context, resources and teacher support to meet child variance	All children can learn with access to relevant tools. Content moves marginally ahead of students’ ZAD
Collaboration	Social process, children read aloud, listen, discuss, share meaning-making through group discussion and learning.	Central to the ZPD - direct and indirect interaction - demonstration, leading questions, provision of elements of task solution
Imitation	Teachers model and children imitate relevant reading and dialogue behaviours and skills	Internal restructuring and practice based on understanding (Robbins, 2001)
Meaning-making	Meaning shared between children and guided by teachers (Hall et al, 2014) through collaboration and reflection. Competence before performance (Cazden, 1997).	Dialectical process, SSD, unity of cognition and emotion, real and the ideal leading to catharsis of internalised learning through assisted performance (collaboration).
Learners source of their own learning	Listen, think, reflect, share and link with prior knowledge and/or experiences towards deeper understanding in discussion. Create a Construction Zone of fluid meanings (Newman, Griffin & Cole, 1989)	ZPD - emotional and intellectual processes and its developmental significance – SSD, dialectical process, synthesis of unity and affect, synergy of the ZPD, dramatic collision of internalisation

Vygotsky stated that teachers should create conditions to encourage learning and development, that education can help children contribute to society and that all children can be educated if given access

to the right tools. Vygotsky focused on children learning from immediate models in their lives. Children learn to imitate behaviour, so it is vital for children to recognise healthy role models (Costley, 2012), in texts or through discussion learn to recognise unhealthy role models. Students' understanding is enhanced during focused discussion, as they listen, think, reflect and connect with other texts/experiences/ideas towards the development of deeper understandings and possibly the source of their own learning. Vygotsky (tutored by Solomon Ashpiz using a Socratic method-based technique) viewed development as a synthesis of the real and the ideal, and a synthesis of affect and intellect, leading towards the synergy of the ZPD or dramatic collision of internalisation.

2.5.2 Discrepancies between Traditionally Accepted View of ZPD and DR

Some DR practices appeared to be at variance with the ZPD approach. Vygotsky advocated establishing a zone of actual development (ZAD) through collaborative activities with a knowledgeable 'other', while some DR assessment is often an individual activity. Some discrepancies between DR and ZPD and possible solutions are outlined in Table 2.4, below.

Table 2.4: Discrepancies between DR and ZPD and Possible Solutions

Concept	Differentiated Reading	ZPD
Language as a tool	Reading, thinking, communication, imitation, collaboration, meaning-making, Context, word 'sense', Analytical skills' development	Tool in imitation and collaboration. Motive? thought? inner speech? word meaning? external speech
Relevant content, resources & tools,	Modify content, process, product, context, resources and teacher support to meet child variance	All children can learn with access to relevant tools. Content moves marginally ahead of students' ZAD
Collaboration	Social process, children read aloud, listen, discuss, share meaning-making through group discussion and learning.	Central to the ZPD - direct and indirect interaction - demonstration, leading questions, provision of elements of task solution
Imitation	Teachers model and children imitate relevant reading and dialogue behaviours and skills	Internal restructuring and practice based on understanding (Robbins, 2001)
Meaning-making	Meaning shared between children and guided by teachers (Hall et al, 2014) through collaboration and reflection. Competence before performance (Cazden, 1997).	Dialectical process, SSD, unity of cognition and emotion, real and the ideal leading to catharsis of internalised learning through assisted performance (collaboration).
Learners source of their own learning	Listen, think, reflect, share and link with prior knowledge and/or experiences towards deeper understanding in discussion. Create a Construction Zone of fluid meanings (Newman, Griffin & Cole, 1989)	ZPD - emotional and intellectual processes and its developmental significance - SSD, dialectical process, synthesis of unity and affect, synergy of the ZPD, dramatic collision of internalisation

DR teachers are often advised to establish students' readiness levels through individual test scores and then devise DR plans and activities for students (Heacox, 2002). Vygotsky identified children's ZPDs through collaborative processes 'in solving problems with assistance' (Vygotsky, 1986, p. 187). Individual test scores only indicate what the child can already understand/perform/do unaided.

Establishing children's ZPDs must be done in collaboration e.g. DR collaborative dialogue/discussions, as levels or 'buds' of development or maturing higher functions can be interpreted through performance of direct or indirect interaction. ZPD involves developing meaning or problem-solving that is slightly beyond students' HMF, where a certain level of understanding is already present. However, internalisation or deepest learning can take place as a result of direct or indirect interaction and does not necessarily involve constant assistance e.g. a student can achieve deep learning in completing homework alone which was developed as a result of direct interaction within a collaborative dialogue on a text with the teacher as mediator, where the students 'talked to think', understand and learn (Barnes and Todd, 1977; Wells, 1986). Some DR teachers place children with similar reading scores in 'same ability' groups where children perform the same activities with expectations of achieving similar outcomes. However, Vygotsky proposed that children can have different sized ZPDs according to their level of understanding of 'maturing psychological functions'.

Having summarised the main perceived similarities and discrepancies between DR and ZPD, the next section explores the perceived difficulties with Vygotsky's theories on education.

2.6 Perceived Difficulties with Vygotsky's Theories on Education

The ZPD is one of the least understood and most used constructs in contemporary education (Mercer and Fisher, 1992; Murphy, 2013; Palincsar, 1998; Veresov, 2005). Frequent misinterpretations presume that the ZPD is the attainment of a simple task or steps in a concept/skill, rather than the true meaning of internalised learning through assisted performance towards individual achievement. Chaiklin advises teachers to use 'assisted instruction, scaffolding' to describe practices including concepts/skills performance which do not adhere to Vygotsky's developmental theory (2003, pp. 13-15). One paradox of the ZPD is that, while it is used to measure students' developmental potential, potential measurement proves difficult since potential is abstract and not confined by time (Robbins, 2001). However, every child can achieve mastery of a concept within their own ZPD, as recognised by a proficient teacher.

Employing ZPD in education can have negative implications for children's overall development if understanding of a concept is forfeited in favour of mastery of a school-taught technique towards activity completion (Berejkovskaya, 2006); e.g. analysis of word sounds technique taught to Russian 5-7 year olds, while being an initial success in literacy, poses problems later for children, as they don't understand the rules of orthography. Here, a mismatch between the content and process of instruction and the ability of children to understand the concept, where the means of acting on the content, as assimilated by the children, has not been fully developed, could occur due to over-reliance on phonics to the exclusion of comprehension. These negative implications can be avoided by modifying the content, process and product, according to child variance. Problems arise in relation to scaffolding where a child's developmental potential may not be accurately identified by an incompetent teacher,

minimising the child's creative development/process of creativity (Pollard, 1994), since Vygotsky assumed teachers were extremely competent, like his own tutor, Solomon Ashpiz (Robbins, 2001).

Critics of Vygotsky state that he neglects individual initiative (Berger, 2006) and places too much emphasis on the collaborative nature of learning. Vygotsky stated that the ZPD concept can be bi-directional, 'which implies a unidirectional movement of development...without a dynamic relationship' between the teacher and pupil (Robbins, 2001, p. 2). However, schools and learning institutions by their very nature are centres of collaborative learning.

Reading is 'a type of thinking' (Smith, 2012, p. 21). Vygotsky states thought is a social process and that society shapes thought and how children think (1978). However, thought is also a very private process and our thoughts are private, 'unless we share...what goes on in the private spaces of our own minds can be our own entirely' (Smith, 2012, p. 21). Thought is complex and multifaceted and is an important part of learning and reading (Smith, 2012).

Other critics claim that Vygotsky's theories overlook the role of genetics in children's development, especially in neurological and physical development (Wertsch and Tulviste, 1992). Vygotsky acknowledged biological and inherited traits but he primarily focused on the environmental role in children's cognitive growth (Ormrod, 2008) and the sociocultural influences on the child's learning.

Vygotsky's views on the relationship between education and development are complex (Van Der Veer, 2007) and are often misunderstood or misquoted. It is acknowledged that difficulties may arise in the interpretation of Vygotsky's writings and that translation issues with language and cultural meanings of words also cause interpretation difficulties (Murphy, 2013). Vygotsky used both pre 1917 language e.g. 'kategoria' (Russian for category meaning dramatic collision and interactive process leading to internalisation) which carries different connotations to the English word 'category' (section 2.2), and post 1917 language. Translation issues pose problems, as language and cultural meanings of words can be lost through translation.

Vygotsky's theoretical views evolved and developed over the 10 years before his premature death in 1934, e.g. ZPD development. Vygotsky published parts but never fully completed his cultural-historical theory, so interpretation can be varied. There are many different terms used to describe this theory, from sociocultural, cultural-historical approach, to sociocultural or socio-historical psychology. The next section summarises key messages emanating from the Vygotskian literature.

2.7 Key Messages from Vygotsky's Literature

Vygotsky's mission was to develop a theory of what it means to become a human person and his goal was to create the psychology of man, the science of the complex laws of the human psyche (Luria, 1935). Vygotsky's CH theory, a general theory of development of HMF developed through dialectical synthesis, explains the HMF development and focuses on the transformative nature of internalisation

which is the basis for societal transformation. The dialectical process unravels the whole into units of analysis, which are component parts of the whole, unlike elements, which lose properties of the whole e.g. water, in a non-symmetrical, non-linear way (Murphy, 2017), resulting in the transformative nature of internalisation. Vygotsky used theory to change individuals' consciousness and societal structures including education and combines theory with practice. Vygotsky used a dialectical approach positioning thought and speech as instruments in reflecting consciousness and was the first to argue that consciousness has a social basis. Two phenomena marked the mediated nature of man with his environment - the use of language as a cultural form of mediation and the use of tools with a socially organised activity. CH theory suggests that different cultures develop cultural tools to solve problems. One core aspect of CH theory is the continuous development of word meanings within personal and social activity. Vygotsky researched thinking and speech using word meaning as a unit of analysis to reflect and mediate consciousness from a dialectical-monistic vision

Vygotsky's theories focus on functions and intra/interrelationships and the tensions between the individual and the social environment. The SSD, the initial point of ZPD, involves interaction between real/ideal forms, unity of intellect/affect, imitation and regression/recursion and incorporates the child's specific, relationship with the environment. A 'leading activity' or a mode of activity/interaction in every SSD encourages children's transition to the production of the central neoformation of the specific age period. A predicament occurs when the child develops, causing a crisis. Development occurs when children's psychological functions mature resulting from participation in tasks required to perform the leading activity and not the performance of the actual leading activity.

Vygotsky stated that the only good education is one that leads to development incorporating communication and collaboration between learners and teachers. The concept of a ZPD is a very important concept in CH theory as it helps understanding of human individuality by studying the development of the mind and individuality. The ZPD encompasses the 'intellectual and mental functions' that children are able to employ in 'interaction, where independent performance is inadequate' (Chaiklin, 2003, p. 9) and comprises of 'the area of immature, but maturing processes' (Vygotsky, 1934/1998, p. 202). Within the ZPD, emotional and intellectual development occur as a single process and during development we become aware of ourselves as the source of our actions. Successful assisted performance indicates the state of maturing psychological functions Collaboration is used to assess children's ability to imitate as children with required understanding of concepts can perform by imitation. Children can have different sized ZPDs, according to their level of development of HMF (Levykh, 2008). Children with larger ZPDs can realise performance significantly beyond the relative age norms. Vygotsky's research showed that the size of the ZPD was more accurate than IQ test results in determining school success (Van der Veer & Valsiner, 1991, pp. 336-341). The ZPD is not just development through assistance by competent others as this 'collaboration is only meaningful in relation to maturing functions required for the transition to the next age period (Chaiklin, 2003).The

ZPD's content and meaning changes according to the age period. Ontogenesis has two types of learning: reactive, where children learn from a programme designed by others; and spontaneous, when children self-generate their learning program where they are aware of themselves as the source of learning. Having discussed key messages from Vygotsky's literature, the next section addresses interpretations of Vygotsky's literature.

2.8 Interpretations of Vygotsky's Literature by Vygotskian Scholars

All Vygotsky's research and publications were written in Russian. This poses a problem for readers in the West as various interpretations can arise from different translations, e.g. there are several different translations of Vygotsky's general law of the cultural development of HMF e.g. Cole & Wertsch, (1978) and Veresov (2004) as discussed in section 2.2. Veresov's translation states that every function in the child's cultural development appears on the stage twice, first on the social plane, inter-mentally, and, secondly, on the psychological plane, intramentally, (Shabani et al., 2010). Cole & Wertsch omit the reference to the 'two planes' (or stage, implying time difference) and 'category' (kategorija, meaning dramatic collision) resulting in an incomplete definition of the process. Similarly, Kozulin provides a more complete translation of Vygotsky's 'Thought and Language' (1986) than Hanfmann and Vakar (1962).

Mark Willis, (2001), provided an insight into the restrictions, and lack of freedom of speech imposed on writers in Stalinist Russia and the inner conflict over motive experienced by both Vygotsky and imprisoned poet, Mandelstam, (one unwritten poem 'The Swallow.') Willis, discussed the power of the word - 'slova, the Russian for 'word' meaning discourse, verbal expression but also a dynamic process (Kozulin, 1986), and investigated egocentric speech, inner speech and motive as 'thought is not begotten by thought ... (but) is engendered by motivation' (Vygotsky, 1986).

Vygotsky's CH theory was analysed by Dorothy Robbins (2010) who discussed interpretations of the CH and determined that the ultimate goal of CH theory was how we embrace change within human rationality constraints whilst consistently maintaining the ideal of human growth (2010). She summarised seventeen important points where Vygotsky used 'theory to change both individual consciousness and societal structures' like education (Robbins, 2010, p. 24). Kravtsova (2009) analysed general aspects of the concept of the ZPD within the holistic context of CH theory, specifically considering individuality and mental development within ZPD development, and neoformations and leading activity, indicators of child development. She stated that the only developmental education is one that influences the ZPD's boundaries. Kravtsova described Vygotsky's two types of learning: reactive, direct teacher instruction and spontaneous where children problem-solve. She described pre-schoolers working through the leading activity of play and dealing with the conflict of 'I' versus imagination (neoformations) to the realisation of themselves and creation of their own ZPDs.

Vygotsky's theory of child development was discussed by Andy Blunden (2011), including the ZPD, the SSD, central neoformation, self-relation, crisis periods, and the leading activity. Blunden provided a simple, introduction to Vygotsky's theory of child development. Seth Chaiklin also analysed the SSD and provided a comprehensive discussion linking the theoretical notions of ZPD with practice (Kozulin et al., 2003). He discussed popular misconceptions of the ZPD and analysed theoretical implications of the ZPD including the role of imitation and collaboration in assessing and characterising the size of the ZPD. Dorothy Robbins revised and republished an in-depth discussion on the ZPD development, imitation and mimesis and she summarised the importance of ZPD into fourteen points (2003). Robbins argued that the overall understanding of the ZPD should focus on the personalities of both student and teacher and on 'personal empowerment and transformation' and provided ZPD examples in the second language classroom which may be applied to other classroom settings (2003, p. 6).

Both Bozhovich (2009) and Zaretskii (2009) focused on collaboration and the ZPD in the educational-school context and provided interpretations of Vygotsky's theory and a specific domain of theoretical and empirical elaboration. Bozhovich discussed children's indirect collaboration with adults, while Zaretskii examined direct collaboration involved in children's reflection and self-definition. Bozhovich (2009) proposed that any function within the ZPD matures within a specific internal context and includes various factors including flexibility of previously formed stereotypes, and children's susceptibility to receive support and to collaborate. Bozhovich concluded her empirical study on the development of linguistic competence in various subsystems by stating that teachers must employ appropriate tools for indirect collaboration within children's ZPDs to uncover specific functions that comprise competency in children's HMFs. Vygotsky discussed the concept of the ZPD in relation to diagnosing development in the chapter entitled 'The Problem of Age' (1984), writing that the pedagogical aspect of applying the ZPD concept would be discussed in a later chapter (p. 268) but this was never written due to his untimely death in 1934. Zaretskii (2009), attempted to reconstruct the pedagogical significance of the ZPD in Vygotsky's unwritten chapter and he supported his discussion with empirical work with children in schools. One important theme focuses on how adults help children to create the conditions for development in the classroom. Zaretskii critically evaluated Vygotsky's pedagogical tools of adult-child cooperation in the ZPD.

Berejkovskaya (2006) outlined potential negative consequences of education based on the ZPD principle. She cited three examples in Russian education where children's encounters with potential concepts were not fully realised because the cultivation of means by educators - ZPD patterns 'designated as mechanisms of generalisation at a given level' became evident before children's development of these potential concept/patterns was ready (p.52). She stipulated that 'knowledge and skills assimilated by children' should be 'reinforced by their own practical experience' before the knowledge is lost (p. 52). Finally Chaiklin (2003) cautioned researchers/educationalists that the ZPD

should only represent instruction that is focused on maturing psychological functions, relevant for development in specific age periods. He suggested the employment of terms ‘assisted instruction, scaffolding’ to describe general classroom practices including concepts/skills performance which do not represent Vygotsky’s developmental theory.

This section briefly reviewed interpretations and approaches towards Vygotsky’s learning theories by respected Vygotskian scholars. The next section concludes with a brief summary of this chapter.

2.9 Conclusion

In this chapter, the theoretical basis for DR was examined through Vygotsky’s learning theories and the ZPD, an important CH concept of Vygotsky’s holistic vision and understanding of the child’s development. CH theory represents a philosophy of language based on speech, thought, environmental semiotics and culture, development, communication and concept formation. Vygotsky used a dialectical approach positioning thought and speech as instruments in reflecting consciousness. The relationship between thought, language and inner speech is central to Vygotsky’s inter-relationship of language, development and thought. Inner speech, which cannot exist without social interaction, and external speech work in conjunction together. Children use ego-centric speech in real problem-solving in play/activities, ‘think-alouds’ under the presumption of understanding by others. Thought and language become increasingly interdependent, as children from 7 – 11 years develop the capacity to understand the structures and possibilities of language towards vocabulary, cognition and analytical skills’ development, leading to information-processing and metacognition skills development. Vygotsky highlighted the social and cultural features of children’s cognition, as well as the importance of language as a learning tool in the interaction between children and the teacher.

The ZPD, defined as the distance between children’s actual development level and their potential development level relates to emotional and intellectual processes and its developmental significance is associated with children’s awareness of themselves as the main source of their learning. Through teacher support/assistance and social mediation, children navigate the ZPD through the leading activity leading to neoformation development, predicament, crisis and internalisation or transformation of concepts/ behaviours/strategies. Children, engaging in collaborative activities, progress from the social situation of actual development to the ZPD’s SSD. This involves interaction between real/ideal forms, unity of intellect/affect, Vygotskian imitation and regression/recursion and neoformations and leading activity define ZPD development at each specific age. Through a leading activity (discussion, play, drama) teachers can recognise children’s maturing psychological functions in interactive/collaborative activities where the process is more important than the activity. Vygotsky described four ways teachers can help children problem-solve through collaboration towards internalised learning and ZPD attainment: show how the problem can be solved, allow children to complete partially solved problem; match child with more advanced ‘other’ to solve the problem; and

explain principles, ask leading questions and break problem down into sizeable chunks to aid problem-solving (1984).

Vygotsky's theory encompasses the way parts relate to the whole while the whole is dependent on the parts for its growth towards the development in the dynamic process of internalisation. Dynamic Assessment (DA) incorporates a dialectical unity of instruction and assessment to reveal children's potential development and transfer of mediated performance to different activities in instruction and assessment. DA incorporates Vygotskian theory and is applicable to DR in reading aloud and/or collaborative discussion. DA works through teacher/child interaction as teachers assess how their intervention (cues, prompts, hints), benefit children while learners strive to achieve performance slightly above their independent attainment level. Knowledge of the ZPD assists teachers to define children's immediate needs, recognising what has already been achieved developmentally, and children's potential for future mastery. Teachers can locate where children are within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints, modelling/imitation and collaborating with children in tasks. Similarities between DR and the ZPD include language as a tool and word sense; collaboration and direct/indirect interaction, imitation, meaning-making, internalisation of learning and children as the source of their own learning. Some discrepancies can exist between DR and ZPD in the establishing of reading readiness, setting achievable goals and understanding the ZPD, and possible solutions were presented. Perceived difficulties with the application of Vygotsky's theories on education were discussed including translation issues and cultural meanings of words. Finally, a summary of scholarly interpretations of Vygotsky's work was presented.

The next chapter, Chapter Three presents a brief summary of the educational systems in Dublin, Ireland and in Houston, Texas, USA.

Chapter Three: Educational Systems in Dublin, Ireland and in Houston, Texas, US.

3.0 Introduction

This chapter presents an overview of schooling and curricular areas in Dublin, Ireland and in Houston, Texas. The first section outlines the Primary school system in the Irish Republic. The second section describes the Elementary school system in Houston, Texas, USA. A brief analysis of some cultural historical contexts of the two education systems including the focus on learning Irish post-Independence to underpin a distinct Irish identity; and the historical impact of slavery and eugenics on US education is outlined. Next, a brief summary of education programmes for diasadvantaged students in both jurisdictions is presented. Finally, the chapter summarises the similarities and differences between the two systems in tabular form.

3.1 Education System in Dublin, Ireland

Education is highly regarded in the economic, social and cultural development of Irish Society and the government views it as strategically interlinked with national planning (DES, 2004). Free, state education is provided to all children. Much of the Irish education system administration is centralised in the Department of Education and Skills, (DES), which sets the general regulations for the recognition of schools, prescribes curricula, establishes regulations for the management, resourcing and staffing of schools, and centrally negotiates teachers' salary scales and pays teachers' salaries (DES, 2016). The Irish state pays the majority of the running (and building) costs of state-funded primary schools. The DES provide free special classes/help for low-income children in DEIS schools (Delivering Equality of Opportunity in Schools, 2005) and some state aid for preschool education and free undergraduate education. It also significantly impacts on assessments, support structures for teachers and teacher training requirements.

3.1.1 Primary Education

In Ireland, the primary education system consists of an eight year cycle and caters for children from 4-12 years from Junior Infants to Sixth Class. Most children begin school in the September after their fourth birthday, even though the compulsory attendance age is six years, and children usually begin post-primary education at the age twelve/thirteen. The primary education system aims to deliver a holistic education, enabling pupils to realise their potential and includes state-funded primary schools, special schools and a few private primary schools. State-funded schools include denominational schools, multi-denominational schools, non-denominational schools and Gaelscoileanna (where Irish is the main spoken language and subjects are taught through the medium of Irish). Historically, most primary (also called 'national') schools were state-aided, religious parish schools, the majority of

which were Roman Catholic. However, there is an increase in multi/non-denominational primary schools today. The general aims of primary education are to:

- Enable the child to live a full life as a child and to realise his or her potential as a unique individual
- Enable the child to develop as a social being through living and co-operating with others and so contribute to the good of society
- Prepare the child for a continuum of learning (DES, 1999c, p. 7).

In Ireland, education is compulsory from age 6 to 16 or until students have completed three years of second level education and there are over 553,380 children in primary education, with over 34,576 teachers (DES, 2016). Primary teacher education is regulated by the Teaching Council and all primary teachers must be qualified primary teachers and registered with the Teaching Council of Ireland. All primary schools are inspected by the Inspectorate representing the DES. In contrast, private primary schools and teachers' salaries are not state funded. There are few requirements for teacher qualifications. The Government is obliged, under the Constitution, to ensure that pupils receive a minimum education. Most private primary schools follow the state primary curriculum with limited state assessment implementation.

3.1.2 The Primary Curriculum

The National Council for Curriculum and Assessment (NCCA) advise the Minister of Education and Skills on curriculum matters and assessment procedures employed in primary schools. Under the Education Act (Government of Ireland, 1998), the primary curriculum (DES, 1999) dictates the curriculum to be taught in all recognised primary schools and encourages a variety of approaches to teaching and learning to meet pupil variance, including children with special educational needs and gifted children whilst providing broad learning experiences for all children. The curriculum reflects the educational, cultural, social and economic aspirations and concerns of Irish society (DES, 2004), emphasising the importance of achieving functional literacy and numeracy, and is divided into six main areas, with eleven subjects (<http://www.education.ie/en/The-Education-System/Primary/>):

- Language – (Irish and English)
- Mathematics
- Social, Environment and Scientific Education (History, Geography and Science)
- Arts Education (Visual Arts, Music and Drama)
- Physical Education
- Social, Personal and Health Education (SPHE)

The 1999 Primary Curriculum, developed by the NCCA, includes the child-centred principles of the 1971 Curriculum, highlights integration and aims to nurture children in cognitive, emotional,

imaginative, aesthetic, social, physical, spiritual and moral development. Since 2007, standardised tests in English and mathematics are administered during primary school years after First, Fourth and Sixth classes.

The Literacy and Numeracy Strategy (DES, 2011) sought to raise public awareness of the importance of oral and written language in all its forms (including print, writing and digital media) and to foster an enjoyment of reading among children and young people. It also sought to improve the oral-language competence of very young children in early childhood care and education (ECCE) settings and to ensure that each primary school sets goals and monitors progress in achieving demanding, but realistic, targets for the improvement of the literacy and numeracy skills of its students in a school improvement plan. The strategy aims to reduce the numbers of children performing at/or below Level 1 (minimum) in the National Assessment of English Reading and Mathematics (NAERM) by at least 5% at both Second class and Sixth class by 2020; to increase awareness of digital literacy and to include primary pupils' ability assessments to read digital material in English reading National assessments.

Differentiation is not mentioned in the 1999 Primary Curriculum (DES) but differentiation is implied and the term 'outcome' is mentioned. However, differentiation is featured in several NCCA documents (2004, 2005, 2006, 2007b, 2007c, 2010). The 2015 Primary Language Curriculum (PLC) promotes differentiation, where teachers match instruction to children's learning needs along eight steps of progression continua (DES). Some teachers find the PLC implementation difficult because of the time involved in familiarisation with the new format, despite the basic 2-3 day school training provided by the Professional Development Service for Teachers (PDST).

3.1.3 The Cultural Historical Context of Irish Primary (National) Education

The cultural historical context includes the social, religious, economic, and political conditions that existed in the past and that impacted on the Irish Educational system, policies and practices and has been influenced by two main areas: the role and influence of Church and State and the focus on learning Irish as important features of 'Irish identity' in the New State since 1922. Ireland provides an 'interesting study of the evolution of mass schooling and education' (Coolahan, 1981, p. 8).

3.1.3.1 The Influence of Church and State

Monastic schools preserved and transmitted the Irish cultural heritage in Europe's dark ages. The Tudor conquests sought to promote the English language and Protestantism through schooling with limited success. The seventeenth century penal laws forbade teachers to teach Catholic children, set up Catholic schools or send Catholic children abroad to be educated. Hedge schools or unofficial secret Catholic co-educational, schools provided education for Catholic children with poets and ex-priesthood students as teachers, transmitting the Irish language, culture and Catholicism. Various

religious orders, (Presentation Sisters, Loreto Sisters, Sisters of Mercy and the Christian Brothers), were established, laying the foundation for single-sex education in Irish education. In 1922, the new Irish State did not attempt to increase control over national schools or local involvement in national schools' administration. Single-sex, single denomination schooling increased, influenced by social conservative politics and by the church (Coolahan, 1981) as 'mixed education in public schools is very undesirable especially among older children' (Cahill, 1932, p. 374). The Irish Free State adopted a subsidiary role in the provision of school facilities to church agencies and maintenance of national schools was the responsibility of the respective local managers, most often the clergy. In 1962, the first state grant was awarded for the maintenance of national schools.

In the 1900s, most primary schools were managed by the local priest in Catholic patronage. Today, increasing numbers of schools are managed by multi-denominational/non-denominational school boards including Educate Together and all-Irish (Gaelscoileanna) primary schools. The 48 participating Dublin schools in this study comprised of 24 coeducational schools, 12 single-sex Boys' schools and 12 single-sex Girls' schools, one non-denominational Educate Together school, 47 denominational schools and two Gaelscoileanna.

3.1.3.2 The Irish Language

The 1800 Act of Union brought Ireland under direct rule of the British parliament at Westminster and sought to bind Ireland closely to Britain through 'a policy of cultural assimilation' (Coolahan, 1981, p. 3) promoting literacy and numeracy through textbooks that avoided specific references to Irish contexts and Irish language. The (1831) national school system was one important factor in the decline of the Irish language in nineteenth century Ireland. Irish culture was neglected and Irish was not acknowledged as a subject even in areas where Irish was the only language used by the people. The Irish language usage had declined before 1831 as some parents encouraged English as a language of prestige linked to economic and social position (Wall, 1969) while Irish-speaking immigrants had difficulties communicating in Britain and America. The payment-by-results era (1872-99), unpopular with teachers only allowed Irish children access to Irish as a subject in senior classes on achievement of success in the three Rs.

In 1922, the new Irish State sought a 'cultural revolution with the schools acting as the agents of change' (Coolahan, 1981, p. 7) particularly with the revival of the Irish language and native traditions including music, literature, history, mythology, games and sport. The nationalist ideologies of Irish culture, language and the role of schooling were paramount in the fight for independence from Britain. In March 1922, Irish became an obligatory subject in all classes in national schools for at least one hour daily. The subject of History reflected an Irish context to encourage national pride and respect. Irish songs, music, poetry, literature and games were also promoted in national schools. The promotion of the Irish language was 'the most important function' of the national school programme, established in April 1922, setting the tone of Irish national education for fifty years (Coolahan, 1981).

In 1934, the Fianna Fáil government mandated an all-Irish day for Infants with no programme for English for First Class. However, in 1948, English was taught for half an hour daily in Infant classes.

The Department of Education, established in 1924, introduced the Primary Certificate examination in 1929. From 1943 – 1967 the exam focused on written papers in Irish, English and Arithmetic highlighting written rather than oral Irish. All-Irish schools increased and ‘mastery of the Irish language was the primary goal of educational policy’ (Coolahan, 1981, p. 43). The New Curriculum (DES, 1971), the 1999 Curriculum (DES) and the PLC (DES, 2015) reinstated the importance of oral Irish and context in primary schools.

‘Decisions on education tend to have long-term effects’ (Coolahan, 1981, p. x) and this short summary of the cultural historical context of the Irish national schools demonstrates the influence of Church and State with the predominance of primary single-sex schools in Ireland and the focus on the Irish Language on the primary school system. In response to economic and social change in Ireland, teachers are challenged to meet student variance. Special initiatives are provided for disadvantaged children in primary schools and the next section briefly addresses this area.

3.1.4 Delivering Equality of Opportunity in Schools, (DEIS)

The Delivering Equality of Opportunity in Schools, (DEIS), launched in 2005 was set up by the DES to address the needs of educationally disadvantaged children. The DEIS School Support Programme (SSP) addressed previous interventions’ shortcomings as evidenced by low standardised test achievement (Weir & Ryan, 2000; Weir & Archer, 2005). The DEIS programme focuses on literacy and numeracy, provides for teacher professional development, and requires urban and rural primary schools for educationally disadvantaged children to engage in a school planning process (Weir et al., 2011). Urban Band 1 DEIS schools receive the highest staffing, resources and supports. The Educational Research Centre (ERC) conducts ongoing, independent evaluation of the DEIS SSP for the DES, in urban/rural primary schools, focusing on reading and mathematics achievement. The reports reveal statistically significant gains in children’s reading and maths achievement and significant attendance improvement (Weir et al., 2009; 2011; 2013). Schools are encouraging more parental involvement in school and in children’s learning.

The DES Inspectorate evaluated school-based action planning processes in 44 DEIS band 1 primary schools (DES, 2011, 2015). The 2015 Inspectorate’s Report did not outline the effectiveness of specific DEIS literacy strategies but highlighted good practice including CPD, teacher commitment and schools prioritising literacy but also revealed ‘poor target-setting practices,’ and insufficient differentiation (DES, p. 29). Most of the 110 recommendations on assessment and differentiation relate to literacy and numeracy practices and 10% focus on differentiation linked to teacher expectations issues and challenging EAS (DES, 2015).

The 2014 NAERM found increased literacy scores across all primary schools but the achievement gap between urban DEIS and non-DEIS schools remained stable with a large proportion of very low achievers (at/below level 1) in reading in urban Band 1 DEIS schools (Shiel et al., 2015). Other lower-achieving pupils achieved better results, helped by literacy initiatives, Reading Recovery, First Steps, etc., access to homework clubs/summer camps, Home School Community Liaison services, school books' grants and loan/rental schemes (Weir et al., 2011).

The Growing Up in Ireland, (GUI) study, (McCoy et al., 2012b) and an ESRI study of school/class effectiveness for fourth class mathematics and science (McMahon et al., 2015) found that DEIS teachers employed more teacher-centred and structured approaches, more frequent ICT usage and less active teaching methods, less independent student work and less group work than DEIS teachers. However, between-class ability grouping more common in DEIS (7%) than in non-DEIS (4%) schools and over 20% of urban DEIS schools have more 'separate special classes' than non-DEIS (4%) or rural DEIS schools (5%) which can be regarded as ability grouping (McCoy et al., 2014a). Also, some DEIS schools employ 'rigid forms of ability grouping', associated with student disengagement among lower stream classes (Smyth et al., 2015, p. 72). More flexible grouping can help to enhance student achievement and reduce social inequality resulting from working-class boys' disaffection in lower stream classes' (Smyth et al., 2015).

Information on teacher profiles in schools revealed that most DEIS teachers but few NonDEIS teachers had less than five years teaching experience (McCoy et al., 2012b; McMahon et al., 2015). Nevertheless, the PDST provide ongoing CPD support in DEIS schools in accordance with the priority needs identified by the schools. McCoy et al., found that nine-year-olds taught by more experienced teachers received higher reading test scores (2014b), suggesting that teacher experience can influence academic attainment.

Research indicates that reducing class sizes can improve achievement, especially when tackling educational disadvantage (Schanzenbach, 2014; Shin & Chung, 2009; Zyngier, 2014). 'Increases in class sizes over time would therefore be expected to depress achievement' (Kavanagh, Weir & Moran, 2017, pp. 62-63). Classes in DEIS Band 1 schools were reduced in 2012 to 20:1 in junior schools, 22:1 in vertical schools and 24:1 in senior schools (DES, 2014). No additional staff allocation was provided for Band 2 DEIS schools (Weir and McAvinue, 2012). However, actual class size targets are questionable since students with special educational needs were not incorporated in teacher allocation decisions (Weir and McAvinue, 2012).

Planning, a core aspect of the DEIS programme, incorporates attendance, retention, progression, literacy, numeracy, partnership with parents and partnership with the community. Attendance rates have improved in urban Band 1 schools yet twenty-day absences are higher in urban than in rural

DEIS and non-DEIS schools (Millar, 2015). DEIS teachers reported that poor attendance and a challenging disciplinary environment challenged their teaching (Devine et al., 2013). DEIS schools focus more on student misbehaviour where pupils are more likely to be identified with behavioural problems than similar pupils in nonDEIS schools (McCoy et al., 2012a). Teachers in DEIS schools are more likely to employ punitive measures e.g. suspensions (Banks et al., 2012) and spend more time ‘off task’ in response to disciplinary issues (McMahon et al., 2015). However, urban DEIS schools have more children with emotional-behavioural and learning difficulties, more non-English speaking student (Devine et al., 2013) and more Traveller pupils than nonDEIS schools (McMahon, Smyth & McCoy, 2015). Also, negative emotional responses such as shame, sadness and upset can be associated with being assigned to a lower ability group within primary school (McGillicuddy, 2013). Also, younger, less-experienced teachers linked planning to control and discipline, an area that was of least concern to more experienced teachers (Devine et al., 2013). However, the GUI longitudinal study found little variation between DEIS/non-DEIS nine-year-olds who are generally positive about school and about their teacher (McCoy et al., 2012b). Children with positive relations with teachers are positive about school while those with negative interactions are more disengaged from school highlighting the importance of a positive learning environment in school (Smyth et al., 2007).

In summary, the DEIS programme is the first educational disadvantage programme to record improved achievement and reading scores (Shiel et al., 2014). However, it is difficult to assess whether standardised test results, attendance and retention rates reflect features of the literacy programmes, improved school planning, class size reduction and additional supports. Literacy levels have improved in DEIS primary schools, although the gap in achievement between DEIS and non-DEIS schools has not decreased (Smyth, McCoy & Kingston, 2015; Shiel et al., 2014). Possible factors contributing to this improvement include increased instructional time allocated to literacy and numeracy, increased CPD and School Self-Evaluation introduced as part of the National Literacy and Numeracy strategy (DES, 2011).

This section presented an overview of the Primary school system, a brief analysis of some cultural historical contexts including the influence of Church and State and the focus on learning Irish post-Independence to underpin a distinct Irish identity and a brief summary of education initiatives for diasadvantaged students in the Irish Republic. The next section addresses the elementary system in the US.

3.2 The Education System in the United States

The United States federal government implemented the 2002 No Child Left Behind Act (NCLB) and the 2015 ‘Every Student Succeeds Act’ (ESSA) to ensure that all children receive education. The US

Department of Education (ED) and federal government are not deeply involved in determining curricula or educational standards as education is decentralized and state and local school districts establish schools and colleges, develop curricula, and determine requirements for enrolment and graduation. The quality of educational institutions and their degrees is maintained through an informal private process known as accreditation. Free, state education and free access to education is provided to all children.

The ED, under the Secretary of Education establishes policies related to federal education funding, implements laws enacted by Congress, collects data, oversees research and administers and coordinates most federal assistance to education. It also identifies and focuses national attention on important issues and enforces federal laws for the prevention of discrimination in programs in receipt of federal funding. The mission of the ED, the smallest Cabinet-level department, (5,000 employees), is to provide for America's children by promoting student achievement and preparation for global competitiveness through the fostering of educational excellence and the provision of equal access. The ED's elementary and secondary school programs assisted some 55 million (Pre-K. through Grade 12) learners attending approximately 98,271 public schools and 33,619 private schools in 2013–14 (National Center for Education Statistics, 2016). Special programmes provide help for low-income children; preschool education; updated assessments; teacher support structures; and updated teacher training requirements. Grants, loans and work-study assistance are also provided for approximately 10 million undergraduates.

The National Reading Panel Report (NRP, 2000) reviewed over 100,000 literacy studies and recommended five areas of reading instruction - phonemic awareness, phonics, fluency, vocabulary, and text comprehension. US Government interest in the development of literacy and reading resulted in the cross party NCLB Act (2002) in the US which has been replaced by the ESSA Act in 2015. One aim of the NCLB was to provide equal opportunities for disadvantaged children and hold schools accountable for how students learned and their achievement in school. Annual state-wide tests in Reading and Mathematics were administered to all students in Grades 3-8. Results were publicised and schools were penalized for not demonstrating improvement in standards. However, once schools were improving, states received more flexibility in determining federal expenditure. The 2002 NCLB dictated that all teachers be qualified and that science and research-based instruction and teaching methods be employed in schools.

3.2.1 The Education System in Texas

The Texas Education Agency (TEA), based in Austin, is a branch of the Texan State Government and is responsible for public primary and secondary education in Texas. It is responsible for student safety and presides over 1,037 Independent School Districts (ISDs) and about 200 charter schools. The Texas

Commissioner of Education, appointed by the Governor, is the Head of the TEA. The fifteen-member State Board of Education (SBOE) forms the TEA's governing body and adopts rules and establishes policies for Texas' public education system but has no jurisdiction over private, parochial schools or home schools. Private elementary schools and teachers' salaries are not state funded, have few teacher qualification requirements but are obliged to provide a minimum education for students and recognised curriculum with state equivalent assessment implementation.

The TEA is permitted to oversee ISDs when serious issues arise e.g. poor standardized test performance or financial irregularities. The TEA oversees development of the state-wide curriculum; manages the textbook adoption process; administers the state-wide assessment program and data collection system on public school students, staff, and finances; evaluates districts and public schools under the state-wide accountability requirements; operates research and information programs; monitors for compliance with federal guidelines; and serves as a fiscal agent for the distribution of state funds. The TEA's mission is to provide guidance, leadership and resources to help schools meet students' educational needs. More than 320,000 teachers and approximately 80,000 additional professional staff members e.g. principals, administrators, etc. are employed in Texas public schools, catering for 5.1 million students. The TEA accredits educator certification programs, issues teaching certificates, rewards excellent educators, monitors and intervenes with local education agencies (LEAs) to ensure excellence in education. The TEA publishes results and overviews of student assessment, including the State of Texas Assessments of Academic Readiness (STAAR), and the Texas English Language Proficiency Assessment System (TELPAS). STAAR, implemented in spring 2012, includes annual assessments for reading and mathematics, Grades 3–8. TELPAS measures progress made by limited English proficient (LEP) students.

3.2.2 The Elementary Curriculum

The SBOE adopts curriculum standards, Texas Essential Knowledge and Skills (TEKS), outlining what students are to learn, know and do from Kindergarten to Fifth Grade and are implemented in all Texas' state's public schools. Textbooks and other instructional materials based on TEKS are written for students. Texas is a very influential state in the US school textbook market. TEKS are provided for all subjects including English Language Arts and Reading and Spanish Language Arts and English as a Second Language. The TEKS Language Arts and Reading was reviewed in 2016 and organized by eight strands - Foundational Language Skills; Comprehension; Response; Collaboration; Multiple Genres; Author's Purpose and Craft; Composition and Presentation; and Inquiry and Research.

3.2.3 Elementary Schools

Elementary school consists of a five year cycle from Grade 1 – 5 and accommodates children from 6-11 years. In Texas, there are 8,317 elementary schools - 7,028 public schools and 1,289 private schools. There are over 700 elementary schools in the city of Houston. Texas ranks second in the US,

in terms of total number of schools and student enrolment, 36th for the student/teacher ratio, and 46th for the percentage of students on free or reduced lunches in the US. Schools are ranked publicly based on state test scores, teacher quality, student-teacher ratio, student diversity, and school district quality.

Having briefly discussed the US elementary system, the next section addresses the cultural historical context of the education system.

3.2.4 Cultural Historical Context of Elementary Education in the US

The cultural historical context includes the social, religious, economic, and political conditions that existed in the past and that impacted on the Texan Educational system, policies and practices. Two main influences have been the ‘Americanising’ of the white-majority European based culture on minority groups including Native Americans, African Americans and Latinos, and the impact of eugenics, slavery, segregation and the ban on teaching minority groups’ languages (Native American, Spanish, etc.) in schools. American education has intellectual roots back to Europe from the European settlers, the English language, protestant religion and middle-class values are still dominant in American society (Pulliam, 1987). Respecting ethnic and cultural differences is relatively recent in American history. Just one hundred years ago, Native Americans, African Americans, people with disabilities and minority groups were denied educational opportunities (Armstrong, Henson & Savage, 2009).

3.2.4.1 European Settlers/Colonists

From 1607, settlers began life as farmers in thirteen separate colonies and learned about agriculture from Native Americans. The settlers preserved their European tradition, schooling and religion but drove the Native Americans from the land (Good & Teller, 1973). The Puritans first provided public education instituting local control (Armstrong et al., 2009). In 1647, Massachusetts elementary schools provided reading, writing and math but prioritised literacy to help Bible reading, reinforcing Puritanical values (Armstrong et al., 2009). ‘Dame schools’ often run by widows provided basic literacy, religion, arithmetic for boys and knitting and sewing for girls (Altenbaugh, 2002). In New York in 1805, wealthy businessmen provided schools for poor children to emphasise obedience and discipline – admirable qualities in factory workers. This cheap "Lancasterian", model provided basic numeracy and literacy skills where one "master" taught a rote lesson to advanced senior students or monitors who in turn taught hundreds of younger pupils in one room. In 1827, Massachusetts offered free public school to all pupils and mandated first compulsory school attendance in 1852, aiming to ‘civilise’ poor immigrant children to be obedient and become good workers and avoid social upheaval. Sunday schools were established in large cities providing basic literacy and religious instruction for children on the one day that factories were closed. New York made school compulsory in 1853, and all American pupils were required to attend elementary school by 1918.

In the early nineteenth century, state elementary or ‘common’ schools were open to all ethnic children. In mid 1800’s Irish catholic, famine immigrants opposed protestant curriculum controlled schools for their children in New York. Between 1893 and 1913, most local immigrant communities lost control of their local schools to school boards comprised of white dominated businessmen and professionals (e.g. doctors, lawyers).

The Chicago park system, opened in 1904, sought to reduce crime by enabling children to play in parks and playgrounds outside school hours. Vacation camps, school activities during the summer months and after school clubs for tenement children all provided a cheap, economical system of policing and control (Ross, 1922). In 1848, Massachusetts opened a Reform School for children refusing to attend public schools. In 1958, the National Defense Education Act provided curriculum reform with limited success due to limited teacher training. In 2009, the Common Core State Standards, (CCSS), national educational standards in English language arts (ELA) and mathematics for grades K-12 aimed to prepare children for success. Four States did not adopt the CCSS including Texas. Having briefly outlined colonists’ education, which reflected society’s cultural historical values, the next sections outline Native American and African American education provision.

3.2.4.2 Native Americans

The Native American culture was diverse with about 2,000 different languages. Education was informal and a community responsibility (Altenbaugh, 2002) employing storytelling to transmit values and beliefs (courage, cooperation, generosity, respect, diligence and obedience), and learning through imitation and experience (Armstrong et al., 2009). Children learned to live in harmony with nature and respect nature’s finite resources (Good & Teller, 1973). Some Native American groups adopted settler education resulting in tribal neighbourhood schools and religious/private individual run schools in exchange for land so that their people could speak English and negotiate with the settlers. Quaker schools in New York, etc. recognised the educational needs and rights of Native American and African Americans. In 1864, Congress decreed teaching Native American children their native languages illegal resulting in the transfer of native children to be educated in off-reservation boarding schools, separated from their parents. Children were forcibly ‘Americanised’ in an attempt to eradicate Native American language, religion and heritage. After 1900, these schools were an acknowledged failure (Armstrong et al., 2009). The Native American community was reduced to living on Indian reservations. The federal Tribal Colleges Act established a community college on every Indian reservation, enabling young Native Americans to attend college without leaving their families in the 1980s. Today, Native American dropout rates are higher than other groups in society.

3.2.4.3 African Americans

In the 1830s, most southern states forbade slaves to read but 5% became literate at great personal risk as plantation slave owners relied on illiteracy and ignorance to control slaves. In the northern states,

before and after the Civil War, African American children attended separate schools as they were often excluded from public schools. Some people believed that African American children had limited intellectual ability while others questioned the cultural value of a white teacher teaching African American children (Kaestle, 1983). In 1855, Massachusetts abolished segregation in schools. In 1865, the end of the Civil War heralded the freeing of four million slaves (Armstrong et al., 2009). In the south, white children benefitted more than black children from the first free public education but soon segregation was introduced. In the 1900s, southern states increased funding in Black schools to entice African American labourers to stay as many were moving to northern cities. The 1954 Supreme Court ruling on segregated schools was overturned in 1974 leading to widespread segregation. In 2002, the 3,100 Magnet schools, with federal funding, were designed to encourage racial integration and had a balance of mixed ethnic students and a flexible curricula. African American dropout rates are higher than the white population in society today. There may have been a different outcome for both Native Americans and African Americans had different decisions been made over the assimilation of their language culture and tradition into the educational system. The next section briefly addresses eugenics in the US.

3.2.4.4 Eugenics

Eurocentric values in the 20th century within the eugenics movement and other public policies, contributed to reproductive infringements and sterilizations of minority populations, including Native Americans, African Americans, people with alleged mental and/or physical disabilities or ‘unfit’ members of society. The term “eugenics” developed by Francis Galton, proposed that intelligence, morality, and other behavioral elements of humanity were heritable traits in a similar way to physical traits (Kluchin, 2009). The purpose of eugenics was to control the perceived increase in a ‘degenerate’ population and maintain/protect hereditarily ‘fit’ members in society. The American eugenics movement illustrated the dominant white culture and ways in which existing internalized ethnocentric values and beliefs about human difference and inequality were transferred and legalised by public policy resulting in white dominance systematic oppression of subordinate groups with compromised rights. Science was used in creating measurable categories of race, to reinforce inequality in people of different ethnic backgrounds based on the notion of white supremacy in ‘racial hygiene’ (Freeman, 2005). Political and social factors maintained the low socioeconomic status of marginalised groups. The disproportionate number of sterilizations on women of minority groups and the sterilization policies of Native Americans in the 1970s by the Indian Health Service illustrated the negative consequences of ‘population control’.

In 1932, some school districts used ‘intelligence tests’ to place pupils on different academic tracks. The Educational Testing Service, formed in 1948, (funded by the Carnegie and Rockefeller foundations) continued the work of eugenicists like Carl Brigham (originator of the SAT) whose research implied that immigrants were feeble-minded. Minority groups including Native Americans, African Americans and Latinos objected to the cultural biases embedded in some intelligence tests

while others proposed that intelligence cannot be measured by one test (Armstrong et al., 2009). There is no consensus on this issue so the debate about intelligence testing continues.

In America, schools have been used as instruments of power and of social, economic and political control determined by institution elders and industrialists, providing free schooling with the goal of preparing children for industrialisation. This ‘socialisation process’ intentionally shaped generations of children’s habits, goals, personalities and qualities, focusing on children’s relationships with the school and their ‘place’ in society’s social structure. Radicals claimed that obedience and industriousness habits created unquestioning acceptance of capitalisation while progressives claimed that the system created cooperation and control by meritocracy (Spring, 1972). Society requires schools to transmit cultural traditions and values, provide information, explanation and understanding the world, and prepare for employment (Holt, 1970). This short summary of the cultural historical context of the American elementary schools demonstrates the dominance of the white dominant culture on minority groups including Native Americans, African Americans and immigrants in the American school system. Many of these minority groups are among the disadvantaged children in America today. The next section briefly addresses some research on disadvantaged schools and the impact of teacher expertise on student achievement.

3.2.5 Disadvantaged Schools in the US

Jonathan Kozol conducted research across 60 schools in 30 districts and poor schooling due to lack of funding, segregated schools and pressure on teachers to cover standardised test material (2005). Other research found a disparity between advantaged and disadvantaged schools (Howard, 2015), between the achievement of white and minority students and higher- and lower-income pupils (Oakes, 1985; Lee & Bryk, 1988). Teacher quality is inconsistent in different districts (Darling-Hammond, 2010) with income gaps, (Reardon, 2013) opportunity gaps, (Putnam, 2016), teacher quality gaps in interaction and strategies employed (Goldhaber, Lavery & Theobald, 2015). Also, teacher interaction with lower-ability students is less motivating, less supportive, and less demanding of higher-order thinking and reasoning (Good & Brophy, 1987; Oakes, 1985), less academically oriented, and more likely to focus on behavioral criticisms, especially for minority students (Oakes, 1985; Eckstrom & Villegas, 1991). Disadvantaged students are seldom enabled to talk about what they know, to read real books, write, or solve problems (Cooper & Sherk, 1989). Underprepared, unqualified teachers were found disproportionately in schools of low-income or minority students (NCES, 1997). Furthermore, many expert, experienced teachers transfer to ‘desirable’ schools/districts, while inexperienced teachers and untrained teachers teach in disadvantaged schools with fewest supports (Murnane et al., 1991).

Meanwhile, advantaged schools have the best resources and teachers (Kozol, 2005). The 2016 PIRLS’s results show that students with the highest reading achievement attended schools with more affluent

than disadvantaged students and where instruction was not impacted by resource shortages (Mullis, Martin, Foy & Hooper 2017, p.xi). Teacher expertise, teacher experience and master's degrees were the most important reasons for increased student learning, (measured by teacher performance on a state certification exam), from a study of 900 Texas school districts (Ferguson, 1991). The NAEP, (2009) documented that the qualifications and training of students' teachers are among the correlates of reading achievement. Students of teachers who are fully certified, who have master's degrees, and training on literature-based instruction do better on reading assessments. Teacher quality appears to be the most important schooling factor in predicting academic success (Chetty, Friedman, & Rockoff, 2013; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). The next section briefly outlines some early education programmes for US disadvantaged students.

3.2.6 Education Programmes for Disadvantaged Students in the US

Research has revealed that early intervention childhood education programmes significantly impact on children's educational and social outcomes (Heckman, 2011). In the 1960s, the US provided intensive early childhood education in small groups, fostering parental involvement for targeted disadvantaged groups to counter disadvantage (Levin, 2009), providing positive long and short-term outcomes for participants (Temple & Reynolds, 2007; Kilburn & Karoly, 2008), including improved test scores, grade retention, high school graduation, and reduced delinquency and crime (Wössman and Schütz, 2006). Small class size impacts positively on student achievement especially when class provision exceeds one year (Finn et al., 2001). This results in higher test scores, graduation rates, and tertiary education rates (Faubert, 2012). Project STAR, a longitudinal class size reduction intervention conducted from 1989-1994 in Tennessee, randomly allocated children to small (13-17) and larger (22-25) classes. Project STAR evaluations revealed that small class participation in early grades lead to improved child achievement (Konstantopoulos, 2008). However Milesi and Gamoran (2006) argued that class size reduction is only effective when teaching and learning are systematically prioritised.

US literacy programmes promoting academic achievement including intensive 'Reading Recovery' programmes produced positive performance outcomes (D'Agostino & Murphy, 2004) especially programmes incorporating cooperative learning (Slavin et al., 2008). Success for All (SFA), a multi-dimensional programme prioritised co-operative learning, school attendance, effective teaching strategies, teacher professional development and parental involvement (Slavin et al., 2008). Participation revealed significantly increased reading performance, higher achievement levels at age 14 and reduction in children repeating grades due to educational failure (Borman & Hewes 2002; Slavin & Madden, 1999). Co-operative learning literacy programmes support disadvantaged children in increased reading performance but do not eliminate adverse effects of multiple disadvantage (Sammons et al., 2012). Some US interventions prioritised additional reading services in promoting academic achievement for disadvantaged/immigrant schools including the Title I program. However, research revealed some neutral/negative effects (Van Der Klauuw, 2008) and some improved child

attainment scores (Borman et al., 1998). However, the ‘Chicago Parent-Child Centers’, one Title I funded intervention, revealed significant increased academic attainment, higher high school completion rates, and significant reduced remedial education services rates, delinquency, and child maltreatment (Reynolds et al., 2002, 2011).

Evaluation of US early childhood programmes indicated that they were a cost-efficient method of reducing educational inequality (Levin, 2009; Heckman, 2006). Some interventions designed to promote achievement produced mixed results but specific strategies - literacy programmes, class size reduction and additional school resources in early childhood programmes enhanced learning. Having briefly discussed different aspects of the education systems in Dublin, Ireland and in Houston, Texas, USA, the next section presents a tabular summary of some similarities and differences between the two systems.

Table 3.1: Similarities between the Two Educational Systems

Similarities	Dublin	Houston
Education - highly regarded and compulsory	v	v
Free, state education and free access to all	v	v
Curricula, policies funding and monitoring of schools are regulated	v	v
Standardized student testing, evaluation and monitoring of teaching implemented	v	v
Free programmes e.g. low-income family support; preschool education and state aid for college students.	v	v
Updated assessments, teacher support structures and updated ITE requirements	v	v

Similarities include free state education and support for disadvantaged schools, regulation of curricula and monitoring of schools and teaching and standardised testing. Some differences between the two systems are outlined below.

Table 3.2: Differences between Dublin and Houston Educational Systems

Differences	Dublin	Houston
School, age-range, classes	Primary, 4-13 years, Junior Infants - Sixth Class	Primary = Kindergarten Elementary, 6-11 years, Grades 1-5
Direct, public, jurisdictional control	Dept. of Education & Skills (DES)	Texas Education Agency (TEA),
Set Curriculum, Establish schools	DES	TEA
Monitor school standards, enrolments, attendance, etc	The DES Inspectorate	TEA and Independent School Districts (ISDs)
Subject name	English	Language Arts
Titles for students	Exceptionally able students (EAS) English as an additional language (EAL) students	Gifted & talented students (G&T) Limited English proficient (LEP) students
Cultural historical context	Role of Church & State, Focus on Irish Language	Eugenics Education for minority groups

Differences include the cultural historical contexts, titles for students, subject, school types and monitoring authorities. This concludes the brief summary of the two educational systems investigated in this research. An overview of the primary education in Dublin and the elementary education in Houston, Texas, was presented. Some cultural historical contexts including the role of church and state and the focus on the Irish Language on Irish education; and the impact of slavery, eugenics and ‘Americanisation’ of minority groups on US education have influenced the school systems and generations of children, providing a cultural context for teachers’ DR perceptions and practices. Education programmes for diasadvantaged students were briefly mentioned as the researcher analysed DR practices of teachers working in advantaged and disadvantaged schools. The next chapter, Chapter Four, presents the Literature Review on Differentiated Reading, (DR).

Chapter Four: Literature Review – Differentiated Reading

Reading is an integral part of our lives. It is not merely a functional tool to meet the demands of society, but a mechanism by which we can acquire knowledge and new ideas, gaining a greater understanding of the world around us. It opens the door to a feast of imagination and creativity which provides enjoyment to reader and author alike (Elborn, UKLA, 2015, p. 4).

4.0 Introduction

In this chapter, differentiation in the classroom will be examined, and various definitions will be discussed. The concept of differentiated reading (DR) will be investigated, DR models will be explored and DR model research will be evaluated. DR literature and research will be examined. Reading instruction and practices of effective literacy teachers will be explored. DR implementation will be considered through the modification of content, process and product. Perceived obstacles and facilitating factors from DR research and the role of assessment and flexible groups will be discussed. Elements associated with Vygotsky's ZPD that are relevant to Dr are explored including oral language, modelling, collaboration and meaning-making.

Differentiation has been acknowledged as helpful in meeting pupil variance and creating environments that maximise student learning, 'regardless of skill level or background' (McQuarrie & McRae, 2010, p. 13), yet research has proven that teachers inconsistently employ differentiation (Reis et al., 2004). This chapter explores DR implementation through the following themes.

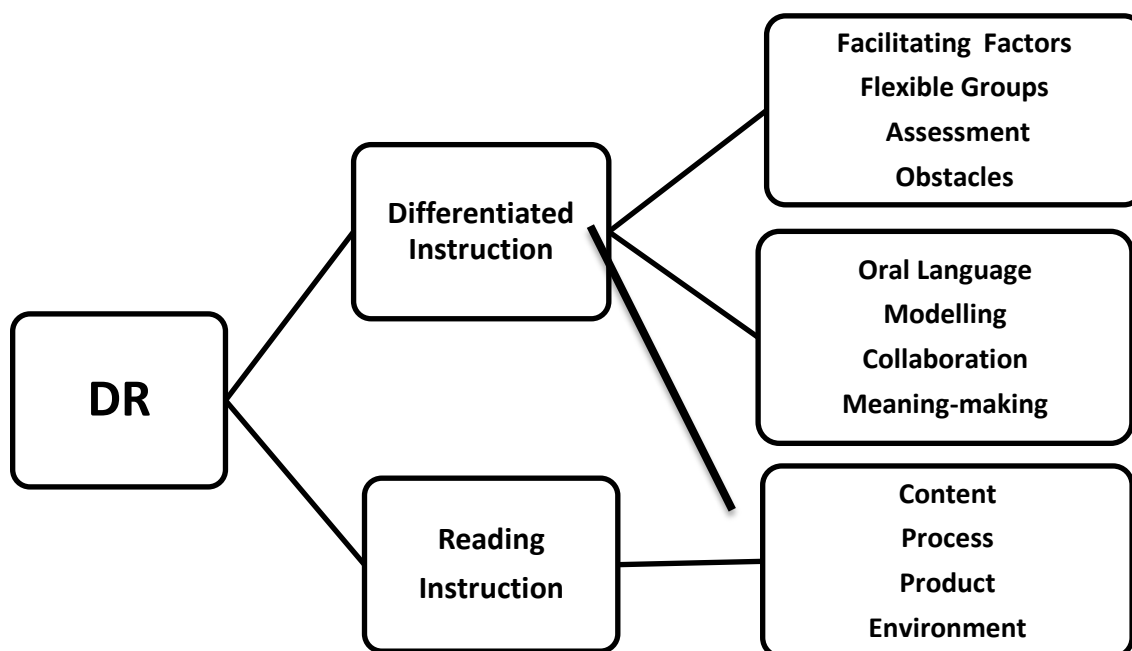


Figure 4.1: Themes Based on Literature Review and Research Questions

4.1 Differentiated Instruction

Differentiated instruction, or differentiation, is defined as the degree to which teachers accommodate pupil variance and different ability levels (Coffey, 2007; Johnson, 2007) through various strategies to enable ‘students with diverse learning characteristics to participate in the mainstream programme’ (Westwood, 1997, p. 192). The 2004 report on Reading Standards in Irish Primary Schools defined differentiation as the ‘identification of a range of achievements and needs in a classroom, and the subsequent provision of instruction matched to the attainment level and needs of each pupil’ (Eivers et al., 2005, p. 28). Teachers can plan strategically to meet all students’ needs (Smit & Humpert, 2012). Differentiation ‘defies a one-size-fits-all approach to teaching and learning’ (Opiz & Ford, 2008, p. 2) that no longer meets the children’s needs (McBride, 2004). Effective teaching requires a degree of differentiation (Kyriacou, 2009). Differentiation places children at the centre of teaching and learning and teachers, teach ‘things differently according to observed differences among learners’ (Westwood, 2003, p. 202). Teachers proactively modify curricula, teaching methods, content, resources, learning activities, and student products to meet pupil variance in individual and small group activities to maximize the learning opportunities (Bearne, 1996) towards meaningful learning. Instructional and content modifications include multilevel/tiered instruction, small-group instruction, language study, learning stations (Daly, 2015) and projects, using different tasks for different ability levels, supporting independent learning, curriculum replacement, acceleration, compacting, literacy circles, dialogue and learning contracts (Opiz & Ford, 2008). Differentiation is responsive instruction (DENI, 1996). Efficient differentiation is ‘learner centered’ or ‘child focused’ so children’s needs direct instructional planning (Heacox, 2002). Differentiation is organised yet proactively adjusts teaching and learning to meet child variance to achieve maximum growth (Earl, 2003). Differentiation, a pedagogical and organizational approach (Stradling & Saunders, 1993) and teaching model (Chapman & King, 2008), is ‘both a philosophy of and technique for instruction’ (Opiz & Ford, 2008, p. 2). Reasoning tasks support the construction of meaning and understanding (Petty, 2009). Figure 4.2 demonstrates elements of differentiation.

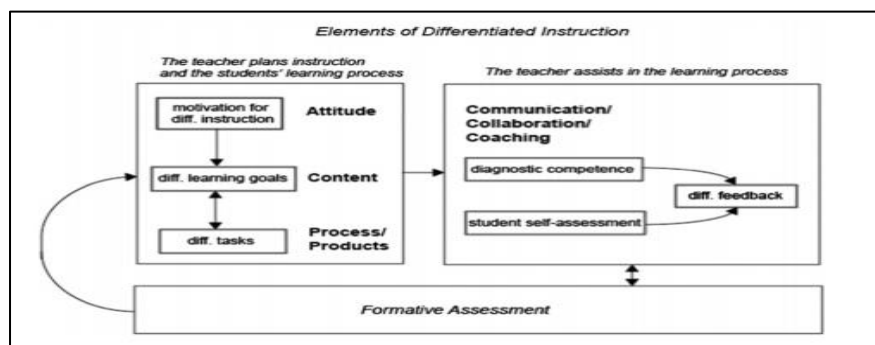


Figure 4.2: A Differentiation Research Model, adapted from Hall, 2002 (Smit & Humpert, 2012, p. 1154).

Differentiation is ‘part of a learning cycle’ (Smit & Humpert, 2012, p. 1154). The above model emphasises the collaborative nature of learning and differentiated learning goals, the importance of communication, coaching, active learning and self-assessment. Social and emotional dimensions are important factors in learning (DES, 1999, Vygotsky, 1986) and differentiation is based on the socio-cultural perspective that children learn through social interaction (Vygotsky, 1978) and collaborative exploration (Dewey, 1915). Teachers’ motivation and attitude is highlighted in providing differentiation as the teachers can positively influence (Ankrum, 2006; Hootstein, 1998) or negatively influence children’s learning (Pollard, 1994; Kerry & Kerry, 1997). Teachers’ motivation is influenced by their pedagogical knowledge, recognition of students’ needs and reading instruction knowledge (Smit & Humpert, 2012). Continuous, formative assessment informs planning and instruction (Guskey, 2007), helping children progress (Walpole & McKenna, 2007), Teachers enhance learning by matching children to instruction and assessment towards achieving agreed targets (Jenkins, Schiller, Blackorby, Kalb Thayer, Tilly, 2013). Differentiating teachers have a professional and responsive mindset that maximizes children’s learning (Wormeli, 2007), and adjust content, materials and support providing children with equity of access to high-quality learning (Ankrum, 2006; Tobin & McInnes, 2008).

Teachers have two main tasks - planning differentiated lessons and supporting children in group/individual task achievement (Smit & Humpert, 2012). It is a two-step process, where teachers ‘analyze the degree of challenge and variety in their current instructional plans and then modify, adapt, or design new’ instructional approaches in response to children’s needs (Heacox, 2002, p. 7). It is questionable if stage two should precede stage one, as the recognition of children’s needs is the first step towards DR, before incorporating the instructional strategies; differentiation helps teachers to respond rather than react to children’s individual personalities, culture, and abilities (Anderson, 2007) and assists pupil variance and develops maximum potential (Baumgartner, Lipowski & Rush, 2003; Hawkins, 2009). The challenge is to incorporate different strategies to meet children’s needs and help them achieve their academic potential (Shaunessy-Dedrick, Evans, Ferron & Lindo, 2015).

4.2 Differentiated Reading (DR)

Differentiated reading (DR) is effective in increasing reading achievement (Reis, Gubbins, Briggs, Schreiber, Richards, Jacobs & Renzulli, 2004), fluency (Reis, McCoach, Little, Muller & Kaniskan, 2011) and comprehension (Shaunessy-Dedrick, Evans, Ferron & Lindo, 2015). In DR, teachers attempt to match children’s needs with appropriate reading content, tasks, instruction and support to enable learners to have a positive learning experience (Opiz & Ford, 2008), promoting positive attitudes towards reading and increasing reading achievement (Csikszentmihalyi, 1997). Effective DR involves readers in ‘active making of meaning’ and reflective reading (Wilhelm, 2005) and encourages children to learn to read and read to learn (DES, 1999). To implement DR, teachers must have sound knowledge of the reading process, an understanding of children’s strengths and needs, and the ability

to teach responsively (IRA, 2000). DR strategies, including increased reading time, various genres, flexible grouping and task choices, helped improve US students' reading achievement, resulting in higher reading levels, increased phonemic and decoding mastery, more efficient comprehension strategy application, and more positive attitudes toward reading (Baumgartner et al., 2003). Planning DR can be challenging. Many teachers embrace the concept but struggle to plan instruction (Piltan, 2016; Walpole & McKenna, 2009). DR models can help teachers plan DR to meet pupil variance by adapting them to children's specific needs (Chapman & King, 2008). Figure 4.3 presents four essential components of DR models.

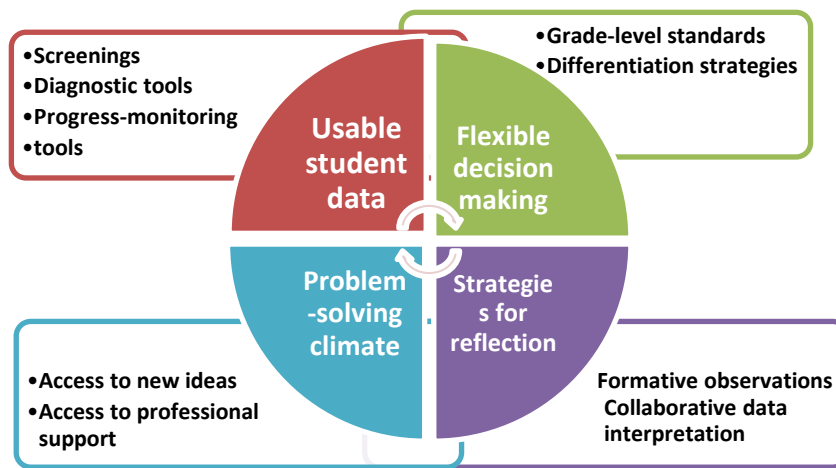


Figure 4.3: Differentiated Reading Instruction System (Walpole & McKenna, 2000, p. 160)

The first quadrant comprises of valuable pupil data derived from assessment, used to assess children's needs and abilities and to monitor their progress. The second quadrant encompasses flexible decision-making, involving differentiation strategies, models, tiered activities, flexible teacher support and groupings. The third quadrant highlights reflective practice, continuous formative assessment, and collaboration with learners, teachers and parents. The fourth quadrant emphasises 'problem-solving and experimentation with different ideas/strategies, with school support and/or CPD. This problem-solving can be achieved through observation, assessment of strategies and activities, data collection, collaboration with others, and reflective practice (Brookfield, 1995) supported by CPD/school support and colleague collaboration.

DR models must be reasonable to implement and be reliant on ongoing informal assessment (Walpole & McKenna, 2007), as assessment is at the core of DR (Hall, 2002). Pupil self-evaluation and structured teacher feedback procedures develop reading skills (Black & Wiliam, 1998). Students are assigned to different levels, groups, and activities, according to their rate of development and mastery of skills/concepts, as they develop skills at different speeds and depth. DR focuses more on children's learning than the prescribed curriculum (Opitz & Ford, 2008).

4.3 Differentiated Reading Models

DR models provide independent choice reading, guided reading, shared reading, reading aloud and language experience (Chapman & King, 2009) as children learn to read by reading (Opitz & Ford, 2008). DR models should provide flexible groups, teaching strategies and teacher support where whole class instruction introduces and concludes the reading lesson (Opitz & Ford, 2008). Begin by ‘Knowing the Reader’ (Chapman & King, 2003, p.4) or ‘frontloading, assessing children’s knowledge and providing relevant reading activities or content (Opiz & Ford, 2008). Two important elements in DR models included in process and product are: reading and responding with different levels of teacher support and activities, with time allotted for reading and responding to given texts; and extending with follow-up, open-ended activities in mixed achievement groups to promote shared learning (Opiz & Ford, 2008, p. 27).

Table 4.1: DR Models

Differentiation by:	Source
Instruction	• Informal reading inventory (IRI)
Fluency	• Fountas and Pinnell Model (1999) • Shared Reading Model, (Chapman & King, 2008) • Jigsawing (Opitz & Forde, 2008)
Interest	• Schoolwide Enrichment Model–Reading Framework (SEM-R) • Focused Readers Workshop (Opiz & Forde, 2008) • Independent Choice Reading Model (Chapman & King, 2008) • Read Aloud Model (Chapman & King, 2008)
Method	• Centers and Stations DR Model, (Chapman & King, 2009) • Project Based Model (Chapman & King, 2009) • Curriculum Compacting Model (Chapman & King, 2009)
Assessment Needs	• Response to Intervention (RTI) • Tiered Model Walpole & McKenna (2009) • Four Block Model (Chapman & King, 2009) • Adjustable Assignments Model (Chapman & King, 2008) • Grouping without Tracking (Opiz & Forde, 2008)
Text Discussion	• Connected Literature Circles (Opiz & d Forde, 2008) • Guided Reading Model (Chapman & King, 2008) • Language Experience Model (Chapman & King, 2008)

Chapman and King advise DR teachers to provide reading in six areas - Creating the environment; Knowing the reader; Models of Reading; Vocabulary; Art of Decoding; and Comprehension (2003, p. 4) and suggest eleven various differentiation models (2009, pp. 61-80). Opiz and Forde (2008) provide four DR Models - one whole class, two small groups, and one individual model. DR models include differentiation by levels of instruction; fluency; assessment needs (Walpole & McKenna, 2009); interest (Little et al., 2014); method (Chapman & King, 2008); and by text discussion and evaluation (Chapman & King, 2009; Opitz & Ford, 2008). The traditional differentiation-by-

instruction model, involving teacher administered informal reading inventory (IRI), was not a good indicator of student ability and proficiency (McKenna & Stahl, 2009) and was not always reliable (Spector, 2005). Pupils received the same instruction regardless of individual differences in all skills, e.g. vocabulary, phonics, resulting in negative attitudes to reading for unchallenged pupils (Wallbrown, Brown & Engin, 1978).

Differentiation-by-fluency models involve reading aloud in small groups and are successful for students, competent in word recognition skills. All children receive identical comprehension and fluency instruction with different texts (Walpole & McKenna, 2007) e.g. Fountas and Pinnell model (1999). However, less proficient decoders may have negative experiences, as fluency is just one stage in the reading process. The Shared Reading and Jigsawing models (Chapman & King, 2008; Opitz & Forde, 2008) use flexible instruction and support for different levels.

The four differentiation-by-interest models highlight reading for pleasure (Cremin, 2014) and include different genres e.g. magazines, play-scripts, etc., which children read independently (Shaunessy-Dedrick et al., 2015) encouraging reading engagement (Little et al., 2014). Specific reading times are scheduled for independent reading. The Read Aloud Model involves daily read-alouds to develop vocabulary and sentence structure skills and contextual clues. In the Schoolwide Enrichment Model (SEM-R), teachers provide a wide-range of reading texts/genres and students self-select challenging books in areas of interest (Reis et al., 2007; 2008; 2011). Individual teacher/student conferences enable teachers to assess challenge level and provide strategies and higher level questions as required while other students read the self-selected books independently. This model will be discussed in detail in Section 4.3.2.

The three differentiation-by-method models offer content, process and product differentiation through workstations, learning styles, and enrichment activities. Different levelled activities encourage children to take 'ownership in learning' (Chapman & King, 2009, p. 63). Skills involved include timeline designs, determining presentation methods, skills necessary for self-directed learning, involving individual, pair and group participation. Curriculum compacting, for high-ability children (Renzulli, Leppien & Hayes, 2000), includes research and problem-solving in self-directed learning projects that provide challenging learning experiences.

Differentiation-by-assessment-needs models employ regular, systematic, assessment, identifying strengths and weaknesses, monitoring instruction's impact on pupils in 'flexible' groups. The Response to Intervention (RTI) is one such model and is discussed in Section 4.3.1. The Four Block Model divides class time into four specific components, e.g. guided reading, independent reading, vocabulary development, and writing (Chapman & King, 2009). This model and the Grouping without Tracking model (Opiz & Ford, 2008) cater for whole class instruction, and varied groupings as required by different skills, interests, and activities. Grouping without Tracking entails children

responding to a common core text, with some groups reading independently, others reading with the teacher, and others listening to the text read by the teacher. The Adjustable Assignments model (Chapman & King, 2008), involves teaching each one objective/skill. Teachers provide the most effective instructional strategies and activities for each level according to learners' needs, so all children learn. Pre-assessment of pupil's skills and knowledge and careful planning are required for all these models.

The three differentiation-by-discussion models are teacher-directed models, providing specific skills development through text discussion engagement. Connected Literature Circles involves small groups, where similar achievement groups read and respond to different texts of varying degrees of challenge that are related by topic, theme, genre, author, and strategy (Opitz & Ford, 2008). Differentiation is involved here, as multiple copies of different texts (as in differentiation-by-interest models) are used for diverse groups of students of similar reading abilities. Children develop reading skills and strategies through discussion and text evaluation in individuals/small groups/whole class in the Guided Reading Model. Children's interpretation and understanding of passages are explored through careful questioning (Chapman & King, 2009). The Language Experience model highlights the writing-reading connection as individuals/small groups/whole class see and read their comments/stories as recorded by the teacher/pupils. Teachers read aloud children's comments 'reinforcing word recognition, spelling and encouraging clarification and explanation of ideas (Chapman & King, 2009). Matching DR models to pupils' needs is important. All children's needs cannot be addressed in one format (Walpole & McKenna, 2009).

The Response to Intervention (RTI) and the Schoolwide Enrichment Model in Reading (SEM-R) are two DR models that have been widely implemented in the US and will be discussed in Sections 4.3.1-4.3.2, followed by an evaluation of seven empirical studies based on the models. Six independent DR studies, conducted in different cultural contexts will then be evaluated.

4.3.1 The Response to Intervention (RTI) Model

The federally mandated RTI model, from the NCLB Act's (2001) 'Reading First' initiative, is based on tiered instruction and on research-based principles. It is a multistep approach to providing early, progressive, intensive intervention and monitoring within general education towards improving achievement outcomes, and accurately identifying children with learning disabilities (Bradley, Daley, Levin, O'Reilly, Parsad, Robertson & Werner, 2011; National Center on Response to Intervention, NCRTI, (2010) incorporating the Individuals With Disabilities Education Act (IDEA, 2004). Differential instruction for all based on reading levels, universal screening, small group systematic instruction and daily intensive instruction for children who show minimal progress (NCRTI, 2010; Gersten, Compton, Connor, Dimino, Santoro, Linan-Thompson & Tilly, 2009) are RTI's elements. The NCRTI (2010), also recommended: research-based core curricula and evidence-based interventions,

culturally and linguistically responsive teaching (Vygotsky, 1978), considering responsiveness in evaluating students for specific learning disabilities (SLDs). The RTI is ‘prevention orientated’ as teachers attempt to recognize potential reading problems, offering appropriate interventions for reading needs (Southall, 2011). The TEA supports this ‘Tiered Instruction’ concept (Figure 4.4).

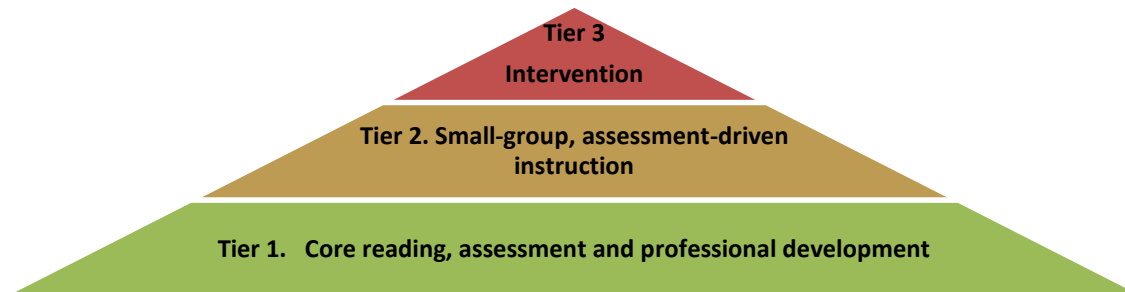


Figure 4.4: Tiered Instruction (Walpole & McKenna, 2009, p. 5)

This model supports grade-level, whole-group instruction in Tier 1, driven and monitored by assessment, administered at least three times yearly, providing challenging tasks slightly beyond students’ reading abilities in sequenced learning opportunities. All children participate in the same activities appropriate to each grade level, including the five NRP elements, phonemic awareness, phonics and word recognition, vocabulary, fluency and comprehension instruction (NICHD, 2000), supported by the British Independent Review of the Teaching of Early Reading (Rose, 2006) and the Australian National Inquiry into the Teaching of Literacy (DEST, 2005). The second tier involves DR in small groups formed and reformed by the teacher. Teachers work directly with one group, while the other small groups participate in literacy activities. The third tier offers intensive intervention for children in need of special education instruction. Variations of this DR model provide the same amount of daily, focused, small-group instruction, to all children rather than just struggling readers (Walpole & McKenna, 2009; Chapman & King, 2009; Opitz & Ford, 2008).

Table 4.2: Grade-level Differentiation Plan (Walpole & McKenna, 2009, p. 7)

Time	Core Reading Instruction - Whole Class - 30 mins		
	Group.1	Group.2	Group.3
10 mins	Differentiated instruction	Reading practice	Reading practice
10 mins	Reading practice	Differentiated instruction	Reading practice
10 mins	Reading practice	Reading practice	Differentiated instruction

Teachers deliver whole class instruction for half class time and provide DR to three different skill-based groups for the remainder. ‘Reading practice’ includes ‘workstations/centers’ or individual reading. Three potential DR groups are recommended and the model operates in cycles (Chapman &

King, 2009). The model is successful when teachers plan and evaluate their DR lessons to meet children's needs (Walpole & McKenna, 2009).

4.3.1.1 Response to Intervention (RtI) Research

There is consensus on some RtI components including universal screening, multi-tiered levels of support, early intervention, evidence-based intervention, data-based decision making regarding intervention, and using students' responsiveness to evaluate disability status (Gersten et al., 2009; Haager, Klingner, & Vaughn, 2007). However, there is less agreement on components including how responsiveness is used to evaluate disability status; the criterion for defining unsatisfactory response; and whether special education is integrated within tiers or is independent of the tier system (O'Connor & Klingner, 2010). The Jenkins et al. (2013) study was chosen for evaluation as it is an empirical mixed-method study with participants from seventeen states.

Jenkins et al. (2013) investigated the RtI framework for reading in 56 Elementary schools implementing this reform in 31 school districts. The study investigated the school-driven versus researcher-driven RtI implementation (Gersten et al., 2009; NCRTI, 2010) and differs from previous studies in that the survey data was collected at a national 2009 RtI conference at September Innovations Conference in Salt Lake City. Participants included principals, RtI coaches, district administrators and teacher respondents. Follow-up telephone interviews were conducted with elementary schools, distributed evenly across cities and rural locales. The study found that most schools implemented RtI in at least two subjects (including reading), employed curriculum-based measures for screening and progress monitoring and provided Tier 2 and 3 interventions 4 to 5 days weekly. While the survey did not define DI, interview participants mentioned that core reading instruction incorporated levelled-reader groups, which the researchers deemed a form of DI. All schools employed the basic principles of RtI —universal screening, early intervention, multiple tiers, increasingly intensive interventions, and intermittent progress monitoring – but fashioned programs with their RtI conceptualization, local circumstances, student culture and demographics, and resources. Six distinct models and 12 distinct approaches (based on different combinations of models) that schools used to serve students with reading individualized education program (IEPs) were identified. Most (80%) teachers provided systematic DI in Tier (Gersten et al., 2009), and NCRTI's (2010). Jenkins et al found cross-schools differences as revealed in other RtI studies (Mahdavi & Beebe-Frankenberger, 2009; Mellard et al., 2010; Tackett, et al, 2009). There was variation in the intervention group size and in personnel providing intervention, in the frequency and allotted time Tiers 2 and 3.

Mellard et al. (2009), having surveyed and interviewed 41 elementary schools that had conducted RtI in the 2003–2004 found that the schools did not consistently provide more intervention time in Tier 3 (despite using various screening tools, smaller groups in Tier 3 and providing daily reading instruction

in all tiers). Jenkins et al.'s schools reported lower student–teacher ratios in Tier 3 than in Tier 2, (2013) like Mellard et al. (2010), but differed in that most schools reported more intervention minutes per week for Tier 3 than for Tier 2 whereas just a few schools did so in the Mellard research (2010).

Limitations of the Jenkins et al. (2013) study included the lack of definition of differentiated instruction provided, and the reliance on self-reporting data from participating schools leading to possible susceptibility to Hawthorne Effect (Section 5.5.2) and social desirability. While self-report data can provide valuable information, anonymity may have reduced inclinations toward “socially desirable” responses. Other limitations included the unknown response rate, the selectivity of the sample and the extent to which results are representative of the broad group of elementary school RtI programs as data was collected at an RtI Conference where representatives may subscribe to a particular theoretical orientation towards DR practices and instruction. Therefore, responses may not be representative of all RtI elementary schools. Having explored some RtI research, the next section will first describe the SEM-R and then evaluate empirical research conducted on the model.

4.3.2 Schoolwide Enrichment Model (SEM-R)

The Schoolwide Enrichment Model–Reading (SEM-R) is a differentiated approach, designed to stimulate children’s interest in reading, fostering reading growth (Reis, McCoach, Coyne, Schreiber, Eckert & Gubbins, 2007). This approach, based on the Renzulli’s Enrichment Triad Model (1977), emphasises student interest, individualized teacher support (Reis, McCoach, Little, Muller & Kaniskan, 2011), and independent reading, elements which are linked to advanced reading achievement (Sparks, Patton, & Murdoch, 2014). The SEM-R has three phases. In Phase 1, teachers introduce a wide variety of authors, genres, and interest areas to children during daily read-alouds, engaging children in large-group conversations about featured excerpt. In Phase 2, children read independently, progressively increasing independent reading time. Children also read-aloud self-selected passages in weekly student/teacher conferences and the teacher determines the text’s suitability to challenge children and collaboratively sets future reading goals and text options. In Phase 3, children engage in enriched learning experiences based on their interests and abilities; including projects, collaborative tasks or explore creative-thinking activities, learning centers, or technology (Reis et al., 2011). Teachers gradually devote less class time to Phase 1 read-alouds and discussions as children become more proficient in self-monitoring and independent reading during class.

4.3.2.1 Schoolwide Enrichment Model (SEM-R) Research

Research has been conducted by educators involved in devising the SEM-R (Firmender et al., 2013; Little, McCoach & Reis, 2014; Reis et al., 2007; Reis, Eckert, McCoach, Jacobs & Coyne, 2008; Reis et al., 2011) and is evaluated here due to its empirical importance and mixed methodologies employed. Another study, conducted by independent researchers (Shaunessy-Dedrick et al., 2015), provides

positive findings in reading achievement and attitudes toward reading supported in SEM-R developers' research.

The largest study investigated the effects of the SEM-R Framework intervention on student fluency and comprehension achievement on 2,150 students different socioeconomic, geographic, and cultural backgrounds, in Grades 6-8, involving 47 teachers in 47 Classrooms in four Middle Schools in Connecticut, US (Little et al., 2014). SEM-R was implemented after pre-tests in September 2009 until the post-tests in April 2010. SEM-R teachers received coaching and support before and during SEM-R implementation from SEM-R coaches, who visited classrooms every 2-3 weeks coaching diverse readers' needs and behaviours. Teachers implemented SEM-R daily for 40 daily. Phase 2 included individualized 5-7-min weekly/fortnightly student/teacher conferences. Some schools implemented Phase 3 involving interest-based, project-oriented activities from January 2010 onwards. Teachers completed weekly logs and students completed daily logs. Control group teachers conducted regularised ISD reading instruction including text instruction, group/class novel studies, and whole/small-group approaches. Little et al.'s research indicated similar results for treatment and control groups in comprehension and fluency with higher results in fluency in two schools; girls outperformed boys and White and Asian students outperformed other minorities in both treatment and control groups (2014). The study observed consistent engagement in independent reading of self-selected books displayed by intervention groups supporting previous research linking student engagement and interest with reading achievement (Teale & Gambrell, 2007) and independent reading (NRP, 2000).

Other mixed methods' studies investigated the SEM-R impact on attitudes to reading, on reading comprehension and fluency with students from a range of socioeconomic, geographic, and cultural backgrounds (Reis et al., 2007; 2008; 2011). One study explored SEM-R effects with 28 teachers and 226 students in Grades 3- 6 in two urban elementary schools; all children received 90 minutes of reading instruction, highlighting direct instruction and cooperative learning; and children and teachers were randomly assigned to treatment and control groups (Reis et al., 2007). Treatment groups received SEM-R while the control groups received remedial reading instruction for an additional hour. The SEM-R group showed statistically significant positive differences over the treatment group after the 12-week intervention in reading comprehension but not in fluency (2007), based on Iowa Test of Basic Skills (ITBS) comprehension scores (Dunbar et al., 2008). However, statistically significant positive effects on reading fluency were found in a later study (Reis et al., 2008), and in both reading fluency and reading comprehension than control schools with similar populations of low-socioeconomic students in the 2011 study of 1,192 Grade 2-5 students and 63 teachers in five elementary schools (Reis et al.).

Firmender et al. (2013) investigated the range of comprehension and reading fluency scores of a diverse sample of 1,149 students in Grades 3-5 in five elementary US schools in one urban district, randomly assigned to SEM-R and control groups for one academic year. This quantitative study found wide variation in reading fluency levels ranging from below the 10th percentile to above the 90th percentile and reading levels spanned more than 9 grade levels among Grade 3 students to more than 11 levels in Grade 5. Results support the need for teachers to differentiate both reading content and reading instruction including materials of varied levels of difficulty through scaffolding, enrichment, acceleration, flexible grouping, and different time schedules (Renzulli, 1988) to address varied reading fluency and comprehension levels. Firmender et al. found that the range of reading fluency and comprehension shows the importance of skills assessment to provide content and instruction that meets student variance at various reading levels.

Flexible instructional grouping and content accompanied by DR may help address the wide range of skills and additional materials and instructional strategies to challenge all students' (Firmender et al., 2013, p. 11), including cluster grouping (Gentry & Owen, 1999), curriculum compacting (Reis et al., 1998), challenging EAS and eliminating previously mastered content. Children improve scores when they are grouped together for instruction (Kulik, 1992). When teachers receive the CPD, time, and support to learn how to effectively implement DR skills and strategies, they can address the range of student reading levels (Firmender et al. 2013; Reis et al., 2008; 2011).

Shaunessy-Dedrick, et al. investigated the effects of DR on US Fourth Grader Students' reading comprehension and attitudes toward reading (2015). No significant differences in students' attitudes were found toward reading but SEM-R students scored significantly higher scores on comprehension than the control group. The control group followed the district's reading program including guided reading, read-alouds and state-wide reading test preparation. Teachers in the four treatment schools supplemented instruction with SEM-R immersing SEM-R into the daily 2-hour reading block. This SEM-R study differed from previous studies in several ways:

- No research member devised the SEM-R;
- Teachers use Phases 1 and 2 daily and included Phase 3 (enrichment experiences) regularly as schedules permitted compared to previous research's weekly class (Reis et al., 2011).
- Support from SEM-R coaches for treatment teachers was provided on a monthly basis compared to previous studies' daily onsite support (Reis et al., 2007; 2008; 2011).

Based on the findings, the SEM-R is a DR approach that can be 'implemented independent of the developers to increase reading comprehension and support the reading development of students with varying reading abilities' and 'can positively affect student learning' (Shaunessy-Dedrick et al., 2015, p. 104). Previous SEM-R studies found statistically positive significance in treatment children's

attitudes toward reading with ‘modest effect sizes’ (Reis et al., 2007, p. 19). The regular Phase 3 enrichment experiences including small group and independent activities selected by the children may have positively influenced data while there was no increase in reading attitudes in the control group who followed remedial reading activities (Reis et al., 2007). However, Shaunessy-Dedrick et al (2015), found no significant effects on attitudes toward reading caused possibly by a lower Phase 3 implementation in the study. Nevertheless, this study conducted by independent researchers does complement the findings of previous SEM-R research (Reis et al., 2007; 2008; 2011; Firmender et al., 2013; Little et al., 2014) and provides additional evidence of SEM-R’s positive impact on students’ reading comprehension and possible reading achievement.

Limitations of the SEM-R research include the small number of schools in all the studies despite the inclusion of large student numbers (over 2,000 in Little et al., 2014); the possibility of treatment diffusion from SEM-R to control classes, and the short duration of the intervention - 12 weeks (2007), five months (2011) and eight months (2014; 2015). Also, the SEM-R approach employs three types of learning activities so differences in child achievement cannot be credited to one specific activity. Specific Firmender et al.’s research limitations involve the ITBS and ORF measures as these grade equivalent scores assume that growth across years is uniform, which is inaccurate as the reading growth rate is larger for younger children than older children (2013). Specific Shaunessy-Dedrick et al.’s inadequacies are that just one reading assessment was employed in the summative assessment; while a broad range of reading skills, student progress monitoring or formative reading comprehension assessments were not considered as assessment data was only based on pre-test and post-test measures, (2015). While Shaunessy-Dedrick et al (2015) employed ERAS (McKenna & Kear, 1990) to measure attitudes toward reading, a recognized attitudinal instrument, interviews of students and observations by parents and teachers (Park, 2011), would have validated students’ self-reported data. Specific Little et al.’s research limitations include inconsistent teacher/student conference implementation as well as the lack of triangulation on observation, teacher and student logs, and assessment data as this was a valuable source of evidence (2014). However, Little et al. (2014) provided relationship evidence between students and self-selected texts and this complements previous SEM-R research findings. All the SEM-R research except for Shaunessy-Dedrick et al. (2015) was conducted by the original SEM-R designers so it is possible that some unintentional bias towards SEM-R was involved, therefore the responses may not be representative of *all* SEM-R schools. However, the independent study complements the findings of previous SEM-R research (Reis et al., 2007; 2008; 2011; Firmender et al., 2013; Little et al., 2014) and provides additional evidence of the positive impact of SEM-R on students’ reading comprehension and possible positive effects on children’s reading achievement. In pre-2011 SEM-R research, there was no defined measurement for student engagement but this was developed from 2011 onwards. The large number of student and teachers participants in different regions; the random assigned nature of teachers and children in control and intervention groups within schools supporting study validity; the variety of methodologies

involved, the DR training and coaching provided for participating teachers and use of control groups and assessment measurements are all strengths of these research studies.

In summary, SEM-R encompasses some Vygotskian principles in that teachers collaborate with students in selecting texts slightly above their reading ability, in setting collaborative reading goals and text choices. Teachers introduce varied genres and organise regular, individual teacher/student conferences monitoring reading progress and promoting creative learning experiences and reading enjoyment, using enrichment with DR supporting strategies and higher-level questions (Reis et al., 2005; Reis & Fogarty, 2006). Some research has shown that the SEM-R DR had a positive effect on students' reading comprehension (Reis et al., 2007; 2011) with significantly higher scores than control groups (Shaunessy-Dedrick, 2015) but Little et al. found just similar results (2014). Positive effects on fluency were reported (Reis et al., 2008; 2011) with similar and better results (Little et al 2014). Reis et al. reported modest improvements in attitudes to reading (2007) but no statistically significant differences were found by Shaunessy-Dedrick, (2015). Finally, Little et al. found consistent engagement in independent reading of self-selected books (2014) with positive impact on children's reading achievement (Reis et al., 2007) and similar or higher levels of reading achievement compared with control groups were reported (Reis et al., 2005; 2008; 2011). The importance of skills assessment, flexible grouping and curriculum is stressed in DR implementation in content and reading instruction to address the wide range of reading fluency and comprehension compacting (Firmender et al. 2013). Teachers need to receive training in how to use DR to meet the needs of students across several grade levels of reading fluency and comprehension (Firmender et al., 2013; Reis et al., 2007; 2008; 2011).

The next section evaluates independent DR studies from the US, Canada, Finland and Turkey. Little if any DR research has been conducted in Ireland so far to the researcher's knowledge.

4.4 DR Research Studies

This section evaluates research from Pilten (2016); Nurmi, Viljaranta, Tolvanen & Aunola (2012); Roe, (2010); Tobin & McInnes (2008); Ankrum (2006); and Baumgartner et al., (2003). It is not possible to evaluate all studies referenced in the discussion due to the small-scale of the thesis. These studies have been chosen as they have significant relevance to this study – primary teachers' conceptions of DR; teachers' instruction adaptation to meet students' reading needs; data based decision-making; DR strategies including flexible groups and collaboration, students' interests and needs, flexible choices, types of teacher talk; comprehension strategies; perceived DR obstacles and facilitating factors.

Pilten (2016) investigated the practicability of DR in primary grades in accordance with teachers' perceptions. The qualitative study involved online pre-, post-interviews and video conferences on DR implementation with seventeen primary teachers in different regions in Turkey. Pilten found that no

teacher provided 'adequate' DR instruction planning or application based on individual student differences. Few teachers could define the DR concept or some basic elements that formed DR accurately and completely before the study's seminars. This finding supports previous research that teachers have some deficiencies and misunderstandings in DI theoretical knowledge and practice (Carolan & Guinn, 2007; Sharabi 2009; Wormeli, 2005). Also, most teachers thought that DR could not be implemented in Turkey. Examination of the teachers' DR teaching designs revealed that these designs complied with the theoretical foundations of DR in terms of content, process and product. Obstacles to DR included limited time, the intensity of the content areas, inconvenient classroom structures due to crowded and multi-grade classes, teacher education inadequacies, teacher problems due to educational policies, and education shareholders participation support (family, school management). These DR obstacles support previous research - large classes, instruction inconsistencies in content and time, lack of pre-service and in-service training, and insufficient stakeholders support, (Calabrese et al., 2005; Edwards et al., 2006; Margolis & Nagel, 2006; Sharabi 2009; Wormeli, 2005). DR advantages included an active learning environment, student-centered and positive impact on student motivation and academic achievement, supporting previous research (Sharabi, 2009). However, DR was not found to facilitate continuous evaluation and feedback as reported in previous research (Sharabi, 2009).

Teachers employed multiple-choice tests and the question/answer technique in determining student readiness levels and added data obtained in classroom discussions in determining student interests. Teachers used many informal and formal data collection techniques (Hall et al., 2004). Most teachers planned reading and activities with individuals and small groups in DR highlighting the importance of working with small groups (Hall et al., 2004; Langa & Yost, 2007). Almost half of the teachers cooperated with students in deciding on product in DR.

Nurmi et al. (2012) conducted research on 105 First Graders and 105 teachers in three Finnish towns, investigating whether teachers adapt their instruction according to students' academic performance in reading and maths. They investigated whether students' academic performance influences teachers' active instruction and whether teachers' length of teaching experience moderated this instruction. Children received pre and post-tests in reading in three areas, in Reading words; text; and in reading speed and teachers completed a diary survey on the instruction provided to one selected class pupil in Autumn (pre-test) and in Spring (post-test). The study found that both experienced (13+ years) and less-experienced teachers (0-12 years) adapted instruction according to child's reading. Also, poor reading performance predicted high amount of active teacher instruction, supported by previous research (Nurni, 2012a; Rutter, 1997).

In a qualitative investigation of nine US middle school teachers' differentiated literacy practices in rural and urban schools, Roe (2010) analysed onsite classroom data and multiple interview data, and

found that most teachers rarely used student performance data to guide instructional planning or decisions (Pilten, 2016), even though varied formative assessment data was available. Roe also found that teachers often provided reactive differentiation based on situational needs rather than purposefully planned differentiated experiences' Teachers constructed learning activities that resembled state test formats and focused on student product development rather than learning processes (2010). Teachers provided substantial support and DR to students who were reading below grade level but only one of the nine teachers *considered* matching advanced readers with above-level, more difficult texts (Roe, 2010).

Tobin and McInnes (2008) conducted a mixed method study of ten teachers from one Canadian school district, teaching mixed Grade 2/3 classrooms and an indepth analysis of two teachers' DR implementation methods. The researchers provided two 3-hour workshops on DR principles and practices followed by classroom observations, video recordings; observational field notes and two semi-structured interviews with teachers. The DR methods employed included tiered activities; varied group sizes; flexible seating arrangements; peer-discussion developing group understandings of texts; providing menu/choice of activities; echo reading (teacher reads aloud and learners imitate); wrap-around' activities (used to highlight, discuss and represent the text); and guided reading sessions (10 mins reading, 10 mins work with words, 10 mins comprehension tasks). The study found that DR helped children understand and apply both content and process in their learning and created choices for pupils enabling increased focus and concentration.

Julie Ankrum in her PhD thesis (2006) conducted a case study on one exemplary teacher's small group DR implementation and decision-making, in a second grade classroom in Pennsylvania. Data collection consisted of five classroom observations, reflective interviews and classroom artefacts. Data analysis revealed the participant differentiated components including lesson structure and focus, teacher talk, materials, time spent in small group meetings, and post-reading activities. Decisions on differentiating each lesson were based on continuous assessment. The nature of classroom verbal scaffolding was investigated through a microanalysis of teacher talk. Student-teacher interactions were analysed and six categories promoted independent reading strategies: direct explanation, explicit modelling, invitations to participate, clarification, verification and telling. This study demonstrated that children's needs positively influenced teacher interactions with group members as in the Finnish study (Nurmi et al., 2012). Comprehension was the main focus of small group instruction while Literacy Circles (Daniels, 2001) and the 'Book Club' model (McMahon & Raphael, 1997) were also employed. Comprehension strategies were taught explicitly through whole group lessons with small group instruction providing implicit strategy instruction and guided practice. The eleven findings provided practical steps in small group DR implementation on groups, reading strategies and activities. The six conclusions were: data determined grouping decisions; instructional materials scaffolded learning; time devoted to groups varied across groups; teacher's careful analysis and decision-making was influenced by the changing group lessons' foci; children's needs determined

teacher interactions with group members; group members' needs and abilities determined follow-up assignments.

Baumgartner et al. (2003) investigated students with low reading levels in three classrooms in three schools in one Illinois district with similar demographics and low to middle level family incomes. Participants included 25 Second graders, 27 Third graders, and 25 Seventh graders. The mixed method study investigated a five-month DR programme, designed to improve reading achievement, and employed a student survey, the San Diego Quick Assessment, Nonsense Word Test and a reading strategy checklist. DR strategies included flexible grouping, tasks choices, increased self-selected reading time, and access to varied reading materials. Findings showed a marked increase in students' reading levels, increased comprehension strategies, a greater mastery of phonemic and decoding skills and more positive student attitudes towards reading and about their own reading abilities. Increased positive student attitudes towards reading may have been impacted by increased school library access and self-selected reading time where reading material matching student interests and abilities and relevant levels. Comprehension lessons on pre-reading, during-reading and post-reading strategies increased comprehension strategy usage. Reading comprehension strategies for Grades 2-3 included clarifying, questioning, predicting and using context clues while seventh graders employed visualizing, supporting predictions, synthesizing, clarifying, evaluating, skimming and summarizing. Having discussed important DR research, the next section discusses some limitations of the selected research.

4.4.1 Limitations of Selected DR Studies

Limitations of the selected studies include the small-scale nature of some research on teachers' DR practices (Ankrum, 2006; Tobin & McInnes, 2010; Roe, 2010). These findings cannot be generalised to encompass the DR practices of all elementary teachers but do provide evidence of effective DR practice. Also the studies were conducted in the US, (Ankrum, 2006; Baumgartner et al., 2003; Roe, 2010), Canada (Tobin & McInnes, 2008), Finland (Nurmi et al., 2012) and Turkey (Pilten, 2016) and so represent different cultural and curricular environments. However, no studies focusing specifically on DR are evident in Ireland to the author's knowledge and so these studies provided findings from different cultural contexts. Four studies investigated teachers' DR practices (Ankrum, 2006; Tobin & McInnes, 2010; Roe, 2010; Tobin & McInnes, 2008). Nurmi et al. (2012) investigated students' responses to DR implementation but focused on quantitative teacher instruction (amount of help, encouragement) rather than qualitative aspects of teacher instruction (e.g. praise, criticism, teacher-directed and child-initiated interactions). Baumgartner et al. (2003), investigated students with low levels of reading in one US district so findings cannot be deemed representative of all districts. However, grade levels were considered in Baumgartner et al. (2003) but not in Pilten, (2016) and Roe (2010). Control groups were not employed to measure possible differences between implementation and non-implementation groups (Baumgartner et al., 2003; Nurni et al., 2012; Pilten, 2016). Other

limitations included the unknown response rate and the selectivity of the sample and the extent to which results were representative of the broad group of DR school programmes (Baumgartner et al., 2003; Pilten, 2016).

The lack of linkage between teacher instruction and child achievement and the researcher's relationship with the teacher participant as a literacy consultant may have resulted in observer bias in the 2006 Ankrum study. Self-reported findings rather than independent observation was employed in the Pilten (2016) and Nurni et al. (2010) studies resulting in susceptibility to the Hawthorne effect and/or social desirability. The €100 payment to participant teachers could have incorporated possible positive bias to DR implementation and teachers rated just one child per class rather than several students, which rendering less rich data (Nurni et al.'2012). Also, while research observations validated other evidence, more effective scheduling for the start, middle and end of the academic year would have traced possible progression (Ankrum, 2006; Tobin & McInnes, 2008). Classroom observations would have strengthened data validity of the Pilten study (2016) but the broad geographical spread of seventeen regions rendered this unviable.

Despite the above mentioned limitations, the studies included positive elements e.g. varied different cultural contexts (US, Canada, Finland and Turkey), mixed schools (Primary/Elementary/Middle Schools), different grades (Grades 1-7) and levels from low achievers (Baumgartner et al. 2003) to advanced readers (Roe, 2010). Also teachers' DR strategies and practices were examined in depth from teachers' perspectives (Ankrum, 2006; Tobin & McInnes, 2008, Pilten, 2016, Roe, 2010) and from students' achievement (Baumgartner et al., 2003; Nurni et al., 2012). Varied methodologies using quantitative and qualitative data were employed (Ankrum, 2006; Nurni et al., 2012; Pilten 2016). Studies incorporated triangulation of data which may have strengthened data validity and reduced observer bias impact (Ankrum, 2006; Roe, 2010; Tobin & McInnes, 2008). Roe's 2010 study incorporated the analysis of onsite classroom data and multiple interview data while Pilten (2016) employed interview and conference data. Baumgartner et al.'s 2003 study provides additional evidence of DR strategies and evidence of a relationship between students, self-selected texts and comprehension strategy instruction. The variety of methodologies involved, DR strategies, student and teacher participation in different cultural regions, the DR training provided (Tobin & McInnes, 2010; Pilten, 2016) and the assessment measurements employed are all strengths of these studies. This research provides additional evidence of DR strategies, practices and implementation, supporting findings from previous studies and influenced the format and focus of the current thesis. Having discussed some limitations of the selected research the next section discusses the key messages emanating from the empirical review.

4.4.2 Key Messages Emanating from the Empirical Review

Essential points of agreement in DR across all thirteen studies included teacher/child /collaboration, varied teacher support/scaffolding and resources, flexible groups, individual and guided reading

sessions, text discussions and comprehension strategies. Comprehension strategies employed included small group and class discussion, Q/A technique, clarifying, questioning, predicting, using context clues, visualising, supporting predictions, synthesising, clarifying, evaluating, skimming and summarising. All studies found that teachers provided substantial support to students reading below grade level.

Eleven studies (excluding Jenkins et al., 2013; Roe 2010) found that teachers employed varied group sizes, and activity choices and Tobin & McInnes (2008) also found flexible seating. Ten studies (excluding the Baumgartner, Nurmi and Roe studies) employed DR strategies including enrichment, acceleration, different time schedules, cluster grouping and curriculum compacting. Teachers used Q&A and discussion to determine children's interests and readiness, and reading skills assessment from formal and informal data, differentiated content, process and follow-up reading activities were evidenced in twelve DR studies excluding Roe (2010). The same twelve studies included DR advantages as positively influencing student motivation and academic achievement and an active, student-centred learning environment while Pilten found class integration facilitation (2016). The recent PIRLS results also demonstrate that positive attitudes were associated with higher reading achievement (Mullis, Martin, Foy & Hooper, 2017). DR helped children understand and apply both content and process in their learning and helped create choices for pupils connected with increased focus and concentration (Tobin & McInnes, 2010). Research demonstrated improvement in students' reading levels, in the number of comprehension strategies used, in student attitudes towards reading along with student perceptions about their own reading abilities (Baumgartner et al., 2003) and in some SEM-R studies with similar results to the control group in the remainder SEM-R studies.

Peer discussion was central in DR (Ankrum, 2016; Pilten, 2016; Tobin & McInnes, 2008) and Ankrum found students using Literacy Circles and 'Book Club' models to develop group understandings of texts with children as the source of their own learning. Ankrum (2006) investigated verbal scaffolding and defined six types of teacher talk employed in the promotion of independent reading strategies – direct explanation, explicit modelling, invitations to participate, clarification, verification and telling incorporating collaboration, imitation and language as a tool (Vygotsky, 1978; 1986).

Teachers' DR teaching designs complied with DR in terms of content, process and product and almost half of the teachers jointly cooperated with students in deciding on product in DR (Pilten, 2016) incorporating collaborative learning (Vygotsky, 1986). However, Roe (2010) found that teachers focused on student product development rather than on learning processes. Firmender et al. recommended that teachers must differentiate both reading content and reading instruction to meet the wide range of reading fluency and comprehension levels in each grade (2013). Tiered activities were central in DR in two studies (Jenkins et al., 2013, Tobin & McInnes, 2010) matching child variance. The Jenkins study found that all schools employed basic the RtI principles - universal screening, early

and increasingly intensive interventions, and intermittent progress monitoring while most teachers provided systematic DR in Tier 1. However, cross-schools differences were observed with varied RtI practices recognising the local cultural-historical influences (Vygotsky, 1986), demographics and resources.

General obstacles to DR included limited time and lack of teacher training, while Pilten also found content intensity, crowded and multi-grade classes, disruptive students, educational policy problems, and poor shareholders participation/support (2016), supported by previous research which also highlighted large classes and lack of pre-service and in-service training, (Al Otaiba et al., 2005; Calabrese et al., 2005; Edwards et al., 2006; George & Alexander, 2003; Margolis & Nagel, 2006; Sharabi, 2009; Wormeli, 2005) and state assessments pressures, planning and classroom management challenges, and little administrative support (Latz et al., 2009). Both Roe (2010) and Pilten (2016) found that most teachers rarely used student performance data in DR to guide instructional planning/decisions even though varied formative assessment data was available. Roe (2010) found that teachers often provided reactive rather than proactive DR and some constructed learning activities resembling state test formats (demonstrating state assessment pressure), while only one teacher considered using DR for matching advanced readers supporting Callahan, et al.'s research that teachers rarely modified instruction even those with DR training (1995). However, Nurmi et al. (2012) found that both experienced and less-experienced teachers adapted instruction according to children's reading needs and poorer readers received more active teacher instruction as the level of child's academic performance correlated with the amount of teacher reading instruction (Nurni, 2012a; Rutter, 1997).

Independent reading, access to different genres and texts, student self-selection of texts and catering to students' interests were important features of the Baumgartner et al. (2003) and six SEM-R studies. Imitation in DR, an important ZPD component, was employed in two studies - 'echo reading' where teachers read aloud and learners imitate (Tobin & McInnes, 2008) and 'explicit modelling' (Ankrum, 2006). Few teachers could define DR accurately (Pilten, 2016) supported by previous research (Carolan & Guinn, 2007; Sharabi 2009; Wormeli, 2005). Five SEM-R studies and Pilten (2016) recommended that teachers need to receive training on DR implementation to meet children's needs in reading and comprehension across different grade levels. Further research was recommended on DR in individualised conferences and matching reader to text (Little et al., 2014) and on DR in different lessons/grades on reading, comprehension, problems solving, and/or high order thinking skills (Pilten, 2016). Having discussed some key messages from the empirical review the next section discusses the impact of the empirical review on this current thesis.

4.4.3 Impact of Research on Current Study

Following on from these findings, few teachers could define DR accurately (Pilten, 2016) so this study will examine teachers' self-reported conceptions and implementation of DR. While most studies found

that teachers' DR teaching designs complied with DR in terms of content and process (Ankrum, 2006; Pilten, 2016, Tobin & McInnes, 2008) teachers' use of product was less clear. This study will investigate whether teachers implement DR through content, process and product. Several Vygotskian components were explored in these studies, student/teacher interaction, collaboration, imitation, language as a tool, verbal scaffolding and children as the source of their own learning. This research will explore these elements and also factors that facilitate and hinder DR. Analysis of lesson-plans strengthened the data validity of Pilten's research (2016). This current thesis developed this strategy to include lesson-plan evaluations as well as a survey (Jenkins et al., 2013; Nurmi et al., 2012) and interviews (Ankrum, 2006; Baumgartner et al., 2003; Pilten, 2016; Roe, 2010; Tobin & McInnes, 2008) to investigate teachers' DR perspectives and implementation. Some research explored DR in specific grades (Ankrum, 2006; Baumgartner et al., 2003; Firmender et al., 2013; Nurmi et al., 2012; Shaunessy-Dedrick et al., 2015; Tobin & McInnes, 2008) in different cultural contexts. This current study will explore teachers' conceptions and implementation of DR in different grades in two different cultural contexts at the same time using the same instruments.

Having discussed the impact of the empirical review on this current research, the next section addresses Irish Primary Policy in relation to DR research.

4.4.4 Irish Primary Education Policy in Relation to DR Research

Irish policy promotes differentiation in primary education (DES, 2015; 2011; 2005a; DES/NCCA, 2004; NCCA, 2007a; 2007b; 2007c; 2005a). Differentiation was implemented in some primary schools as the DES Inspectorat's evaluation of the 1999 Curriculum implementation stated that 'although differentiated approaches and provision... were not formally outlined... practice observed by the inspectors suggested that this occurred frequently' including the appropriate management and adaptation of activities and additional materials provision (2005, p. 37). The 1971 Curriculum encouraged teachers to employ group-work, to cater for all abilities to enable pupils to work at their own pace (DES/NCCA, 2004). The joint DES/NCCA consultation paper recommended that teachers employ 'a differentiated approach' stating that assessment was key to unlocking differentiation (2004, p. 14). Irish Primary Education policy promotes DR through formal and informal assessment data, 'teacher observation, teacher-designed tasks and tests, work samples and projects' (2007a, p. 5), reading skills instruction, teacher/child interaction/collaboration, varied teacher support, individual reading, guided reading and discussion (DES, 2015; 1999; NCCA, 2007a; 2007b; 2007c; 2005a). The EAS Guidelines advocated differentiating by task, outcome, resource, support, dialogue, pace and choice (2007, pp. 60-65) incorporating tiered activities, enrichment, acceleration, cluster grouping and curriculum compacting through differentiation in content and instruction (NCCA, 2007; 2007b). Differentiation by task involves the process and methodology used. Differentiation by outcome involves students choosing how they demonstrate their learning. Differentiation by resource, dialogue,

support, pace and choice all involve content, process and outcome (product). The 2015 PLC 's promotes differentiation and its learning outcomes were designed to help teachers to reflect, plan and implement relevant assessment, instruction and feedback to identify and support children's learning (DES). The PLC's Online Support Materials and the PDST support teachers in implementing differentiated content, process and follow-up reading activities. This support is being developed in response to the PLC and teachers' responses to the new curriculum.

Flexible group methodology (employing varied sized, mixed/same ability, same/different interest,) has not been investigated in detail in primary schools in Ireland. The 1971 and 1999 Curricula encouraged small group work and paired work yet the Inspectorate Curriculum implementation evaluation reported that there was 'over-reliance on whole-class teaching, where teacher talk dominated, with pupils worked silently on individual tasks for excessive periods' in over two-thirds of classrooms (2005, p. 30). The NCCA Primary Curriculum Review also stated that whole class teaching was most frequently used to support the 1999 English Curriculum, followed closely by individual work and 'teachers reported limited use of group work and pair work with children (2005, p.6). Factors including large class sizes, small classrooms, insufficient teacher training in class management and managing group-work may contribute to limited group-work. This current study will explore the use of flexible groups in DR.

Independent reading and guided reading sessions are supported by policy and teachers reported developing children's literacy as the greatest success following the 1999 English Curriculum (NCCA, 2005a, p. 6). Both the 1971 and 1999 Curricula encourage teachers to provide a broad range of texts and genres to encourage children's interests in books and Eivers et al.'s 2009 NAERM Report recommended that teachers maintain a balance of texts and genres in class libraries (2010). The 1999 Curriculum supports imitation, Literacy Circles and text discussions (Ankrum, 2006; Tobin & McInnes, 2008) to develop group understandings of texts with children as the source of their own learning (Vygotsky, 1978). Teachers' implementation of these methods will be examined in this thesis.

In Ireland, research has shown that the teaching of comprehension strategies is considered to be relatively poor (DES, 2005a; Martin & Morgan, 1994; Shiel & Hogan, 1997). While comprehension strategies were acknowledged to benefit children's understanding, no guidance was provided (DES, 2000). Pressley and Wharton-McDonald recommended that teachers teach comprehension strategies explicitly through cognitive modelling (2006). However, Concannon-Gibney and Murphy found that teachers usually assessed comprehension rather than taught it (2012). Courtney and Gleeson's (2010) study 'Building Bridges of Understanding' promotes comprehension instruction and provides relevant resources. Comprehension Strategy Instruction (CSI), requires a whole school approach to comprehension, advised by the Chief Inspector's Report (DES, 2013), promoting prediction;

visualisation; making connections; questioning; inferring; clarification; determining importance and synthesis (Courtney & Gleeson, 2010).

Irish education policy encourages differentiation. In 2005, the Inspectorate Curriculum implementation evaluation reported that 60% of teachers ‘differentiated their teaching’ and ‘provided for individual differences in English reading’ (p. 16). The 2005 evaluation called for ‘additional guidance for schools’ on curriculum adaptation to meet child variance (p. 51) as there was a predominance of whole-class teaching. The evaluation encouraged ‘greater collaboration’ between class and support/resource teachers in implementing differentiation and individual programmes [IPLPs], (2005, p. 53). Also in 2005, Eivers et al. reported on reading standards in Irish primary schools and recommended differentiation ‘Our survey provides evidence of insufficient differentiation... Such differentiation should address the needs’ of all children (p. 28).

In 2007, the NCCA published guidelines for teachers on students with general learning disabilities and on exceptionally able students (EAS), highlighting differentiation as a classroom strategy to meet pupil variance. Teachers were also encouraged to differentiate concepts, tasks, tests and support in the 2007 NCCA’s assessment guidelines e.g. ‘a quick informal test involving differentiated activities to assess the children’s thinking ...provides ...opportunities to use specific vocabulary in a way that reveals their understanding of terms’ (p. 55) and AfL information enables teachers ‘to make more informed decisions when planning for differentiated learning’ (p. 71). Eivers et al. (2010) recommended that assessment results be used to inform differentiated classroom instruction arising from the 2009 NAERM.

The Literacy and Numeracy Strategy (DES, 2011) encouraged differentiation and set targets for schools from 2011 to 2020, resulting in increased time allocation for literacy instruction in schools, increased assessment measures, and professional development for teachers to use ‘teaching approaches including direct skill-based differentiated instruction’ and ‘structured cooperative group work’ (p. 32). This 2011 Strategy stated that ‘assessment, differentiation ...are vital skills for all teachers’ (DES, p. 66) and that ‘all learners should engage in cooperative learning, differentiated learning, active learning and problem-solving activities’ (DES, p. 43).

Empirically-derived publications, e.g. the three commissioned research reports (Sheil et al., 2012; Kennedy et al., 2012; Ó Duibhir and Cummins, 2012) and the two curriculum reviews (NCCA 2005; 2008) that informed and supported the PLC (DES, 2015), are based on valid, reliable research. PDST documents are practical guidelines provided for classroom use by teachers and are not based on empirical research but often reference research. Table 4.6 distinguishes between research and policy publications (section 4.8). The PLC aims to promote language development, reading acquisition, and comprehension development through differentiated progression continua towards increasing children’s

literacy skills (Kennedy et al., 2012). The PLC helps teachers differentiate teaching and learning for children by providing a framework for planning, teaching and assessment of pupils of all abilities in all school contexts. Pupils can explore, receive and create meaning (DES) as teachers match children's levels in language, reading and writing against the eight 'progression continua' and plan instruction accordingly, based on children's particular language learning needs incorporating the three elements of language - communicating, understanding, exploring and using language (DES, 2015). Resources including Online Primary Language Toolkit and examples of children's language learning (DES, 2016) help teachers make professional judgments about, and support, children's achievement and progression. The PLC 'provides specific support for teachers in differentiating their practice to help all children make progress in their language learning and development' (NCCA, 2014, p. 52). The inspectorate provides advice to schools and teachers on oral language implementation. However, while differentiation is actively promoted in the 2015 PLC (DES), teachers find the PLC implementation difficult, including establishing children's starting point and devising strategies for each child in oral language, reading, and writing. Some teachers find the 1.5 days general school training provided by the (PDST) inadequate and would like more ongoing support.

In summary, Irish education policy now actively promotes differentiation in the primary school to meet children's learning needs and teachers are developing strategies and methods to use informal assessment as part of the instruction process as well as differentiating through content, process and product, supported by school differentiation policies, the PDST, the Inspectorate and the PLC online support materials. No research, to the author's knowledge, has been conducted on teachers' conceptions and implementation of DR in Ireland to the researcher's knowledge, and this research seeks to explore this area.

Having discussed Irish Primary Education Policy in relation to DR Research, the next section addresses teachers' conceptions of DR.

4.5.1 Teachers' Conceptions of DR

Although DR is promoted in schools and most teachers stated that differentiation was important in a US study (Hootstein, 1998), little empirical research has been conducted on teachers' conceptions of DR. Few teachers could define the DR concept and/or provide some basic DR components (Pilten, 2016). Previous research showed that teachers had deficiencies and misunderstandings in DI theoretical knowledge and practice (Carolan & Guinn, 2007; Sharabi, 2009; Wormeli, 2005). Teachers viewed differentiation as desirable rather than achievable (Pilten, 2016). However, Moon, Tomlinson, and Callahan found that 50% of middle teachers in a US survey viewed differentiation as futile (1995). Some teachers do not know how to differentiate for advanced learners (Hertberg, 2003; Roe, 2010). Pilten found that no teacher provided 'adequate' DR instruction planning and application based on individual student differences (2016). Teachers employed ineffective or limited differentiation (Roe, 2010). Instructional modifications were reactive or improvisational (Hootstein, 1998; Pilten, 2016;

Roe, 2010), based on situational needs rather than purposeful planned differentiation and learning activities resembled state test formats and focused on student product development rather than learning processes (Latz et al., 2009; Roe, 2010). Furthermore, DR methods including materials' modification, evaluation and lesson planning were unpopular with teachers (Johnsen, Haensly, Ryser & Ford, 2002; Pilten, 2016).

Research demonstrated that DR strategies were seldom employed and inconsistently implemented in many reading classrooms (Archambault et al., 1993; Pilten, 2016), even though professional training was provided (Allington, 2002), and methods existed for DR instruction (Reis et al., 2013). Roe (2010) found that most teachers rarely used student performance data to guide DR planning even though varied formative assessment data was available. Teacher's interests seemed to dominate over students' interests (Moon et al., 1995) yet Reis et al. found that linking students' interests to questions and tasks promoted motivation, resulting in positive learning (2007); increasing achievement, leading to motivation, student autonomy, productivity and creativity (Baumgartner et al., 2003; Reis et al., 2005, 2008, 2011). Interest is a catalyst for maintaining academic application during adolescence through 'flow' (Csikszentmihalyi et al., 1997) and children should choose interesting texts towards improved performance (Ankrum, 2006; Little et al., 2014); to discuss with teachers, topics they like; and to select topics for projects (Baumgartner et al., 2003; Reis et al., 2005, 2008, 2011).

This section discussed different teachers' perspectives on DR, demonstrating deficiencies and misunderstandings in DI theoretical knowledge and practice. This research will explore teachers' perspectives on DR as well as their DR implementation practices.

4.5.2 DR Implementation

DR is a successful method that yields high student achievement (Baumgartner et al., 2003; Little et al., 2014; Pressley, 2005; Reis et al., 2011). In a DR study, in Cyprus, Fourth-Grade students (n=479) made better progress under systematic DR than students in control classrooms (Valiandes, 2015). One Iranian DR study employing flexible grouping, tiered instruction, and tiered assignments, in content, process, and product found that elementary students (n=47), in separate gender classrooms, outperformed the control group, and that girls outperformed boys (Aliakbari & Haghighi, 2014) as found in the SEM-R study (Little et al., 2014).

DR tasks include, not just silent reading and reading aloud, but listening, peer teaching, discussion groups, literacy circles, reflection, Q&A sessions, retrieval of information, comprehension strategies, (Ankrum, 2006; Jenkins et al., 2013). Consistent small-group instruction, using a range of word-recognition strategies and teacher-talk (Ankrum, 2006), echo-reading (Tobin & McInnes, 2010) and frequent usage of higher level comprehension questions demonstrated improved reading achievement (Taylor, Pressley & Pearson, 200; Reis et al. 2005). 'Succeeding in Reading,' a report on reading standards in Irish primary schools, found insufficient differentiation:

We recommend that teachers (particularly those teaching in multigrade classrooms) should incorporate greater differentiation of teaching practices and materials into their classrooms. Such differentiation should address the needs of both low- and high- achieving pupils' (Eivers et al., 2005, p. 28).

In DR, teachers need to know how to 'organize all students' to maximise learning (Opitz & Ford, 2008, 22). Reading instruction must challenge and help pupils develop as proficient readers as in the SEM-R (Reis et al., 2007, 2008, 2011; Little et al., 2014). Teachers employed discussion with students, Q&A sessions and multiple choice questions (Pilten, 2016) and student/teacher conferences (Little et al., 2014; Reis et al., 2011) to evaluate readiness levels and support learning. Children are encouraged in DR to progress through reading levels, flexible grouping, and cooperative learning. Instructional materials are paramount. Students' reading achievement improved in schools that employed reading programmes, with high emphasis on a wide range of texts, genres and resources and lesser reliance on basal readers (Ankrum, 2006; Baumgartner et al., 2003; Reis et al., 2007, 2008, 2011; Shaunessy-Dedrick et al., 2015).

There is no one formula or easy way to achieve differentiation, and it is impossible to differentiate all the time. Ankrum and Bean question 'What exactly does the teacher differentiate?' (2008, p. 137). Teachers are advised to start with one theme, topic or idea (Pettig, 2000). Teachers develop confidence in and familiarity with DR, using observation, assessment, collaboration with students and reflection, developing experience, strategies, techniques and activities to help develop students' maximum reading potential. Introducing differentiation gradually is best as teachers and children need time to process the changes. The first step is to teach the children to work independently and in groups, to stay on task, keep their voices down, and not to distract their peers; 'training takes patience' (Carr, 2009, p. 5). A supportive environment promotes acceptance of differences, affirms that all students have learning strengths and different interests, acknowledges that students learn at different rates and in different ways, and recognizes that the key to motivation is interest. DR supports and celebrates student success in challenging work (Reis et al., 2007, 2008, 2011) encourages exploration of each student's interests and choices (Baumgartner et al., 2003; Tobin & McInnes, 2008), and nurtures the creative spirit in all students (Heacox, 2002). Differentiation requires detailed planning, knowledge of children's needs and flexible teaching approaches (Ankrum, 2006; Baumgartner et al., 2003; Heacox, 2002).

Assessments are based on students' experiences and knowledge levels so that children begin with what they know and move onto what they need to know (Chapman & King, 2003,). Class discussion is critical, encouraging pupils to ask for help, to fill knowledge gaps and skill gaps, providing ways to address gaps through peer assistance, posters, etc. Discussing the rationale for the skill mastery with students helps empower children when they understand the relevance of activities. Certain strategies assist in creating time for DR:

- materials structured towards practice, rather than instruction,
- daily ‘paired relevant oral readings’ (previously read texts and unseen texts),
- writing activity linked to the daily read-aloud,
- daily pair-work practicing previous day’s strategies and skills, (Walpole & Mc Kenna, 2009).

A variety of teaching and learning strategies and activities, responding to text, are encouraged, as readers differ in learning styles, reading preferences, and profiles (Opiz & Ford, 2008; Firmender et al., 2013). Careful text selection (Reis et al., 2007, 2008, 2011) ensures that all children can read a book at appropriate levels, interest, content, and context, with relevant teacher and peer support. Varying the degree of direct/indirect teacher support encourages student empowerment and sense of achievement. Open-ended activities enable all children to participate and complete response activities at their particular level. Readers are invited to keep a literature response log and can respond to their reading at their level. Reading models are just instructional tools and are as useful as the precision of students’ knowledge, skills and interests and teachers’ pedagogical knowledge. DR implementation can improve with practice, reflection, and feedback from students, parents, and other teachers (Walpole & McKenna, 2007).

Differentiation can occur in ‘learning centers/stations’ and ‘station teaching where pupils work on various tasks simultaneously (Daly, 2015). Allowing children choice encourages student engagement, where concepts/skills are reinforced or extended through relevant tasks and materials (Little et al., 2014; Reis et al., 2011; Tobin & McInnes, 2008). Staff development sessions, incorporating DR strategies, discussions, and illustrations, provide support and structure for teachers (Piltan, 2016; Reis et al., 2007, 2008, 2011). Baumgartner et al. (2003) found that strategies, including flexible grouping, access to diverse reading materials, increased self-selected reading time and student choice on a variety of tasks, resulted in improvement in targeted students.

Research demonstrates that teachers provide peer teaching and individual tiered activities (McQuarrie & McRae, 2010; Smit & Humpert, 2012). One study of 22 small rural schools in Switzerland and Austria found that most teachers differentiated tasks/goals and adapted the time-scale and number of activities, but few teachers employed formative assessment or established students’ prior knowledge, weekly rather than daily (Smit & Humpert, 2012). Most teachers used whole-class instruction and differentiated during planning rather than supporting individual learning or working with flexible groups (Smit & Humpert, 2012,). However, a Canadian study of small schools, in Alberta, found that teachers provided flexible grouping and alternative (formative) assessments (McQuarrie & McRae, 2010).

4.5.3 Teachers' Response to Students' Learning Needs

The last ten years have seen demographic changes due to open borders and refugee crisis, resulting in diverse classrooms in cultural and linguistic and academically diverse pupils (Hall, 2002; Murchan & Shiel, 2017). DR allows all students to access the same classroom curriculum by providing entry points, learning tasks, and outcomes that are tailored to pupils' needs (Ankrum, 2006; Hall, Strangman, & Meyer, 2003). DR teachers evaluate pupils' readiness (entry level), before devising instructional strategies. Readiness levels vary, so children need to be regrouped according to learning needs. Teachers can devise support and material to support all learners, generating success for all (Lawrence-Brown, 2004) through moderately challenging tasks along the ZPD principle to facilitate readiness levels (Piltan, 2016; Reis et al., 2011). Teachers can direct students using Individual Educational Plans (IEPs) (NCCA, 2007), compacting activities or independent research projects (Reis et al., 2011).

Flexible groups and DR will help address the varied skills and needs to challenge all students' (Firmender et al., 2013), including, cluster grouping and curriculum compacting (Reis et al., 1998) for EAS while eliminating previously mastered content. Children's involvement is encouraged in class when their interests are acknowledged (Reis et al., 2011). Teachers must provide activities, projects, discussion and texts that are built around students' interests and experiences to enable children to create meaning (Ankrum, 2006; McBride, 2004), creating positive learning experiences (Lawrence-Brown, 2004; Reis et al., 2008). DR provides opportunities to foster group learning and provide options for independent learning (Lawrence-Brown, 2004; Firmender et al., 2013).

This section discussed DR research. While much has been written on DR, there is a lack of detail on teachers' conceptions of DR and on specific DR practices through content, process and product (Ankrum and Bean, 2008), especially in Ireland. Further research is required so this study attempts to readdress this lack of information by exploring teachers' conceptions and implementation of DR. To fully understand DR, we must first explore reading.

4.6 Reading

Reading literacy is the ability to understand and use those written language forms required by society and/or valued by the individual. Readers can construct meaning from texts in a variety of forms. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment (Mullis & Martin, 2015).

Reading can be defined as 'the process of constructing meaning through the dynamic interaction among the reader's existing knowledge, the information suggested by the written language, and the context of the reading situation' (Eivers et al., 2010, p. 15). This interaction between the reader, text (content) and context (environmental/sociocultural factors), can help teachers identify what a child knows and what a child needs to learn to progress as a reader (Clay, 1991). Opitz & Ford add a fourth element – 'activity' (process and product), stating that these four elements interact every time reading

instruction takes place and a variation in any element impacts on the instruction quality (2008, p. 4). DR incorporates the above factors in children's reading by modification of content (text), process and product (activity), consideration of children's interests (reader), cultural backgrounds and classroom environment (reader and context). Readers are empowered through small structured group discussion to 'develop reflection, critique, and empathy, leading to a sense of self-efficacy, identity and full participation in society' (Kennedy et al., 2012, p. 10). Teachers cannot exercise control over pupils' individual differences, but they do regulate the texts and activities employed and can provide 'a nurturing environment' (Opitz & Ford, 2008, p. 5).

Valencia and Buly (2004) identified six reader profiles (slow, steady comprehenders, self-correctors, decoders, word callers, and word stumblers), of students who undertook three additional reading assessments, having failed their first reading assessment. Generally, 'failing' students are repeatedly given the same instruction that failed to help them in the first instance. This research highlights how understanding students' text response strategies can help meet students' needs and match instruction accordingly. Each reader differs in accuracy, pace, comprehension, reader challenges and motivation. Motivation is complex and multifaceted (Guthrie, Wigfield & Perencevich, 2004). Recognition of students' interests by teachers enhances motivation and productivity (Amabile, 1996) and, combined with achievement, can improve student self-determination (Csizentmihalyi, Rathunde, & Whalen, 1993). Successful completion of challenging texts and reading tasks can inspire motivation and confidence, as motivation is reliant on students' self-belief and self-confidence in their abilities (Glaserfield, 1989). The confidence gained from previous problem mastery is more powerful than external motivation or acknowledgment (Prawat & Floden, 1994). Pupils experience 'flow' in achieving challenging goals and solving problems when they are interested in texts and their interests are recognised (Csikszentmihalyi, 1997), incorporating student engagement and deep learning (Zimmerman, 1998) and collaboration of affect and intellect (Vygotsky, 1986), integral to meaningful learning. As reading is a 'purposeful activity... (involving) choice and perseverance' (McGeown, 2013, p. 2), motivation to read is linked to reading achievement (Morgan & Fuchs, 2007; Wang & Guthrie, 2004). Successful readers have the 'skill and the will' (McGeown, 2013, p. 2). Edmunds and Bauserman (2006) researched six categories that motivate children to read and outlined the most common motivating factors in each of the six categories. The results, (in Table 4.3), demonstrated that children can inform their instruction, be discerning and insightful about their learning and can be the 'source of their own learning' as in Vygotsky's ZPD (Vygotsky, 1986). Choice, personal interest and the pursuit of knowledge influence book choice.

Table 4.3: Six Categories That Motivate Children’s Reading (Opitz & Ford (2008, p. 13) based on Edmunds and Bauserman (2006)

Category	Factors
1. Why children read narrative text	• Personal interests • Book characteristics • Choice
2. Why children read expository text	• Knowledge they gain from it • Choice • Personal interest
3. Why children read in general	• Book characteristics • Knowledge they gain from reading
4. Sources of motivation	• Family • Teachers • Themselves
5. Actions of others	• Buying or giving books as gifts • Reading aloud to children • Sharing books
6. Book referral sources	• School Library • Teachers • Family members • Peers

Sociocultural factors shape motivational and book referral aspects, (Vygotsky, 1986). Intrinsic motivation (curiosity, engagement, challenge) and extrinsic motivation (competition, social interaction) are dimensions of reading motivation (McGeown, 2013). Expectancy-value theory advocates that readers are motivated to read (Eccles et al., 1983) because reading is an enjoyable and beneficial activity or have expectations of success or failure (McGeown, 2013). Motivated pupils read more often (Little et al., 2014) and have better reading skills (Anderson et al., 1988). Maximise children’s reading potential is important as the ‘quality of a student’s life often depends on his reading ability’ (Chapman & King, 2003, p. 2). Time devoted to reading is a good predictor of reading skills and comprehension (Echols et al., 1996). Children learn to read and read to learn (DES, 1999), ‘to participate in communities of readers, and for enjoyment’ (Eivers et al., 2010, 15). Teaching reading is multifaceted (Smith, 2012) and requires teachers to perform many roles and to use a balanced reading approach to meet pupil variance (Pressley, 2000).

Reading is complex (Gambrell, Malloy, & Mazzoni, 2007) and multidimensional (Hall, 2003). Aspects including self-efficacy, motivation, text engagement, phonological awareness, reading for meaning, critical literacy and sociocultural influences are reviewed in the Kennedy et al. report which encouraged teachers to help readers develop ‘agency and self-efficacy’ in reading’ as there was no correct method of teaching reading (2012, p. 45). Teachers are urged to use a broad range of reading strategies (Kennedy et al., 2012) from ‘direct explanation and explicit teaching to modelling, scaffolding, facilitating and guided participation’ (Hall, 2003, p. 192). In the book ‘Listening to Stephen Read’, Kathy Hall sought advice from eight literacy experts on how best to help ‘Stephen,’ a struggling reader, and concluded that there is no one correct method of teaching reading (2003). All eight experts agreed on a number of approaches – increase children’s confidence in reading, help

children see relevance of reading, create positive expectations through the use of varied texts and genres; advance comprehension and decoding skills; move from oral to silent reading (for faltering readers); and teach skills/concepts towards meaningful purpose (2003).

Hall (2003) advises teachers to consider children's needs first. Matching instruction to children's needs is at the core of DR, helping children become confident and fluent readers toward their reading potential (Chapman & King, 2003). Hall provided four perspectives on reading - psycholinguistic, cognitive-psychological, sociocultural, and sociopolitical (Table 4.4), encouraging teachers to develop and identify a reading perspective (2003).

Table 4.4: Four Perspectives on Reading

	Psycho-linguistic	Cognitive-psychological	Sociocultural	Sociopolitical
Reading	Reading for enjoyment Problem-solving activity	Various stages in reading, phonological awareness, word comprehension, word identification leads to comprehension	Meaning-making and context, collaborative group work, partner reading and reciprocal reading methods, primacy of oral language	Critical literacy, question text, purpose, assumptions and language choice
Process	Constructive process	Decoding or deciphering words;	Create meaning from social interaction and make sense of all knowledge and experiences through cultural lens	Promote social justice and question societal inequality (Hall, 2003)
Teachers	Facilitators, guide pupils in reading	Teach decoding and deciphering skills	Facilitators, give authentic activities through social interaction	Explore 'learning identities and values' (Hall, 2003, p.178)

The psycholinguistic perspective highlights accessibility to real books that are appealing to children (Smith, 1978). Relevance, intrinsic motivation and authentic purpose are crucial, where the sequence of words, sentences, and paragraphs are important (Hall, 2003). Children benefit from the 'joy and excitement of getting lost in a book' (DES, 2011, p. 43) and enjoy books (Cremin, 2014). The cognitive-psychological perspective suggests that children go through different stages in reading (Juel, 1991). Pupils learning words by sight also reflect this perspective (Ehri, 1995). The socio-constructive perspective highlights language as a learning tool (Vygotsky, 1986) or a person-made tool (Hall, 2003, p. 135), where meaning is created from social interaction and cultural lens (Bruner, 1996; Lee & Smagorinsky, 2000; Vygotsky, 1986). Reading, learning, and thinking are based on children's culture and context (Hall, 2003) and on shared experiences, understandings, language, relationships and meaning (Goouch & Lambirth, 2011). Meanings originate in culture, so, therefore, the mind relies on culture to create meaning (Bruner, 1996). Hall emphasises 'context and the learner's meaning' in reading (2003, p. 149), where language sculpts meaning and embraces practices and interactions from the home to help bridge the gap between the home and school and aids learning (2003, p. 138). The

socio-constructive perspective is important in DR. The sociopolitical perspective encompasses critical literacy (Freire, 1987; Roche, 2014), ‘learning identities and values’ (Hall, 2003, p. 178), the recognition of cultural capital (Bourdieu, 1977), dominance of middle-class values in education, and literacy as a socially embedded practice.

Having briefly discussed some definitions of reading, reading motivatory factors, different reading instruction approaches and teacher perspectives on reading, the question arises ‘what is the best way to teach reading?’ To answer that question, the next section addresses ‘effective teachers and the teaching of reading.’

4.6.1 Effective Teachers and the Teaching of Reading

Research demonstrates that effective literacy teachers have a positive influence on children’s reading (Wharton-McDonald, Pressley & Hampston, 1998; Allington & Johnson, 2002). Effective teachers, not resources, successfully differentiate reading for pupils (IRA, 2000). Pressley, Rankin and Yokoi (1996) surveyed 83 K-Grade 2 teachers from 23 states, concluding that effective teachers balance skills instruction with whole language practices and that most pupils learn to read through careful assessment, monitoring and instructional balance. Wharton-McDonald et al. (1998) explored effective teaching practices through classroom observations, interviews and artifacts and found that highly effective literacy teachers:

- Scaffold instruction as needed
- Plan lessons understanding ‘why’ each activity is assigned
- Integrate multiple goals in every lesson
- Provide many varied opportunities to read and write authentic texts
- Balance integrated skill instruction with authentic tasks
- Encourage self-regulation
- Hold high expectations
- Manage children, time and resources skilfully

The text level is significant (Allington, 2006), as is teacher support and pacing, creating a positive, cooperative environment (Pressley et al., 2001). Hall and Harding (2003) provided ten characteristics of effective literacy teachers and Kennedy et al. suggested effective reading teachers’ practices (2012). All studies demonstrate high-quality teacher/child interactions and teacher behaviours, relevant tasks, groupings and resources necessary for effective literacy instruction. Exemplary literacy teachers differentiate, using assessment results; flexible groupings; modelling (Vygotsky, 1986); and higher thinking skills through discussion (Roche, 2014); providing opportunities to read varied texts’ (Shaunessy-Dedrick et al., 2015) involving student engagement and motivation (Hall & Harding, 2003; Kennedy et al., 2012). Darling-Hammond and Ball’s long-term study highlighted the benefits of

teacher expertise, experience, and qualifications on student achievement (1997). In Ireland, the Kennedy et al Report on reading research outlines 71 important points and recommends eleven curriculum implications, including CPD; collaborative learning environments; instruction (including cognitive, metacognitive and affective dimensions of literacy), and assessment (2012, p. 332-333), central DR elements. Eight research reviews and studies in Ireland, US, and the UK, highlighted thirty different practices of effective teachers.

Table 4.5: Practices of Effective Teachers across Eight Reviews and Studies

Practices	Hall & Harding 2003	Hall, 2013	Kennedy et al. 2012	Williams & Baumann 2008.	Dolezal et al., 2003	Wray et al., 2002.	Taylor, et al., 2005.	Wharton-McDonald, Pressley & Hampston, (1999)
Differentiation	v		v	v		v		
Positive Environment	v		v	v	v			
Scaffolding	v	v		v				v
Classroom management	v		v		v			v
Oracy,		v			v	v		
CPD	v		v				v	
Integration	v	v						v
High expectations,	v			v				v
Modelling				v		v		
Text choices,		v	v					
Instructional density	v							v
Pupil self-regulation	v							v
Guided reading		v		v				
Assessment			v			v		
Motivation and praise						v		
Close links with parents	v		v					
Metacognitive approach			v			v		

Differentiation and meeting students' needs through flexible strategies was selected in four studies highlighting the need for instruction to meet student variance (Hall & Harding, 2003; Kennedy et al., 2012; Williams & Baumann, 2008; Wray et al., 2002). Kathy Hall's US reading research review of literacy teaching (5-8 year-olds) states that effective literacy teachers employ a broad variety of opportunities for children to engage in and respond to texts and to engage in 'sound symbol correspondence, word recognition, spelling patterns, vocabulary, punctuation, grammar and text structure' (2013, p. 524), enabling successful readers to establish context-dependent phonological connections towards productive reading (Snow et al., 1998) and incorporating most of the American National Reading Panel, (NRP)'s five important elements of reading instruction - phonological

awareness, phonics, fluency, vocabulary and comprehension (2000). Hall also emphasised oracy (Dolezal et al., 2003; Wray et al., 2002), scaffolding and appropriate intervention, ensuring ‘the acquisition’ of skills and concepts’ (2013, p. 526). This finding incorporates children’s culture in reading (Vygotsky, 1986) and the centrality of oral language, responsiveness to children’s reading needs and scaffolding (Hall & Harding, 2003; Williams & Bauman, 2008), important DR components. Hall (2013) also found other elements in effective literacy teaching that were evidenced in previous research - cross-curricular integration, independent, partner shared and guided reading (Williams & Bauman, 2008), with familiar and unseen texts, text choices (Kennedy et al., 2012), reading cues and comprehension strategies. Effective literacy teachers employed continuous purposeful language and rich talk between teacher and children (Dolezal et al.) and different classroom management routines, including coordinating instructional groups, passing out materials and transitions between activities (Hall & Harding, 2003). Allington (2005) incorporates choice and classroom management as important elements for DR as well as matching students to appropriate texts; providing opportunities for collaboration; promoting reading and writing links; and peer tutoring. Classroom management was highlighted as effective practice by Dolezal et al. (2003), Kennedy et al. (2012) and Wharton-McDonald et al. (1999), who also found that while effective teachers provide a print rich environment. Williams & Baumann’s research review on US elementary teachers (1990-2007), found that effective literacy teachers demonstrated exceptional abilities to improve students’ literacy achievement, incorporating flexible strategies depending on children’s needs, high reading expectations for all pupils (Hall & Harding, 2003; Wharton-McDonald et al., 1999), explicit instruction, modelling (Vygotsky, 1986; Wray et al., 2002) and student independence (Hall, 2013), whilst creating a social learning environment and enthusiasm about reading. Some teachers seem to ignite a love of reading in children, regardless of student abilities. Effective literacy teachers provide a supportive classroom environment providing reading and cooperative learning opportunities (Dolezal et al., 2003) and varied interesting texts, resources and materials (Wharton-McDonald et al., 1997). Children’s engagement in reading was promoted by motivation and praise from effective literacy teachers, (Ruddell, 1995; Wray et al., 2002), and by classroom displays of student work (Dolezal et al., 2003).

Hall and Harding conducted a review of twelve studies on effective literacy teaching in the 4-14 age group in UK mainstream schools and stated that effective literacy teachers employ ‘cluster of beliefs and practices...the encouragement of self-regulation’, rather than one specific method highlighting balance between skills teaching and literacy for meaningful purposes (2003, p. 4)

A balanced reading approach is research-based, assessment-based, comprehensive, integrated and dynamic...it empowers teachers ...to respond to the individual assessed literacy needs of children ... levels of decoding, vocabulary, reading comprehension, motivation and socio-cultural acquisition with the purpose of learning to read for meaning, understanding and joy (Cowen, 2003, p. 10).

Teachers are advised to use a balanced approach (Kennedy et al., 2012; Snow et al., 1998). Yet, Shanahan (2008) cautions against a ‘balanced approach’ towards activities that research has yet to

prove successful and urges for more research on how to teach comprehension and critical reasoning. Wharton-McDonald et al. highlighted the importance of teachers' knowledge of practices and goals (1999) while Kennedy et al. stressed constructivist, incremental, cognitive, metacognitive and affective dimensions, collaborative planning and learning and blocks of time allocation for literacy (2012). Wray et al. (in a UK government commissioned, mixed methods' study, questionnaires, interviews and observation, on 300 teachers), found that effective literacy teachers differed from their 'validation' counterparts in providing differentiated activities and support for pupils; demonstrations and modelling supplemented with verbal explanations of metacognitive processes; and precise assessment procedures informing choice of literacy content relevant to children's needs (2002). A two-year study in thirteen US schools found that teachers' collaborative, evidence-based, reflective professional development, coaching and high-level questioning improved early reading achievement (Taylor, Pearson, Peterson & Rodriguez, 2005).

In summary, effective literacy teachers employ different strategies to promote literacy, providing a balanced approach between skills-based instruction and reading for meaning, learning and enjoyment. While just four of the the reviews and studies specifically mentioned differentiation, many employed DR strategies including positive learning environments, expert classroom management and scaffolding, oral language, flexible groups, pupil self-regulation, modelling, text choices, guided reading, assessment, motivation and praise, all important DR components. The next section addresses the Irish reading policy.

4.6.2 Reading Policy in Irish Primary Schools

The 1999 Primary School Curriculum, (PSC) acknowledges the central role of phonological and phonemic awareness in the acquisition of word identification strategies (DES). The three strands of oral language, reading and writing encompass fluency, vocabulary development, and comprehension, in the PSC (DES, 1999a) and in the 2015 PLC (DES). Both curricula foster an approach to reading that is based on children's general language development, including attitude, motivation, word identification strategies, and a wide variety of texts. DR teachers are advised to facilitate motivation to read by providing children with an optimal challenge (PDST, 2013) and moving children through their ZPD (Vygotsky, 1986). The 2005 NCCA's review of the 1999 PSC implementation demonstrated that, while the teaching of reading had improved, concerns were expressed about the teaching of oral language, the lack of literacy time and the need for differentiation (2005). The 2005 Inspectorate Report on the effectiveness of the 1999 PSC found inadequacies in differentiation, higher-order thinking skills, and the teaching of reading for a significant minority of teachers (DES, 2005a). The Chief Inspector's Report on teaching English in 2010-2012 recommended explicit teaching of structured oral language; whole school approach on comprehension skill development; a cohesive and explicit teaching of reading skills and differentiated reading materials to sustain interest and progress in reading (DES, 2013). Teachers placed an over-reliance on commercial workbooks and textbooks

(Inspectorate Report, DES, 2013) and higher order thinking and text critique were not prioritised (NCCA, 2005, 2008, 2010). The National Literacy and Numeracy Strategy (NS) (DES, 2011) set specific national targets for 2020, linked to the NAERM. The NAERM report stated these targets were achieved by 2014 (Shiel, Kavanagh & Millar, 2014). There was a significant improvement, in the overall performance in English in Second and Sixth classes in primary schools, the first in 30 years. Compared to the 2009 NAERM; performance in English reading increased for both Second and Sixth Classes; the proportion of higher achievement pupils in both English reading increased and the proportion of lower-achieving pupils decreased (Shiel et al., 2014). Significant increases were also noted in ‘reading vocabulary and reading comprehension, retrieve, infer, interpret and integrate’ reading processes for both classes. A smaller increase was recorded on the ‘examine and evaluate’ section for Sixth Class. The NS also recommended a PLC focusing on learning outcomes and formative assessment. The NAERM report recommends enhancing links between oral language, reading and writing and developing reading comprehension (Shiel et al., 2014). The 2016 PIRLS’ results demonstrate that Irish Fourth Class pupils scored the best in Europe and OECD countries for reading skills, Ireland’s overall reading achievement score improved by 15 points since 2011 and the gender gap narrowed significantly between 2011 and 2016 to 12 points (Mullis et al., 2017). Since 2011, the number of pupils in Ireland with only basic reading skills has dropped significantly while the percentage of pupils with advanced reading skills rose from 16% in 2011 to 21% in 2016, higher than the international PIRLS average and Irish pupils also performed very well on the new online ePIRLS and just Singapore outperformed Ireland on this test (Eivers et al., 2017).

In summary, results from the 2014 NAERM and 2016 PIRLS demonstrate significant improvements in reading achievements of Irish primary children. Possible reasons for the improvement include the NA (DES, 2011), increased class literacy time, additional ITE and teacher training in reading and oral language, the 2015 PLC introduction in schools and additional resources provided to DEIS schools. Teachers can maximise learning through balanced strategies including the modification of content, process and product.

4.7 Modification of Content, Process, and Product

Table 4.6 summarises DR component modification from research studies and policy documents.

Table 4.6: DR Component Modification

Modification by	No. of studies	Research Studies	Policy Documents
Content	11	Piltzen, 2016; Allington, 2005; Dickinson & Wright, 1993; Renzulli, 1988; Westwood, 2003; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Baumgartner et al, 2003	
Choice	10	Allington, 2005; Renzulli, 1988; Westwood, 2003; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Baumgartner et al, 2003; Tobin & McInnes, 2008	NCCA, 2007b; NCCA 2007c
Support	10	Ankrum, 2006; Nurni et al, 2012; Dickinson & Wright, 1993, Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Roe, 2010; Baumgartner et al, 2003	NCCA, 2007b; NCCA 2007c
Resources	10	Ankrum, 2006; Baumgartner et al, 2003; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Dickinson & Wright, 1993; Tobin & McInnes, 2008; Westwood, 2003	NCCA, 2007b;
Flexible Groupwork	9	Ankrum, 2006; Piltzen, 2016; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Tobin & McInnes, 2008; Westwood, 2003	
Pace	8	Ankrum, 2006; Baumgartner et al, 2003; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Westwood, 2003	NCCA, 2007b; NCCA 2007c
Dialogue	8	Ankrum, 2006; Piltzen, 2016; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Tobin & McInnes, 2008	NCCA, 2007b;
Process	8	Baumgartner et al, 2003; Drapeau, 2004; Shaunessy-Dedrick, 2015 Tobin & McInnes, 2008; Reis et al, 2007; 2008; 2011. Little et al, 2014;	
Response	7	Ankrum, 2006; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Dickinson & Wright, 1993	NCCA 2007c
Thinking	7	Ankrum, 2006; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015; Drapeau, 2004	
Interest	6	Baumgartner et al, 2003; Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015	NCCA 2007c
Product/ Outcome	5	Piltzen, 2016; Drapeau, 2004; Renzulli, 1988; Dickinson & Wright, 1993; Baumgartner et al, 2003	NCCA, 2007b;
Classroom organization,	5	Ankrum, 2006; Piltzen, 2016; Allington, 2005; Westwood, 2003; Renzulli, 1988	NCCA 2007c
Instruction	5	Baumgartner et al, 2003; Nurni et al, 2012; Renzulli, 1988; Westwood, 2003; Baumgartner et al, 2003	NCCA 2007c
Assessment	5	Ankrum, 2006; Piltzen, 2016; Roe, 2010; Westwood, 2003; Jenkins et al, 2013	
Structure	5	Reis et al, 2007; 2008; 2011. Little et al, 2014; Shaunessy-Dedrick, 2015	NCCA 2007c
Tasks	4	Ankrum, 2006; Baumgartner et al, 2003; Dickinson & Wright 1993; Westwood, 2003	NCCA, 2007b;
Time	3	Ankrum, 2006; Baumgartner et al, 2003; Westwood, 2003	NCCA 2007c
Peer tutoring	3	Allington 2005; Ankrum, 2006; Piltzen, 2016;	
Sequence	1	Ankrum, 2006;	NCCA 2007c
Reading and writing	1	Allington, 2005)	

Note: NCCA (2007b) - *EAS Guidelines*; NCCA (2007c) - *Students with General Learning Disabilities Guidelines*

Content modification was highlighted by eleven studies while eight studies emphasised process and just five highlighted product. Ten studies emphasised choice, teacher support and resources as important DR components. Allington encouraged pupil/teacher collaboration (2005) while Renzulli stressed teachers' choices on implementing differentiation strategies (1988). Nine studies promoted flexible groupwork and eight studies modified dialogue and pace. DR teachers base instructional decisions on student needs, employing communication and collaboration strategies in content, process and product (Section 4.1, Figure 4.2). Seven studies modified responses and thinking and six highlighted interest. Just five studies highlighted the modification of instruction, assessment, structure and classroom management and environment and four studies emphasised tasks. Only three studies specifically mentioned time modification and peer tutoring. However, as many of these components are inter-related and integrated in DR it is not possible to isolate some components from others, e.g. content, process and product modification incorporate instruction, teacher practices, classroom organization and environment components, as well as task, resources, assessment, group-work, dialogue, structure, sequence, thinking, support, and pace modification.

The NCCA propose modification of sequence, interest, access, response and choice for SEN (2007c) and include Westwood's level, structure, teaching style (methods), time and classroom structure modification. The two NCCA guidelines (EAS, 2007c; SEN, 2007b) include most components apart from flexible groupwork, peer tutoring, assessment and thinking. The NCCA recommend that 'lesson content is differentiated to take account of the needs of EAS' (2007b, p. 56) through seven forms of differentiation - tasks, resources, dialogue, support, choice and pace (content and process), and outcome (product). The EAS guidelines promote skipping 'core work and moving straight into extension tasks' 'compacting' whereby students can move faster ...to more advanced work earlier and 'acceleration' where pupils experience the intellectual challenge of older students' in some subjects for specific periods (NCCA, 2007c, p. 59). Meanwhile, similar strategies are employed with gifted and talented students (G&T) in America:

- deleting already mastered material from existing curriculum, e.g. 'Target Grouping' or 'Cluster Grouping' (Firmender et al., 2013, p. 5)
- adding new content, process, or product expectations to existing curriculum
- extending curriculum to provide enrichment activities, e.g. 'compacting
- providing course work for able students at an earlier age or acceleration (Little et al., 2014)
- writing new units or courses that meet the needs of gifted students (Keirouz, 1993)

In a small, qualitative US study, all teachers differentiated process; only two differentiated content and none differentiated the product (Bailey & Williams-Black, 2008). Two teachers incorporated students' readiness and interests to differentiate content. All employed various grouping methods and 'provided additional scaffolding, including content frames, multiple levels of questioning, work stations, and centers to differentiate the process' (Bailey & Williams-Black, 2008, p. 149). Meanwhile, primary and

secondary teachers, in a UK study, struggled to differentiate by content, resource, task, outcome, response and support for EAS, as these students did not wish to receive extra work (Kerry & Kerry, 1997, p. 457). Research has shown that acceleration impacts positively on advanced students' academic achievement (Colangelo et al., 2004).

For students with special educational needs (SEN), Westwood advises teachers to modify the taught curriculum, resources, materials and product, varying pace, time for task allocation, guidance and assessment and flexible grouping (2003). Westwood's guidelines propose modification through content, process and product, providing additional student support for weaker students, rather than what an alternative curriculum provides. There is no one recipe for DR but teachers can differentiate for SEN to EAS through dialectical differentiations – concrete/abstract, simple/complex, basic/transformational, fewer facet/multi-facet, smaller leaps/greater leaps, structured/open, less independence/greater independence, and slower/quicker. Negotiation enables students to become more engaged and possible sources of their own learning (Vygotsky, 1986), as they can choose texts/tasks (Reis et al., 2007, 2008, 2011) to accommodate their interests, incorporating 'flow' (Csikszentmihalyi, 1997) and abilities, and encourage active learning and student autonomy (Queen, 1999; Vygotsky, 1986). Curriculum differentiation meets pupil variance (Farmer, 1996) through the modification of content, process and product.

4.7.1 Content

Content answers the question – 'What is being taught and Why?' Teachers outline clearly what they plan to teach, what learners need to understand and do and what skill/concepts are essential. Teachers may differentiate the content material but also how students can access that material (Ankrum, 2006). Teachers differentiate instruction and content to enable children to make continuous, consistent progress in fluency and comprehension (Reis et al., 2013). The 1999 English Teacher Guidelines state that it is essential that content challenges the pupils (DES). Teachers can differentiate content for advanced readers by using metaphors from students' life/experience to help explain an abstract idea. For struggling learners, teachers can highlight and/or discuss written text or record text that is challenging to learners (Firmender, et al., 2013). Additional differentiated content can include small group/individual/paired instruction, targeted at learners' levels, mini-workshops or discussions on complex issues and key vocabulary lists and definitions to aid understanding, writing or telling a story. Material can be differentiated through visual - videos, photographs pictures, etc., aural – sound, music, and kinaesthetic – dance, simulation, etc., methods. Content modification can include varying levels of abstractness, complexity and variety (Farmer, 1996); e.g. some students can discuss a text extract, others may learn to re-state important facts or sequence, while others may learn to analyse protagonist's characteristics and actions. The next section explores process.

4.7.2 Process

Process answers to the questions ‘How are skills taught? What methods and activities are employed?’ Process covers different types and levels of activities students use to acquire and practice key concepts/skills individually or in flexible groups. Process begins when children stop receiving information and begin to work on ‘sense-making activities’ (Sousa & Tomlinson, 2011) using creative, critical thinking and/or problem solving skills. Process is the time pupils find out what they know, understand and can do. Activities that focus on knowledge, understanding, skill and process are effective when all three factors are integrated. Process incorporates application of abstract thinking skills to student-appropriate content resulting in products at a level appropriate for the students’ abilities and integration of basic skills and abstract thinking skills. Process modification can include varying levels of thinking (Blooms Taxonomy, 1984), creative thinking, open-endedness (no ‘correct’ answer), group interaction, variable pacing and a variety of learning processes (Farmer, 1996). Process is the time students take ownership of knowledge, when they try out new ideas or activities or compare the ideas to previous knowledge and experiences and create new meaning (constructivism) or ZPD (Vygotsky, 1986). Teachers can also differentiate by varying types of teacher support, group work and resources like computer and ICT (NCCA, 2007b).

4.7.3 Product

Product or ‘outcome’ (NCCA, 2004, 2005, 2007), answers to the questions ‘What is known?’ and ‘How can the knowledge be shown?’ It encompasses different ways children demonstrate what they have learned and extend that learning where necessary. The product is what children know, understand, can do, explain, simulate, demonstrate or transfer the learned knowledge to new contexts. Strategies for differentiating products are based on student readiness including tiered levelled products, like assessments, tests, quizzes, design or construction of objects, performance, game, dance, song, etc., while still retaining the same outcomes. Teachers can provide demonstrations of different models of work for students at different levels (Sousa & Tomlinson, 2011). Product modification can include varying levels of transformation and evaluation, as well as real problems, audiences and deadlines (Farmer, 1996).

In summary, DR by modifying content, process and product, utilizes varying levels of texts, support and expectations, curriculum tasks and learning outcomes to accommodate students’ abilities, and interests. DR focuses on enabling learners to study the same curricular content through alternative paths and support to achieve maximum learning (Westwood, 2003) in a positive learning environment.

4.7.4 Learning Environment

The ‘learning environment’ incorporates the school and classroom atmosphere, culture, dynamics and activities and contributes to the effectiveness of the content, process and product. The aim of DR is to establish learner-responsive teacher-facilitated classrooms (Heacox, 2002), where pupils, in response to teachers’ prompting, seek to be independent and self-sufficient learners, taking responsibility for their learning (Lawrence-Brown, 2004). Pilten found that DR provided an active, student-centred learning environment (2016). A differentiated learning environment has four components, where teachers:

- focus on learners’ needs;
- continuously assess learning;
- modify content, process and product in response to pupil variance;
- collaborate with students in the learning process. (Smit & Humpert, 2012; Randi & Corno, 2005; Subban, 2006).

DR views the learning experience as social and collaborative (Vygotsky, 1962), the responsibility of learning lies with teachers and pupils as both are mutually responsible for learning in a reciprocal relationship. Children ‘learn best when they are in a context that provides a moderate challenge’ (Smit & Humpert, 2012, p. 1153), where activities should be slightly in advance of the child’s current level of mastery based on Vygotsky’s ZPD (1986). A DR environment employs assessment as a teaching and learning tool, resulting in texts and activities ‘based on detailed knowledge of children’s reading skills and interests’ (McGeown, 2013, p. 17). DR incorporates modification of the learning environment, as well as content, process and product (Maker, 1986). Six characteristics of a learning environment, associated with motivation to read, are:

- Teachers as reading models
- Book rich classroom environments
- Opportunities to self-select books
- Familiarity with books
- Social interaction with books
- Literacy related incentives that reflect value of reading (Gambrell, 1996).

Positive learning environments enable teachers to facilitate and model reading for children (Ankrum, 2006; Gambrell, 1996), where teachers share their favourite books and their enjoyment of reading with children. Teachers, who read their books during class silent reading time and share their reading interests, are usually more familiar with children’s literature (Cremin et al., 2009). A wide range of different genres and texts is important in the classroom as dominance of reading schemes in junior classes discourages wider reading (Levy, 2009). Access to well-stocked class and school libraries,

where children share their favourite books and recommend books to each other helps to create collaborative learning environments (Kennedy et al., 2012) and social learning (Hall & Harding, 2003; Williams & Baumann, 2008).

Self-selection of different genres and scheduled class-time to read these books is also important (Little et al., 2014; McGeown, 2013). Projects on authors or book series help to familiarize pupils with different styles and structures and external incentives; for example, book vouchers (McGeown, 2013) can help to increase reading motivation. Motivation and praise promotes children's engagement in reading (Ruddell, 1995) and classroom displays of children's work promote engagement (Dolezal et al., 2003). In DR environments, teachers aim to encourage and sustain students' desire to read (Reis et al., 2007; 2008, 2011) and to learn and stimulate and guide the learners, until the love of reading is internalized, resulting in motivated, self-directed, responsible readers (Chapman & King, 2003).

In summary, research has demonstrated that effective literacy teachers employ different strategies in reading instruction as it is the pupils' needs that dictate effective instruction, which is central to DR. A balanced approach incorporating a positive learning environment and careful modification of content, process and product can help to meet student variance. While some researchers found that teachers modified content, process and product (Pilten, 2016; Tobin & McInnes, 2008), Roe (2010), found little evidence of this as teachers focused on activities that resembled state test formats. Firmender et al. (2013) recommended that teachers modify content, process and product to meet the varied reading ranges in each class yet it is unclear whether teachers do so. For this reason, this current research will investigate whether teachers implement differentiation through the modification of content, process and product and the various strategies involved in this modification.

Having briefly discussed some contributory factors to DR the next section addresses possible obstacles to DR implementation.

4.8 Obstacles to DR

Research has identified obstacles to DR as insufficient time and teacher training, class size, class management, planning for and managing differentiation, fear of state assessments and little administrative support and disruptive students as discussed in section 4.4, (Al Otaiba et al., 2005; Calabrese et al., 2005; Edwards et al., 2006; George & Alexander, 2003; Hootstein, 1998; Kerry & Kerry, 1997; Margolis & Nagel, 2006; Sharabi 2009; Torgesen et al., 2007; Wormeli, 2005). However other obstacles to differentiation include lack of teacher confidence and resources, dilution of teacher efficacy, inconsistent personal perseverance, and misuse and lack of knowledge of differentiation strategies. Lack of resources and time to prepare resources were found to be obstacles to differentiation (Hootstein, 1998; Pilten, 2016; Torgesen et al., 2007) in terms of cost for teachers as the additional work was more extension rather than enrichment (Kerry & Kerry, 1997).

Allington identified 'time' as an important component of literacy (2002). A report on Curriculum Overload in Primary Schools (NCCA, 2010) stated that teachers identified time as a main challenge in implementing the 1999 PSC (DES) in two curriculum reviews (NCCA, 2005; NCCA, 2008a). The 1999 PSC (DES) recommended 52% of weekly teaching time – 10.5 hours - to Language and Mathematics. In 2012, weekly literacy teaching time increased to 8.5 hours for First – Sixth Classes arising from the National Strategy (DES, 2011). Effective literacy teachers provide substantial blocks of time for literacy (Kennedy et al., 2012) and engage students in literacy activities for over three hours daily (Allington, 2002); While 'attention level, text length, and depth of lesson focus ... determine the length of time' for literacy lessons (Ankrum & Bean, 2008, p. 140), lack of time is an obstacle to DR.

Class management was a main obstacle (Moody & Vaughn, 1997; Schumm et al., 2000) as teachers had difficulty maintaining momentum for all ability groups at once; matching tasks to pupils' needs; keeping all children on task and beginning differentiated work with more able students amid demands of help from other pupils (Kerry & Kerry, 1997). Planning for and managing differentiation, fear of state assessments, and little administrative support were obstacles in other studies (Hertberg-Davis & Brighton, 2006; Holloway, 2000; Latz et al., 2009; Moon et al., 2003; Pilten, 2016; Reis et al., 1993, 2004; VanTassel-Baska & Stambaugh, 2005). While teachers accept the necessity of addressing learner variance in the regular classroom, they seldom plan differentiation to achieve that aim (Hootstein, 1998; Roe, 2010). Teachers may be knowledgeable in differentiation but differentiation when employed is more reactive rather than planned and substantive and teachers seldom incorporate culturally and racially sensitive instruction (Deal & Peterson, 1999; Pilten, 2016; Roe, 2010). This may be due to schools' culture, rituals and traditions (Hawkins, 2009). When teachers do adapt their teaching, they usually just support struggling readers (Hootstein, 1998; Roe, 2010). Some teachers do not identify key concepts, ideas, and skills for differentiation and appear to sacrifice student understanding for curriculum coverage (Schumm & Vaughn, 1995). Some teachers are unskilled in the area of literacy (Torgesen et al., 2007). DR focuses on concepts, emphasizing understanding and sense-making, not retention and regurgitation of fragmented facts.

Few teachers provide work for advanced students (EAS) in regular classrooms (Hootstein, 1998, Kerry & Kerry, 1997; Roe, 2010; Westberg et al., 1993), so EAS can be disadvantaged in regular classrooms. Westberg et al. found there was no differentiations in 84% of instructional activities for gifted and talented Third-Fourth Grade pupils in regular classrooms in a classroom practices observation study (1993). Primary teachers in a UK study found that some EAS did not want to do different work and resented being set more demanding tasks than their peers (Kerry & Kerry, 1997). Teachers struggled to differentiate by content, resource, task, outcome, response and support and experienced procedural and strategic difficulties in implementing differentiation for EAS not previously acknowledged in literature (Kerry & Kerry, 1997). Teachers found that open-ended and

cognitively demanding questions, learning contracts, extended worksheets and homework provoked negative reactions from some EAS, as they believed it caused alienation from peers. Tasks with no single correct solution can help develop reasoning skills but can result in students feeling demoralised or even cause divisiveness in mixed ability groups if not managed carefully by teachers (Kerry & Kerry, 1997, p. 455). Self-pacing by students can be effective in developing 'ownership of learning, time-management skills' and motivation but can also encourage underachievement from more 'idle' or less motivated students (Kerry & Kerry, 1997). Negative teachers' expectations of less able students resulted in differentiation strategies and groupings, granting more able students more access to correct answers and less able students less access (Pollard, 1994). Here, the desired outcomes of progress and improvement were negated as classroom organisation ensured that children could only continue to perform well or badly according to teachers' expectations (Pollard, 1994). Standards will not rise until teachers expect 'more of able and disadvantaged children' (Alexander et al., 1992, p. 32). Specific skills are required to aid student motivated students (Kerry & Kerry, 1997) to help students record classroom tasks responses in various media and may require additional assessment work on topics in different formats (Kerry & Kerry, 1997). Role-play also 'may stretch teachers' management skills while some students may be too 'too shy and vulnerable to respond' (Kerry & Kerry, 1997, p. 455).

Other obstacles included lack of promotion of differentiation, insufficient differentiation training in ITE (Holloway, 2000), inconsistent on-going CPD (Hawkins, 2009; Pilten, 2016); and little collaboration with teachers and special educators (Hootstein, 1998). Teachers also wanted more support from administrators, parents and colleagues to implement changes (Hootstein, 1998; Pilten, 2016). Over 50% of 284 teachers indicated that staff development would be beneficial and over 30% indicated that school-wide discussion of policies would improve teachers' abilities to meet student needs (Hootstein, 1998). Teachers were critical of differentiation training workshops provided, as there was too little collaboration time to devise relevant differentiation strategies. Lack of teacher confidence, dilution of teacher efficacy and personal perseverance' (Hawkins, 2009, p. 13), can result from inconsistent differentiation training and support. Teachers also appear to view pupil variance as problematic and integration as onerous, so teachers' motivation to implement differentiation must be researched (Smit & Humpert, 2012). Training in differentiation implementation is important (Firmemder et al., 2013; Little et al., 2014; Pilten, 2016; Reis et al., 2007, 2008, 2011), as it requires considerable skill from teachers (Kerry & Kerry, 1997).

In summary, different research highlighted different obstacles. DR training could help teachers deal with most obstacles to DR including lack of time, class size, lack of support and resources, class management and student misbehaviour. Having briefly discussed obstacles, the next section explores DR facilitating factors.

4.9 Facilitating Factors

Several factors facilitate DR, including positively influencing student motivation and academic achievement, providing an active child-centred environment and class integration group-work (Pilten, 2016), matching appropriate texts were with pupils (Little et al., 2014; Reis et al., 2007; 2008, 2011); providing choices connected with increased focus and concentration (Tobin & McInnes, 2010). Ankrum's (2006) facilitating factors included multiple levels of questioning (Bailey & Williams-Black, 2008; Hootstein, 1998); modelling (Hootstein, 1998; Williams & Baumann, 2008); student peer collaboration (Pettig, 2000); learning contracts, making time to tutor learners, peer tutoring, teacher and student-led discussion (Shaunessy-Dedrick et al., 2015), projects, and compacting, (Hootstein, 1998); scaffolding, work stations/centers and content frames (Bailey & Williams-Black, 2008) and 'continuous formative and summative assessment addressing children's needs facilitates differentiation (Kennedy et al., 2012).

Research on 284 teachers in twenty-eight US schools found that 'structuring small group work, making time to tutor students and using peer tutoring' were the main facilitating factors in differentiation (Hootstein, 1998, p. 5). Teachers chose group methods as the most effective open-ended format activities (Hootstein, 1998; Bailey & Williams-Black, 2008), where specific class time was scheduled for individual and small group tuition (Hootstein, 1998). Meanwhile, small group instruction was used by effective differentiation teachers (Ankrum, 2016; Sizer, 1999) and by effective literacy teachers (Block et al., 2002, 2000; Pressley et al., 1998). Effective teachers were found to be experts at facilitating different groupings in class (Pressley et al., 2001; Taylor et al., 2000; Wharton-McDonald et al., 1998).

Peer collaboration was a major facilitating factor in implementing differentiation in a US five-year-study (Pettig, 2000) and teachers chose closed-ended activities for peer tutoring in small groups with common or multiple goals (Hootstein, 1998). Reading resources and materials, based not just on children's ability levels (Allington, 2005, 2006; O'Connor et al., 2002), but also on interest levels (Csikszentmihalyi, 1997; Little et al., 2014; Shaunessy-Dedrick, 2015) encourage discussion and peer learning.

Multiple levels of questioning (Ankrum, 2016; Bailey & Williams-Black, 2008; Hootstein, 1998) in all groupings were major facilitating factors in differentiation. Oral language was used in teacher and student-led discussion, modelling, lecture with question and answer (Ankrum, 2016; Hoostein, 1998) and scaffolding (Ankrum, 2016; Bailey & Williams-Black, 2008; Nurmi et al., 2012). Exemplary teachers employed scaffolding/coaching, 'prompting children to use a variety of strategies as they engaged in reading during small-group instruction or one-on-one reading time' (Taylor et al., 2000, p. 136). Effective literacy teachers provide continuous purposeful language (Dolezal et al.) and focused feedback (Hall, (2013, p. 529) and 'teacher talk' promoting independent reading strategies (Ankrum, 2006).

Research found that modelling (Ankrum, 2006; Bailey & Williams-Black, 2008; Hootstein, 1998) and learning contracts were facilitating factors in DR (Hootstein, 1998). In two longitudinal studies on effective reading instruction, effective teachers demonstrated modelling (Williams & Baumann, 2008) and exemplary teachers modelled useful strategies that proficient readers employ (2002, p. 743). Facilitating DR factors include close observation of children's reading, resulting in new goals and emphasis in instruction as required (Clay, 2002; Jenkins et al., 2013) and informal child/teacher conferences on text selection, reading strategies and challenges (Ankrum, 2006; Little et al., 2014; Shaunessy-et al., 2015).

Classroom organisation, encouraging self-paced student work featured facilitating factors of work stations/centers and content frames (Bailey & Williams-Black, 2008; Jenkins et al., 2013), while independent projects, experiments, curriculum compacting and graphic organizers featured in other studies (Hootstein, 1998;Sizer, 1999). Exemplary literacy teachers demonstrate excellent classroom management skills (Ankrum, 2006; Wharton-McDonald et al., 2001), including coordinating instructional groups (Hall & Harding, 2003; Nurmi et al., 2012). Teachers' classroom management strategies, pedagogical and content knowledge help sustain teacher efficacy (Hawkins, 2009). Teacher support increases efficacy (Hoy, 2000) and teacher-peer-collaboration helps differentiation planning (Fogarty & Pete, 2011; Tobin & McInnes, 2008). Using graduated worksheets proved effective in helping students' self-pacing and in matching tasks to pupils (Ankrum, 2006; Pilten, 2016) and teachers employed a variety of materials in differentiation implementation (Hootstein, 1998). Children are encouraged to work independently and be self-regulated (Hall, 2013, p. 527) in effective DR classrooms (Ankrum, 2006; Pilten, 2016).

Effective DR teachers employ guided practice (Jenkins et al., 2013), varied levels of fiction/non-fiction texts, materials and different genres (Little et al., 2014; Reis et al., 2007, 2008, 2011; Shaunessy-et al., 2015), as well as small group instruction curriculum compacting, graphic organizers, immediate feedback and judicious review (Ankrum, 2006;Sizer, 1999). Effective teachers are enthusiastic about reading (Ankrum, 2006; Williams & Baumann, 2008) and are compassionate, warm and caring (Allington & Johnston, 2002) and provide supportive classroom environments, with areas for reading, exploring and cooperative learning (Dolezal et al., 2003).

A ten-year-study, on effective reading instruction by exemplary teachers, highlighted six elements - time, texts, teaching, talk, tasks and testing (Allington, 2002). Effective teachers encouraged children to read whole books in a classroom environment of 'managed choice' (Allington, 2002, p. 745) active reading, extensive reading with a wide selection of books.

Different assessment strategies, (comprehension questions, writing portfolios and regular parent conferences), were employed by DR teachers (Ankrum, 2006; Pilten, 2016; Nurmi et al., 2012; Tobin & McInnes, 2008) and the best US literacy teachers (Wharton-McDonald et al., 1997). Effective

teachers employed a ‘rubric-based evaluation’ system to award results (Allington, 2002, p. 746) and evaluated students’ work and awarded grades based more on effort and improvement rather than achievement incorporating Dweck’s ‘Growth Mindset’ (2012).

In summary, many different factors facilitate DR including assessment, flexible groups, modelling, multiple levels of questioning and small group instruction and activities. DR is facilitated by a balance of methods, as required by children’s needs and instructional adaptability to meet pupil variance guided by continuous assessment.

4.9.1 Assessment

Assessment is a teaching tool and a measurement (Smit, 2009; Hall, 2002), providing information that informs relevant instruction (Taylor et al., 2000), aimed at understanding and improving children’s learning (Angelo, 1995). Assessment and DR are inseparable, a partnership, based on mutual trust and understanding (NCCA, 2004) between teacher and child. Assessment informs instructional strategies, content, processes, product, groupings and teacher support and is:

the process of generating, gathering, recording, interpreting, using and reporting evidence of learning in individuals, groups or systems, which relies upon a number of instruments, one of which may be a test. Educational assessment provides information about progress in learning (NCCA, 2007, p. 4).

The 1999 PSC English Teacher Guidelines state that ‘assessment is an integral part of teaching and learning in English’ (NCCA, p. 9). The 2009 NAERM report recommends that assessment inform DR (Eivers et al., 2010). Learning is most effective when teachers assess learners’ present levels of functioning, matching learning opportunities and helping learners progress towards higher functioning levels (Reis et al., 2011). Learners’ needs and strengths should be the primary consideration in reading instruction (Clay, 2002). DR teachers use continuous informal, formal and diagnostic reading assessments to identify students needing extra support and learners requiring acceleration. This encourages students to demonstrate what they know, understand and can do, rather than fear the traditional assessment at the end of a teaching unit. Assessment should consider the reader, text, reading activities and the context in which these activities occur as an interactive process (Walker, 2004).

Differentiated instruction in reading requires that teachers assess students’ current levels of reading achievement and match reading content and instruction to the needs of students to enable all students to make continuous progress. Many different methods exist to differentiate reading instruction (Firmender et al., 2013, p. 6).

DR incorporates both teacher-led and child-led assessment methods and incorporated in NCCA continuum of assessment methods (see Figure 4.5).

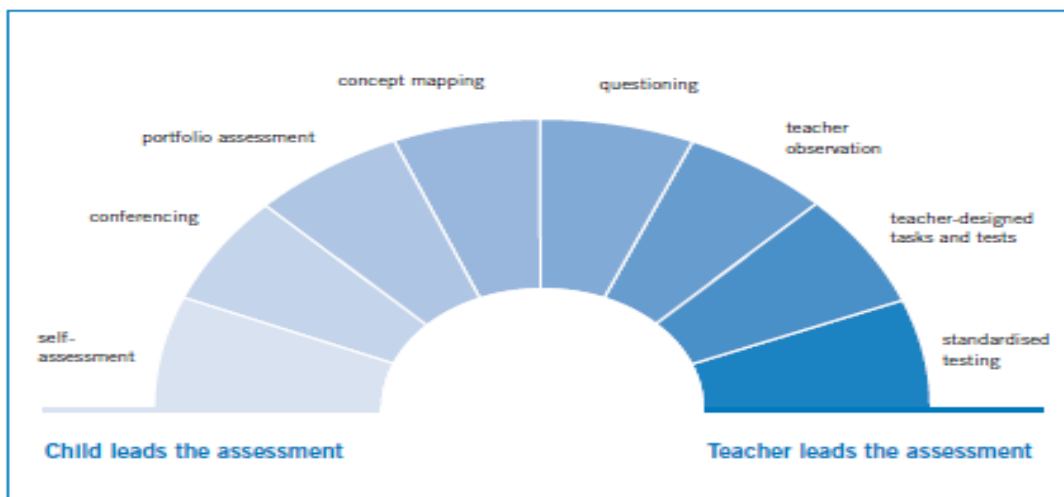


Figure 4.5: A Continuum of Assessment Methods (NCCA, 2007, p. 13)

Teachers need to devise challenging tasks and questions that encourage and motivate students to communicate and explain their thinking (Szetela & Nicol, 1992). A variety of assessment strategies, including comprehension questions, writing portfolios and regular parent conferences were employed by exemplary US primary-grade literacy teachers (Ankrum, 2006; Wharton-McDonald et al., 1997). Continuous informal (formative or assessment for learning - AfL) assessment leads to responsive, effective teaching (Pressley et al., 2001; Taylor et al., 2000). In DR, teachers use both formal and informal assessment data in conferencing, portfolio assessment, concept mapping, high and low order questioning, comprehension development, teacher observation and teacher designed tasks and tests and student self-evaluation. Formal (summative or assessment of learning - AoL) assessment is employed for diagnostic and standardized testing.

The Texas Education Agency (TEA) is responsible for public elementary education in Houston. It publishes student assessment results and overviews, including the State of Texas Assessments of Academic Readiness (STAAR), and the Texas English Language Proficiency Assessment System (TELPAS). STAAR, implemented in spring 2012, incorporating annual assessments for reading and mathematics, Grades 3–8, held every Spring. Progress made by limited English proficient (LEP) students in learning English is assessed by TELPAS. All Houston children sit state assessments as part of the 2001 NCLB and the 2015 ESSA standards implementation.

Assessment is part of an instructional cycle that supports text choice, activities and instruction modification in response to children's readiness, and needs (Ankrum, 2006). Opitz & Ford's instructional cycle (2008) suggests that assessment continuously influences instruction when teachers use assessment data to adjust curricular activities based on student requirements and needs (Mitchell and Hobson, 2005).

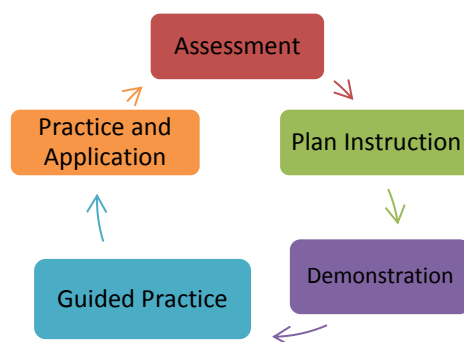


Figure 4.6: Instructional Cycle Informed by Assessment (Opitz & Ford, 2008, p. 28).

The goal of assessment is to record student growth rather than mistakes. Effective teachers closely observe pupils' reading and change direction or emphasis of learning, as required by readers' individual goals (Clay, 2002). Reading assessment must include the purposes and uses of reading (Kennedy et al., 2012). Teachers can use assessment information in five ways:

- 'Plan new learning
- Share with the children what the learning will involve
- Explore with pupils what successful learning looks like
- Use appropriate strategies and methodologies
- Gather/record information about what and how pupils are learning' (NCCA, 2007, p. 8).

There is an interesting dichotomy here, as differentiation can be assessed but also assessment can be differentiated through content, process, and product. Assessment content can be differentiated to reflect relevant students' language and comprehension levels. Appropriate context avoids confusion and non-participation when children understand assessment tasks. Assessment process and product include assessment tools and activities, matched to pupils' readiness levels, so children view assessments as learning tools rather than tests. Pupils can discuss with teachers the best way of bridging skill gaps and learning knowledge in a supportive environment. Differentiated products enable pupils to demonstrate their understanding through role-play, demonstrations, explanations, musical creations, read-alouds, and pictures, etc. (Chapman & King, 2003).

Dynamic Assessment (DA), already discussed in Section 2.5, involves the application of the concept of Vygotsky's ZPD in the dialectical process between instruction and assessment in joint activity, revealing children's fully developed as well as still forming abilities (Vygotsky, 1986). In DR, DA can be implemented in both reading-aloud activities and small group discussions where teacher and children interact/collaborate as they jointly complete tasks and work through difficulties that arise (Poehner & Lantolf, 2010).

This section briefly discussed assessment in DR as an important facilitating factor. The next section addresses flexible group work, a very important DR component.

4.9.2 Flexible Group-work

Flexible group-work improves reading skills and DR (Ankrum, 2006; Bailey and Williams-Black, 2008; Pilten, 2016; Nurmi, et al., 2012; Tobin & McInnes, 2008). DR incorporates different groupings, including think-pair-share, jigsaws, compacting, target grouping (Firmender et al., 2013), connected literature circles (Ankrum, 2006), focused readers' workshops (Opitz & Ford, 2008) and tiered group assignments (Jenkins et al., 2013). Children work with different reading partners, performing different roles within groups/teams (Grosse Pointe, 1999) exploring texts together, listening to each other, discussing and sharing ideas, and creating meaning together in social interaction (Vygotsky, 1978). DR groups highlight readers' needs and 'focus on a particular practice' (Jones, Clarke & Enriquez, 2010, p. 16).

It is best to employ a variety of grouping formats... Groups may change based on skill or strategy needed... Individualized instruction can be arranged to meet the needs of struggling or accelerated readers, in addition to whole class and small groups (Ankrum & Bean, 2008, p. 139).

Teachers select appropriate instruction within a flexible group situation, to match pupil variance and curricular requirements (Ankrum, 2006). Some capable readers require only guidelines, while other readers need the text/concepts broken into achievable steps. In DR, children move groups when they demonstrate reading progress or difficulties. Flexible, small groups accommodate weaker readers where re-teaching knowledge and skills have the highest impact. Some children express themselves more confidently in small groups (Courtney & Gleeson, 2007). Flexible, small mixed/same ability/interest discussion groups help students comprehend texts and make connections to previous knowledge and experiences, e.g. literacy circles. Traditional whole class instruction can be used for lesson introduction and review, enabling pupils to share ideas, and results. Paired and independent work facilitates opportunities for independent thought and reflection, enabling pupils to work with 'knowledgeable peers' (Vygotsky, 1986).

Flexible, mixed ability groups facilitate peer teaching and text discussion as advanced students can provide valuable ideas to stimulate debate as '...whoever explains, learns...' (Sousa, 2011, p. 101), challenging pupils within their ZPD (Vygotsky, 1986) to develop higher-order thinking skills. Collaborative strategies help pupils learn to work together (Belbin, 2012). Same ability groups enable children to work together at a similar pace (Jenkins et al., 2013) and child/teacher conferencing provide scaffolding opportunities (Little et al., 2014; Shaunessy-et al., 2015). Some teachers perceive same ability groups as the only method of differentiation (Hiebert, Wearne, and Taber, 1991) but DR encompasses a variety of grouping formats (Ankrum, 2006; Tobin & McInnes, 2008). Continuous, whole class teaching, using similar materials and pacing does not meet all readers' needs (Schumm et

al., 2000), resulting in pupils with similar assessment scores but different needs (decoding, fluency, or comprehension) receiving identical instruction (Hiebert, et al., 1991). DR teachers employ a variety of grouping - whole group, small group, and individual instruction (Ankrum, 2006; Pilten, 2016; Nurmi, et al., 2012; Tobin & McInnes, 2008) and use flexible small groups more than whole class groups (Taylor et al., 2000), providing individual coaching (Pressley et al., 2001), and facilitating pupils as they monitored children's thought processes (Wharton-McDonald et al., 1998).

The 'Learning in Focus: The Primary Classroom: Insights from the Growing Up in Ireland Study' reports a lower incidence of group-work and active learning methods than had been advised by the 1999 PSC (DES) and the pre-dominance of whole-class teaching in primary schools (McCoy, Smyth & Banks, 2012). This supports findings from previous studies which drew on different data sources (Murphy, 2004; NCCA, 2005, 2008). It also reinforces findings that classroom practice was traditional, that instruction appeared 'un-balanced' in nature (Pressley, 2002) and that teachers demonstrated a lack of balanced reading instruction (Concannon-Gibney & Murphy, 2012). However, McCoy et al. (2012) suggest that more recent teacher graduates use more active learning methods than more experienced teachers. This suggests that active learning methods training in ITE seems to be having a positive influence. Also, group-work and more active teaching methods were more prevalent in girls' fee-paying schools, gaelscoileanna and non-disadvantaged schools, as well as in smaller classes, indicating class size constraints (McCoy et al., 2012), as discussed in DR obstacles (Section 4.9). McCoy et al. suggest that group work and pair-work was seen as 'easier' to manage with more engaged groups of students (2012). There is 'no one right way to group students ... each organisational strategy has its merits and pitfalls' (NCCA, 2007, p. 56). Flexible, mixed ability groups facilitate peer teaching as EAS 'contribute valuable ideas to stimulate debate and discussion' whilst learning that 'other students have valuable ideas to contribute' (NCCA, 2007, p. 56). Collaborative strategies broaden children's understanding and increase children's self-esteem, self-confidence and motivation to learn (DES, 1999b). Group learning enhances academic and cognitive development (Gilles & Ashman, 2003) and learning and achievement (Johnson et al., 2000). Group-work promotes transfer of learning (Brandon & Hollingshead, 1999) and helps critical thinking skills' development (Cockrell et al., 2000). Group learning helps develop social skills, e.g. leadership, communication, organization and problem-solving (Cheng & Warren, 2000). Co-operative group learning results in higher achievement across all subjects and for all ages (Johnson et al., 1981).

Potential barriers to group work include individual domination, conforming to peer pressure or weak members' over-reliance on fellow members (Burke, 2011). Teachers must plan and moderate group-work so that pupils have a common aim achieving together (Vrhovec, 2015) under careful teacher guidance (Taylor et al., 2002). More guidance on grouping learners and providing DR will help teachers (Schumm et al., 2000). Teachers must model appropriate behaviour and group skills, to maximise group-work benefits and encourage shared responsibility (Ankrum, 2006).

In conclusion, flexible groups and small group work are an important component of DR providing opportunities for learning through discussion, imitation, listening and peer-learning. Many different factors facilitate DR including assessment, flexible groups, and modelling skills, influenced by children's needs. The next section addresses elements associated with Vygotsky's ZPD that are relevant to DR.

4.10 Elements Associated with Vygotsky's ZPD that are Relevant to DR

This study sought to investigate teachers' conceptions and implementation of DR. Some elements associated with Vygotsky's Zone of Proximal Development (ZPD) are relevant to DR implementation. Chaiklin cautions teachers to use 'assisted instruction, scaffolding' to describe general teaching and learning practices including concepts, skills performance which do not adhere to Vygotsky's developmental theory (2003, pp. 13-15). The ZPD involves instruction/teaching that is 'focused on maturing psychological functions' that are relevant for development in specific age periods. Frequently the ZPD is incorrectly used to describe individual, achievable goals and tasks. DR teachers use oral language and verbal scaffolding (Ankrum, et al., 2013) to bridge the gap between what is known and what the child is able to learn, to guide and extend student learning (Mercer, 1995). Oral language is an important tool in DR. Modelling or imitation is an internal restructuring and form of practice, based on understanding rather than thoughtless imitation and can be used as a bridge for internalising cultural information (Robbins, 2001). DR teachers consistently model reading, comprehension and discussion strategies for children in DR. Collaboration is a key element of learning as children are guided through collaboration within their ZPD by teachers focusing on the relationship between instruction and development (Chaiklin, 2003). 'Language, culture and the brain are inextricably linked through the concept of meaning...attending to the meaning and context as we read... we experience them, in this way they become more meaningful' (Hall et al., 2014, p. 116). In DR, children link texts to experiences, previous learning and context during reading and meaningful group discussion, deepening their understanding of texts. This section explores the DR elements of oral language, modelling, collaboration, comprehension and meaning-making and how they relate to the ZPD.

4.10.1 Oral Language

Oral language and early literacy experiences are the foundation of all literacy achievement. (Konza, 2014, p. 164).

Oral language underwrites comprehension (Nation & Snowling, 2004) and is 'a crucial factor in the development of the child's cognitive abilities' (DES, 1999b). The 2015 PLC acknowledges the primary role of language in learning and teachers must 'integrate the language knowledge and

experiences that children bring to school... to make and explore meaning as well as receive and create it' (DES, p. 7). The NELP called for 'a need for more careful study of the role of oral language in literacy development' (2008, p. 78). Oral language is not part of the NRP's 'five pillars' (2000), but teachers must acknowledge the significance of oral language skills (Dickinson et al., 2010), that provide the basis for learning to read (Konza, 2014). The interconnectedness of oral language, reading and writing demonstrates that 'two clusters of oral language abilities' – phonological awareness and general language abilities including vocabulary and syntactic knowledge are 'predictive of later reading ability' (Kennedy et al., 2012, p. 293).

Communication and influencing individuals is the main function of speech (Vygotsky, 1934). The main elements of language learning are meaningful communication, interaction with others, exposure to language, and implicit and explicit processes and approaches (Murphy, 2015). Oral language is the main mediator of culture and helps children structure, evaluate, describe and control their experiences (Archer, Cregan, McGough & Shiel, 2012). Three elements of oral language impact on comprehension: listening comprehension (Nation & Snowling, 2004), vocabulary knowledge, (Scarborough, 2001; Snow, Burns & Griffin, 1998) and semantic skills (Roth et al., 2002). Listening to children is good pedagogical practice (Dunn, 2015) informing teachers of children's understanding, as the relationship between vocabulary knowledge and comprehension is developmental. The 1999 Curriculum made no reference to oral vocabulary (DES), which is strongly associated with reading comprehension and is an indicator of future literacy outcomes (Kennedy et al., 2012; Snow & Oh, 2011). Vocabulary is very important in literacy instruction (Neuman, 2011) and is an instructional investment in children's reading (Juel, 2006). Teachers are advised to teach vocabulary before, during, and after reading a text (Healy, 2015; Mehigan, 2009) using the three 'tiers of vocabulary' – basic (8,000 family words); high frequency and utility words (7,000); and specialised words (400,000), where content-specific words are best learned and explored in the relevant context enhancing comprehension (Beck, McKeown & Kucan (2002). Oracy incorporates the 'integration of reading, writing, listening and speaking' (DEIS, 2005c), encompassing the four types of vocabulary: listening; speaking; reading and writing which are acquired both incidentally and intentionally (Mehigan, 2009 through social interaction (Vygotsky, 1986). Varied word strategies are recommended (Mehigan, 2009) so that word consciousness (knowledge and disposition) is incorporated into daily literacy class (Healy, 2015).

A review of reading research in the US found that effective literacy teachers highlighted oracy, scaffolding and appropriate intervention to ensure children's 'acquisition of some skill or concept' (Hall, 2013, p. 526). Effective literacy teachers integrate oracy, reading and writing in a collaborative environment and teach language conventions through interaction with whole texts to help children understand relevance and context towards the development of meaningfulness (Hall, 2013). Teachers should promote purposeful talking (Dolezal et al., 2003), listening and reflecting, providing sufficient time for considered responses, using open-ended questioning to develop skills, e.g. analyse, predict,

synthesise, describe, present, debate and summarise (DES, 2010). In DR, teachers emphasise context or word ‘sense’ in read-aloud sessions and in small group discussions where children engage in short, focused, meaningful discussions on texts, incorporating linkages with other texts, previous experiences and cultural activities, helping students to reach higher levels of understanding than they would reach reading independently. Teachers can locate where children are within the ZPD by a combination of methods – discussion, leading questions, observing progress, providing hints, collaboration and imitation.

4.10.2 Modelling/Imitation

Modelling shares with students not only what the teacher thinks, regarding the content to be learnt, but also to engage the teacher in the process of communication and collaborative learning’ (Smit & Humpert, 2012, p. 1153).

Modelling/imitation involves teachers/students demonstrating desired learning behaviour/skills to children e.g. thinking-aloud, listening respectfully to others’ opinions, discussing texts, comprehension skills, collaborative group skills. Children learn reading skills through imitation and collaboration, resulting in reduced direct instruction from the teacher and increased student involvement and meaning-making. Children do not just copy the teacher’s actions but extend and transform the modelled activities by imitation (Lantolf, 2000) leading to development of concepts/ideas resulting in increased understanding. A Literacy and Numeracy inspectorate report recommends that teachers model specific reading skills, developing children’s reading skills and providing a wide range of appropriate literacy resources (DES, 2010, p. 5).

Scaffolded instruction or the ‘Gradual Release of Responsibility Model’ (GRRM, developed by Pearson and Gallagher (1983), for the instruction of reading comprehension indicates a progression from modelling to independent work. This interactive approach is relatively easy to implement and can empower children through model-shared-reading and guided reading in small groups to sustain reading. Teachers first activate students’ prior knowledge through brainstorming, discussion, conferencing, etc. Then, teachers teach the required skill explicitly using a gradual release of responsibility process by:

- Modelling the skill first and employing ‘think-aloud’.
- Guided Practice - the skill is practiced in a large group with the teacher directly participating for direction and support.
- Semi-independent practice - in small groups children practice the skill with direct teacher support.
- Application of Skill - children practice the skill independently and apply the skill to new situations under direct teacher support (observation) and/or indirect teacher support (reviewing students’ written responses, etc.).

Fisher and Frey summarised the two-way interaction and mentoring relationship between pupil and teacher where the responsibility of learning shifts from the teacher to the child in the ‘model, share, guide and apply’ or ‘I do, We do, You do’ (2007),. as seen in Figure 4.7, below.

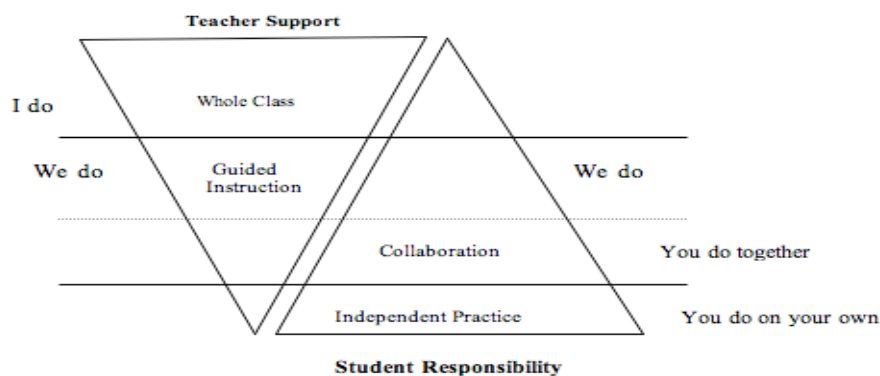


Figure 4.7: Fisher and Frey (2007) Adaptation of the ‘**GRRM**’ (Pearson & Gallagher, 1983).

Children learn to transfer learning in new using multiple contexts to develop new knowledge (Gick and Holyoak, 1983). Modelling was the most popular differentiation method in a US study of 284 teachers (Hootstein, 1998). In a research review on elementary teachers from 1990-2007, effective language-arts teachers demonstrated modelling, guided reading and explicit instruction whilst highlighting student independence and creating a social learning environment (Williams & Baumann, 2008). Allington’s ten-year research on effective reading instruction demonstrates that exemplary elementary classroom teachers model useful strategies that proficient readers employ (2002). Self-regulating decoding and composing strategies were modelled to specific students and to the whole class, as required, with daily purposeful student talk and discussion on ideas, concepts, hypotheses, strategies and text responses encouraged and modelled (Allington, 2002). Learning was consolidated through peer clarification, new task completion and transformation of understanding and meaning through collaboration. In DR, children use imitation in collaboration with more competent peers/adults (Zaretskii, 2009), leading to development of concepts/ideas resulting in increased understanding incorporating listening, questioning, summarising, evaluating and clarifying in small discussion groups developing discursive skills through collaboration.

4.10.3 Collaboration

The collaborative child/teacher interaction is a reciprocal learning experience (Shambaugh & Magliaro, 2001) and pupils work with teachers as collaboratorating in learning to create meaning together in social interaction (Vygotsky, 1986). Shared responsibility among participants to make learning meaningful is vital (Slavin, 1995), where children explore texts together, listen to each other, discuss and share ideas, work with different reading partners, and perform different roles within groups/teams (Grosse Pointe, 1999). Effective differentiation involves ‘learners helping each other;

teachers providing reinforcement, and... learning in multiple modes' (Hootstein, 1998, p. 5). Collaborative strategies reflect the 'different personalities and particular abilities' of group members creating interactive exchanges that 'broaden and deepen children's understanding' (DES, 1999b, p. 17) and are 'efficient and effective in promoting mastery of knowledge and skills' (Sencibaugh & Sencibaugh, 2016, p. 357). Collaboration helps children learn to work together (Belbin, 2012) and enhances reading comprehension (Gilles, 2003).

In a collaborative environment, students share learning with each other and pose questions to peers and to the teacher where open-ended questions ignite convergent thinking, rather than the traditional teacher-posed single correct answer (Ankrum, 2006). Convergent thinking helps towards understanding and internalization requiring clear goals, teacher facilitation and modelling. Effective communication, questioning and prompts are important in the teacher-pupil interaction facilitating students to become more self-reliant learners and encouraging students to make explicit their understanding or 'meaning-making'. Collaboration can include paired work e.g. think-pair-share, conferencing, (Little et al., 2014; Reis et al., 2011; Shaunessy-et al., 2015), group work, e.g. snowball, literacy circles, compacting, target grouping (Firmender et al., 2013), connected literature circles, focused readers' workshops (Opitz & Ford, 2008), tiered group assignments, projects, peer teaching, jigsaw, (Ankrum, 2016; Tobin & McInnes, 2008). Transactional strategies instruction (TSI) encompasses collaborative mixed ability group-work helping readers make meaning (Courtney & Gleeson, 2007). In DR, teachers are encouraged to collaborate, facilitate, coach and support children, rather than dispense facts and information (Heacox, 2002), observing and meeting children's learning needs in organized classrooms (Fountas and Pinnel, 1996). Teachers as collaborators share resources, work with other classes/teachers/specialists towards maximizing student instruction.

Children are inspired by listening to peers' contributions to discussion (DES, 1999) and learn through and about, team-work and compromise, through collaborative learning. The 'Learning together' (LT) programme, revealed that children, engaging in collaborative group work, in reading comprehension and subsequent writing activities, showed higher quality written summaries of the text they had read than the control group in individual tasks (Rojas-Drummond & Sylvia, 2014). Co-operative discussion can be employed in 'exploratory talk', in which partners engage critically but constructively with each other's ideas (Mercer, 2000). Collaboration involves children working as a group rather than in a group, developing their language and team skills, building positive relationships (Ankrum, 2006; Tobin & McInnes, 2010). Peer collaboration featured prominently in one US five-year-differentiation study (Pettig, 2000). In a previous study, teachers chose closed-ended activities for small groups with common or multiple goals and peer tutoring (Hootstein, 1998). Peer learning and discussion were aided by reading resources and materials, based on children's ability levels (Allington, 2005, 2006) and interest levels (Little et al., 2014; Reis et al., 2007, 2008, 2011; Shaunessy-et al., 2015). However, much classroom discussion can be off-task, unhelpful and of little informative value (Galton, Simon &

Groll, 1980), children need to learn how to work collaboratively (Sencibaugh & Sencibaugh, 2016), so learning results in higher achievement for individuals and the groups. This can be achieved by teachers modelling and moderating collaborative behaviour.

Teachers can establish children's ZPD through collaboration using the leading activity of discussion. Assisted performance through paired reading aloud or through small group dialogue, helps teachers develop understanding of children's cognitive development (Costley, 2012). Mutual assistance creates new ways of thinking and talking about texts in teacher-mediated open-forum discussions where teachers can help students make meaning (Miller, 2003).

4.10.4 Comprehension and Meaning-Making

Comprehension is the ultimate goal of reading and 'requires engagement with text at a deep level, and an array of skills that go far beyond simple word recognition' (Konza, 2014, p. 163). Reading is a 'constructivist interactive (process)... where readers actively construct meaning from text' (Kennedy et al., 2012, p. 10), incorporating interpretation, previous experience and prior knowledge (Pardo, 2004). Readers use several comprehension components (Duke, 2005), including vocabulary, grammatical understanding, memory, inference-making, comprehension monitoring and background knowledge (Irwin, 1991), whilst reading and reflecting on texts after reading, engaging with deeper layers of meaning (Tennent et al., 2016).

Teachers can teach comprehension strategies employed by proficient readers, to help readers engage with texts (Ankrum, 2006). Unfortunately, these effective strategies are not used by weaker readers (Pressley et al., 2007; Torgesen, 2000). Teachers can plan comprehension strategies for pre-reading (introduce context and vocabulary, stimulate interest), during reading (understand plot, characters, vocabulary, language and style) and post-reading (interpret text, viewpoint) activities (PDST, 2013). There are three levels of comprehension strategies (Keene & Zimmerman, 1997):

- Literal - creating images, skimming, scanning, self-questioning.
- Inferential - connecting, comparing, inferring, predicting.
- Evaluative - synthesising, determining importance, summarising and paraphrasing.

These strategies, ranging from the lower order literal type to the higher order evaluative type, help students develop comprehension skills (Duke & Pearson, 2002), incorporating collaborative approaches to the original GRRM (Pearson & Gallagher, 1983). Irwin (1991) suggests an additional five levels to reading comprehension:

- micro process (understand words);

- integrative-process (use inference to link words, sentences and understanding);
- macro process (integrate words and phrases into a mental model);
- elaborative process (use inference to ‘elaborate’ mental model and understanding);
- metacognitive process (comprehension monitoring).

The five levels interlink and incorporate inference skills and reflection, which can be enhanced by collaborative dialogue. Teachers can scaffold readers through dialogue, enabling children to ask questions and explore meaning through discussion (Tennent et al., 2016). The Four Resources Model (Freebody & Luke, 1990), recommended by Kathy Hall as essential curriculum literacy elements (2003), enables readers to learn:

- language features (code breakers),
- understand the text (meaning makers),
- know the purpose of the text (text users) and can
- evaluate texts critically (text analysts).

As meaning-makers, pupils question literal and inferred ideas, cultural resources and meanings. As-text-users, pupils question how the text shapes the narrative and as-text-critics students question subjective influences. All four practices should be taught systematically and explicitly at all grade levels in shared, guided, independent and modelled learning to enable full engagement with the text. They are developed in social contexts (Hall, 2003), where learning and meaning-making do not take place in a linear fashion. This model helps children develop critical thinking (Roche, 2014) and become aware of the influence of print and the possible impact on their thinking and meaning-making. Bill Green’s Three Literacy Dimensions (1988) highlight the operational (language aspect), cultural (meaning making aspect) and critical (transformational aspect) dimensions of literacy and reading. The four resources model and the three literacy dimensions, developed in social contexts, help teachers with new 3R’s – reflect on the past approaches, respond to students and contexts, and relate pedagogical, curricular alignment to learning (Ludwig, 2003). Once children have acquired basic reading and discussion skills, they are able to partner with the teacher/peers generating and developing more knowledge and skills (Chall, 1996), as the internalisation of learning is more important than the actual problem-solving (Zaretskii, 2007).

The teaching of comprehension strategies in Ireland shown by research to be relatively poor (DES, 2005a; Martin & Morgan, 1994; Shiel & Hogan, 1997) was discussed in section 4.6. Building Bridges of Understanding’ promoted comprehension strategy instruction, providing relevant resources (Courtney & Gleeson, 2010). The 2013 Chief Inspector’s Report (DES advocated a whole school comprehension approach promoting prediction; visualisation; making connections; questioning; inferring; clarification; determining importance and synthesis (Courtney & Gleeson, 2010).

Transactional Strategies Instruction' (TSI) enables meaning to be constructed between groups of readers and texts towards the development of a collaborative interpretation of the texts including prediction, questioning, visualisation and 'declunking'. Collaborative, mixed ability groups of 4/5 children create their own understanding of the text while simultaneously modelling the strategy used for their peers (Courtney & Gleeson, 2010). Teachers first train children how to work in a supportive group and understand, use and discuss TSI through teacher modelling and scaffolding. Courtney & Gleeson encourage fixed year-long mixed ability groups and role assignment to group members, e.g. leader, predictor, etc. (2010).

Comprehension strategies including activation of prior knowledge, drawing inferences, summarising, reflective reading and identifying with characters can be implemented through pair/small group discussion. 'Inference is an essential component of reading comprehension' and good readers use inference consistently when they read and comprehend text (Williams, 2014, p. 95) while reading fluency also supports reading comprehension development (Kennedy et al., 2012). Collaborative strategic reading groups employing comprehension skills enhance children's reading comprehension skills (McCown & Thomason, 2014; Rojas-Drummond & Sylvia, 2014).

Sean Delaney (2017) presents the following two models of differentiation in his book 'Become the Primary Teacher Everyone Wants to Have'

- The 'individual approach' (or regular approach) where the teacher assesses children and matches instruction for each child/group of children according to perceived performance and needs. This regular approach offers "different experiences to different children" with different strategies for different pupils resulting in extra work for the teacher (Delaney, 2017, p. 100).
- The 'whole class' approach – an intrinsic part of any group is the variation arising from children's different ideas and approaches which become a resource for rich meaningful, discussion through sharing, comparing and making connections (Delaney, 2017, p. 88). This approach is based on "planning teaching around the diversity and differences that occur naturally in any group of children" (Delaney, 2017, p.100). "Here, the teacher implicitly expects children to have different prior knowledge, solution methods, and ways of understanding and expressing ideas, and plans lessons taking such differences into account" (Delaney, 2017, p. 94).

This 'whole class' approach centres on how pupils 'think,' explain and represent their ideas in different ways. Learners "share insights with each other when they have grasped an idea and if they are confused, they can express their questions and seek a response from a peer who see the idea more clearly" (Delaney, 2017, p. 88). Teachers can implement this whole class approach in discussion towards meaning-making in diverse classrooms as it is practical, relatively easy to implement and

requires less planning and preparation as the individual approach. It embraces diversity and encourages children to be the source of their own learning.

The main aim of reading is to make meaning of the text (Smith, 1985) or reconstruction of meaning (DES, 1999b). DR, incorporating reasoning tasks that support the construction of meaning and understanding (Petty, 2009), enables children to be meaningfully challenged (George, 2005; Subban, 2006; Smit & Humpert, 2012). Reading aloud can ‘help children in their search for meaning’ (King & Briggs, 2012, p. 5) and group discussions on selected texts can help children understand the context, make connections with other books and experiences, pose new questions, or consider new ideas towards a deeper understanding. Reading is a ‘complex process where the experiences and attitudes of the reader are likely to be as important as the strategies used to ‘read’ the words’ (King & Briggs, 2012, p. 3) and challenging activities promote maximum cognitive growth (Ormrod, 2008), as development is not linear. Different genres, projects and creative stories are elements in a DR classroom that enable teachers to match content with learners (Little et al., 2014; Reis et al., 2007, 2008, 2011; Shaunessy-et al., 2015) and facilitate group discussion (literacy circles, etc.), to extend learners’ understanding through peer learning (Ankrum, 2006), as comprehension is the main goal of reading (Tennent et al., 2016).

Teachers can incorporate the ZPD concept into DR is through collaborative discussion. Here students can develop their interpretation/knowledge of the text, prior knowledge/experience with peers’ ideas, questions and thoughts into a synthesis of fluid meanings, the ‘Construction Zone’ (Newman, Griffin & Cole, 1989). Meanings are fluid and understandings are interconnected with shared activity to construct new meanings from text interpretations (Newman, Griffin & Cole, 1989; Vygotsky, 1986). Talking and discussing reading texts externalise readers’ thinking processes’ facilitating children to internalise meanings through the articulation of thoughts, feelings and ideas’ (Warner, 2013) in a unity of affect and intellect (Vygotsky, 1978). This also enables children to be the source of their own learning (Vygotsky, 1986).

4.11 Chapter Four Summary

In this chapter, DR implementation was explored through the lens of the four research questions (section 1.3). The concept of differentiated reading (DR) and DR models were outlined and US research on DR models was evaluated. Research on teachers’ DR conceptions and implementation was explored in different cultural contexts. The research found that DR teachers incorporated to varying degrees, teacher/child collaboration, varied teacher support and materials, flexible groups, individual and guided reading sessions, text discussions and comprehension strategies. Teachers provided substantial support to readers below grade level but some research evidenced less support to EAS. DR improved fluency, comprehension and attitudes to reading with similar and better results than control groups. However, few teachers could define DR accurately possibly to lack of

knowledge or effective DR training. Consequently, this study examines teachers' conceptions and implementation of DR. Interestingly, all studies recommended further DR research in different areas.

Research and reviews demonstrated that effective literacy teachers employ different strategies in reading instruction as pupils' needs dictate effective instruction, which is central to DR. Effective teachers provided a balanced approach between skills-based instruction and reading for meaning, learning and enjoyment. While just some of the reviews and studies specifically mentioned differentiation, many of the strategies employed are important DR elements including positive learning environments, expert classroom management and scaffolding, oral language, flexible groups, pupil self-regulation, modelling (Vygotsky, 1986), text choices, guided reading, assessment, motivation and praise.

While some DR studies found that teachers' DR teaching designs complied with DR in terms of content and process, teachers' use of product was less clear. This study investigates whether teachers implement DR through content, process and product. Different studies demonstrated different DR obstacles and facilitating factors. Effective DR training could help teachers deal with most obstacles to DR including class management, limited time, support and resources and student misbehaviour. Facilitating DR factors included assessment, flexible groups and resources, modelling, multiple levels of questioning and small group instruction and activities. This study examines teachers' perceived facilitating factors and obstacles to DR in two diverse contexts and explores similarities and differences in both conceptions and practices. Several elements associated with Vygotsky's ZPD are relevant to DR including collaboration, imitation, language as a tool, verbal scaffolding and children as the source of their own learning. Teachers can establish children's ZPDs through collaboration, imitation and DA. This research explores these elements in relation to DR.

The recent results from the 2014 NAERM and 2016 PIRLS demonstrate significant improvements in reading achievements of Irish primary children. The reading improvements may be due to a combination of initiatives arising from the National Strategy (DES, 2011), PLC introduction (DES, 2015), increased class time spent on literacy and additional ITE and onsite teacher training in reading and oral language. Irish education policy now actively promotes differentiation. No study, to the author's knowledge, has investigated teachers' DR conceptions and implementation in Ireland so this research adds new knowledge to this area.

While differentiation is acknowledged as an important instructional approach for students (Shaunessy-Dedrick et al., 2015), no research, (to the researcher's knowledge), has compared DR conceptions and practices in two diverse cultural contexts and just a few studies (Pilten, 2016) explored whether teachers' DR conceptions match their DR implementation. This current study explores teachers' conceptions and implementation of DR in two different cultural contexts in two different countries concurrently and investigates whether teachers' DR conceptions match their DR implementation. Most

of the DR studies incorporated mixed methods including surveys and interviews while the addition of lesson-plan analysis strengthened Pilten's data validity (2016). This current thesis incorporates lesson-plan evaluations as well as a survey and in-depth interviews to investigate teachers' DR perspectives and implementation.

In conclusion, previous studies provided information on DR but a gap exists in three areas: in DR research in Ireland, in research literature relating teachers DR conceptions to their practices and in research comparing conceptions and practices in two diverse cultures. This current study investigates and provides new knowledge in all three areas.

The next chapter, Chapter Five, presents the dual contexts in which this study was undertaken, and outlines the mixed methodology design employed to meet the research objectives, the rationale for this methodology and the structure of this study.

Chapter Five: Methodology

5.0 Introduction

Chapter Five discusses the methodological approach conducted for this research. This chapter is presented in two sections. The first section presents the research overview and rationale for the sequential mixed method approach employed, including the philosophical foundations of this approach. The second section outlines the methodological issues on the development of the questionnaire, the lesson-plan evaluation template, and the semi-structured interviews. The rationale for the selection of these methods, techniques and instruments is discussed. The discussion provides clear and purposeful reasons for the selection and employment of these methods. Piloting, sampling design, instrumentation and bias procedures are documented and procedures adopted to ensure reliability and validity are also provided. The chapter concludes with a detailed discussion on the analysis employed for each stage and the ethical considerations adopted through the development and deployment of the research tools.

5.1 Research Structure

The aim of this study is to investigate and identify primary/elementary teachers' conceptions and implementation of DR, in a large city, in both Ireland and in Texas, US, and to identify significant factors associated with DR. The goal of the researcher is to identify the multiple and different DR practices through the modification of content, process, and product and to explore any association between these DR practices and Vygotsky's ZPD. Some DR research has been conducted in the US but very little research has investigated both teachers' conceptions and implementation of DR. To the researcher's knowledge, no DR research has been carried out in Ireland or no research has compared DR practices in two cultural diverse contexts. Employing mixed methods research in this study facilitates data exploration through various insights and perspectives whilst increasing the methodology choice to researchers (Borkan, 2004).

The literature review provided varying DR practices but no generalised consensus on DR practices or association between Vygotsky's ZPD and DR practices. Using mixed methods, the researcher seeks to ascertain whether teachers employed DR through the survey, and then explore DR conceptions and practices through the survey and lesson-plan evaluations and, finally, allow for a more in-depth exploration of practices through the semi-structured interviews. Table 5.1 demonstrates the mixed method approach.

Table 5.1: Mixed Method Approach

		Dublin	Houston	Total
Study 1	Survey - Schools	66	20	86
	Approached			
	Participating Schools	48	14	62
	Schools - Response Rate %	73	70	72
	Survey Distributed	600	600	1,200
	Survey Completed	330	315	645
	Survey Response Rate %	55	52	54
Study 2	Lesson-plan Evaluations	5	5	10
Study 3	Semi-structured Interviews	5	5	10

In Phase One, 1,200 questionnaires were hand delivered to eighty-six primary schools in Dublin and to elementary schools in Houston Texas, US. The return rate was 54% and the findings were analysed using the Statistical Package for Social Sciences (SPSSTM). This study investigated teachers' conceptions about DR and DR practices. The second study involved analysis of DR lesson-plans and the evaluations (n=10) submitted by five Dublin primary teachers and five Houston elementary teachers. This explored teachers' application and evaluation of DR practices. Study Three involved semi-structured interviews (n=10), conducted with five Dublin primary teachers and five Houston elementary teachers. The interviews explored in more depth DR policies, practices, procedures, competence, confidence and training received and desired. Studies two and three involved qualitative data approaches, including open-ended questions, and were influenced by Study One's survey findings and were analysed using thematic analysis (Braun and Clarke, 2006). The Dublin findings from all three studies are presented in Chapter Six, while the Houston findings from all three studies are presented in Chapter Seven, followed by comparative analysis in Chapter Eight.

The sequential, mixed method approach was planned in advance, as it provided opportunities for data triangulation and integration from the hand-delivered questionnaires, lesson-plan documentation analysis, and semi-structured interviews. The survey analysis highlighted important issues that influenced the design and development of the lesson-plan evaluation template and, in turn, the semi-structured interviews. The conceptual framework of the design was shaped following the five criteria of Cresswell, Fetters and Ivankova's (2004) mixed method research design. This incorporated the rationale for mixing and the priority given to quantitative and qualitative research, data types gathered and analysed, and the sequence of implementation and integration. A sequential data collection was essential to allow analysed data to be implemented in the next phase. Studies Two and Three enabled integration, triangulation and validity of data across research tools. The research design is presented in Figure 5.1.

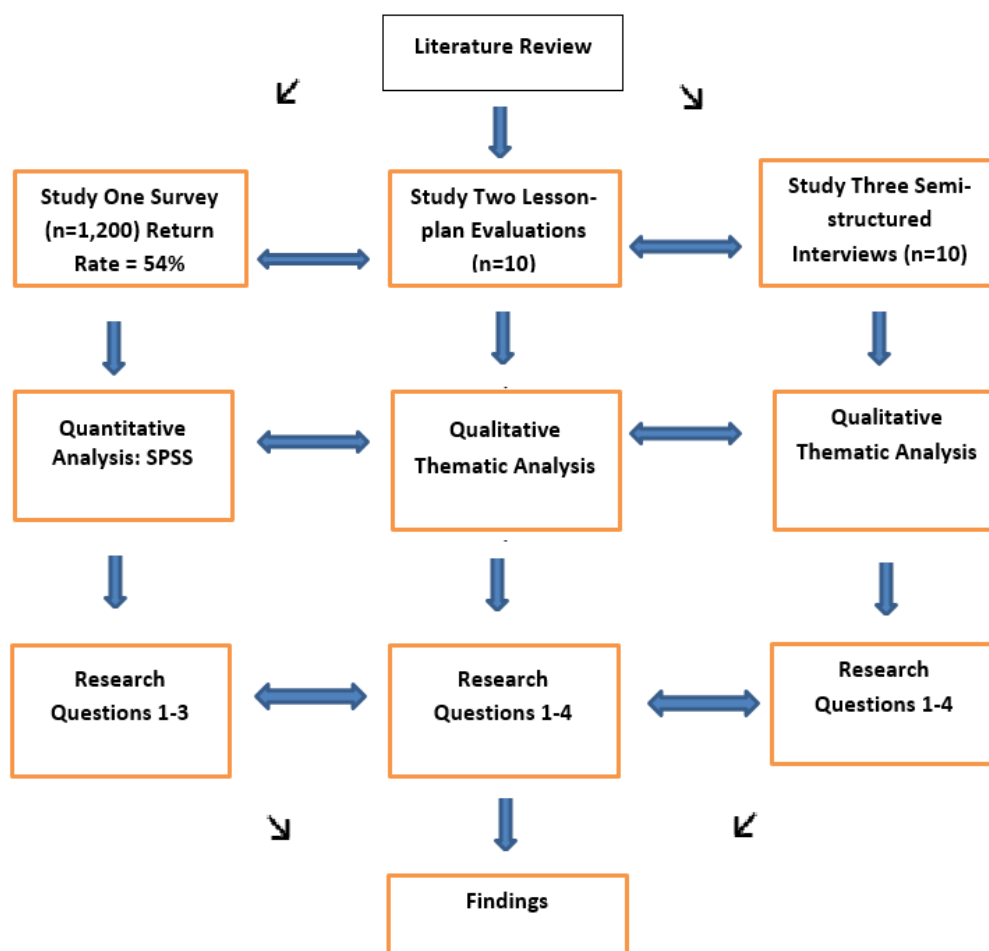


Figure 5.1: An Overview of the Research Design

The four research questions underpinning this study are:

1. What are teachers' conceptions about DR and associated pedagogical practices?
2. To what extent is the modification of content, process and product related to DR pedagogical practices?
3. What factors facilitate and hinder DR implementation?
4. To what extent are elements associated with Vygotsky's zone of proximal development (ZPD) relevant to teachers' understanding and implementation of differentiated reading?

5.1.1 Study Design guided by the Literature Review

The design of this mixed method study was guided by several well-structured, reliable mixed method studies in the literature review (Jenkins et al., 2013; Nurmi et al., 2012; Pilten, 2016; Reis et al., 2007, 2011; Shaunessy-Dedrick et al., 2015). A mixed methodology was appropriate for this study because the researcher was able to firstly ascertain whether teachers implemented DR through the survey

(Appendix A-1), match interpretations of DR with lesson-plan evaluations (Appendix B-1) and finally understand the meaning that participants attributed to DR through their thoughts, feelings, beliefs, values, and assumptive worlds (Husserl, 1989), their perspectives of DR captured through face-to-face interaction in semi-structured interviews (Appendix C-1). The survey (n=645) was conducted to provide data on teacher's DR perspectives and practices and explore issues of importance to teachers in DR, as well as factors that facilitate and hinder DR implementation. Previous studies employed teacher surveys to inform DR implementation (Bundoc, 2007; Jenkins et al., 2013; Nurmi et al., 2012; Reis et al., 2011). A questionnaire was chosen, as it can be used with large numbers of respondents in different locations (Denscombe, 2003) as in this study (Dublin and Houston). The survey content was designed and guided by important elements arising from the literature review e.g. flexible groups, assessment, children's interests, choice and modification of content process and product (Ankrum, 2006; Jenkins et al., 2013; Nurmi et al., 2012; Pilten, 2016; Firmender et al., 2013; Jenkins et al., 2013; Little et al., 2014; Reis et al., 2011; Shaunessy-Dedrick et al., 2015; Tobin & McInnes, 2008). The questionnaire identified whether teachers employed DR and also helped identify participants for both the lesson-plan evaluations and semi-structured interviews (Tashakkori & Teddlie, 1998). Previous research demonstrated that teachers did not employ differentiated instruction due to class size, student misbehaviour, extensive planning requirements and lack of teacher training (Archambault et al., 1993; Hootstein, 1998; Roe, 2010; Pilten, 2016). A questionnaire was considered to be the most appropriate method to provide succinct and precise information from a large number of participants (n=645).

Lesson-plan evaluations (n=10) and interviews (n=10) were two of a range of methods employed for data collection in this case study research (Mertens, 2010; Yin, 2009). The format of the lesson-plan evaluations was designed by the researcher and guided by the data analysis arising from the survey. Pilten, (2016) employed lesson-plan analysis, strengthening and validating the DR study findings. As DR can have various interpretations, the lesson-plan, checklist/template and accompanying evaluation were employed as relevant and reliable evidence of teachers' understanding of DR implementation e.g. differentiation through content, process, and product; information on groups, teacher support, collaboration, imitation, meaning-making, assessment, tasks, etc. Convergence of data from the three different sources also provided validity to the findings. The content of the semi-structured interview was designed and guided by the literature review (Ankrum, 2006; Jenkins et al., 2013; Pilten, 2016; Reis et al., 2011; Tobin & McInnes, 2008), and by the data analysis arising (issues and questions) from the survey and lesson-plan evaluations providing a structured way of obtaining information on a focused content (Swetnam, 1997). Semi-structured interviews were appropriate for this study because interviewees can express themselves at some length (Wragg et al., 1994), to develop and discuss topics more widely (Denscombe, 2003) and describe subjective meanings of their DR experiences through closed and broad, open-ended questions. The interview questions explored interviewees' DR experiences and knowledge, displaying respect and sensitivity to respondents' needs and rights

(Mason, 1996) and included closed questions, limiting possible data (Easterby-Smith et al., 1991) and open questions, increasing the analysis workload (Kane, 1985), enabling the respondents to produce information they deemed relevant to their understanding, experience and their DR conceptions and practices.

5.1.2 Theoretical Considerations

A sequential mixed method and a multiple case study approach, employing post-positivist and constructivist methods, was considered to be the best method of research based on robust research questions (McCarthy, 2011), arising from analysis of the literature review as employing mixed methods enhances corroboration and validity of data (Denscombe, 2003). The purpose of this pragmatic research was to explore teachers' understanding and implementation of DR (Morgan, 2007; Tashakkori & Teddlie, 1998).

Sequential mixed methods (Teddlie and Yu, 2007) was employed in this study which Hammersley describes as 'successive paradigm triangulation' (1996). The initial part of this study, the questionnaire, employed a postpositivist paradigm because a postpositivist approach (Cresswell, 2009), helped define important issues in DR and investigate reasons for DR implementation and the types and frequency of different DR practices arising from the focused closed and open questions in the questionnaire. However, the postpositivist approach, in recognition of the important role that values play in the interpretation of findings also accommodated the qualitative open-ended question on 'What DR means to me' (Appendix A question 8) (Reichardt and Rallis, 1994). Analysis of this initial quantitative data shaped and defined the questions and structure of the Lesson-plan templates and interviews. The study employed hypothetico-deductive logic to interpret data in the survey and utilized inductive logic to interpret the qualitative data from the semi-structured interviews and lesson-plan evaluations, incorporating a constructivist paradigm. In terms of axiology, value was given importance in the interpretation of results.

A constructivist qualitative approach served the purpose of exploring and explaining teachers' conceptions and practices in DR using inductive reasoning and words. It assumed that the participants created systems of meanings and made sense of their world – in this case DR - and was based on inductive reasoning and common sense and relied on interpretations (participants and researcher), which were subjective and were not value free (Sarantakos, 2013). Exploring understanding was best suited to the semi-structured interview qualitative approach, and lesson-plan evaluations were considered to be an appropriate method of investigating implementation of DR, interpreting and understanding teachers' meanings (Sarantakos, 2013) in relation to DR. The constructivist framework accommodated the multiple constructed realities for different teachers in different schools in the two countries. The teachers explained their understanding and implementation of DR in the ten semi-structured interviews and the ten lesson-plan reflections provided documented evidence of diverse DR viewpoints and explanations.

Pragmatism, the philosophy most associated with mixed methods is pragmatism (Bryman, 2006; Johnson & Onwuegbuzie, 2004; Morgan, 2007), recognises the central role of the researcher's values in the interpretation of results, supports the use of mixed methods, and discards the either/or stances of the opposing qualitative and quantitative advocates (Tashakkori & Teddlie, 2003). Others attributed the philosophical orientation of mixed methods to 'transformative perspective' (Mertens, 2003). Pragmatism is not aligned to one single philosophy, so it can be applied to mixed methods research (Morgan, 2007; Cresswell, 2009). The mixed method approach, a combination of quantitative and qualitative approaches, 'for the broad purposes of breadth and depth of understanding' (Johnson, Onwuegbuzie & Turner, 2007) is now recognised as a legitimate research design (Tashakkori & Teddlie, 2003), as demonstrated by the introduction of two journals dedicated to the method – *International Journal of Multiple Research Approaches* and *Journal of Mixed Methods Research* – and the many publications on the subject, including Bergman (2008), Freshwater (2007), and Tashakkori and Teddlie (2010). It is popular in education (Cresswell & Garrett, 2008).

However, this was not always the case, as the positivist paradigm was considered the best research approach in education in the 1970s (Howe, 2009), but the constructivist paradigm became widespread in the 1990s (Ridenour and Newman, 2008). The mixed method approach, with roots in the Hawthorne Studies research in the 1930s, has several advantages. It enables:

- Mixing and integration of varied data (Cresswell et al., 2004) to expand results (Stange and Zyzanski, 1989) and it fills the gaps left by a single study;
- Evaluation of findings from varied insights and conceptions (Borkan, 2004) and increases the quality of the research findings;
- Validation of data through two or more sources or triangulation (Denzin, 1978).
- Improve the method and findings capacity, validity, generalizability, with both qualitative and quantitative results (Sarantakos, 2013).
- With its bi-focal paradigm, it can focus on positivism and interpretivism, on objectivity and subjectivity, and on data and meaning.
- It entails complementarity of two different methods and can deal with two different types of data, sequentially or concurrently.
- It can offer more comprehensive results than a single study and can produce both (Sarantakos, 2013).

Critics of the mixed method approach argue that employing both quantitative and qualitative methods, without due rigour, can result in sub-standard research (Morse, 2005); incompatibility of approaches (Cresswell, 2006) or superiority of one method over another (Johnson and Onwuegbuzie, 2004). Meanwhile, the constructivist/interpretivist approach has been criticised because data can be subjective, misinterpreted, or inadequate (Cohen et al., 2007).

Some researchers believe that qualitative and quantitative methods can only be combined for complimentary purposes (Sale et al., 2002). Mixed methods approach has its critics but the evolution of the methodology and the growing popularity of the approach have enabled the methodology a legitimate place as an acceptable method of research enquiry in social sciences.

The challenge of employing mixed methods is that the researcher is required to understand the paradigms, assumptions and the differences between authenticity, validity, dependability, reliability, generalizability, and transferability, as well as the variances in collection and analysis of qualitative and quantitative data and the time and resources involved. In this study, the researcher paid a special visit to Houston, Texas to deliver all 600 questionnaires to 23 elementary schools and to personally collect over 250 completed surveys. No one method, quantitative or qualitative, is superior to others and each research study has its own particular design (Silverman, 2005). The researcher mitigated against possible drawbacks in six ways:

- Designed robust methods, instruments, data collection and analysis including pilot studies on all three instruments.
- Validated data across the survey, lesson-plan evaluations and interviews
- Triangulation allowed data to be compared and analysed (Denzin, 1978)
- Implementation of feedback from the three pilot studies resulted in amendments in instruments and covering letters and helped the researcher decide on types and sequence of instruments;
- Evaluations of DR lessons by the ten LP respondents;
- Interviewees checked the ten interview transcripts for accuracy of interpretation

First, a survey was chosen to provide foundational information on DR, as little research has been conducted in the US on teachers' perspectives on DR, with no research, to the researcher's knowledge, conducted in Ireland. The researcher chose this as the best method to provide answers to the research questions (Willig, 2008) arising from the literature review. Once the researcher had established that teachers implemented DR from survey data - as positivist methods can produce objective (Thomas, 2009) and unambiguous data (Pring, 2004) - more in-depth information was provided in the lesson-plan evaluations and interviews (Cresswell, 2008). Findings were based on literature to avoid misinterpretation and potential subjectivity by the researcher. Also, all LP respondents and interviewees had completed the survey, so the researcher checked interpretations of survey data with them to ensure validation.

Qualitative approaches were chosen for the remaining two instruments, as the research wanted to investigate teachers' understanding of DR, as positivist approaches cannot provide respondents' interpretations of their philosophies, thoughts, experiences, and practices (Cohen, Mannion, and Morrison, 2007).

In summary, a sequential, mixed method approach was used in this research, employing three instruments designed by the researcher to answer the four research questions arising from the literature review.

5.1.3. Case Study

A multiple case-study is employed in this research, as it analyses the interaction and intersection between theory, data, and research methods (Sjoberg, Williams, Vaughn and Sjoberg, 1991) of DR in Dublin, Ireland, and in Houston, Texas, US. A case-study has been defined as a method, a methodology, and a research design by various researchers (Bassey, 1999; Merriam, 1988; Yin, 1994). A ‘methodology’ is a theory and analysis of how research should take place (Harding, 1987) so that it analyses the interaction and intersection between theory, data and research methods (Sjoberg, et al., 1991). A case study is a research design or a rigorous investigation of a phenomenon or ‘single unit’ where the researcher seeks to expound characteristics of ‘a larger class of similar phenomenon’ (Gerring, 2004, p. 341).

However, some researchers disagree, stating that a case study is neither a method, nor a methodology because ‘researchers cannot actually collect data prescriptively using a case study’ (VanWynsberghe & Khan, 2007, p. 3) and does not offer a theory or analysis of how research should take place (Stake, 2005, p. 438) but is a choice of what is to be investigated. Again, a case study does not present the researcher with a ‘prescriptive plan’ as in a research design which guides research through the analysis from the research questions to the conclusions (Yin, 2003), so, therefore, it cannot be defined as a research design (VanWynsberghe & Khan, 2007).

More definitions for a case study include a problem and a phenomenon. It is described as a ‘problem’ where the researcher chooses a process/activity to investigate the system containing the problem leading towards a possible in-depth understanding of the problem in the process (Cresswell, 2002). It can be a ‘technically a phenomenon’ where the researcher interprets and reports on one single measure or object of interest on a relevant variable (Eckstein, 2002, p. 124) or a contemporary phenomenon in a real-life context involving ethnographic research, where ‘the boundaries between the phenomenon and context are not clearly evident’ (Yin, 2003, p. 13). Whatever the definition, the case-study can contribute to the cumulative development of knowledge, as it is a ‘necessary and sufficient method for certain important research tasks in the social sciences, and it is a method that holds up well when compared to other methods’ in social science research methodology (Flyvbjerg, 2006, p. 241). The unit of analysis cannot be definitively specified at the beginning of the research, as it will emerge through the progression of the research (VanWynsberghe & Khan, 2007). One advantage of the case-study method is the generation of depth, as opposed to breadth, in quantitative research. Good social science is not methodology driven but problem driven in that methods are employed in order to provide the best answer to a problem (Flyvbjerg, 2006). Possible disadvantages of case study research

are discussed in section 5.5 including reliability and validity threats. The next section addresses the survey.

5.2 The Questionnaire

The main aim of this survey was to provide foundational data on teacher's DR perspectives and practices and explore issues of importance to teachers in DR, as well as facilitating and obstacles to DR implementation. A questionnaire, designed and guided by the systematic literature review, was chosen as the most appropriate method to provide succinct and precise information from a large number of participants (n=645), in different locations (Denscombe, 2003) and identify participants for both the lesson-plan reflection and semi-structured interviews (Tashakkori & Teddlie, 1998). A DR questionnaire was developed for this study in the absence of a relevant research tool. The researcher consulted various education questionnaires including one Houston-based DR, PhD questionnaire (Bundoc, 2007). To explore validity issues, two pilot studies were conducted to ensure the quality of future data collection procedures, identify possible problems in the data collection protocols, and set the stage for the actual study (Teddlie & Tashakkori, 2009), the first pilot study with forty teachers and the second with ten teachers.

5.2.1 Questionnaire – First Pilot Study

The first pilot questionnaire (Appendix A-3) was conducted with 40 teachers in two schools in Dublin and two schools in Houston in February 2013. The researcher outlined the aims and the purpose of the research in a covering letter with the questionnaire and personally delivered and collected the questionnaire from the Irish schools. A 75% response rate ensued in the 2-week period. Twenty questionnaires were both posted and emailed to the two Houston Schools. However, just 50% completed questionnaires were returned by post to the researcher within the 2-week period. The poor response rate of postal questionnaires reflected other research findings (Johnson & Turner, 2003). The researcher resolved to hand deliver and collect the main study questionnaires to improve the response rate, despite the considerable financial cost involved in travel and accommodation. Overall, the respondents provided positive feedback, stating that the questions were relevant, structured and easy-to-follow (n=17). Valuable feedback and recommendations were provided on the layout, length and clarity of the questionnaire and the accompanying letter. The questionnaire was reduced from ten pages, with 19 main questions, to eight pages. Some questions were deleted or rephrased and all subsections were numbered, giving a total of 88 questions in Likert scale and rank order questions.

5.2.2 Questionnaire – Second Pilot Study

While the overall layout and structure of the questionnaire was much improved, the researcher conducted a second more concentrated pilot to ensure the questionnaire was as effective as possible.

There were several changes made to the second pilot approach in March 2013 to ensure a maximum return rate and effective feedback:

- This time, the researcher requested that the new ten participants, five in Houston and five in Dublin, did not complete the questionnaire but timed how long it took to read the questionnaire.
- A feedback template with specific questions was designed and emailed to all 10 participants (Appendix A-4).
- Return of the feedback was requested by a specific date.

All ten participants returned specific and helpful recommendations and feedback. However, three did not return the template but did return written feedback. Most respondents stated that they spent ten minutes reading the questionnaire. One Houston teacher had difficulty reading the feedback template and this was rectified by a slight format change to accommodate the different size of paper used in the US (very helpful for the main questionnaire and lesson-plan templates). Positive feedback was received on the purpose and layout of the questionnaire. The questionnaire was reduced from eight pages to five pages with just fifteen questions. Some questions were rephrased and different scales were introduced, leading to an improved layout, and unnecessary information was deleted resulting in a concise informative questionnaire format. The 50 teachers involved in the pilot studies were not included in the research sample, nor was the pilot information included in the main data. The revised questionnaire was then rechecked by the researcher's supervisor and one School of Education lecturer. On receipt of approval from both professionals the survey was distributed to 1,200 teacher participants.

5.2.3 Main Questionnaire

The survey (Appendix A-1), a five-page document, with a cover letter informing participants on the focus and nature of the research, consisted of two sections. Section 1 addressed biographical information, school and class information through seven questions. Teachers disclosed their highest qualification, currently class/es, years' teaching experience, school type, and class size. Section 2 consisted of 15 items and the content explored why and how participants taught DR, their definition of DR and DR strategies employed through content, process and product. This reductionist method reduced DR to discrete areas of content, process and product (Pilten, 2016; Roe, 2010; Tobin & McInnes, 2008)). The survey encouraged the participants to reflect on their DR practices, stating DR facilitating factors and obstacles and how they taught DR through content, process, and product. A third purpose was to invite participation in the lesson-plan reflection and semi-structured interview.

Various types of questions were employed in the questionnaire, including:

- Closed questions; questions 8 and 13 were qualitative open-ended questions, however;
- Eight questions had ‘Other’ options;
- Rank order (question 3), degree of agreement or disagreement (questions 9, 10 and 12) using the traditional Likert 5-point scale (Likert, 1932);
- Semantic differential scale (questions 9, 10 and 12) where feelings are sought about a topic or concept (Osgood, Suci & Tannenbaum, 1957);
- Rated items, (question 10), statement, (question 6, 9, 10) and list questions (questions 2, 4, 5-7) (Denscombe, 2003; Teddlie & Tashakkori, 2009).

Different teacher biographical questionnaire formats were created for Dublin and for Houston to accommodate culturally different terms as discussed in section 3.3, thus avoiding participant confusion (Appendix A-1, A-2). Examples of different terminology are included in Table 5.2.

Table 5.2: Different Terms between Dublin and Houston

Term	Dublin	US
Schools	Primary	Elementary
Subject	English	Language Arts
Classes	Classes 1-5	Grades 1-5
Head of school	Principal	Headteacher

5.2.4 Research Sampling and Procedure

In this survey, purposive sampling was employed to include a cross-sectional sample of elementary teachers in Houston, Texas USA and primary teachers in Dublin, Ireland in different socioeconomic areas and in different school settings. This sampling involves the selection of individuals based on research questions’ purposes (Teddlie & Tashakkori, 2009), where people are selected for the important information they can provide (Maxwell, 1997). Twenty Houston schools were drawn by random from special lists given to the research by the two Independent School Districts (ISDs). Sixty-six Dublin schools were selected by random from the DES list of primary schools (DES, 2013). Sample schools were summarised in Table 5.1, section 5.1. Schools ranged from one four-teacher-school in Dublin to one Houston school with over 120 teachers. The sample is summarised in Table 5.3, below.

Table 5.3: Sample Schools and Teachers

	Dublin (n=330)	Houston (n=315)
Schools	48 Primary	14 Elementary
	24 Co-ed	24 Co-ed
	12 Boys only, 12 Girls only	
	5 Junior Infants -1 st Class	
	3 Senior 2 nd - 6 th Classes	
	2 Gaelscoil	
Denominational Schools	47	1
Private Schools	3	3
Female Teachers (n=583)	84% - 278	97% - 305
Male Teachers (n=62)	16% - 52	3% - 10

Multilevel sampling was chosen for the survey to accommodate different populations and different people (Mertens, 2010) as different types of schools, e.g. DEIS/non-DEIS; denominational/non-denominational and multi-denominational; junior/senior; co-educational/single-sex and gaelscoileanna. Sampling different school types from a wide range of different environments enables the research findings to be generalised to a larger population, even though the use of nonprobability sampling could not guarantee that every person in the population was represented.

Convenience sampling was employed for the ten lesson-plan evaluations and ten interviews as the participants self-selected themselves from two questions on the survey (Kemper et al., 2003). Five participants from Dublin and from Houston respectively were selected from this convenience sample to participate in both qualitative studies. It was anticipated that this self-selected group could expound, explain and perhaps clarify some issues that arose from the questionnaire analysis.

The researcher personally delivered the questionnaires to 23 Houston elementary schools on Monday April 8 and personally collected the completed questionnaires on Friday April 12 2013, resulting in a 70% return rate (210/300). State standardised testing was conducted in seven Houston schools that week, so the teachers completed and returned the remaining 105 completed questionnaires in pre-paid envelopes, with a low 35% (105/300) return rate. The researcher hand delivered and collected all completed questionnaires in Dublin between October and November 2013, entailing several trips to maximise survey collection. Personal delivery and collection in Ireland resulted in a 55% return rate (330/600). The overall survey return rate from both cohorts was 54% as outlined in Table 5.1, section 5.1.

5.2.5 Questionnaire Data Analysis

Survey data were coded and entered into an SPSS file. Descriptive and inferential tests, the chi square (Chapters 6-7), and differences in means (Chapter 8) were conducted on the nominal and ordinal data (Deanscombe, 2003). The chi square, a statistical procedure for comparing the frequencies of two or more samples (Nunan, 1992), was used for significance of difference in results between experienced and less-experienced teachers and between teachers in advantaged and disadvantaged schools in Dublin and Houston. The chi square enabled the researcher to estimate results from a randomly selected sample that are generalisable to the population from which the sample was drawn in a process known as statistical inference (Bryman, 2008). The researcher used the chi test to investigate whether teachers in advantaged schools incorporated more/less DR activities than teachers in disadvantaged schools (DEIS in Dublin) and also whether experienced teachers employed more/less DR practices than less experienced teachers. The 'years experience' variable had five categories (degrees of freedom, df) which were reduced to three categories, 0-5 years, 6-15 years and 16+ years. The DEIS variable for Dublin schools was reduced from three categories to one category (df).

'Mean' is the average of a set of scores, obtained by adding the scores together and dividing by the total number of scores (Ninan, 1992). A test of statistical significance for the comparison of means involves relating two types of variance to form the *F* statistic, (e.g. $p < 0.001$ suggests that there is only one chance in 1,000 that there is no relationship between two variables).

Answers to the two, open-ended survey questions were collated and analysed thematically including rereads and regroupings to identify emerging themes and sub-themes (Braun & Clarke, 2006). To ensure confidentiality, an ID number was assigned to each completed survey and this was used for research purposes. All information linking names, schools and numbers were secured on a personal computer under two separate passwords for security purposes and known only to the researcher. The lesson-plan templates and the interview questions were based on the analysis of the survey data. Findings and analysis are presented in 6-8. Fifty-one survey respondents expressed interest in participating in the two qualitative studies.

5.3 Lesson-Plan Evaluations

This section outlines Study 2, involving ten LP respondents (female, $n=9$; male, $n=1$), five from Dublin and five from Houston. The lesson-plan design, pilot study, and recruitment will be discussed.

5.3.1 Lesson-Plan Evaluation Design and Content

The content of the lesson-plan evaluations was designed by the researcher and guided by the systematic literature review and by the data analysis arising from the survey (Appendix B-1). The individual lesson-plans were in various school formats used by individual teachers. As DR can have various interpretations, the lesson-plan and the accompanying evaluation were judged to be reliable evidence of DR implementation and practice.

Lesson-plan evaluations and interviews were two of a range of methods employed for data collection in this case study research (Mertens, 2010; Yin, 2009). Twenty-one survey participants expressed willingness to submit lesson-plans and DR lesson evaluations and ten teachers participated – five from Dublin and five from Houston. A difference was anticipated between participants who offered and those who actually submitted reflections. Perhaps, requesting lesson-plan reflections submissions just after the questionnaire returns would have ensured maximum return rate. However, the researcher based the lesson-plan templates on the survey data analysis resulting in the time lapse. School, class and circumstance changes were reasons provided for non-submission of lesson-plan evaluations. The researcher thanked all respondents and lesson-plans, templates and evaluations were submitted between May and September 2014. The twelve-month time lapse between the survey submission and the lesson-plan submission was a possible limitation in this study, as some participants' circumstances had changed.

The lesson-plan evaluation template is a three-page document with fifteen questions, including a lesson reflection (Appendix B-1). Respondents commented on lesson topic, grade, number of students and lesson duration as well as information on DR preparation, content, process and product activities, assessment, groupings, teacher support, resources and lesson evaluation. New areas of interest arising from the literature review, research questions and survey data analysis centred on collaboration, context, meaning-making, children as sources of their own learning (Vygotsky, 1986), and the impact of DR in reading and comprehension.

5.3.2 Lesson-Plan Pilot Study

The researcher consulted different samples of lesson-plans and evaluation procedures for the design of the lesson-plan template. The pilot lesson-plan evaluation aimed to:

- a) Ensure the purpose of the reflection was clear
- b) Evaluate, improve and focus the questions and directions
- c) Ensure the language was clear and concise and avoid ambiguities
- d) Ensure the questions were clear and easy to follow
- e) Avoid any 'leading' questions that might prompt specific answers
- f) Estimate how long it took to read and complete the reflection template
- g) Ensure the accompanying consent letter was clear, concise and informative

The researcher designed and emailed a lesson-plan evaluation and feedback template (Appendix B-3), to six new teachers – three Dublin teachers and three Houston teachers who returned feedback between May-June 2013. Only one lesson-plan format was created for both Dublin and Houston (Appendix B-1). Generally, the respondents provided very positive feedback, stating that the questions were easy-to-follow, relevant, and structured. All ten provided feedback but only five completed the accompanying feedback template. Recommendations were offered on the template layout, length and clarity and some questions were deleted, re-ordered, or rephrased.

A second pilot was conducted with three teachers who were also PhD students. They read the template (but did not complete it), timing the length taken to read the template and completed the feedback form (Appendix B-3). A few amendments were recommended including rephrasing of words. The nine teachers involved in the pilot studies were not included in the research sample, nor was the pilot information included in the main data. The main Lesson-Plan Evaluations were submitted between May-September 2014.

5.3.3 Lesson-Plan Procedure

Participants self-selected themselves to volunteer a lesson-plan reflection in question 14 of the questionnaire (Appendix A-1) and consent forms were submitted via email (Appendix B-2). Participants forwarded three completed documents: DR Lesson-plan Checklist/Template; Lesson-plan Evaluation; and Lesson-plan. Five primary teachers from Dublin and five elementary teachers from Houston submitted DR lesson-plans and evaluations via email. Teachers evaluated preparation, activities, assessment and resources on the accompanying checklist (Appendix B-1).

Table 5.4: Lesson-Plan Evaluation Participants (B1-5); (Y1-5)

City	Teachers	Qualification	Years Teaching Experience	School Type	Class Taught	Class Size
Dublin	B1	M Lit	6-10	State, Co-ed, Non-denom.	2	25
Dublin	B2	M Ed	16+	State, Co-ed, Church of Ireland	3	28
Dublin	B3	M Ed	2-5	State, Girls, Roman Catholic	4	29
Dublin	B4	B Ed	2-5	State, Co-ed, DEIS, Multi-denom	5	16
Dublin	B5	M Ed	11-15	State, Boys, Roman Catholic	6	28
Houston	Y1	B Ed	16+	ISD, Co-ed Non-denom Disadv	1	16
Houston	Y2	M Ed	2-5	ISD, Co-ed Non-denom Disadv	2	20
Houston	Y3	B Ed	10-15	Co-ed., Christian, Private	3	18
Houston	Y4	B Ed	6-10	ISD, Co-ed. Non-denom	4	20
Houston	Y5	B Ed	2-5	ISD, Co-ed., Non-denom.	5	22

The lesson-plans and evaluations provided an insight into teachers' understanding and implementation of DR [female, n=9; male, n=1 (Houston)]. Five teachers had a Master's degree and six teachers had six years or more teaching experience. Lesson evaluations were provided for 2nd - 6th Classes and Grades 1-5, respectively. Important information on the lesson topic, class, lesson duration and number of students in class was provided, as well as details on groups, teacher support, collaboration, imitation, meaning-making, assessment, levels and types of activities, resources, and differentiation through content, process, and product from both cohorts.

5.4 Semi-Structured Interviews

This section outlines Study three, involving ten interviewees (female, n=9; male, n=1), five from Dublin and five from Houston. The interview, pilot study, and recruitment and mode of analysis will be discussed, as the interview was considered the best way of clarifying issues arising from the literature review, survey, and lesson-plan evaluation data analysis.

5.4.1 *Semi-Structured Interview Design and Content*

The content of the semi-structured interview was designed and guided by the systematic literature review and by the survey and lesson-plan evaluations data analysis. Semi-structured interviews allow interviewees to express themselves at some length, but offer enough shape to prevent aimless rambling (Wragg et al., 1994) and to describe subjective meanings of DR experiences through closed and open-ended question (Appendix C-1). The interview was a structured way of obtaining information on a focused content (Swetnam, 1997) through a list of issues and questions to be answered and also accommodated interviewees who wished to develop and discuss topics more widely (Denscombe, 2003). Not all participants were asked the same questions in the same sequence and questions were worded in an open-ended format (Patton, 2002). The researcher employed a 'general interview guide approach' where the interviewer during the course of the interview decided on the sequence and wording of the questions, enabling elaboration on an issue of importance either to the participant or to the research question. The interviewer tried to be clearly focused, objective and avoided interviewer, sample, and interviewee bias (Wragg et al., 1994), aiming to achieve a good balance between talking and listening during the interview process (Mason, 1996, 46) and utilising the skills of listening, remembering, and observing, as considerable interpersonal and interpretational skills were required (Swetnam, 1997).

The interview questions related to interviewees' DR experiences and knowledge, helped the flow of the interview interaction, ensured an appropriate focus on the research questions and respect, and sensitive to the respondents' needs and rights (Mason, 1996). Closed questions limited the number of possible data (Easterby-Smith et al., 1991) and open questions increased the analysis workload (Kane, 1985) and enabled the respondents to produce information they deemed relevant to their understanding

and experience. The semi-structured interviews had a carefully worded schedule, where an initial question was followed by probing questions (Appendix C-1). Less structure in interviews requires greater interviewer skill (Swetnam, 1997). Some questions were based on issues arising from the questionnaires and lesson-plan reflections, particularly on the relationship between Vygotsky's ZPD and DR practices (Vygotsky, 1978).

5.4.2 Interview Pilot Study

The aim of this pilot study was to investigate, more deeply, issues that had arisen from the survey and lesson-plan data analysis, e.g. the influence of DR on reading and comprehension, effective DR peer learning practices and the ways that DR practices could be related to Vygotsky's ZPD (Vygotsky, 1978). The specific purpose of the pilot study was to:

- Ensure the interview, purpose, language and questions of the interview were clear, concise and unambiguous;
- Monitor the interviewer's contributions, possible interruptions and leading questions;
- Evaluate the questions and sequence of questions;
- Monitor eye-contact, voice tone, body language and neutral verbal assurances;
- Allow interviewees opportunities to expand on issues of importance to them;
- Ensure all important issues arising from previous data was covered;
- Enable experience in interviewing using Skype and a tape-recorder;

Two semi-structured interviews were conducted using Skype in December 2014 with one Dublin and one Houston teacher, who emailed a completed interview feedback sheet (Appendix C-3). Feedback confirmed there were too many questions and some questions were rephrased, while less important questions were deleted and others were made less specific. Neither the two interviewees involved in the pilot study, nor the pilot information, were included in the main data.

5.4.3 Interview Procedure

The semi-structured interviews (Appendix C-1) consisted of 16 items within themed areas of strategies, influences, materials, facilitating factors, challenges and support/assistance in both set and open-ended questions, based on the survey and lesson-plan evaluation data analysis. Ten interviewees (five from Dublin, five from Houston) were selected from thirty volunteers (question 15 in the survey). Interviewees expanded on issues that they believed were important in DR implementation. The interviews were organised at a time and location convenient to the interviewees and were recorded following interviewee's permission as responses of both interviewer and interviewees were recorded (Easterby-Smith et al., 1991). All ten interviewees signed a consent form, submitted via email before the interviews (Appendix C-2). Also, the interviewer discussed confidentiality issues and the right to withdraw with interviewees. Interviewees were assured that all data was secured under two

passwords in a safe place. All interviewees received an ID number, identifiable information was removed, and the interviews were transcribed verbatim by the researcher. Transcripts were forwarded to each interviewee for clarification of interpretation. All ten audio-recorded interviewees lasted between 40 and 60 minutes (mean = 52). Four interviews were conducted face-to-face and six (one Dublin, five Houston) interviews were conducted via Skype between March and June 2015. The two pilot Skype interviews provided practical experience of managing sound control and internet reception. Interviewees' information is summarised in Table 5.5 below.

Table 5.5: Ten Interviewees (C1-5); (Z1-5)

City	Teachers	Qualification	Years Teaching Experience	School Type	Class Taught	Class Size
Dublin	C1	B Ed	2-5	State, Co-ed, Non-denom.	2	30
Dublin	C2	B Ed	11-15	Private, Girls, Church of Ireland,	3	26
Dublin	C3	M Ed	2-5	State, Girls, Roman Catholic,	4	29
Dublin	C4	M Ed	2-5	State, Boys, Roman Catholic,	5	18
Dublin	C5	M Ed	6-10	State, Co-ed, DEIS, Roman Catholic,	6	28
Houston	Z1	B Ed	16+	ISD, Co-ed, Non-denominational	1	16
Houston	Z2	B Ed	2-5	Private, Co-ed, R. Catholic,	2	20
Houston	Z3	B MEd	10-15	ISD, Co-ed , Non-denom. Disadvantaged	4	18
Houston	Z4	B Ed	6-10	ISD, Co-ed. Non-denominational	5	20
Houston	Z5	B Ed	2-5	ISD, Co-ed., Non-denominational	6	22

The ten interviews [female, n=9; male, n=1 (Dublin)] expanded on DR issues of importance to them, providing an insight into teachers' understanding and implementation of DR (Appendix C-1). Four interviewees had a Masters qualification and five interviewees had six or more years teaching experience, so this may be a consideration for analysis. These qualitative findings were explored, based on the four research questions through thematic analysis (Braun & Clarke, 2006).

5.4.4 Lesson-Plan Evaluation and Interview Analysis

Document analysis is defined as a systematic process for evaluating documents, the ten lesson-plans and evaluations. Document analysis requires that data be scrutinised and deciphered to provide meaning, understanding, and develop empirical knowledge (Corbin & Strauss, 2008). In this study, document analysis provides:

- data on the context within which research participants operate
- analysis as a way of verifying evidence from other sources (Bowen, 2009, pp. 29-30).

Convergence of information from different sources adds to the validity of the findings. Document analysis is less time-consuming and therefore more efficient than other research methods, requiring data selection rather than data collection. Advantages of document analysis include availability, cost-effectiveness, lack of obtrusiveness and reactivity, exactness, and coverage of many events and settings (Bowen, 2009; Yin, 1994). However, weaknesses can include insufficient and biased detail. These potential flaws are outnumbered by the efficiency and cost-effectiveness which outweigh the limitations. In this research, documents provided contextual and practical evidence and were the most effective means of gathering data when DR could not be observed and/or when participants had forgotten specific DR implementation details.

Thematic analysis (TA) was employed in the analysis of the ten lesson-plan evaluations and the ten interview transcripts. TA has two principles - the similarity principle is most common and provides commonalities that can be included in one group in the data (Teddlie & Tashakkori, 2009). The other principle, the contrast principle discovers how different one symbol is to other symbols and it is used in the final stages of analysis (Spradley, 1979) and also in comparative case studies (Yin, 2003). TA provides answers to the four research questions (especially research question four), employing interpretative constructive methods. These answers could not be addressed solely by quantitative methods. Discourse analysis was deemed unsuitable for this research as it employs oral language to portray issues and, while oral language is a core part of DR and ZPD, it would not adequately enable exploration of teachers' assumptions about DR, as well as their practices. Thematic analysis was the most appropriate method for this research, as it works well with most theoretical frameworks and helps the development of themes and patterns from narrative (Merton, 1975).

The researcher employed thematic analysis in the ten lesson-plan evaluations and the ten interview transcripts by systematic rereading and regrouping using colour codes (red, yellow, blue), with regular revisiting of data to identify themes using inductive techniques (Teddlie & Tashakkori, 2009). Numerous rereads uncovered hidden themes (Morse & Field, 1995) using both line-by-line coding or thematic coding (Moynihan, 2013) and colour coding. This resulted in collation of data, leading to interpretative, rather than descriptive, coding (Langdrige, 2004). Three stages in qualitative analysis include analysis preparation stage, data exploration stage and, finally, data reduction stage (Mertens, 2010). Transcription of interview data included part of the preparation and exploration phases, leading to flow diagrams of themes. The data reduction phase occurred as data was compared between lesson-plans and interviews incorporating triangulation and consistency checks across the survey, lesson-plans and interviews (Mertens, 2010). One interview transcript and one lesson-plan was reviewed by two teachers, PhD student colleagues experienced in qualitative analysis, and their theme summaries were similar to the researcher's themes. Cross-case analysis was then conducted on all ten interviews and ten lesson-plan evaluations to ascertain common themes, by revisiting all the data, looking for patterns (Braun and Clarke, 2006) or similarities and contrast principles (Spradley, 1979) and multiple re-readings of data to identify hidden themes. This involved fresh coding using different colours

(green, orange and purple) producing many themes. Checking and rechecking for linkages reduced the number of themes. Using comparisons further reduced the themes. Similar themes emerged with few contrasting symbols (Spradley, 1979; Yin, 2003). Five similar themes emerged in the interviews and four in the lesson-plan evaluations.

5.5 Ethics, Confidentiality, Reliability and Validity

PhD research must follow strict codes of ethics and procedures. The first section details the research approval gained from the School of Education, Trinity College Dublin and from the Houston ISDs.

5.5.1 Research Approval

This research successfully met the ethical guidelines set out by the School of Education in Trinity College in March 2013. Written confirmation of this approval was post-dated and provided in December 2016 (Appendix D). Permission was sought from the Independent School Districts (ISDs) in Houston before approaching elementary schools for research purposes. The researcher submitted a research proposal to the relevant two ISDs in November 2011. The proposal was accepted in December 2011 (Appendix E-2), and the two ISDs issued a list of elementary schools to the researcher. The researcher gained research permission from twenty elementary school headteachers and fourteen elementary schools participated in the research. In Dublin, the researcher approached sixty-six primary school principals and forty-eight schools participated in the research.

Various measures were taken to ensure the confidentiality and anonymity of participants in this study. All participants were given an ID code and all known identifiable characteristics of participants were omitted wherever possible (Kvale and Brinkmann, 2009). All participants received a cover letter, assuring them of confidentiality, where only the class/grade, type of school and country would be identified. All participants were informed of their right to withdraw from the research at any stage. Interviewees were informed by email, prior to interviews, of issues pertaining to the access of recordings, length of time recordings will be retained and all interviewees reviewed interview transcripts before analysis. All data, transcripts, recordings, lesson-plan evaluations, SPSS notes, and the reflective journal will be stored and secured for up to five years in a locked filing drawer following the Trinity College Dublin research data regulations and ethical guidelines. All identification information was locked in a computer secured by two passwords. All respondents were assured that research data would be shredded after five years.

Building relationships, rapport and trust with schools was a priority of the researcher (Maxwell, 2005) who lived in Houston for the first year of her PhD studies. This facilitated relationship building with the two ISDs and the proposed 20 elementary schools. The researcher discussed her research with the Head-Teachers in Houston and with the principals in the 66 Dublin primary schools the following year, restricting the initial role of ‘gatekeepers’. However, gatekeepers may have given or withheld access to the 1200 questionnaires delivered to the 86 schools (Heath et al., 2007). Relationships with

schools could also impact on the data as well as researcher interpretation (Flyvbjerg, 2006) and the Hawthorne effect.

5.5.2 The Hawthorne Effect

The Hawthorne effect, where research participants modify or improve aspects of their behaviour in response to their awareness of being observed was named after Hawthorne Works, a telephone electrical parts factory near Chicago. The original study investigated different lighting levels' impact on workers' productivity and suggested that research participation experience could lead to positive productivity changes, regardless of lighting levels (Roethlisberger & Dickson, 1939). The Hawthorne effect in this study could have resulted in participants positively altering their conceptions of DR or reporting practices favoured by DR due to the research participation experience. This could have resulted in a more positive outcome towards DR, influencing data reliability and validity. However, measures taken to counteract the Hawthorne effect included the triangulation of three instruments - survey, lesson-plans and evaluations and interviews, establishing research validity and confirming data from different instruments (Cohen et al., 2000). Strong consistency between data from all three instruments highlighted the reliability thereby minimising the Hawthorne effect. No observations were conducted in this research following the Houston ISD Research Approval conditions (Appendix E-2). Both the survey and lesson-plan evaluations were completed individually and returned in sealed envelopes. All ten lesson-plans and evaluations were submitted via email. Four interviewees were conducted face-to-face but six were conducted via Skype, thus personal contact with research participants was kept to a minimum to counteract the Hawthorne effect. This study did not provide 'correct' DR definitions, or practices and so differed from previous DR studies which provided practical and theoretical information on DR, (Little et al., 2014; Pilten, 2016; Reis et al., 2007; 2008, 2011; Shaunessy-Dedrick et al., 2015), thereby possibly influencing participant responses. This researcher, attempting to minimise the Hawthorne effect, simply sought participants' understanding and implementation of DR. The researcher carefully monitored her own language, questions, comments, body language and reactions during interviews allowing participants to discuss their understanding and implementation of DR without divulging her opinion thereby minimising the Hawthorne effect. The next section addresses other possible threats to data interpretation.

5.5.3 Validity, Reliability and Possible Threats to Data Interpretation

During the research process, special care was taken to counteract internal and external threats to the reliability and validity of data to ensure transparency and objectivity. The inferred categories had adequate evidence and no non-supporting data was added, so avoiding inference discrepancies. Only the researcher worked on the data therefore, conflicting interpretations were avoided. The researcher had no professional or personal relationship with any study participants so avoiding possible impact on data affected by relationships. The ten lesson-plan participants and the ten interviewees self-selected themselves from the DR survey so the same selection procedures were used with all participants. As

already stated, no DR definitions were provided thereby eliminating possible different interpretations or influence of data. However, the researcher did use different terms, e.g. class/grade; EAS/G&T, etc. as different terminology is used in the two culturally diverse contexts (Appendix A-1, A-2).

The reliability of the data measures the consistency, stability, objectivity and precision and tests the ability to produce consistent findings every time the procedure is repeated (Plummer, 1983; Sarantakos, 2013). ‘Validity measures relevance, precision and accuracy (Plummer, 1983) and tests the ability to produce findings that agree with theoretical and conceptual values (Sarantakos, 2013). Each interview transcript and lesson-plan evaluation was transcribed, reviewed, rechecked and analysed in a diligent fashion, to ensure precision and accuracy. All ten interview transcripts were emailed to the interviewees to ensure that objectivity and precision had been recorded prior to analysis. Two teachers/ PhD students, experienced in qualitative analysis reviewed one interview transcript and one lesson-plan evaluation and their themes/main points were similar to the researcher’s theme, highlighting objectivity, precision and consistency. Triangulation of results and a strong consistency between data from all three instruments, and clear consistency throughout the survey data between DR conceptions and practices highlighted reliability and validity (Cohen et al., 2000; Denscombe, 2003). The above measures demonstrate the special care taken to counteract threats to the reliability and validity of data interpretation in this research. However, this research was conducted between April 2013 and June 2015 before the PLC introduction (DES, 2015) and school in-service differentiation training. Future research could explore differences in DR perspectives and practices in Dublin schools between this research (pre-PLC) and post-PLC data

5.5.4 Minimising the Researcher’s Impact on Participants

The position of the researcher influences all stages of the research process. The researcher, as a primary/elementary school teacher, taught in primary schools in Dublin and in elementary schools in Houston and this provided a unique insight and understanding of the two educational systems, as well as the different approaches to DR implementation. The researcher endeavoured to concentrate on the participants’ thoughts, ideas and understandings and to avoid dwelling on the findings the researcher may have originally anticipated (Mosselson, 2010). The researcher only spoke to school principals prior to the survey, minimising impact on participants. In interviews, the researcher also strove to be as objective as possible and to avoid encouraging or leading the respondents to answer in a particular way so avoiding the likelihood of interviewer comments ‘leading’ research findings. Recording the interviews helped the researcher become aware of her own verbal and non-verbal behaviour, endeavouring to be as objective as possible. Researchers must constantly question their position and possible potential ramifications of their position on the research (Berger, 2013).

Reflexivity is an important component in this research and can result in more reasoned objectivity (Lohan, 2000) when undertaken responsibly (Finlay, 2002; Ryan, 2006). The researcher kept a

reflective journal throughout the PhD journey, enabling her to develop her understanding of Vygotsky's learning theories in relation to DR practices. The diary also helped her become aware of possible researcher bias towards DR implementation and documented different responses and themes emerging from the analysis. The researcher endeavoured to concentrate on the participants' thoughts, ideas and understandings and to avoid dwelling on the findings the researcher may have originally anticipated (Mosselson, 2010). The researcher also strove to be as objective as possible and to avoid encouraging or leading the respondents to answer in a particular way so as to reduce the likelihood of interviewer comments 'leading' research findings.

5.6 Chapter Summary

This chapter described the methodological approach conducted for this research. This chapter was presented in two sections. The first section presented the research structure and study design guided by the literature review and the rationale for the sequential mixed method approach employed including philosophical foundations of this approach. The second section outlined the methodological issues on the development of the questionnaire, the lesson-plan evaluation template and the semi-structured interviews. The rationale for the selection of these methods, techniques and instruments was discussed. Piloting, sampling design, instrumentation and bias procedures were documented and procedures adopted to ensure reliability and validity were also provided. The chapter concluded with a detailed discussion on the analysis and statistical tests, and thematic analysis employed for each stage and the ethical considerations adopted through the development and deployment of the research tools. Validity and reliability were prioritised in this research. Various measures were taken to minimise the Hawthorne effect and the researcher's impact as a teacher on participants including triangulation of the three instruments, maintaining minimum personal interaction, especially in interviews, providing sealed envelopes for completed surveys, and the non-inclusion of 'correct' DR definitions or practices in the three instruments.

The following chapter, Chapter Six, provides a discussion on the findings from the Dublin schools.

Chapter Six: Findings from the Dublin Case Study

6.0 Introduction

The next three chapters present the analysis of the findings of this research on teachers' conceptions about and implementation of DR in primary and elementary schools. Chapters Six and Seven form a suite of findings, firstly, presenting the data from the Case Study in Dublin (Chapter 6), followed by a similar discussion on data collected in Houston (Chapter 7). Chapter Eight provides an analysis of the main findings. A summary of the Survey (n=645), Lesson-plan Evaluations (n=10), and semi-structured Interviews (n=10) was presented in Table 5.1.

A sequential, pragmatic approach was adopted in both Case Studies, incorporating 645 returned questionnaires (54% response rate), ten lesson-plan evaluations, and ten interviews. The codes applied to the Dublin and Houston participants are outlined in Table 6.1.

Table 6.1: Coding of Respondents (n=645).

Respondents	Dublin	Houston
Survey participants	A 1-330	X 1-315
Lesson-plan Evaluations	B 1-5	Y 1-5
(LP respondents)		
Interviewees	C 1-5	Z 1-5

This DR Case Study in Dublin had three components: a Survey (A) (n=330), five Lesson-plan Evaluations, (B), and five semi-structured Interviews (C). The study investigated the understanding and implementation of DR (DR) of primary teachers in Dublin. The instrument design was presented in Chapter Five, Methodology. The biographical details of the Dublin survey respondents are presented first, followed by a discussion on the data based on the four research questions. Discussion focuses on teachers' practices and on factors perceived to support and hinder DR and teachers' understanding and implementation of DR in relation to lesson content, process and product. Also explored are the ways DR practices relate to Vygotsky's ZPD.

Survey data were coded and entered into an SPSS file. Descriptive and inferential tests were conducted on the numerical data, as appropriate. Answers to the open-ended survey question and qualitative lesson-plan evaluations were collated and analysed thematically, including rereads and regroupings to identify emerging themes and sub-themes. Thematic and document analysis was employed in the analysis of the five lesson-plan evaluations and the five interview transcripts. Several recurring DR themes emerged from participants' DR instructional practices in this research and are

discussed later (Bowen, 2009; Braun & Clarke, 2006). Interview' transcripts were emailed to the interviewees for validation before analysis (Section 5.7.4).

6.1 Participating Schools and Teachers

Sixty-six primary schools in Dublin were approached and 48 schools participated in the current study (73% response rate) based on the DES statistics on the different types of primary schools in Dublin (DES, 2013). This process was previously discussed in Section 5.5. The researcher personally delivered and collected all completed questionnaires between September and November 2013, incorporating several visits to ensure maximum return of completed questionnaires. There was a 55% return rate from the original 600 distributed questionnaires in 66 primary schools. From the 48 participating schools, a 79% questionnaire response rate of 330 teachers was recorded from a cohort of 420 teachers. Most (92%) teachers worked in State schools and 8% of teachers worked in Private schools. Most (84%) teachers were female and just 16% were male. The percentage of male teachers may have been influenced by the participation of teachers from the 12 single-sex Boys schools, which frequently employ a higher percentage of male teachers.

School data are summarised in Figure 6.1.

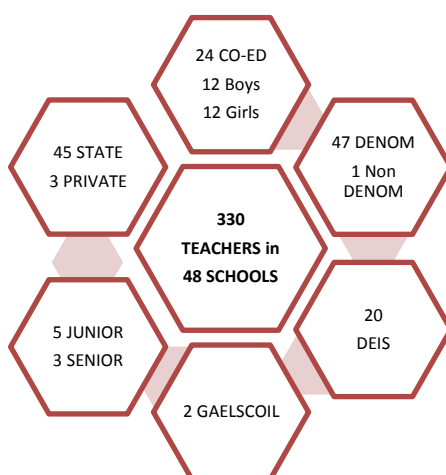


Figure 6.1: Dublin: Participating Schools

Forty-seven of the 48 participating schools were denominational schools, representing 97% of participants. Forty-two schools were Roman Catholic, representing 87% teachers and five were Church-of-Ireland schools, representing 7% of teachers. The sole, nondenominational, co-educational school represented 3% of teachers. The 24 coeducational schools represented 46% of teachers. The 24 single-sex-schools represented 54% of teachers - 28% taught in the twelve single-sex Boys schools; 26% taught in the twelve single-sex Girls schools; 9% taught in five Junior schools (Infants – 1st Class), and 12% taught in the three Senior schools (2nd – 6th Classes). DEIS schools accounted for 34% of teachers and 5% of participants taught in the two Gaelscoileanna.

6.1.1 Profile of Survey Participants

The biographical details of the Dublin survey respondents (n=330), five lesson-plan participants, and the five interviewees are presented first, followed by a discussion on the data answering the four research questions.

The majority of teachers were female, with a B.Ed. degree. Female teachers accounted for 84% (n=278) and 16% of teachers were male (n=52). Seventy percent of female teachers held a B.Ed. qualification and 91% of male teachers. A Master's degree was held by 22% of females and 6% of males. Diplomas accounted for 4% of females and 2% of males, while 2% of females only obtained a Higher Diploma and a PGCE, respectively. No teacher held a doctorate.

Class teachers accounted for 85% of the 330 teachers and 84% were females. Ninety-two percent of all males were class teachers and 8% of all males were Learning Support teachers. Most female teachers (32%) taught First Class, while most males (34%) taught Sixth Class. The fewest class female teachers taught Fourth and Sixth classes, respectively (26%), and the fewest males taught First class (11% of 52 males). Only females were resource teachers (5%); teaching-specialists, reading teachers and 'other' (1%, respectively). Twelve percent of females were learning support teachers. Most teachers, (35% female and 38% male), taught classes with 26-30 children, which is the average classroom size in Dublin State Primary schools.

Table 6.2: Dublin (n=330) Teacher Gender and Class Size (percentage)

Class size	Class Teacher (85%)				Non-class Teacher (15%)			
	31-35	26-30	21-25	16-20	11-15	6-10	1-5	Individual
Female(n=278)	16	35	21	11	2	2	11	0.4
Male(n=52)	13	38	30	6	4	2	8	0
Total (n=330)%	15	36	22	10	2	2	11	0.3

Classes with 21-25 children had the second highest rate (21% female, 30% male). Classes with 31-35 children had the third highest rate (16% female, 13% male). Classes with 16-20 pupils had the lowest number of class teachers (11% female, 6% male). This class-size data could be influenced by the fact that 34% of participants taught in the 20 DEIS schools which have smaller classes and by the 49 (15%) non-class teachers as they teach small classes (1-15 children). No teacher taught classes of over 35 children. However, research indicates that reducing class sizes can improve achievement (Schanzenbach, 2014; Shin & Chung, 2009; Zyngier, 2014) so therefore children in large classes are at a disadvantage academically (Kavanagh, Weir & Moran, 2017). No males taught individual children. This is one area for future research - is this general school policy or personal safety policies in schools?

Finally, the area of gender and teacher experience is explored. Most female teachers (34%) had 6-10 years teaching experience. Newly qualified teachers (2-5 years) accounted for most males (36%) and over a fifth of all females. McCoy et al., found that nine-year-olds taught by more experienced teachers received higher reading test scores (2014b) suggesting that teacher experience can influence literary academic attainment. Just 9% of males and over a fifth of females had over 16 years teaching experience. Two percent of males and 7% of females had taught for one year. The remaining females had 11-15 years teaching experience and the remaining males had 6-15 years teaching experience. If this sample is indicative of the general teaching population, do most males leave class teaching for other positions after 15 years?

6.1.2 Profile of Lesson–Plan Evaluation Participants (B1-5)

The Lesson-plan evaluation template is a three-page document with 15 questions, including a lesson reflection (Appendix B-1). All five respondents participated in the questionnaire.

Table 6.3: Dublin Lesson-Plan Evaluation Participants (B1-5)

Teachers	B1	B2	B3	B4	B5
Qualification	M Lit	M Ed	M Ed	B Ed	M Ed
Years Teaching Experience	6-10	16+	2-5	2-5	11-15
School Type	State, Co-ed Non-denom.	State, Co-ed Church of Ireland	State, Girls Roman Catholic	State, Co-ed, DEIS Multi-denom.	State, Boys R. Catholic
Class Taught	2	3	4	5	6
Class Size	25	28	29	16	28

The lesson-plan evaluations provided an insight into five (female) teachers' understanding and implementation of DR. Four teachers had a Master's degree and three teachers had six years or more teaching experience. Important information on the lesson topic, class, lesson duration, and number of students in class was provided, as well as details on groups, teacher support, collaboration, imitation, meaning-making, assessment, levels and types of activities, resources, and differentiation through content, process and product.

6.1.3 Profile of Dublin Interviewees (C1-5)

The five semi-structured interviews were conducted with the Dublin teachers from April-June 2015. The set and open-ended questions were based on questionnaire and lesson-plan evaluation data analysis.

Table 6.4: Dublin: Five Interviewees (C1-5).

Teachers	C1	C2	C3	C4	C5
Qualification	B Ed	B Ed	M Ed	M Ed.	M Ed
Years teaching Experience	2-5	11-15	2-5	2-5	6-10
School Type	State, Co-ed Non-denom	Private, Girls Church of Ireland	State, Girls Roman Catholic	State, Boys, Roman Catholic	State, Coed, DEIS, Roman Catholic
Class	2	3	4	5	6
Class Size	30	26	29	18	28

The interviewees - four female and one male - self-selected themselves from the survey invitation. They expanded on issues that they believed were important in DR implementation and provided an insight into teachers' understanding of DR (Appendix C-1). Three interviewees had a Masters qualification, so this may be a consideration for analysis. Three interviewees had between 2-5 years teaching experience. Findings were identified through thematic analysis (Braun & Clarke, 2006).

6.2 Results

This study explored the DR practices employed by teachers in 48 selected Dublin primary schools through 330 surveys (A-1), five lesson-plan evaluations (B-1), and five semi-structured interviews (C-1). In general, participants' responses to the individual questions were very high, unless otherwise noted. In this section, data are presented in answer to the four research questions:

1. What are teachers' conceptions about DR and associated pedagogical practices?
2. To what extent is the modification of content, process and product related to DR pedagogical practices?
3. What factors facilitate and hinder DR implementation?
4. To what extent are elements associated with Vygotsky's Zone of Proximal Development relevant to teachers' understanding and implementation of DR?

The findings are presented under main themes of the four research questions..

Table 6.5: Dublin: Themes based on Research Questions and Literature Review

Research Questions	1	2	3	4
Themes	Teachers' conceptions	Content	Facilitating Factors	Oral Language
	Implementation reasons	Process	Reading practices	Imitation
	Impact of DR on: Reading, Comprehension	Product	Obstacles	Collaboration
		Environment		Meaning-making
Literature Review Sections	4.5.1 - 4.5.3	4.7.1 - 4.7.4	4.8 - 4.9	2.4 4.10

The findings from the data will now be explored in answer to the first research question. In all survey tables, the value of ‘missing’ teachers in all tables is very low, between 2-7. Totals do not equal 100% due to rounding errors.

6.3 Teachers Conceptions about DR

DR conceptions are explored through teachers’ definitions of DR and through the reading strategies, assessment and groupings employed, emerging from the Literature Review on DR (Chapter Four, 4.2-4.3; 4.8-4.9).

6.3.1. Teachers’ Understanding of DR

Teachers’ understanding of DR was explored in open-ended qualitative responses in the survey. 227 participants (69%) described what DR meant to them (Appendix A-1, q.8). The 227 responses were summarised to thirteen categories through thematic analysis (Braun & Clarke, 2006).

Table 6.6: Dublin: Teachers’ Conceptions of DR (n=227 – 69%).

	Definition Factor	Percentage
1	Individual goals	65
2	Match content & process to individual needs	56
3	Match content to each child’s needs	35
4	Different groups, interests, pace,	29
5	Positive reading experience, reading is fun, aids confidence,	25
6	Develop comprehension and reading skills	21
7	Dialogue, discussion listening	20
8	Differentiate content, process, product to meet pupils’ needs	15
9	Different homework, product, outcome,	12
10	Flexible teacher support	11
11	Extensive planning & preparation	9
12	Task, Outcome Resource, Support, Dialogue, Pace, Choice	2
13	I’d like to do more DR - obstacles - lack of time, class size	1

Just 17% provided a comprehensive DR definition supporting Pilten’s findings (2016). 15% stated that DR meant ‘differentiate content, process and product to meet pupils’ needs’ and 2% mentioned the NCCA’s 7 factors for EAS (2007), - Task, Outcome Resource, Support, Dialogue, Pace, Choice’. All other responses presented partial definitions. Some responses were very comprehensive and responses were apportioned to several relevant categories, as this was qualitative data, whilst others were succinct e.g. ‘*match activity to individual child*’ (A333) and ‘*Tailor instruction to children’s reading needs*’ (A607). Individual goals received the highest mention. Over half of all teachers chose ‘matching content and process’, which included matching lesson, instruction, environment, tasks, work, reading activities, pace to children’s learning needs. Over one third of teachers chose ‘matching reading content’ (including materials, genres, choice, etc.) to individual pupils needs. Different groups were mentioned by 29% of participants. Positive reading experiences included ‘*promoting confidence*

in reading, positive reading environment, reading is fun’, accounted for 25% of responses. Specific reference to reading was made in five categories – 1,2,4,6 and 9. Just 21% of teachers mentioned comprehension/reading skills and just 20% declared dialogue (discussion and listening). All answers were generally positive about DR. Nine percent of teachers voiced concern over extensive planning and preparation requirements and 1% found that class size and lack of time militated against DR implementation.

6.3.2 Impact of DR on Reading and Comprehension

The Interviewees and LP respondents (Appendix B-1, q13) provided information on this issue but no information was sought from the survey participants. All five interviewees and five LP respondents stated that DR improved comprehension and they all stated that discussion was the best method for clarifying comprehension, *‘they understand more about the topics through their discussions, research and predictions’* (C3). Six Dublin teachers (three interviewees and three LP respondents) agreed that DR improved reading and that DR encouraged children to read more; *‘It improves reading!’* (C2), *‘because they are encouraged to read and to find pleasure in the story’* (B2), and *‘they are really interested in reading the three books on their wish list some were recommended by peers’* (B4). Some found that relevant text levels and vocabulary work helped – *‘appropriate text levels encourages reading’* (B2) and *‘it helps reading but I do vocabulary work first’* (C1). The remaining four Dublin teachers stated that DR ‘sometimes’ improved reading. Two LP respondents stated that the specific lesson submitted did not improve reading but that DR does improve reading. *‘Not this lesson, as I read the poem and children’s rhyme and patterns skills increased but DR does improve children’s reading’* (B1). *‘They’ve learned about context so their understanding and interest in reading has improved’* (B5).

6.3.3. DR Implementation

In order to explore teachers’ DR practices, it is important to ask two questions: Do teachers employ DR? Why do teachers use DR?

All 330 teachers stated that they used DR. The survey and lesson-plan evaluation self-reported data validated the fact that teachers employed DR. The frequency of DR implementation through content, process and product will be discussed in research question two. General DR implementation was explored in the interviews. Four interviewees stated that they used DR daily and C5 used DR three times weekly with her sixth class. Having ascertained that all respondents used DR, the study explores ‘why’ teachers employ DR in their classrooms.

The survey participants selected one or more options - *School Initiative, In-service course, Personal interest, Other – please explain* - to best describe why they employed DR.

Table 6.7: Dublin: DR Implementation

In DR I use data from:	Never	Once a year	Few a term	Few a month	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Assessment for Learning (Afl)	1			14	22	30	32	2.8
Assessment of learning (Aol)	1			15	40	24	20	2.5
Standardised Assessment	6	9	1	59	8	6	6	2.1
Diagnostic Assessment	5	6	1	58	13	8	5	1.9

Note – Teachers could choose all three first options.

Most teachers use DR due to a ‘*School Initiative*’, therefore it would appear that school level planning or school/colleague support is perceived as important in providing DR. All five interviewees stated that they would like more school support in delivering DR. Over half (54%) chose ‘*Personal Interest*’ as did four LP respondents and interviewees respectively. In the ‘*Other*’ category, 10% wrote ‘personal belief’, so this suggests that teachers are open to and interested in DR. Just 5% used DR due to *In-service* courses. This is supported by all interviewees, who stated that there is a great need for CPD differentiation training for teachers. Under the ‘*Other*’ category, 14% chose *different levels of students*, 8% included *students’ needs* and 5% chose ‘*College*’. Two interviewees stated that they benefitted from DR training in college (C1, C3). However, C4, recently qualified, stated that ‘*college did not prepare me for DR*’. C2 noted that she would ‘*benefit from DR training to create a DR environment*’ but never received training in college or through in-service courses. Having discussed participants’ reasons for DR implementation, the next section explores participants’ thoughts on what constitutes the ‘DR environment’.

6.3.4 The DR Environment

Table 6.8: Dublin (n=330): DR Environment %

What is important in a DR environment?	Neutral	Agree	Strongly Agree	Mean
Teacher as facilitator.	2	28	71	3.7
Display of students’ work	7	32	62	3.6
Active learning, e.g. projects	9	32	58	3.5
Students’ interests, culture	7	37	56	3.5
Individual Learning Plans/goals	11	35	53	3.4
Tiered activities	10	39	52	3.4
Flexible groups	12	37	50	3.4
Respect	8	51	40	3.3

Teachers rated eight options across a 5-point scale from ‘*Strongly Disagree*’ to ‘*Strongly Agree*’. No teacher ‘strongly disagreed’ or ‘disagreed’ with any factor. Over half chose ‘strongly agree’ for the first six options. ‘Teacher as facilitator ...’ is important in a DR environment as 71% of teachers ‘strongly agreed’ and 99% ‘agreed’. (Six interviewees/LP respondents strongly agreed).

Statistical analysis revealed a significant difference between the responses of independent samples by teachers in DEIS/nonDEIS schools to the variable ‘Teacher as a Facilitator’ (Chi Square = 6.405; df=2; p=.041). Teachers in DEIS schools rated the teacher as a facilitator more highly than their counterparts. This is contrary to research data where DEIS teachers employed more teacher-centred and structured approaches, more frequent ICT usage and less active teaching methods than their counterparts (McCoy et al., 2012b; McMahon et al., 2015). *Classroom display of students’ work* was the second choice. (Seven interviewees/LP respondents *strongly agreed*). *Active learning* and ‘*consideration of students’ interests*’ received the same mean score (3.5) but different ‘*strongly agree*’ scores. Seven interviewees/LP respondents *strongly agreed* with ‘*active learning*’ and nine *strongly agreed* with ‘*consideration of students’ interests*’. Three options - *Individual goals, different learning styles and flexible groups* received the same mean score (3.4) but different *strongly agree* scores. Flexible groups will be discussed later under ‘Groups’ (Section 6.4.4). ‘Respect’ received the highest ‘agree’ score (51%) but the lowest ‘strongly agree’ score. The term was deliberately left open to encompass respect for teachers and pupils. Six interviewees/LP respondents ‘strongly agreed’ with ‘Respect’.

In question 3 (Appendix, A-1), 35% of teachers chose ‘*Positive Learning Environment*’ as the most important factor in DR, with a mean score of 2.7. All teachers chose it among their top four factors. Therefore, Dublin teachers rate a *Positive Learning Environment* as important in DR. McCoy et al. (2012b) found DEIS and non-DEIS nine-year-olds were positive about school and teachers and children with positive relations with teachers are more positive about school (Smyth et al., 2007). Creating a positive learning environment is very important in school development planning. All ten interviewees/LP respondents stated that context was important in DR in individual classes, class texts and in developing individual reading plans. During the poetry lesson on ‘Rain’, the children ‘*understand concept of rain and rainbows as it was raining that morning*’ (B1). C4 stated that children’s interests dictated the context of the Individual Reading Plans and C5 said ‘*the context of World War 2 was very important ...culturally and historically in class discussions in the four different texts*’.

In summary, most teachers stated that the teacher as a facilitator was the most important part of the DR environment. Over half of teachers stated that classroom display of children’s work, active learning and individual goals, consideration of children’s interests, culture, different learning styles and flexible groups for different activities were all important in a DR environment. Interviewee/LP respondents scores reflected the survey scores. The next section explores how teachers judge pupils’ starting point/ readiness and use assessment in DR.

6.3.5. Assessment

Assessment is central to DR and was explored in five survey questions (Appendix A-1, q.11, 6, 3, 10, 9). In survey question 11, teachers rated the influence of different types of assessment on DR across a

7-point scale from ‘Never’ to ‘every lesson’. Most teachers (84%) used data in DR from Assessment for Learning (AfL) and Assessment of Learning (AoL) at least once weekly.

Table 6.9 Dublin (n=330): Assessment Employed in DR.

In DRI use data from:	Never	Once a year	Few a term	Few a month	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Assessment for Learning (AfL)	1			14	22	30	32	2.8
Assessment of learning (AoL)	1			15	40	24	20	2.5
Standardised Assessment	6	9	1	59	8	6	6	2.1
Diagnostic Assessment	5	6	1	58	13	8	5	1.9

In ‘every lesson’, more teachers, (32%) used information from AfL (highest mean score, 2.8) than AoL (20%). Interestingly, 53% of teachers stated that ‘continuous assessment’ occurred in every DR lesson and 85% stated that it occurred at least once weekly (Table 6.19). Therefore, this suggests that teachers do not always incorporate assessment data in their DR implementation. However, most teachers used information from standardised assessment data (59%) and diagnostic assessment data (58%) a few times a month. Statistical analysis revealed a significant difference between the responses by teachers in DEIS/nonDEIS schools to the AfL variable (Chi Square = 10.602; df=4; p=.031). Teachers in DEIS schools used data from AfL more frequently than teachers in nonDEIS schools. This is contrary to the DES Inspectorate evaluation of DEIS schools which found that there were deficiencies in assessment practices, data collection and utilisation, (DES, 2015) where most of the 110 recommendations on assessment and differentiation related to literacy and numeracy practices.

In survey question 3, 12% of teachers chose ‘Reading instruction guided by continuous assessment’ and 25% chose ‘Different assessments’ as the main facilitating DR factor (Table 6.24). However, all teachers ranked both options among the top four facilitating DR factors, so teachers considered both continuous assessment and different assessments important in DR. In survey question 10, 90% of teachers chose ‘different assessments’ as helpful and 46% found them ‘significantly helpful’ (Table 6.11). ‘Pre-assessment of concepts’ was ranked ‘helpful’ by 90% and ‘significantly helpful’ by 40% of teachers in evaluating student readiness in DR. In survey question 9, just 4% of teachers viewed different assessments as a ‘significant obstacle’ while 39% rated them as ‘no obstacle’.

All ten LP respondents/interviewees used assessment information in DR lessons, listened to students reading and discussed texts, observed group discussions and employed questioning, ‘discuss text with them to assess their comprehension’ (C1) ‘consult previous class/teacher and standardised test results’ (C2). C3 conducted an ‘assessment to ensure girls are challenged’. C5 advised ‘Use assessment information as a teaching tool, use checklists as you observe students, building a picture of each learner’. B1 also used running records with her class of 25 students. All five interviewees used

AfL assessment to inform daily reading strategies and activities and AoL assessments regularly to ascertain children's attainment of certain skills. 'It's essential' (C3); 'I take the students' learning needs through informal continuous assessment' (C1) and C2 used it 'all the time'. All considered assessment to be important in DR as it was mentioned in nine of the 16 interview questions. Only C3 mentioned diagnostic assessment '*diagnostic, informal, continuous, summative,*' help in the classroom. Two teachers mentioned standardised assessments, 'I use *Drumcondra Tests for 2nd – 6th Classes*' (C4) and 'I don't bother with *Drumcondra Reading Test scores*' (C1). C5 stated that '*I use assessment results but don't be ruled by assessments*'.

In summary, most teachers used information from AfL and AoL at least once weekly in DR. All teachers ranked continuous assessment and different assessments among the top four facilitating DR factors, 90% rated different assessments as 'helpful' while just 4% ranked them as a 'significant obstacle'. Therefore, most teachers considered assessment important in DR and this was supported by qualitative data.

6.3.6 Evaluating Students' Reading Readiness

Evaluating students' reading readiness helps teachers to provide help where children need it most. Teachers rated the nine factors that help evaluate student readiness across a 4-point Likert scale from 'No Help' to 'Significant Help'. Listening to, discussing, and observing students were the three main methods employed (supported by interview and lesson-plan data).

Table 6.10: Dublin (n=330): Evaluating Children's Reading Readiness (%)

Evaluating understanding & readiness	Minor Help	Moderate Help	Significant Help	Mean
Listening to the student reading	2	25	73	2.7
Discussion with the student	4	24	71	2.6
Observing pupil in individual/groupwork	4	28	67	2.6
Writing samples	6	34	60	2.5
Discussion/Feedback from teachers	13	31	56	2.4
Different assessments	10	44	46	2.4
Pre-assessment of concepts	19	40	40	2.2
Discussion/Feedback from parents	20	43	36	2.1
Self-evaluation	22	41	35	2.1

'Listening to the student reading' had the highest mean (2.7) and combined helpful scores (98%). 'Discussion with the student' and 'observation of student in individual and group work' had the same mean score (2.6) while 'discussion' received a higher 'significantly helpful' score (71%). 'Students' 'writing samples' was rated 'helpful' by 94% of teachers and this may apply more to senior classes or EAS. 'Student self-evaluation' had a higher rating for moderately helpful (41%) than significantly helpful (35%). Discussion will be further explored in section 6.4.3. Statistical analysis revealed no

significance between variable responses by teachers with different teaching experience or in DEIS/nonDEIS schools. Assessing children's reading readiness was not directly explored in the lesson-plans. Just two interviewees commented on assessing readiness, with C3 stating that *'I spend huge preparation at the beginning of year ...finding their starting point'* (C1).

In summary, most teachers assessed children's reading and reading readiness by listening to children reading, discussing reading with students, questioning children on texts, and observing students in discussion. Interview data supported the survey findings.

6.4 Factors Informing DR

In the survey, participants were asked to rate factors informing DR and 66% rated achievable goals and oral vocabulary as joint first factors. Over 40% of teachers incorporated students' readiness, reading needs, previous reading experiences and child-centred activities in every DR lesson. Almost all teachers (90%) incorporated *students reading needs* into DR at least once weekly. Both *child-centred activities* and *student' readiness* received the same mean score (4.0). The incorporation of *students'previous reading experiences* was ranked less important. Two areas of concern are the incorporation of *students' interests* and *students' favourite books*, which appear to be underused – just 4% and 2% of teachers used these in every lesson but the weekly figures are more robust.

Table 6.11: Dublin (n=330): Factors Informing Teachers' DR (percentage)

My DR incorporates...	A few per term	A few per month	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Achievable goals	2	4	5	24	66	4.5
Child's oral vocabulary	2	2	8	21	66	4.5
Students' reading needs	3	5	16	26	48	4.1
Identifying readiness	4	9	15	22	49	4.0
Child-centred activities	9	7	18	26	43	4.0
Previous reading experiences	6	12	19	18	41	3.7
Students' interests	20	28	30	15	4	2.5
Favourite books	35	33	17	10	4	2.0

Significance tests revealed a significant difference between teachers in nonDEIS/DEIS schools (Chi Square=11.063; df=5; p=.05) where DEIS teachers incorporated children's interests more frequently than teachers in nonDEIS schools. DEIS reports have revealed better results for lower-achieving pupils (DES, 2015; Shiel et al., 2015; Kavanagh, Weir & Moran, 2017), most likely due to literacy initiatives, including homework clubs/summer camps, school books grant scheme and additional funding targeted at book loan/rental schemes (Weir et al., 2011). Also, incorporating children's interest in reading encourages children to read (Ankrum, 2006; Little et al., 2014; Reis et al., 2011). Analysis revealed a significant difference between experienced/less-experienced teachers in child-

centred activities (Chi Square= 27.897; df= 16; p=.033) where experienced teachers (6-15years) employed more child-centred activities in every lesson than teachers with (1-5years). Child-centred activities incorporation may be associated with teaching experience and established classroom practice as fewer recently qualified teachers used child-centred activities resulting in nine-year-olds' higher reading test scores when taught by taught by more experienced teachers (McCoy et al., 2014b). However, the 16+ years category used this strategy least so perhaps this may be due to changes in teacher education and to lower incidence of group-work and active learning methods and predominance of whole-class teaching (Murphy, 2004; NCCA, 2005, 2008) in research on the 1999 PSC (DES).

In summary, most teachers incorporated - *identifying students' readiness, reading needs; previous reading experience* and *child-centred activities* at least once weekly. Statistical analysis revealed that DEIS teachers incorporated children's interests in DR more frequently and experienced teachers (6-15 years) employed child-centred activities more frequently. Few teachers incorporated '*students' interests* and '*students' favourite books*' on a weekly basis.

6.4.1 Reading

In the survey, 98% found 'listening to the student reading' helpful, so this strategy was important in DR. All interviewees and four LP respondents employed '*listening to students reading*'. The survey participants were not invited to comment on types of reading, class texts or reading schemes but these topics were explored with the interviewees and LP respondents.

Table 6.12: Dublin (n=10): LP Respondents and Interviewees: Types of Reading Employed

Types of Reading	Lesson-plans	Interviews	Total
	B1-5	C1-5	
Daily read aloud	-	5	5
Whole class reading aloud together	1	0	1
Individuals Reading aloud to class	2	4	6
Read aloud in pairs	3	1	4
Individual children read aloud to the teacher	2	5	7
Teacher reading aloud to class	5	5	10
Listening to CD	0	5	5
Daily silent reading	3	5	8
DEAR – 'Drop Everything & Read'	0	3	3
Reading set amounts	3	5	8
Reading at child's own pace	1	5	6

Children spent less time reading aloud than reading silently. Six teachers employed individual children reading aloud. Two interviewees had pupils read one sentence aloud, daily. Teachers stated that reading aloud was helpful as children '*learn to pronounce difficult words*' (C2); '*phrase and read*

coherently' (B5); *'helps all children listen to the story'* (B1); *'helps the struggling readers to follow the story'* (C3) and *'helps pupils to love reading'* (C4). Four teachers used reading aloud in pairs, *'as (Sixth Class) hate reading aloud individually'* (C5). One lesson-plan had the whole class read a poem aloud (B1). All teachers read aloud to pupils on a weekly basis

Eight teachers had their children read silently for 5-10 mins daily. Three lesson-plans involved reading silently, individual lesson-plans incorporated reading plans (B4), literacy circles and reading journals (B5). Interviewees allowed *'10 mins. More for early finishers'* (C3) and used the five minutes silent reading as an introduction to a DR lesson (C4). Four teachers modelled silent reading as they read their books during silent reading time. *'I model silent reading as this encourages pupils to read'* (B1). *'Kids love it when I read with them'* (C1). DEAR (drop everything and read) was used by three interviewees who stated that DEAR contributed to the children's love of reading. *'When the children see me read it encourages them to read and enjoy books'* (C1). However, C5 disagreed with DEAR and stated that *'I HATE it – so artificial!'* C2 stated *'I don't have time to do it'*. Reading silently was easy for the teachers to organise, as *'every child can read their own book choice'* (C3) and *'they don't disturb anyone'* (C2), and *'It's a great incentive to finish a task as they get more time to read'* (C3).

Eight teachers used paired reading. Only interviewees mentioned children listening to stories on a CD and this was done during reading activity time and *'mostly done by weaker or EAL students'* (C3). Three lesson-plans (B1, B2, B3) set specific reading amounts of text, as lesson activities were based on set content. All interviewees used set amounts of reading for different groups of children based on *'different abilities'* (C4) for class activities but they also allowed children to read *'library books'* at their own pace.

In summary, all ten teachers read aloud to pupils on a weekly basis, stating that reading aloud was helpful, six employed individual children reading aloud and eight used reading aloud in pairs, eight had children read silently for 5-10 mins daily and set amounts of reading for different groups of children and four modelled silent reading. One teacher incorporated whole class reading aloud together.

6.4.2 Class Texts

The survey did not explore teachers' use of class texts or reading schemes. No interviewee or lesson-plan respondent used a reading scheme as *'reading schemes cannot cater for the pupil variance in my class'* (C2), *'I provide books for my pupils from my class and school library based on ability and interests'* (C5). C4 did not use a reading scheme but stated that *'I'd like a really good one for fifth and Sixth Classes'*, while C3 stated that *'I use lots of newspaper articles and extracts from the children's favourite books.'*

Different interviewees had different approaches - C5 used different class texts for different abilities – ‘Waiting for Anya’ and ‘Private Peaceful’ both by Michael Morpurgo are too difficult for 5 children (in Sixth Class), so they read ‘The Silver Sword’ by Ian Serrailier, which has the same theme. Four interviewees used two or more class texts with the class while C5 used five texts. C1 stated that she used *‘different texts by Michael Morpurgo, and Beast Quest books ... also, children choose own texts’*.

LP respondents’ class texts use also varied - B5 used four books on the same theme with her sixth class pupils, B1 used four different texts with her First Class, and B4 used a variety of different texts and genres with her Fifth Class. *Two LP respondents* used one set text with the entire class in the submitted lesson-plans (B2, B3). It was not possible to explore if this was for the specific submitted lesson or normal practice.

Despite the age range between First and Sixth Classes, similar authors were used in most classes - Marita Conlon-McKenna (C3, C4 C5); FB White (C2, C3) and Michael Morpurgo (C1, C5). All interviewees stated that pupils liked class texts regardless of ability for different reasons – *form of escapism* (C3), *helps struggling readers see reading as fun* (C1), *caters for all abilities* (C5), *stretches advanced readers to do advanced tasks* (C2), *love doing literacy circles on texts* (C4).

In summary, no teacher used a reading scheme, three employed four class texts for different abilities; five employed two or more class texts with the class and five interviewees stated that pupils liked class texts regardless of ability for different reasons. Similar authors were used in most classes despite different age ranges and this may suggest that teachers tend to use traditional authors rather than introducing new authors.

6.4.3 Flexible Grouping

Flexible grouping in DR and was explored in three survey questions (Appendix A-1, q.3,6,12).

Table 6.13: Dublin (n=330): Importance of Flexible Groups

	1 st	2 nd	3 rd	4 th	
What Factors Facilitate DR?	Choice	Choice	Choice	Choice	Mean
Flexible Grouping, whole class, pairs, small groups, individual work	16	29	26	29	2.

While 330 teachers chose ‘Flexible Groups’ among the top four DR facilitating factors just 16% chose it as the main factor (Appendix A-1, q.3). Statistical analysis revealed no significance between variable responses by teachers with different teaching experience or in DEIS/nonDEIS schools.

Table 6.15: Dublin (n=330): Flexible Groups for Different Activities

What is most important in a DR environment?	Disagree	Neutral	Agree	Strongly Agree	Mean
Students involved in flexible groups for different activities	1	12	37	50	3.4

Also, 50% of teachers '*strongly agreed*' that 'flexible groups for different activities' was very important while 87% believed that it was important in a DR environment, (Appendix A-1, q.12). Just three interviewees and two LP respondents rated flexible groups as very important in the DR environment. Four interviewees stated that large classes and little classroom space made flexible grouping difficult. They also said that teachers have little training (C1, C3, C5), experience (C4) or interest (C1) in flexible grouping. Finally, teachers commented on how frequently they used flexible groups (Appendix A-1, q.6).

Table 6.15: Dublin (n=330): Frequency of Flexible Groups (%).

These processes occur in my DR	Never	Few per month	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Flexible groups, whole class, pairs, individual	1	8	20	30	41	3.0

Ninety-one percent of teachers used '*flexible groups*' once or more weekly, and 41% used it daily. Significance tests demonstrated no significance between less-experienced/experienced teachers but a significant difference existed between teachers in nonDEIS/ DEIS schools (Chi square=12.314; df=4; p=.015) where teachers in DEIS schools employed flexible groups more frequently than teachers in nonDEIS schools. This is at variance with the findings of a lower incidence of flexible group-work and active learning methods in DEIS schools (McCoy, et al., 2012; Smyth et al., 2015). However, McCoy et al., (2014a) found **between-class ability grouping** and 'separate special classes' more common in DEIS schools which can be regarded as ability grouping. Meanwhile, the teachers in nonDEIS schools appear to support the pre-dominance of traditional, whole-class teaching in primary schools (Concannon-Gibney & Murphy, 2012; Murphy, 2004; NCCA, 2005, 2008). Further research could explore teachers' implementation of flexible groups in DR. Four LP respondents and all interviewees used flexible groups.

Table 6.16: Dublin (n=330): Groupings used by LP Respondents and Interviewees

Teachers	ILEs (n=5)	Interviewees (n=5)	Total
Grouping Mixed level	4	5	9
Grouping – same ability	5	5	10
Flexible groups	4	5	9
Interest Centres/ Interest Groups	2	2	4
Discussion – whole class	5	5	10
Discussion – small group	5	5	10
Discussion – Pairs	2	5	7
Tiered activities	5	5	10
Compacting	2	5	7
Enrichment	2	5	7
Literacy Circles	2	4	6
Think-Pair-Share	1	5	6
Snowball	2	2	4
Jigsaw	1	2	3
Specific DR activity		3 Literacy Circles, 2 flexible groups	

All ten teachers used same ability groups, nine employed mixed groups, seven used paired groups, seven used compacting and enrichment activities. Six teachers employed literacy circles and ‘Think-Pair-Share’, four used interest centres/interest groups and Snowball and three employed Jigsaw (C3, C5, B2) activities. The interviewees’ specific DR activity involved Literacy Circles for three teachers (C2, C4, C5, B5, B2), and flexible groups for C3 and C1. The teacher’s special area of interest was peer learning for three teachers (C3, C4, C5); flexible groups for C1 and small group discussions for C2. Just one LP respondent, B1 used individual 1-1 student-teacher reading incorporating running records.

In summary, 87% of teachers ranked flexible groups as important in DR and 91% employed flexible groups once/or more weekly. Statistical analysis revealed that teachers in DEIS schools used flexible groups more frequently than teachers in nonDEIS schools. All ten interviewees and LP respondents employed whole class, small group discussion tiered activities and same ability groups whereas nine used flexible groups and fewer teachers employed paired groups, literacy circles, compacting and enrichment activities. Just four teachers used same interest groups.

6.4.4 Summary

In this section, under Research Question One, teachers' conceptions about the DR context were discussed. In open-ended qualitative responses, teachers provided a fair description of DR, with most teachers mentioning individual goals and matching content and/or process to children's needs. All 330 teachers employed DR. Teachers implemented DR because of school Initiative (62%), personal interest (54%) and inservice courses (5%). The most important factors in a DR environment were the teacher, as a facilitator and role-model (99%); classroom display of children's work (94%); active learning and consideration of children's interests; individual goals, different learning activities and flexible groups. Fifty-three percent of teachers employed continuous assessment in every DR lesson with AfL as the most popular assessment (32%) in every lesson. Eighty-four percent of teachers used both AFL and AoL at least once weekly. Almost all teachers, (98%) assessed children's reading and reading-readiness by listening to children reading, 95% by both discussing reading with students and by observing students in individual/group work. Discussion with teachers (87%) and parents (79%) was rated less important than discussion with pupils (95%). Interestingly, more teachers rated discussion with parents as *moderately* than *significantly helpful* in evaluating children's reading and readiness. All ten LP respondents and interviewees used whole class and pair/small group discussion, six employed literacy circles, five used circle time and just two emphasised peer groups and peer learning.

Teachers' DR implementation incorporated students' reading needs (90%), readiness (86%), previous reading experiences (78%), child-centred activities (87%), interests (49%) and favourite books (31%) at least once weekly. Statistical analysis revealed that DEIS teachers incorporated children's interests in DR more frequently than teachers in nonDeis schools and experienced teachers (6-15 years) employed child-centred activities most frequently. Increased incorporation of children's interests and favourite books in DR implementation could help to motivate children to read more using peer learning and would help to address the pre-dominance of traditional, teaching methods in primary schools (Concannon-Gibney & Murphy, 2012, Murphy, 2004; NCCA, 2005; 2008). Flexible groups was ranked important in DR by 87% of teachers and 91% employed flexible groups at least once weekly. Statistical analysis revealed that DEIS teachers incorporated flexible groups more frequently than teachers in nonDeis schools All ten interviewees and LP respondents employed whole class, small group discussion tiered activities and same ability groups, nine used flexible groups and fewer teachers employed paired groups, literacy circles, compacting, enrichment activities and same interest groups.

The survey did not explore the impact of DR on reading and comprehension, types of reading or on reading texts as the researcher kept the survey within five pages in length to maximise teachers participation. However, these areas were explored in the ten interviews and lesson-plan evaluations.

All ten teachers stated that DR improved comprehension and that discussion was a very important element in comprehension. Six teachers stated that DR always improved reading while four stated DR ‘sometimes’ improved reading. All ten teachers read aloud to pupils on a weekly basis and all involved children reading aloud in DR- six employed individual reading, eight used paired reading and one involved whole class reading together. Eight teachers had children read silently for 5-10 mins daily, four modelled silent reading and the five used set amounts of reading for different children. No teachers used a reading scheme, eight employed two or more class texts, five stated that pupils liked class texts regardless of ability for different reasons. Similar authors were used in most classes despite different age ranges. Teachers can consult the Literacy Association of Ireland (LAI) Children’s Book Awards for introducing new authors to children. To avoid unnecessary repetition, other strategies, including different levels and choice of activities, will be discussed under ‘Processes’ in Research Question Two and oral language, individual goals, imitation, collaboration, peer learning, meaning-making and source of learning, will be discussed under Research Question Four.

6.5 Differentiating Content, Process and Product

This study investigated teachers’ DR implementation in relation to content, process and product in four questions (Appendix A-1, 4-7). First, the survey investigated whether teachers differentiated content, process and product in a 6 point Likert scale from ‘*never*’ to ‘*every lesson*’. Most teachers, 93%, differentiated through process at least once weekly and 46% differentiated in ‘*every lesson*’ and 90% percent differentiated through product at least once weekly and 40% differentiated in ‘*every lesson*’. While 87% differentiated content *weekly* just 24% did so in *every lesson*. Two percent never differentiated content and 1% never differentiated process or product.

Table 6.17: Dublin (n=330): Process, Product and Content. (% Teachers)

In DR I differentiate	Never	Few per month	once weekly	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Process	1	6	93	24	23	46	4.1
Product	1	9	90	21	29	40	4.0
Content	2	11	87	36	27	24	3.6

Significance tests conducted between less-experienced teachers/experienced teachers demonstrated no significance. However, *significance* existed between teachers in nonDEIS/DEIS schools differentiation in responses to content (chi square= 11.366; df= 5; p= .045) process (chi square= 19.916; df= 5; p= .001) and product (chi square=21.088; df= 4; p= .000). In all cases teachers in DEIS schools differentiated more frequently than teachers in advantaged schools. The ongoing CPD support

provided by the PDST to DEIS schools may be a positive factor in this data. However, the 2015 Inspectorate's DEIS Report recommended more differentiation in literacy, more challenging programmes for higher ability pupils and raising teacher expectations (DES). Since most teachers differentiated content, process and product at least once weekly, the next section explores differentiation by content (Appendix A-1, q.5).

6.5.1 Differentiation by Content

Teachers responded to the four options in a 6-point-Likert scale from '*never*' to '*every lesson*'. Both mean scores and frequency of responses for 'Every Lesson' yielded the same ratings.

Table 6.18: Dublin (n=330): Differentiation by Content (% Teachers)

I differentiate the following content areas in DR	Never	Few per month	1-2 times per week	3-4 times per week	Every lesson	Mean	> Weekly
Comprehension	1	7	22	27	43	3.0	92
Vocabulary		1	29	28	42	3.0	99
Levelled readers	7	15	34	16	27	2.7	77
Concepts, skills, etc.	2	12	33	32	21	2.6	86
Research content	12	28	25	8	12	1.6	45

Both comprehension and vocabulary received the same mean score (3.0) yet (99%) teachers differentiated vocabulary at least once weekly and 42% differentiated in every lesson while 92% differentiated comprehension at least once weekly and 43% differentiated in '*every lesson*'. Statistical analysis revealed a significant difference between teachers in DEIS/NonDEIS schools in the differentiation of comprehension (Chi square=13.086; df=4; p=.011). More teachers in DEIS schools differentiated through comprehension than teachers in nonDEIS schools. This is one area for future research investigating the different comprehension strategies employed.

More teachers differentiated concepts/skills (86%) at least once weekly than levelled readers (77%) but differentiated less in every lesson. This was the only time levelled readers were mentioned in this study. Only 45% differentiated research content at least once weekly and just 12% differentiated in '*every lesson*'. Statistical analysis revealed a significant difference between less-experienced/experienced teachers in the differentiation of concepts/skills (Chi square=16.668; df=8; p=.034). The most experienced teachers (16+years) differentiated concepts/skills more frequently than moderately experienced (6-15years) teachers who in turn differentiated more than recently qualified teachers. Therefore, it appears that teaching experience can impact positively on teachers' differentiation of concepts/skills leading to higher literacy scores (McCoy et al., 2014b).

6.5.2 Differentiation by Process

Teachers responded to the eight different options in a 5-point-Likert scale from ‘*never*’ to ‘*every lesson*’ on differentiation by process. Mean scores and frequency of responses for *every lesson*’ yielded almost similar ratings but different rankings to the more than once weekly frequencies.

Table 6.19: Dublin (n=330): Differentiation by Process. (% Teachers)

This occurs in my DR	Mean	Never	Few per month	1-2 times weekly	3-4 times weekly	Every lesson
Varying levels of teacher support	3.3	2	5	15	21	56
Continuous assessment	3.0	1	14	16	16	53
Flexible groups	3.0	2	8	20	30	41
Auditory activities	3.0	1	7	24	28	41
Tiered activities	2.8	2	12	23	27	36
Visual activities	2.7	2	13	32	28	28
Activity Choices	1.7	13	41	23	11	11
Kinaesthetic activities	1.6	11	42	29	12	5

Most teachers (92%) provided varying levels of teacher support at least once weekly and 56% provided it in every lesson. All ten interviewees/LP respondents provided flexible teacher support. ‘*I differentiate by offering different kinds of support*’ (B4). Four interviewees and two LP respondents gave ‘*extra support to weaker readers*’ (C2). Three LP respondents and three interviewees mentioned higher ability students, ‘*I give them greater independence*’ (B2) but ‘*it’s not just ability levels but also different personalities that require different types of help from me*’ (C5). Statistical analysis revealed a significant difference between less-experienced/experienced teachers in the differentiation of varied teacher support (Chi square=20.226; df=4; p=.000). Less-experienced teachers (1-5 years) provided the highest varied teacher support (70%) and most experienced teachers (16+years) providing the least varied support (56%) in every lesson while 59% of teachers (6-15 years’ experience) provided varied teacher support. This finding could suggest that preservice teacher education changes have positively influenced varied teacher support provision (DES, 2011).

Continuous assessment, flexible groups and *auditory activities* received the same mean score (3.0). Continuous assessment and flexible groups have been discussed previously (sections 6.3.5; 6.4.4). Ninety-three percent of teachers used *auditory activities* at least once weekly and 41% for every lesson. Tiered activities and visual activities were employed by over 80% of teachers at least once weekly. All LP respondents/interviewees used ‘*tiered activities*’ according to students’ abilities, B1

used 5 tiered worksheets; B3 employed that ‘*tiered research sheets for different abilities in the same activity*’. B4’s children compiled ‘*Individual Reading Plans according to interests and ability*’. Interviewees, C2 used Jigsaw activity topics according to interests and ability and C5 stated that ‘literacy circles allow boys to reach their potential level of understanding through discussion’. Interviewees used ‘*tiered activities*’ with different frequencies – daily (C1); 2-3 times weekly (C2 and C3); once weekly (C4 and C5).

Visual activities (28%) and activity choices (11%) were used less frequently by teachers in every lesson. All interviewees and LP respondents offered ‘*activities choices*’ in the submitted lesson-plans; two offered book choices for reading homework and in class (B1) and for reading plans (B4). Three teachers offered topic choices– Jigsaw (B2), Snowball (B3) and Literacy Circles’ discussions (B5). Four interviewees offered text choices (C1, C2, C4, and C5). C1 offered daily work station choices and C3 offered peer assisted learning strategies (PALs) in various activities 2-3 times weekly. Few teachers engaged in kinaesthetic activities, 5% in every lesson. Two Interviewees (C1 and C3) used *kinaesthetic activities* (work station materials, newspapers, etc.) weekly, C2 employed *kinaesthetic activities* monthly and C4 and C5 used them once a term.

Thirteen percent of teachers never use activity choices e.g. work stations, work cards, etc. and 11% never use kinaesthetic activities, 2%, never used *varying levels of teacher support, flexible groups*, and *different levels of activities*. This could imply that teachers use a traditional approach to teaching (Concannon-Gibney, 2009).

All LP respondents provided information on process (Appendix B-1) and indirectly through the through lesson-plan descriptions and evaluations and all used *informal continuous assessment, varying levels of teacher support, visual* (texts) and *auditory* (discussion, Q&A,) *activities* and *interactive whiteboards*. All Interviewees used *informal continuous assessment, varying levels of teacher support, visual* (different genres) and *auditory* (discussion, literacy circles, PALs, Q&A,) *activities*. Having explored process, the next section investigates teachers’ responses to differentiating by product.

6.5.3 Differentiation by Product

Teachers responded to the four different options in a 5-point-Likert scale from ‘*never*’ to ‘*every lesson*’ (Appendix A-1, 7). All teachers including the interviewees and LP respondents used oral and written activities to varying degrees to enable pupils to demonstrate skill/concept mastery. Both the mean scores and frequency of responses for ‘Every Lesson’ yielded the same ratings. Most teachers (95%) used oral activities to demonstrate skill/concept mastery at least once weekly and 55% did so in every lesson. Just 29% of teachers employed written activities in ‘*every lesson*’, increasing to 94% at least once weekly. Only 9% of participants employed visual display or demonstration activities in product in every lesson but two-thirds of participants did so at least once weekly.

Table 6.20: Dublin: Differentiation by Product (% Teachers)

Differentiation by Product	Never	Few per month	>once a week	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Oral activities		6	95	16	24	55	3.3
Written activities		6	94	24	41	29	2.9
Visual display	2	31	69	41	19	9	2.0
Demonstration activities	3	31	66	40	18	8	1.9

Four interviewees used demonstration activities/ simulation a few times a month as *'it takes up too much time'* (C4). Just one LP respondent employed pupils demonstrating mastery by drawing rainbows. Significance tests conducted between less-experienced teachers/experienced teachers and between teachers in nonDEIS/DEIS schools demonstrated no significance.

6.5.4 Resources

Lack of resources was a major obstacle for 41% of teachers (Appendix A-1, q.9). Resources used by teachers in DR included a variety of class library books (different genres and levels), different class novels, interactive whiteboard, tiered worksheets and work stations, book reviews and book journals. Four LP respondents and four interviewees used the interactive whiteboard for small group work. Three LP respondents and all interviewees used textbooks and worksheets. Two LP respondents and three interviewees used tiered worksheets. B4 used a 'Reading Plan Chart for all students, different genres, topics and booklists and the students' own 96 book reports (every student did six book reports!). C5 also used book journals and book reports. B3 used old newspapers as a teaching and learning tool. No teacher employed digital games, apps, or reading recording devices. Having discussed resources the next section explores important themes arising from thematic analysis from the five interviews and five lesson-plans.

6.5.5 Thematic Analysis of Five Lesson-plan Evaluations and Five Interviews

All five lesson-plan evaluations and five interviews were analysed individually using thematic analysis in order to identify, analyse and report 'patterns within data' (Braun & Clarke, 2006, p. 79) and details of transcripts' thematic analysis were presented in Chapter Five (Section 5.7.4). The analysis proceeded according to steps advised by Braun and Clarke (2006). Document analysis was also conducted on the lesson-plan evaluations (Bowen, 2009). Interviews were transcribed and were reread several times. The researcher employed thematic analysis in the five lesson-plan evaluations and the five interview transcripts by systematic rereading and regrouping. Similar themes emerged with few contrasting symbols (Spradley, 1979; Yin, 2003). Five similar themes emerged in both the interviews and in the lesson-plan evaluations.

Table 6.21: Dublin (n=10): Themes of LP Respondents and Interviewees

Dublin	
LP Respondents	Interviewees
Peer teaching through Think-pair-share, Jigsaw, Snowball, Peer learning	Teacher modelling silent reading – DEAR
Read aloud and read silently	Teacher modelling reading aloud, think-alouds
Fun texts -Visualisation, questioning, prediction	Know the child, observe, listen
Literacy Circles - mixed , same ability	Literacy Circles - mixed same interest & ability
Listen to child, instruction follows child's progress	Varied library texts
	Prediction, questioning, visualisation and clarifying ideas

Themes common to both LP respondents and interviewees are group discussion and activities in same and mixed ability groups, literacy circles and comprehension strategies of prediction, questioning, and visualisation. Differences include use of think-alouds as learning tools and activities (B3) same interest groups and comprehension strategies (interpreting and inferring) by interviewees. Having briefly discussed the themes arising from the LP respondents and interviews, the two sets are now joined together.

Table 6.22: Dublin (n=10): Themes - Interviewees and LP respondents

Themes	
1	Promote reading
2	Know the Child
3	Provide interesting texts
4	Flexible, facilitative, reflective teacher
5	Peer recommendation and collaboration

Promote Reading - C2 advised 20-30 mins daily reading for homework and 'read aloud and listen to peers'. C4 said 'Have fun reading aloud...create a love of reading and learning because enthusiasm is infectious, use child-led discussions'. C3 agreed, 'discussion and talk really help to engage children in books', while C5 stated that 'connecting with the child to connect with the story' is essential to DR.

Know the Child - C1 stated that the teacher should take account of children's interests through informal continuous assessment. C3 also mentioned '*continuous informal assessment as key to DR and children's reading needs*'. C5 believed that the '*teacher must understand children's level of understanding and then know texts and know students - engage students and motivate them*'

Provide Interesting Texts - C5 stated 'ensure the book is interesting'. C3 advised 'interesting, appropriate levelled texts are necessary to capture students' interest'. C4 stated that he believed that it was essential to 'feed all children challenging books from strugglers to EAS kids. Kids ask daily – can I go (to the library) today please?'

Flexible, Facilitative, Reflective Teacher - C5 said that 'trust between teacher and child is essential - it's okay to make a mistake – we learn that way.' C3 stated that 'flexible teacher support where the teacher is a facilitator, guide and instructor' was essential. C5 also liked flexibility in tasks, 'Be organised yet flexible so kids work at different paces and levels.' C2 gave advice on comprehension - 'expand vocabulary through dictionary/thesaurus, check comprehension and use higher order thinking skills...encourage self-pacing'. C3 believed that 'activities and teacher preparation, teacher's reflection & reflective practice' were all essential.

Peer Recommendation and Collaboration - C4 employed 'who would like this book? - each child brings a book they love and tell the class about it in '5-Min-Magic'. 'Collaborative interaction, where students can discuss text meanings and can connect with other texts/films/ life experiences' (is essential and) students must be 'challenged to think and rethink new ideas/ways /approaches ... I use flexible mixed ability groups, mixed pairs or PALS are the easiest to implement' (C3). Finally, C2 advised parental involvement - 'Use comment boxes for parents to help reinforce learning and time management for the child. It is important that parents sign off homework.

6.5.6 Summary

This section, under Research Question Two, investigated teachers' differentiation of content, process and product. Most teachers differentiated most frequently through process, secondly product and thirdly content. Significance analysis revealed that teachers in DEIS schools differentiated more frequently in content, process and product than teachers in nonDEIS schools. In differentiating content, 99% of teachers differentiated vocabulary, 92% differentiated comprehension, 86% differentiated concepts/skills and only 45% differentiated research content at least once weekly. Statistical analysis showed teachers in DEIS schools differentiated through comprehension more frequently than teachers in nonDEIS schools. Statistical analysis also revealed that the most experienced teachers (16+years) differentiated concepts/skills more frequently than moderately experienced (6-15years) teachers who in turn differentiated more than recently qualified teachers implying that years' teaching experience can impact positively on teachers' differentiation of concepts/skills.

In differentiating by process, 92% of teachers provided varying levels of teacher support at least once weekly. Over 85% of teachers employed continuous assessment, flexible groups, auditory, tiered and visual activities at least once weekly. Statistical analysis revealed that less-experienced teachers (1-5

years) provided the highest varied teacher support levels (70%) and most experienced teachers (16+years) providing the least varied support levels (56%) suggesting that teacher education modifications may have impacted positively on varied teacher support levels provision. Perhaps new approaches and understanding in initial teacher education has influenced teachers' provision of varied levels of teacher support. Further research could explore this important area.

Most teachers, 95% used oral language, 94% used written activities, 69% employed visual activities and just 66% used demonstration activities in determining product at least once weekly. Statistical analysis revealed no differences between teachers in differentiating by product.

Lack of resources was a major obstacle for 41% of teachers and resources employed in DR included a variety of class library /class novels, interactive whiteboard, tiered worksheets and work stations, book reviews and book journals. No teacher employed digital games, apps, or reading recording devices. Five themes emerged from thematic analysis of interviews and lesson-plan evaluations that are important DR components. Three themes, 'know the child' and 'facilitative teacher' and 'collaboration' are supported by survey data but the other themes – promote reading, provide interesting texts and peer recommendations and were not explored in the survey.

Having explored the findings to Research Question Two we now explore the data for Research Question Three.

6.6 Factors Facilitating DR

The survey respondents (n=330) selected the four most important factors that facilitated DR from seven options. Most 'First Choice' responses produced similar results to the mean scores.

Table 6.23: Dublin (n=330): Factors Facilitating DR

What Factors Facilitate DR?	1 st Choice	2 nd Choice	3 rd Choice	Last Choice	Mean
ILP, PLP or Goals	60	15	16	9	3.2
Preparation & Structure	40	24	17	16	2.9
Positive Learning Environment	35	23	22	20	2.7
Different Assessments	25	21	28	26	2.4
Flexible Groups	16	29	26	29	2.0
Continuous Assessment	12	20	36	32	2.1
Activities match ILP	11	38	26	25	2.3

Individual goals was ranked top in mean scores and in first choices by 60% of teachers and 100% chose it among the top four DR facilitating factors. Individual goals were explored in three survey questions (Appendix A-1, q. 2, 3, 12). Most teachers (99%) incorporated achievable goals in DR at

least once weekly (Table 6.12. Section 6.4) and 88% of teachers ‘agreed’ that individual goals were important in a DR environment (Table 6.9, section 6.3.4). Dublin teachers displayed a good understanding of the need for individual goals in DR. Statistical analysis demonstrated a significant difference between less-experienced/experienced teachers in rating individual learning goals/plans as the main DR facilitating factor (Chi square=27.916; df=15; p=.022). Interestingly, it was the teachers with moderate teaching experience (6-15 years) who ranked individual goals as the most important DR factor (67%), followed by the most 59% of experienced teachers (16+years). Least experienced teachers (1-5 years) ranked individual goals the lowest (44%). This suggests that moderately experienced teachers recognise the value of individual goals. Whatever the reason, McCoy et al., (2014b) suggest that teacher experience positively influences academic attainment.

‘Preparation & Structure’ and ‘Positive Learning Environment’ were ranked second and third in mean scores and in first choices. These are closely linked as a positive environment is created when teachers through careful planning and preparation match instruction to students’ needs enabling children to achieve individual goals. C5 believed that preparation and lesson-plans were key to what helped her most in the classroom. Assessment (continuous assessment received the highest score for third and fourth choices) and flexible groups have already been discussed (6.3.5; 6.4.4). Further research could explore teachers’ conceptions and implementation of assessment as a teaching aid. Activities matching ILPs’ was ranked seventh in first choice (11%) but ranked fifth in mean scores and received the highest second choice scores (38%). Providing relevant activities matching student ability is a core element of DR as is flexible groups (6.4.4). Children’s individual plans/goals ranked the most important factor yet the low scoring of *assessment* and *activities matching children’s individual goals* appears contradictory as both activities contribute to children’s individual plans/goals. However, teachers may have considered different levels of teacher support very important. This was investigated further in the interviews.

Table 6.24: Dublin: Interviewees: DR Facilitating Factors

Dublin	n=5
Children select books - ability/age/interest,	3
Know the child,	3
Interesting texts in a well-stocked library,	3
Flexible, responsive teaching,	3
good preparation and lesson-plans,	3
different levels of questions and prompts,	3
mixed pair work and peer recommendation	1
Collaboration	1

Interviewee, C2 stressed the importance of helping ‘*children select books matching their ability, age and interest*’ and C5 mentioned that ‘*I need to know children’s needs to meet those interests and needs*’ which can be part of ILP. All interviewees highlighted one-to-one discussion and listening to the child reading (section 6.8). *Good preparation* (C1, C5), a *well-stocked library* to cater for all needs (C2, C4), *different levels of questions* and prompts (C2, C5) and ‘*the teacher reading quietly alongside the children*’ (C2, C4) were recommended as important facilitating factors by the interviewees. C4 and C5 both stressed the importance of assessment ‘*I need to first know children’s needs before I can meet those interests & needs*’. C3 mentioned ‘*mixed pair work PALs*’. ‘*Comprehension*’ is important’ (C3) and ‘*understanding through prediction, visualisation, making connections, inference before, during and after reading helps comprehension*’ (C5). Finally, C3 mentioned ‘*meaning making*’ and C5 stated that ‘*observation and discussion help child’s meaning making*’ are important in DR. While there was no one emerging factor, all eight factors could be included in the three main DR factors chosen in the survey – individual goals, preparation and structure and positive learning environment.

6.7 Perceived Obstacles to DR

Teachers rated the eleven options across a 4-point scale from ‘*Not an obstacle*’ to ‘*Significant obstacle*’ (Appendix A-1, q.9). Some ‘significant obstacle’ responses produced different results to the mean scores. Class size and lack of time, resources and training were the main obstacles.

Table 6.25: Dublin (n=330): Obstacles to DR

Obstacles to DR	Not an Obstacle	Minor obstacle ¹	Moderate obstacle ²	Significant obstacle ³	Mean
Class size	13	8	14	65	2.3
Lack of time	3	12	24	61	2.4
Lack of resources	18	16	25	41	1.9
Lack of training in DR	15	21	25	39	1.9
Planning, preparation	19	25	30	27	1.7
Student misbehaviour	31	26	25	18	1.3
Curriculum constraints	26	32	25	16	1.3
Cover standardized test material	46	26	15	14	1.0
Individual Learning Plans/Goals	38	30	20	12	1.1
Assessing starting point	16	57	22	5	1.2
Different assessments	39	37	20	4	.9

Lack of time received the highest mean score of 2.44 but was ranked second as a significant obstacle by 61% of teachers, rising to 75% including *Moderate Obstacle*. Nevertheless, 3% of teachers viewed lack of time as ‘no obstacle’ to DR. Three interviewees rated lack of time as the main obstacle (C1, C3, C5). Most teachers, 65%, viewed class size as a significant obstacle (mean score 2.3). This

number rose to 89% including *Moderate Obstacle*. Some participants (36%) taught classes with 26-30 children (Table 6.2) and 74% had classes of 21-35 pupils so teachers viewed class size as a major obstacle to DR. However, 13% of teachers viewed class size as ‘no obstacle’. One interviewee (C3) mentioned class size as a major ‘obstacle’.

Lack of resources and lack of training received the same mean score (1.9) so could be judged as joint third obstacles. More teachers 41%, (66% including *Moderate Obstacle*) rated lack of resources higher than lack of training 39% (64% including *Moderate Obstacle*). Three interviewees mentioned limited resources. C5 wanted more teachers/parents to help with reading and discussion while C4 said lack of good structured reading schemes’ impeded progress. Inadequate class and school libraries, lack of school organization, and structures were obstacles to DR (C3). Statistical analysis revealed a significant difference between teachers in nonDEIS/DEIS schools to lack of resources as an obstacle to DR (Chi square=12.066; df=3; p=.007). More teachers in DEIS schools (54%), rated lack of resources as a ‘significant obstacle’ than nonDEIS teachers (34%). Many children in DEIS schools are disadvantaged and have little access to reading resources at home (DES, 2011; 2015; Weir et al, 2009; 2011; 2013; 2014) so relevant, adequate school resources including investment in ‘ICT, school library books, individual levelled readers for pupils of differing abilities...reading with parents, sharing of book reviews, and ‘Readathons’ help children (Kavanagh, Weir & Moran, 2017, p.52-53).

Three interviewees cited a lack of training as a main obstacle (C1, C3, C5), supporting previous findings (Section 6.3.3; Table 6.8), where just 5% used DR because of in-service training. C1 and C5 would like to observe a teacher teaching DR. LP respondents did not include obstacles to DR. ‘Planning and Preparation’ was ranked as the fifth main obstacle by 27% of teachers, (57% including *Moderate Obstacle*) and can be linked to lack of time, as DR planning and preparation is considerable. Student misbehaviour, curriculum constraints and Individual Profile and Learning *Plans* were ranked less important ‘obstacles’. Assessments were the lowest ranking obstacles.

Statistical analysis revealed significant differences between teachers in nonDEIS/DEIS schools in responses to student misbehaviour (Chi square=18.298; df=3; p=.000) as DR obstacles. More DEIS teachers rated student misbehaviour as a ‘significant obstacle’ and this is supported by previous research. DEIS teachers focus more on student misbehaviour, identifying more pupils with behavioural problems (McCoy et al., 2012a), employing more punitive measures (Banks et al., 2012) and spend more time ‘off task’ on disciplinary issues in primary schools (McMahon et al., 2015) than nonDEIS teachers. However, urban DEIS schools have more children with emotional-behavioural and learning difficulties, more non-English speaking students and more Traveller pupils than nonDEIS schools (McMahon, Smyth & McCoy, 2015). Also, negative emotional responses such as shame, sadness and upset can be associated with being assigned to a lower ability group within primary school (McGillicuddy, 2013).

Statistical analysis revealed significant differences between teachers in nonDEIS/DEIS schools in responses to curriculum constraints (Chi square=13.714; df=3; p=.003) where more nonDEIS teachers ranked curricular constraints as a 'significant obstacle' than DEIS teachers. Further research could explore whether the absence of disadvantaged challenges mentioned above allow nonDEIS teachers more time to concentrate on the curriculum.

6.7.1 Summary

This section, under Research Question Three, investigated factors that facilitate and hinder DR implementation. Individual goals, preparation and structure and a positive learning environment were ranked the most facilitative factors in DR. Statistical analysis revealed that more experienced teachers (6-15 years) ranked individual goals as the most important DR factor than their less experienced counterparts. Interviewees provided eight facilitating factors which could be incorporated in the three main DR factors chosen in the survey but none mentioned individual goals. No LP respondent mentioned DR facilitating factors or obstacles in the lesson-plans.

Lack of time, class size and lack of resources and training were cited as the main 'obstacles to DR in the survey. The five interviewees cited the same obstacles but only one mentioned class size. Statistical analysis revealed that more DEIS teachers rated lack of resources and student misbehaviour as 'significant obstacles' than nonDEIS teachers. However, more nonDEIS teachers rated curriculum constraints as a 'significant obstacle' than DEIS teachers. Having explored the findings to Research Question Three we now explore the data for Research Question Four.

6.8 Elements Associated with Vygotsky's ZPD that are Relevant to DR

The development of literacy including language and reading is complex (Konza, 2014) involving cognitive, affective and socio-cultural aspects (RAI, 2011). A sociocultural perspective on reading highlights the centrality of oral language, scaffolding and responsiveness to children's reading needs. This study investigated teachers' understanding and implementation of DR. Some elements associated with Vygotsky's Zone of Proximal Development (ZPD) are relevant to DR implementation. Good education leads to development, incorporating communication and collaboration between learners and teachers (Vygotsky, 1962). Learners, guided by teachers, can complete challenging, achievable tasks in collaboration. This section explores the DR elements of oral language, collaboration, modelling, comprehension and meaning-making and how they may relate to the ZPD. Oral language will be discussed first.

6.8.1 Language as a Tool

Language, a cultural tool enables children in society to think, communicate, create and solve problems and is a core idea in cultural historical theory, (CHT), (Veresov, 2010). Language was used to develop

children's vocabulary, word meaning and comprehension in DR and was incorporated in several survey questions through vocabulary and discussion (Appendix A-1, q.2, 5, 7). One core aspect of CHT is the continuous development of word meanings within personal and social activity. Most teachers differentiated oral vocabulary (96%) and oral (95%) and written (94%) activities at least once weekly, helping children develop word meanings within individual reading (personal) and group discussions/activities (social). All interviewees and LP respondents incorporated oral language and word meaning in DR. All 330 participants incorporated children's oral vocabulary in DR and 66% did so in every DR lesson (Table 6.12, Section 6.4). In differentiating process, 96% of surveyed teachers differentiated vocabulary at least once weekly (Table 6.19, Section 6.5.2), and in differentiating product, 94% of teachers differentiated oral activities weekly (Table 6.20, Section 6.5.3). All interviewees and LP respondents incorporated oral language and word meaning in DR. Seven teachers incorporated oral language in think-alouds. Think-alouds help children formulate ideas as well as problem solve in group discussion/activities. Vygotsky stated that confronting obstacles in problem-solving stimulated children to 'think-aloud' (ego-centric speech) requiring the understanding by teachers/peers (Willis, 2001). Ego-centric speech is found in the transition from external to inner speech (Vygotsky, 1934). *'Literacy circles help children think-aloud through discussion'* (C4) and *'children solve problems and find solutions in Think-alouds and Snowball activities'* (B3).

All ten teachers stated that reading, listening to reading and questioning helped develop children's language and understanding. *'Reading helps in so many ways to develop language'* (B4). *'The lower order questions helped children participate in class discussion boosting their language and confidence. The higher order questions stimulated critical thinking, helping to make connections'* (B1). *'Stronger students benefitted from higher order questioning'* (B2). All ten teachers used oral, open questions. However, just six teachers used cognitively demanding questions, *'sometimes in literacy circles and discussions'* (C2, C4), depending on *'the lesson and context'* (C3), on *'pupils' ability'* (B5) and *'bright children write answers to challenging questions'* (C1). C5 included cognitively demanding questions everyday in whole/group discussions. Four LP respondents did not use higher order questions in the lesson-plans. It was not possible to probe the reason for this. Further research could explore factors underlying the absence of higher order questions - teacher confidence, pupil ability, lack of time, etc.

Word meaning and sense can be developed through discussion in DR. Paired, small and whole class discussion enable children to explore and formulate thoughts through listening, think-alouds and questioning in social activity. Children can generally express what language enables them to express so the development of vocabulary, word meaning and sense (Vygotsky, 1986) is vital. *'Language is a tool so children need to be able to speak their ideas before they write them'* (B3). Most teachers (95%) rated discussion with students important in DR and 71% found it *'significantly helpful'* helpful in evaluating understanding and reading readiness (Table 6.11, section 6.3.6). Teachers used language as a means of 'making meaning' to help students make sense of knowledge and apply it to their own experiences or previous texts. Students can use the skills acquired in DR dialogue in all subjects as this

‘thinking into meaning’ helps. C3 and C1 stated that discussion developed word meaning and ‘*Children love the discussions which help develop their vocabulary and understanding of language*’ (B5). All ten interviewees/LP respondents used one-to-one discussion with students, whole class and pair/small group discussion. The ‘sense’ of a word conveys the true understanding of the word over the dictionary meaning of the word (Vygotsky, 1986). Seven teachers emphasised context in DR instruction and employed discussion to help children understand texts and to interpret meaning in silent reading. ‘*Discussion helps pupils to understand the context and meaning of words as well as texts*’ (B5). ‘*I try to explain the importance of context in words and in text settings first before the discussions*’ (C3). Six teachers employed Literacy Circles incorporating discussion on class texts and talking ‘*to think, understand and learn*’ (B3), Literacy Circles ‘*allow the kids to question and develop their thoughts*’ (C2), ‘*give students a greater understanding of words, phrases as well as characters’ actions*’ (C5) and ‘*enable peer learning*’ (C4). Five teachers used circle time discussion to explore concepts ‘*but it’s best to keep discussions short so kids don’t get side-tracked!*’ (C4). The child in realizing this leading activity (discussion) participates in tasks that develop the psychological functions required to perform the leading activity and development occurs in the process, not in the leading activity itself (Chaiklin, 2003) so teachers used discussion as a means to ensure meaning-making. Children can learn discussion skills by imitating the teacher’s discussion skills.

6.8.2 Modelling/Imitation

Imitation is the modelling of specific skills by pupils once they have reached a certain ‘understanding’ of the respective skills/concepts and is not ‘mindless’ imitation (Vygotsky, 1986). Teachers can model and facilitate discussion and exploration of meaning in DR. Survey participants were not invited to comment on modelling/imitation but imitation was mentioned by all ten LP respondents/interviewees who modelled respectful skills through discussion, observation and questioning. Interviewees stated that their pupils modelled attentive listening and taking turns in literacy circles (C2, C4, C5), in PALS on newspaper projects (C3), and in teacher-led small group discussion circles (C1). Nine modelled reading aloud and four interviewees modelled good phrasing and pronunciation in read-alouds. Four teachers modelled reading silently (Table 6.13, section 6.4.1). Six teachers modelled literacy circle skills and eight modelled comprehension skills (Table 6.16, section 6.4.4) and three interviewees modelled problem-solving in Transactional Strategies Instruction (TSI). Seven teachers modelled ‘think-alouds’ to help pupils understand the relevant strategies to improve comprehension. Three teachers used think-alouds daily (C1, C2, C3) and C5 a few times a week. ‘*Think-alouds help me understand how students think*’ (B2) and ‘*Students’ think-alouds, Q and A and reading direct my questions and support*’ (C5). Children with required understanding of concepts can perform by imitation individually or in collaboration.

6.8.3 Collaboration

Collaboration is a key DR component and children are guided through collaboration within their ZPD by direct/indirect interaction. Children learn through the collective activity with teachers/peers, using communication and collaboration in small group dialogue and discussion. The questionnaire (AppendixA-1, q. 3,6,10,12) provided indirect information on teacher/student collaboration through areas of teacher support (Table 6.21), discussion with students, listening to students and facilitating students, (Table 6.11), and flexible groups (Tables: 6.9; 6.21; 6.27). In teacher/student collaboration, while most teachers (99%) rated the facilitative and mentoring role of the teacher as 'important' and 71% rated it as 'very important' in DR, just 56% provided flexible support in every lesson (Table 6.21) and 92%, did so weekly. This may be due to lack of training, resources or time as outlined in the main obstacles to DR (Table 6.).

All ten teachers employed teacher/student collaboration in DR in reading-alouds, discussion, group activities, '*projects*' (B4). All interviewees used one-to-one teacher/student discussion, '*talking to think, understand and learn*' (C4). C5 stated that '*trust between teacher and child is really important. Children need to know that it's okay to make a mistake as we learn that way*'. Teacher/student collaboration was the '*basis of DR*' (C1), '*absolutely necessary*' (C2), and '*very important*'.

In student/student collaboration, 91%, of teachers incorporated flexible groups once/or more weekly and 41% in every lesson (Table 6.12) enabling mixed ability and same ability/interest groups to collaborate on text discussion and activities. Nine teachers used peer learning, '*In the Jigsaw activity each child explains and teaches peers about the discussion in the previous activity*' (B2). Peer learning took place in the Think-Pair-Share activity (B4) and Snowball activity (B3). Two interviewees' classes shared '*their favourite books in 5 the Min Magic time*' (C4) and '*students displayed their book reviews*' (C3). C2 stated that '*students discuss the meaning of the text collaboratively*'. In literacy circles pupils '*learn a lot from each other in discussions through peer learning*' (C5) and '*I give them a question and they have to find the solution through group discussion*' (C4). Collaboration in DR provides the '*potential for meaningful intervention action*' and inner development (ZPD), which can lead to competence/skill mastery as children complete an achievable activity in collaboration with peers through discussion (leading activity).

6.8.4 Comprehension and Meaning-making

Most teachers, 92%, differentiated comprehension at least once weekly and 43% differentiated in '*every lesson*,' (Table 6.19). Survey participants were not asked to comment on specific types of comprehension and meaning-making. However, teachers employed the following strategies at least once weekly to help develop comprehension: 87% employed child-centred activities (Table 6.12); 90% incorporated active learning including project work; 95% used discussion with students and 76%

employed student self-evaluation (Table 6.11). Children's active learning and meaning-making is best explored through qualitative measures as in the interviews and lesson-plan evaluations.

All ten interviewees and LP respondents stated that DR improved comprehension stating that discussion was the best strategy for clarifying comprehension (section 6.3.2) '*discussion is the best ... to help comprehension*' (C1). All ten teachers employed questioning, nine employed prediction, seven used think-alouds, six used summarising and seven incorporated visualisation. Teachers used mixtures of the above strategies within class '*depending on children's abilities*' (C2) and '*time*' (C1). Three interviewees employed prediction, questioning, visualisation and clarifying ideas through 'Transactional Strategies Instruction' (TSI), where meaning was constructed between groups of readers and texts towards the development of a collaborative interpretation of the texts. Collaborative, mixed ability groups of 4/5 children created their own understanding of the text while simultaneously modelling the strategy use for their peers (Courtney & Gleeson, 2010). All teachers found that children create meaning through discussion and '*peer teaching through PALs*' (B3). B4 usually observed the discussions as '*children develop their own understandings and meaning themselves through their discussion*'. Three teachers stated that children '*sometimes changed their views having considered peers' others' viewpoints*' and '*this helps to extend their reading and meaning-making*' (C5). B5 and B1 mentioned critical thinking and '*higher order questions stimulate critical thinking in the stronger students and encourage them to make connections between poetry and other subjects*' (B1).

Literacy circles helped create meaning-making - based on interest levels - '*the children love this as they read and discuss what they are really interested in*' (B2) and based on mixed ability '*Mixed ability work ... bright kids expose others to new ideas ... the weaker kids help EAS not to miss important basic facts*' (B5). Meaning was developed through linkages - '*children look for meaning through connections with characters ... emotions... making the story real*' (C1). Meaning making was also created through pupils reading and think-alouds on texts using '*small group and class discussion, debates, visualisation, drawing pictures, drama, simulation and comparing one text to another to capture the meaning of the text*' (C1) through '*collaborative interaction*' (C3). The teacher should not over explain but '*let the children do the thinking, interpreting and inferring as they come up with so many different ideas*' and '*extend the children's reading and meaning making*' (C5). Here, the children reorganised ideas/concepts to think in different ways and in this way DR could apply to the dynamic process in the ZPD which reflects constant changes in children's emotions (Levykh, 2008), resulting in a catharsis or a dramatic collision with emotional effect during the realisation of ZPDs.

Word meaning is relational and subjective and was Vygotsky's unit of analysis, the main unit of thinking and speech, incorporating conscious and unconscious components and emotions. In DR, the five interviewees emphasised context or word 'sense' in whole class introductions to texts, read-alouds and small group discussions. Context or word 'sense' was also explored in '*short, small group*

focused, meaningful discussions’ (C5) with peers on texts, incorporating *linkages with other texts* (C1), *previous experiences* (C3) and *cultural activities* (C2) enabling children to ‘*reach higher levels of understanding*’ (C4) than they would reach reading independently. Therefore, pupils learned from peers and from social interactions within the classroom, from learning activities and making meaning of their own experiences. Children in developing comprehension have different skills and processes occurring at the same time e.g. ‘flowers’ matured/developed skills, (retelling a story) and ‘buds of development,’ immature skills e.g. inference, analysis (Vygotsky, 1986). Vygotsky’s interaction of real and ideal form, a part of human development, involve the ‘real’ or current stage of development (only able to do inference collaboratively) and ideal or end of development (able to do inference without help). The ‘dramatic collision’ or inner tension (e.g. difference of opinion/approache/solution in a small group), experienced only in higher-order thinking, creates ‘a change (positive/negative) in interest, motive or emotion and leads to change in behaviour’ (Murphy, 2017, p. 2).

6.8.5 Summary

This section, under Research Question four, investigated elements associated with Vygorsky’s ZPD that are relevant to DR. Language was used as a tool in DR and over 90% of teachers incorporated oral vocabulary and discussion in DR and differentiated oral and written language at least once weekly in DR. Development of word meaning and sense was explored in the lesson-plans and interviews. Teachers used discussion, questioning and think-alouds to enable children to understand meaning, context and make connections with previous learning and texts. All ten teachers stated that reading and listening to reading helped develop children’s vocabulary, oral language and word meanings. Imitation/modelling was explored in the ten lesson-plans and interviews. All teachers used imitation in DR, modelling respectful skills through discussion, observation, questioning and listening to others. Nine modelled read-alouds, four silent reading, eight comprehension skills, seven think-alouds, six literacy circle skills, three problem-solving and one poetry reading. Children with required understanding of concepts can perform by imitation indivually or in collaboration.

Survey participants were not asked to comment on types of collaboration, comprehension strategies and meaning-making but over 90% of teachers rated discussion with students, the facilitative importance of teachers, varied levels of teacher support and flexible groups as important in DR. All ten LP respondents/interviewees employed teacher/student and student/student collaboration helping children develop meaning/ competence/solutions through collaboration in whole class, pair/small group discussions, literacy circles, jigsaws, snowballs, think-pair-share and sharing of favourite books. Here, children were the source of their own learning creating meaningful learning.

Most survey participants (92%) differentiated comprehension at least once weekly and employed children as active learners through child-centred activities (82%) weekly and rated active learning - project work (90%), discussion with students (91%), student self-evaluation (76%) and classroom displays of student work (94%) as very important. All ten LP respondents/interviewees stated that DR

improved comprehension and all employed discussion and questioning. Other comprehension strategies employed included prediction, think-alouds visualisation and summarising. Meaning making was created through literacy circles, linkages between texts and experiences/ideas and pupils reading, and think-alouds on texts. All ten teachers stated that children were helped be the source of their own learning through reading, discussion, thinking, listening and sharing ideas (three teachers), linking children's experiences (B1), peer teaching (C1, C3) project work and think-alouds. Here, the children reorganised ideas/concepts to think in different ways and teachers can locate where children are within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints and collaborating with children in tasks but interview discussion revealed that no teacher was aware of this. Further qualitative, longitudinal research involving classroom observation and indepth discussions could explore this DR linkage to the ZPD in greater detail.

6.9 Chapter Summary

This chapter provided the findings from the Dublin DR Case Study under the four research questions. This study explored primary teachers' understanding and implementation of DR. Just 69% of the surveyed teachers completed the open qualitative question on the meaning of DR. Only 17% provided a comprehensive DR definition (Piltan, 2016) supporting the fact that few teachers had received any inservice or preservice DR training so may have been unsure of the concept. 'Individual goals' (65%) and 'match content and process to individual needs' (56%) were the top two DR definitions. All ten interviewees/LP respondents stated that DR improved comprehension specifying discussion as the best method for clarifying comprehension but only six stated that DR helped reading, as the remaining four teachers declared that it 'helped sometimes'. All 330 teachers implemented DR and school initiative (62%) and personal interest (54%) were the main reasons for DR implementation. Most teachers (99%) agreed that the teacher as a facilitator; classroom displays of children's work (94%); and active learning (90%) were important in a DR environment. Assessment in DR was important to teachers as 84% incorporated data from AfL and AoL at least once weekly in DR and all ranked 'continuous assessment' and 'different assessments' among the top four DR facilitating factors. Most teachers assessed children's reading and readiness by listening to children reading (98%), discussing reading with students (95%) and observing students in discussion (95%). Significance tests demonstrated that teachers with 6-15years experience employed more child-centred activities in every lesson than teachers with (1-5years) suggesting that teachers develop teaching and classroom management skills over time.

Reading practices were examined in the interviews and lesson-plans. All ten teachers read aloud to pupils weekly, six employed individual reading and eight used paired reading aloud, eight had children read silently for 5-10 mins daily, four modelled silent reading and the five allotted set amounts of reading for different groups of children. No teacher used a reading scheme and eight employed two or more class texts. Thematic analysis of interviews and lesson-plan evaluations were reduced to five

themes: promote reading, know the child, flexible, facilitative teacher, peer recommendations and collaboration and interesting texts provision. Yet, similar authors were used in most classes so teachers displayed conservative choices in reading texts (Concannon-Gibney, 2014) and this can also be linked to the low differentiation rate in content in every lesson (24%). Most teachers differentiated through process (46%), and secondly product (40%) in every lesson. There was a low frequency of some important DR elements. Just 56% of teachers employed *varying levels of teacher support*, 53% *continuous assessment*, 43% differentiated comprehension and 41% used *both flexible groups* and *auditory activities* in every lesson. Most teachers used oral (55%) and just 19% employed written activities to enable pupil demonstrate skill/concept mastery. Only 9% of teachers differentiated visual and 8% differentiated demonstration activities weekly. This low rate could be attributed to lack of DR training available to teachers. Future research post the PLC (DES, 2015) training may reveal different results. Individual goals, preparation and structure and a positive learning environment were ranked the most facilitative factors in DR incorporating interviewees' eight facilitating factors. Class size, lack of: time, resources and training were cited as the main 'obstacles to DR in the survey (Pilten, 2016). Interviewees cited the same obstacles but only one mentioned class size.

Significance tests produced a pattern of results where DEIS teachers consistently employed differentiation of content (comprehension), process (flexible groups) and product and employed AfL and students' interests more frequently than nonDEIS teachers. Increased CPD, school self-evaluation and instructional time in literacy, introduced as part of the National Literacy and Numeracy strategy (DES, 2011) and reduced class sizes may contribute to this occurrence. DEIS teachers also rated the teacher as a facilitator more highly and ranked resources, and student misbehaviour higher as obstacles than nonDEIS teachers. Research has indicated the high proportion of children with emotional-behavioural and learning difficulties, more non-English speaking students and more Traveller pupils in DEIS schools (McMahon et al., 2015) as well as DEIS teachers' focus on misbehaviour may have contributed to this data (Banks et al., 2012; McCoy et al., 2012a). Meanwhile nonDEIS teachers rated curriculum constraints more highly as an obstacle and higher student/teacher ratios may contribute to this challenge. Significance tests revealed that experienced teachers (16+years) differentiated concepts/skills in every lesson more frequently and ranked individual goals as the top DR factor than less experienced (1-15years) teachers. Therefore, teaching experience appears to be a positive factor in teachers' differentiation of concepts/skills and the prioritising of individual goals. However, less experienced teachers (1-5 years) provided the highest varied teacher support levels and discussion over experienced colleagues (6+years). Perhaps, new approaches and understanding in initial teacher education has influenced teachers' provision of varied levels of teacher support.

Most teachers employed language as a tool as over 90% of teachers used oral vocabulary and discussion and differentiated oral and written language at least once weekly in DR. Imitation/modelling and development of word meaning and sense was implemented by the ten LP respondents/interviewees through discussion, questioning and think-alouds, enabling children to

understand meaning, context and make connections with previous learning and texts. All ten teachers stated that reading and listening to reading helped develop children's vocabulary, oral language and word meanings. All teachers modelled respectful skills through discussion, observation, questioning and listening to others and some modelled comprehension skills, think-alouds, literacy circle skills, read-alouds, silent reading, problem-solving and poetry reading. Survey participants were not asked to comment on types of collaboration, comprehension strategies and meaning-making. All ten LP respondents/interviewees employed collaboration, (teacher/student, student/student) helping children develop meaning/ competence/solutions through collaboration in large/pair/small group discussions, literacy circles, jigsaws, snowballs, think-pair-share and sharing of favourite books. Over 90% of teachers rated active learning and discussion with students as very important and differentiated comprehension weekly while 82% employed child-centred activities weekly. All ten LP respondents/interviewees stated that DR improved comprehension and all employed discussion and questioning. Other comprehension strategies employed included prediction, think-alouds visualisation and summarising. Linkages between texts and personal experiences/ideas were employed to enhance meaning-making as well as think-alouds and questions in literacy circles. Children were helped be the source of their own learning through reading, discussion, thinking, listening and sharing ideas, peer teaching, project work and think-alouds. Using the leading activity (discussion) children can extend their knowledge and develop new understanding when they are engaged and interested in the discussion topic. Teachers can show children how to think, listen and reflect through think-alouds in small groups. It is possible to link DR implementation with elements of the ZPD as teachers can locate where children are within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints and collaborating with children in tasks and children reorganised ideas/concepts to think in different ways. Further qualitative research involving classroom observation and indepth discussions could explore this DR linkage to the ZPD in greater detail.

The next chapter, Chapter Seven, will provide the findings of the Houston Case Study.

Chapter Seven: Findings from the Houston Case Study

7.0 Introduction

This chapter presents the findings from the Houston Case Study, comprising of a survey (n=315), five lesson-plan evaluations (Y), and five semi-structured interviews (Z). A sequential, pragmatic approach was adopted, incorporating 315 returned questionnaires, (54% response rate), lesson-plan evaluations and interview data provided by elementary teachers in Houston, on their understanding and implementation of DR. The biographical details of the Houston participants are presented first, followed by a discussion on the data based on the four research questions. Discussion focuses on teachers' practices and on factors perceived to support and hinder DR and teachers' understanding and implementation of DR in relation to lesson content, process, and product. The chapter concludes with an exploration of some elements associated with Vygotsky's ZPD that are relevant to DR. The following codes were applied to the Houston respondents:

Table 7.1: Houston: Coding of Respondents (n=315)

Respondents	Houston
Survey participants	X 1-315
Lesson-plan Evaluations (LP Respondents)	Y 1-5
Interviewees	Z 1-5

7.1. Participating Schools and Teachers

The researcher gained permission to approach 23 elementary schools in two state Interschool Districts ISDs, previously discussed in Chapter Five, Section 5.4. In this case study, all fourteen participating schools (70% response rate) were coeducational, three were private elementary schools, and eleven were state elementary schools.

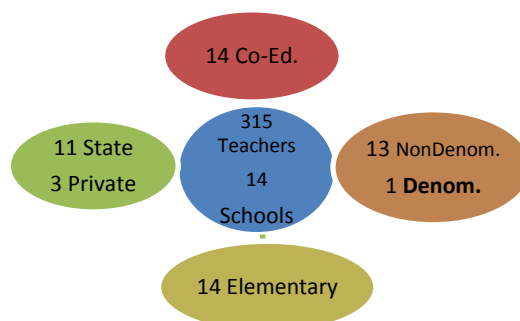


Figure 7.1: Houston: Participating Schools

Six hundred teachers involved in Language Arts and Reading Instruction in Grades 1-6 were invited to participate in the research and 315 teachers (53%) completed the questionnaire. 315 teachers from a

cohort of 430 teachers from the fourteen schools participated in this research. Schools ranged from a complement of ten teachers to schools with eighty teachers in different socioeconomic areas. Most teachers (80%) taught in State elementary schools and 20% taught in Private schools. Ninety-one percent of teachers taught in the 13 denominational schools and 9% taught in the one private Roman Catholic school. Disadvantaged schools accounted for 74% of teachers, while 26% worked in advantaged schools.

7.1.1 Profile of Survey Participants

The biographical details of the Houston survey respondents (n=315), five lesson-plan participants, and the five interviewees are presented first, followed by a discussion on the data answering the four research questions. The majority of teachers were female, with a B.Ed. degree - 97% female (n=305) and just 3% male (n=10) teachers. 70% of female teachers and all male teachers held a Bachelor qualification. One-quarter of females held a Master's degree. Only 1% of females held a Diploma qualification. No teacher held a doctorate.

Class teachers accounted for 89% of the 315 teachers, of which 94% were females. Males only taught as class teachers (60%), reading teachers (20%) and Learning Support (20%). Most female teachers (23%) taught Grade 5, while most males (34%) taught Grade 3. The fewest class female teachers taught Grades 1, and 2, and the fewest men taught Grades 4 and 6. Reading Teachers accounted for 25% women and just 1% female Learning Support teachers. Only females were Teaching Specialists (4%) and 'Other' teachers (3%). 'Other' included five Team Leaders, two Dual Language, ESL (English as a Second Language), one Language Arts Teaching Specialist, one Dyslexia Specialist, and one RTI. The 100 non-class teachers (32%) influenced class size data, as they taught small numbers of students (1-15 children), so class sizes account for 1-25 pupils.

Table 7.2: Houston (n=315): Teacher Gender and Class Size (Percentage)

Teacher	Class Teacher (89%)					Non-class Teacher (11%)		
						Over 2 Blocks	Over 3-4 Blocks	
Class size	21-25	16-20	11-15	6-10	1-5	26-30	31-45	70 -80
Female %	43	32	11	1	2	2	5	2
Male %	60	30	0	0	0	10	0	0
Total %	43	32	11	1	2	2	5	2

Most teachers (43% female and 60% male) taught classes, with 21-25 children, which is the average classroom size in Houston State Elementary schools. Small class size impacts positively on student achievement especially when class provision exceeds one year (Finn et al., 2001; Faubert, 2012; Konstantopoulos, 2008). Nine percent of non-class teachers taught reading over two blocks to individual and small groups of children. Non-class reading specialists (1%) and the coaches (1%) who

coached class teachers in reading but did not teach children are not included in Table 7.2. No class teacher taught classes of over 25 children. No men taught individual children, and only one special reading category had a male teacher. This could lead to the assumption that this may be a general ISD school practice or policy. All other LA/Reading Specialists were female teachers. Most female teachers (32%) had 2-5 years teaching experience. Most men (40%) had just one-year teaching experience, compared to 8% of females. Teachers with 6-10 years teaching experience accounted for 28% females and 30% males.

7.1.2 Profile of Lesson–Plan Evaluation Participants (Y1-5)

The Lesson-plan evaluation template is a three-page document, with 15 questions, including a lesson reflection (Appendix B-1). All respondents, one male and four females, participated in the questionnaire. Important information on the lesson topic, class, lesson duration, class size, groups, teacher support and differentiation practices were provided.

Table 7.3: Houston: Lesson-Plan Evaluation Participants (Y1-5)

Teachers	Y1	Y2	Y3	Y4	Y5
Qualification	B Ed	M Ed	BEd	B Ed	B Ed
Years Teaching Experience	16+	2-5	10-15	6-10	2-5
School Type	ISD Co-ed Non-denom Disadv	ISD Co-ed Non-denom Disadv	Co-ed Christian Private	ISD Co-ed Non-denom	ISD, Co-ed Non-denom
Class	1	2	3	4	5
Class Size	16	20	18	20	22

The evaluations provided an insight into the one male and four female teachers' understanding, and implementation of DR. One teacher had a Master's degree, and three teachers had six years or more teaching experience. Lesson evaluations were provided for Grades 1-5.

7.1.3 Profile of Five Houston Interviewees (Y1-5)

Table 7.4: Houston: Interviewees (Z1-5)

Teachers	Z1	Z2	Z3	Z4	Z5
Qualification	B Ed	B Ed	M Ed	B Ed	B Ed
Years teaching Experience	2-5	10-15	16+	2-5	6-10
School Type	ISD, Co-ed Non-denom	Private, Co-ed Christian	ISD, Co-ed Non-denom Disadvantaged	ISD, Co-ed Non-denom	ISD, Co-ed Non-denom Disadvantaged
Class	1	2	4	5	6
Class Size	16	20	18	20	22

The five semi-structured interviews were conducted from April-June 2015 via Skype. The set and open-ended questions were based on questionnaire and lesson-plan evaluation data analysis. The five female interviewees self-selected themselves from an invitation on the questionnaire and they expanded on issues that they believed were important in DR implementation and provided an insight into teachers' understanding of DR (Appendix C-1). One interviewee had a Masters qualification and three interviewees had six or more years teaching experience, so this may be a consideration for analysis.

These qualitative findings are explored, based on the four research questions, and supported by relevant quotations identified through thematic analysis (Braun & Clarke, 2006).

7.2 Results

The researcher explored the differentiated reading practices employed by teachers in the selected Houston elementary schools through surveys, (X1-315), five lesson-plan evaluations, (Y1-5), and five semi-structured interviews, (Z1-5). Data will be presented under the four research questions:

1. What are teachers' conceptions about DR and pedagogical practices?
2. To what extent is the modification of content, process and product related to DR pedagogical practices?
3. What factors facilitate and hinder DR implementation?
4. To what extent are elements associated with Vygotsky's Zone of Proximal Development (ZPD) relevant to teachers' understanding and implementation of DR?

The findings from the data will now be presented. Note the number of missing teachers is very low in all the survey tables – 0-3/7. Totals do not equal 100.0% due to rounding errors.

7.3 Teachers Conceptions about DR

DR conceptions are explored through teachers' definitions of DR and through the reading strategies, assessment and groupings employed, emerging from the Literature Review on DR (Chapter Four, 4.2-4.3; 4.8-4.9) and from the thematic analysis.

7.3.1. Teachers' Understanding of DR

Teachers' understanding of DR was explored in an open qualitative question in the survey (Appendix B-1, q.8). 237 participants, (75%) described what DR meant to them. The 237 responses were summarised into 14 categories through thematic analysis. Just 5% provided a comprehensive DR definition – *'differentiate content, process and product to meet pupils' needs.'* All other responses presented partial definitions (Pilten, 2016).

Table 7.5: Houston: Teachers' Conceptions of DR

	Houston DR Definitions (n=237 – 75%)	%
1	Match content & process to individual needs	70
2	Individual, achievable goals	68
3	Groups - Collaboration in groups & learning	66
4	Dialogue, discussion listening	42
5	Flexible teacher support & scaffolding	35
6	Focus on needs not on standardised tests	24
7	Develop comprehension and reading skills – read-aloud, silently etc.	22
8	Identify child's correct starting point	16
9	Match content to child's needs - Target next steps, use interesting books	15
10	Assessment based on child's ability - Use different assessments, observations	9
11	Different product	6
12	Differentiate content, process and product to meet pupils' needs	5
13	DR has its merits but v difficult – lack of time & resources	3
14	<i>'I don't always use it' – 'Don't have time! Kids want to be treated the same'</i>	1

Some responses were very comprehensive and were apportioned to several relevant categories as this was qualitative data. Other responses were succinct e.g. *'very important for all children (X36)* and *'Teaching to kids' strengths and weaknesses' (X97)*. Seventy percent of teachers chose 'Matching content and process,' which included matching lesson, instruction, environment, tasks, and pace to children's learning needs. Individual goals and groups were also rated highly. Meanwhile, 24% of teachers stressed the need to focus on children's needs, not on standardised tests. Identifying children's correct starting point was highlighted by 16% and assessment was mentioned by 10%. Specific reference to reading was made in six categories – 1,4,7,8,9 and 12, while 22% highlighted reading skills and comprehension. Most answers were positive about DR, but two teachers from the same school stated that they do not always use DR, as *'Kids want to be treated the same' (X35, X38)*. A third teacher stated that *'It's an expectation in my school to use it – so I have to! (X64)*. Other teachers (3%) saw the merits of DR but found the lack of time and resources militated against DR implementation.

7.3.2 Impact of DR on Reading and Comprehension

The impact of DR on reading and comprehension was explored with the ten interviewees and LP respondents. All teachers stated that DR improved comprehension and that discussion was the most effective strategy. Nine teachers stated that DR improved reading and encouraged children to read improving skills, e.g. *'word fluency and oral reading' (Y1)* and motivation and engagement *'DR enables children to choose favourite books to read inside and outside school' (Y2)*. Just Z5 said that

DR helped students ‘sometimes –DR doesn’t help if students and texts are mismatched so I work hard to match students and texts’. All interviewees and LP respondents stated that discussion in DR aided comprehension –‘discussion, problem-solving and decision-making all help’ (Z4) and ‘dialogue and thinking help comprehension’ (Z3). Comprehension strategies will be discussed in section 7.8.4.

In summary, the qualitative responses of 237 teachers (75%) on their understanding of DR was summarised into 14 categories through thematic analysis. Just 5% provided a comprehensive DR definition. The top three definitions were ‘match content and process to individual needs’ (70%), ‘individual goals’ (68%) and ‘collaboration in groups’ (66%). The impact of DR on reading and comprehension was explored with the ten interviewees and LP respondents. All stated that DR improved comprehension with discussion as the most effective strategy. Nine stated that DR improved reading and encouraged children to read.

7.3.3. DR Implementation

All 315 participants stated that they used DR and the survey, lesson-plan evaluations and interview data validated the fact. The frequency of DR was further examined in the interviews. Three interviewees stated that they used DR daily and two interviewees stated that they employed DR three or four times weekly. Having ascertained that the respondents used DR, the study explores ‘why’ teachers employ DR in their classrooms. The survey participants could tick 1-3 options.

Table 7.6: Houston: DR Implementation

Why use DR?	Questionnaire (n=315) %	5 Lesson-plans	5 Interviews
School Initiative	79	5	5
Personal Interest	48	2	3
Inservice Course	29		5

Most survey participants (79%), and all ten LP respondents and Interviewees, used DR due to a ‘School Initiative’, therefore it would appear that ISD and school level planning and support is perceived as important in providing DR. Two interviewees wanted more school support/resources for DR. Almost half (48%) chose ‘Personal Interest’, as did five LP respondents/interviewees so this suggests that teachers are open to and interested in DR. Only 29% of teachers used DR due to *In-service* courses. No LP respondents or interviewees expressed a great need for CPD training on differentiation for teachers. Under the ‘Other’ category, 1.3% chose ‘College’. Two interviewees received DR training in college and in their ISDs.

7.3.4 The DR Environment

Teachers rated eight options of what constituted a DR environment, across a 5-point scale, from ‘Strongly Disagree’ to ‘Strongly Agree’.

Table 7.7: Houston (n=315): DR Environment (%)

What is important in a DR environment?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
Teacher as facilitator, guide	2	5	4	26	64	3.5
Flexible groups			6	33	60	3.5
Active learning - project work	1		7	36	56	3.5
Different/tiered activities			4	47	49	3.4
Individual Learning Plans/goals	1	4	10	32	53	3.3
Respect	1	4	6	42	48	3.3
Students' interests, culture		7	8	37	48	3.3
Display of students' work	1	2	14	40	42	3.2

Over 50% of participants '*strongly agreed*' with the first four options and over 40% '*strongly agreed*' with the last four options. The top three factors received the same mean score but different '*strongly agree*' scores – 'Teacher as facilitator' (64%), Flexible groups (60%) and Active learning (56%). Seven Interviewees/LP respondents also strongly agreed with 'Teacher as facilitator'. No teacher disagreed with flexible groups. 'Different learning style activities,' received the highest combined strongly agree and agree scores (96%), obtaining the highest 'agree' score (47%), while the 'strongly agree' score was a modest 49%. Three options received the same mean score (3.3) but obtained different strongly agree scores – individual goals (53%), respect (48%) and consideration of students' interests, culture, etc. (48%). 'Classroom display of students' work' the least popular option in the strongly agreed scores, (42%) received the highest 'neutral' score of 14%. Analysis revealed no significant statistical difference between variable responses.

Respondents also rated a positive learning environment in question 3 (Appendix A-2),

Table 7.8: Houston (n=315: DR Facilitating Factors (%))

What Factors Facilitate DR?	1 st Choice	2 nd Choice	3 rd Choice	Last Choice	Mean
Positive Learning Environment	36	20	19	26	2.7
ILP, PLP or Goals	30	28	14	28	2.6
Preparation & Structure	33	18	25	24	2.6
Continuous Assessment	18	35	26	21	2.5
Flexible Groups	21	33	27	20	2.5
Activities match ILP	17	32	28	24	2.4
Different Assessments	19	22	26	32	2.3

A ‘*Positive Learning Environment*’ was chosen by 36% of teachers as the most important DR factor, with a mean score of 2.7 and 75% of teachers chose it among their top three factors. All chose it among their top four, including the ten LP respondents/interviewees so Houston teachers rate a Positive Learning Environment as important in DR. Analysis revealed a significant differences between teachers of different teaching experience to a positive learning environment (Chi Square = 14.292; df=6; p=.027). Least experienced teachers (1-5 years) rated a positive learning environment more highly than experienced teachers (6+years). Children with positive relations with teachers are more positive about school than those with negative interactions who are more disengaged from school (Chetty, Friedman & Rockoff, 2013).

In summary, most teachers stated that the teacher as a facilitator, flexible groups and active learning were the three most important factors in a DR environment. In a different question, all teachers stated that a positive learning environment was important in DR and least experienced teachers rated a positive learning environment more highly than experienced teachers

7.3.5. Assessment

In the survey, teachers rated the influence of five types of assessment on DR across an 8-point scale from ‘N/A’ to ‘*every lesson*’ (Appendix A-2).

Table 7.9: Houston (n=315): Assessment data employed in DR (%)

In DR I use data from:	Never	Once a year	Few a month	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Assessment for Learning (AfL)	1		12	31	17	35	2.9
Assessment of learning (AoL)			15	33	32	25	2.7
Standardised Assessment	2		30	39	15	12	2.2
Diagnostic Assessment	10	12	54	8	6	9	1.9
Formal District assessments	15	4	56	7	4	8	1.8

Most teachers used information from ‘Assessment of Learning’ (AfL) most frequently (83%, weekly and 35% every lesson). Assessment of Learning (AoL) was ranked second place. Interestingly, 58% of teachers stated that ‘continuous assessment’ *occurred* in every DR lesson and 94% stated that it *occurred* at least once weekly (Table 7.19). Therefore, this suggests that teachers do not always incorporate assessment data in their DR implementation. Most teachers employed information from standardised assessment data (54%) and diagnostic assessment data (43%) a few times monthly. Most teachers used information from ‘Formal District Assessment’ (56%) once monthly. Analysis revealed significant statistical differences between teachers of different teaching experience to three variables:

- AoL (Chi Square = 22.729; df=12; p=.030);
- District assessment (Chi Square = 25.997; df= 14; p=.026) and
- Standardised assessment (Chi Square = 29.786; df=7; p=.000).

Teachers with the most teaching experience incorporated data most frequently from standardised assessment, AoL and formal district assessment to help their DR implementation. This is good practice and suggests that teachers learn to incorporate assessment data to guide DR implementation through teaching experience (Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004).

Significant statistical differences were also revealed between teachers' responses in advantaged/disadvantaged schools to four variables:

- AfL (Chi Square = 38.788; df= 6; p= .000);
- AoL (Chi Square = 39.065; df=6; p=.000);
- District assessment (Chi Square = 158.851; df= 7; p=.000) and
- Standardised assessment (Chi Square = 102.571; df=6; p=.000).

Teachers in advantaged schools incorporated data most frequently from the four assessments than teachers in disadvantaged schools (Goldhaber, Lavery & Theobald, 2015). This is a concern as children in disadvantaged schools (frequently below-grade-level readers), would benefit from DR implementation guided by assessment data and may indicate that teachers spend more time on remediation and support rather than incorporating assessment information into DR practices (Rockoff, 2004).

Eighteen percent of teachers ranked 'Reading instruction guided by continuous assessment' and 19% chose 'different assessments' as the main facilitating factor in DR (Table 7.9). All teachers rated 'continuous assessment' and 99% ranked 'different assessments' among the top four facilitating DR factors. This demonstrates that teachers rank assessment as important in DR. Analysis revealed significant statistical differences between teachers of different teaching experience to 'different assessments' (Chi Square = 13.988; df=6; p=.030). Least experienced teachers (1-5 years) rated different assessments more highly as a DR facilitating factor than experienced teachers (6+ years). Changes in initial teacher education incorporating differentiation training may have impacted on this finding.

All LP respondents stated that assessment information influenced their class activities, using text discussions, group discussion observations, and questioning as forms of assessment. Three teachers listened to students reading and used running records. Three interviewees used both AfL and AoL to inform daily reading strategies and activities, '*informal assessment data guides my teaching*' (Z2) and

two interviewees used only AoL to measure children's achievement of skills. All interviewees considered assessment to be important in DR '*Assessment is vital to kids' progress in DR*' (Z3) and it was mentioned in nine of the 16 interview questions (Appendix C-1). Three Interviewees mentioned diagnostic assessment and all mentioned pressure arising from Standardised Formal District Assessments.

In summary, 83% of survey participants used data from AfL weekly and 80% from AoL weekly, 54% employed data from standardised assessment data and 43% diagnostic assessment data a few times monthly. Statistical analysis revealed that teachers with the most teaching experience and teachers in advantaged schools incorporated data more frequently from standardised assessment, AoL and formal district assessments than their counterparts. Advantaged teachers also incorporated data from AfL more frequently than their counterparts. All teachers included continuous assessment among the top four DR facilitating factors. Statistical analysis revealed that less experienced teachers (1-5 years) rated different assessments more highly as a DR facilitating factor than experienced teachers (6+years).

7.3.6 Evaluating Students' Reading Readiness

Recognising children's reading readiness is central to DR delivery. Teachers rated nine factors that help evaluate student readiness across a 4-point Likert scale, from '*No Help*' to '*Significant Help*'.

Table 7.10: Houston (n=315): Evaluating Children's Reading Readiness

What helps <i>you evaluate</i> students' level of understanding and readiness?	No Help	Minor Help	Moderate Help	Significant Help	Mean	Mod /Sig help
Listening to the student reading		3	27	70	2.7	97
Observation of student in individual and group work		5	27	68	2.6	95
Discussion with the student	1	8	27	64	2.6	91
Writing samples	1	10	27	62	2.5	89
Different assessments – diagnostic, continuous, summative, etc.		10	43	47	2.4	90
Pre-assessment of concepts, etc.		21	39	38	2.1	79
Self-evaluation	7	27	38	28	2.1	66
Discussion/Feedback from other teachers	4	30	47	19	1.8	66
Discussion/Feedback from parents	5	40	40	15	1.6	55

Listening to the student reading' was ranked the most helpful strategy by 97% of teachers. *Observation of students*' and *'discussion with the student'* were ranked second place with the same mean score (2.6) but different 'significant help' scores. 'Writing samples' was rated 'helpful' by 89% but '*significantly helpful*' by just 62%. The last four categories scored higher at moderately helpful

than significantly helpful. Discussion with teachers received the highest *moderately helpful* score (47%). Discussion with parents was rated at 40% for both ‘minor help’ and ‘moderate help’.

Three interviewees used daily running records to evaluate reading readiness. All five interviewees spent between 1-4 weeks at the beginning of the identifying reading readiness. Three interviewees received help from reading specialists and all interviewees used reading aloud, discussion with students and continuous assessment to evaluate reading readiness. Assessing children’s reading readiness was not mentioned in the lesson-plans.

Statistical analysis revealed significant differences between responses by teachers in advantaged/disadvantaged schools to:

- self-evaluation (Chi Square = 17.808; df= 4; p= .001);
- pre-assessment of concepts (Chi Square = 9.294; df= 3; p=.026) and
- listening to students’ reading (Chi Square = 9.819; df=2; p=.007).

Teachers in advantaged schools engaged more frequently in these three methods than teachers in disadvantaged schools. This data is worrisome as these three effective teaching strategies, teacher increase academic attainment (Borman & Hewes 2002; Slavin et al., 2008). Further research could reveal whether teachers in disadvantaged schools spend more time responding to student misbehaviour (Rivkin et al., 2005) and so spend less time on effective teaching strategies.

Statistical analysis also revealed significant differences between responses by teachers of varied teaching experience (1-5, 6-15, 16+ years) to:

- self-evaluation (Chi Square = 17.446; df=8; p = .026); and
- discussion with students (Chi Square = 16.974; df= 6; p=.009).

Teachers with most the teaching experience incorporated more student self-evaluation than their less experienced counterparts. Self-evaluation practices may benefit from established routines mastered through experience (Goldhaber et al., 2015; Rockoff, 2004). However, the least experienced teachers engaged more in discussion with students than their counterparts suggesting that less experienced teachers may benefit from updated teacher education practices involving discussion and learning through meaning.

In summary, most teachers assessed children’s reading and reading readiness by listening to children reading, observing students and discussing reading with the student. Statistical analysis revealed that teachers in advantaged schools engaged more in self-evaluation, pre-assessment of concepts and listening to students’ reading than teachers in disadvantaged schools. Analysis also revealed that more experienced teachers incorporated student self-evaluation more frequently than their counterparts

while the least experienced teachers engaged more in discussion with students than their experienced counterparts.

7.4 Factors Informing DR

The top three factors informing DR were individual goals, child's oral vocabulary and students' reading needs. More than 80% of teachers ranked identifying student readiness, child-centred activities and continuous assessment as important factors. Oral vocabulary will be discussed in section 7.8.1. Continuous assessment' was already discussed in section 7.3.5.

Table 7.11: Houston (n=315): Factors Informing DR (%)

My DR incorporates...	A few per term	A few per month	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Individual goals		2	9	17	73	4.6
Child's oral vocabulary			5	43	52	4.5
Students' reading needs	1	5	13	18	63	4.4
Identifying readiness	1	7	16	20	56	4.2
Child-centred activities	4	4	16	33	43	4.1
Continuous assessment	2	8	24	20	45	4.0
Previous reading experiences	8	14	18	30	30	3.6
Students' interests	11	31	27	27	5	2.8
Students' favourite books	36	28	17	14	3	2.1

Just 30% of teachers incorporated students' previous reading experiences, only 5% involved students' interests and just 3% incorporated students' favourite books in every lesson. Only 34% included favourite books weekly. These activities could encourage reluctant, struggling, or EAL readers to read, as they can incorporate 'flow' (Csikszentmihalyi, 2000). Analysis showed significant differences between teachers of varied teaching experience to child-centred activities (Chi Square =19.776; df=8; p=.012) and individual goals (Chi Square =16.541; df=6; p=.011). Experienced teachers with (6+years) incorporated child-centred activities and individual goals more frequently than less-experienced teachers (1-5 years). Child-centred activities involve advance planning and preparation and are associated with teaching experience and established classroom practice (Rockoff, 2004). Meanwhile, significant differences were revealed between teachers in advantaged and disadvantaged schools in thees four variables:

- Individual goals (Chi Square = 17.206; df= 6; p= .001);
- Students' needs (Chi Square = 26.998; df=4; p=.000);
- Students' interests (Chi Square = 12.122; df= 5; p=.033) and

- Children's favourite books (Chi Square = 19.721; df=5; p=.001).

Teachers in advantaged schools incorporated individual goals and students' needs more frequently. This could suggest that teachers in advantaged schools employ more interaction and effective strategies (Goldhaber et al., 2015) and so set individual goals as they know students needs through employing more data from assessments than their counterparts (Sections 7.3.5-7.3.6). However, teachers in disadvantaged schools incorporated students' interests and students' favourite books more frequently suggesting that these strategies help encourage and motivate children to read (Csikszentmihalyi, 1997).

In summary, the top three factors informing DR were individual goals, child's oral vocabulary and students' reading needs. Four core elements of DR were amongst the options most teachers used at least once a week - identifying students' readiness, reading needs; previous reading experience and child-centred activities. Few teachers incorporated 'students' favourite books (3%) and students' interests (5%) on a weekly basis. Statistical analysis revealed that experienced teachers incorporated more child-centred activities and individual goals, teachers in advantaged schools incorporated more individual goals and students' needs and teachers in disadvantaged schools incorporated more students' interests and students' favourite books than their counterparts.

7.4.1 Types of Reading

All ten interviewees and LP respondents *listened to students reading*'. The survey participants were not invited to comment on types of reading or class texts but these topics were explored with the ten respondents.

Table 7.12: Houston: LP Respondents and Interviewees: Types of Reading Employed

Types of Reading	LP respondents Y1-5	Interviewees Z1-5	Total
Daily read aloud	-	4	4
Whole class reading aloud together	2	3	5
Individuals Reading aloud to class	3	4	7
Read aloud in pairs	2	2	4
Individual children read aloud to teacher	3	4	7
Teacher reading aloud to class	3	4	7
Listening to CD	1	2	3
Daily silent reading	5	5	10
DEAR – 'Drop Everything And Read'	0	0	0
Reading set amounts	5	5	10
Reading at child's own pace	3	4	7

Children spent less time reading aloud than reading silently. Seven teachers incorporated individual children reading aloud. One interviewee had pupils read one sentence aloud daily and three lesson-

plans included children reading 2-5 sentences aloud. Teachers stated that reading aloud was important, as the children '*improved fluency*' (Y4) and '*developed new vocabulary*' (Z1). Just four teachers used reading aloud in pairs. Four interviewees read aloud to pupils daily. All interviewees had their children read silently for 2-10 mins daily. All lesson-plans involved reading. Just one teacher (Z2) modelled silent reading as she read her book during silent reading time, the other teachers marked pupils' work. '*I don't have time but the librarian reads aloud once weekly*' (Z4). Reading silently was '*easy to organise*,'(Z2), as '*most kids relax and enjoy reading quietly*' (Z5).

Paired reading was employed by two interviewees and two lesson-plans. Three teachers incorporated included children listening to stories on a CD and this was done to help EFL (Z3), and lower ability students' (Y3). All ten teachers set specific reading amounts of text for different groups of students as lesson activities were based on set content.

In summary, all ten teachers incorporated daily silent reading and required children to read 'set amounts of text'. Most children read aloud to the teacher and/or to the class or in pairs. Five teachers involved whole class reading aloud together.

7.4.2 Class Texts

One lesson-plan employed the Pearson Successnet reading programme and the online activities (E1). No other commercial reading schemes were mentioned. The interviewees stated that special graded books were provided for all students until Third or Fourth Grade. EFL and lower ability students accessed graded books until Fifth Grade. Three interviewees offered different genres to children: '*poetry books, detective books*' (Z1), '*Magic Tree House series*'(Z2), '*Famous People and comics*' (Z3), '*biographies and the classics*' (Z5), and '*American History and Sportsmen*' (Z4).

All five interviewees used at least four different class texts for different abilities as children were divided into ability groups; '*In the library children choose own texts*' (F3). All lesson-plans also catered for several texts per class. Similar authors were used in a range of Grades – Michael Morpugo texts were used in Grades 2-6 by four interviewees and Y3; Mary Pope Osbourne texts were employed by Grades 1-3. Texts by Roald Dahl, (Grades 2-4), Louis Sachar (Grades 4-5) and J.K. Rowling (Grades 5-6) were used in two grades respectively. Other authors included Rosa Lester, Kathryn Lasky, Geronimo Stilton, James Daugherty, Mark Twain, Rachel Vail, Jane Kurtz, Darren Shang, Laura Ingalls Wider, etc. Interviewees' comments varied on why students liked the different texts – '*different perspectives*' (Z4), '*different abilities*' (Z1), '*students from different cultures can associate and identify with different texts*' (Z6).

In summary, all ten teachers used several texts. Three interviewees employed different genres for each class. Similar authors were used for a range of grades.

7.4.3 Flexible Grouping

Flexible Groups are important in DR. Grouping was explored in several survey questions. Teachers were asked to rate how important they believed flexible grouping to be in DR (Appendix A-2, 3).

Table 7.13: Houston (n=315): Importance of Flexible Groups

What Factors Facilitate DR?	1 st Choice	2 nd Choice	3 rd Choice	4 th Choice	Mean
Flexible Grouping, whole class, pairs, small groups, individual work	21	33	27	20	2.5

All 315 teachers chose *Flexible Groups*, among the top four factors that facilitate DR and 21% of teachers chose it as the main factor suggesting that Houston teachers rate ‘*Flexible Groups*’ as important. Sixty percent of teachers ‘*strongly agreed*’ that ‘flexible groups for different activities’ was very important (as did all Interviewees and four LP respondents), while 93% agreed with the statement. (Appendix A-2, 12).

Table 7.14: Houston (n=315): Flexible Groups for Different Activities

What is most important in a DR environment?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
Flexible groups for different activities	.3	.3	6	33	60	3.5

Six percent of teachers were ‘neutral’ about the option. All Interviewees stated that they employed flexible groups less frequently than same ability groups. ‘*I’d like to ...but I don’t have the time*’ (Z4), ‘*It’s easier to use same ability groups as students are grouped and working according to their ability*’ (Z3).

Then teachers were asked how frequently they used flexible groups (Appendix A-2, 6). Details are presented in Table 7.15.

Table 7.15: Houston (n=315): Frequency of Flexible Groups.

These processes occur in my DR	Never	Few per month	1-2 times weekly	3-4 times weekly	Every lesson	At least once weekly	Mean
Flexible groups, whole class, pairs, individual	4	14	25	58	97		3.4

Ninety-seven percent of teachers used ‘*flexible groups* once or more a week, and 58% used it daily. However, teachers did not expand on how they used ‘*flexible groups*’. All interviewees and four LP respondents used mixed groups and flexible groups Statistical analysis revealed a significant

difference between teachers in advantaged/disadvantaged schools to flexible groups (Chi Square = 33.203; df =3; p=.000). Teachers in advantaged schools incorporated flexible groups more frequently than disadvantaged teachers. This pattern reveals that advantaged teachers appear to engage in more DR practices than their counterparts (Rivkin et al., 2005). Further research could explore whether this is due to ability, school resources, student behaviour or other factors.

Table 7.16: Houston: Five LP Respondents and Five Interviewees - Groupings Employed

Teachers	LP respondents	Interviewees	Total
Grouping Mixed level	4	5	9
Grouping – same ability	5	5	7
Flexible groups	4	5	9
Interest Centres/Same Interest Groups	1	3	4
Discussion – whole class	5	5	10
Discussion – small group	5	5	10
Discussion – Pairs	5	5	10
Tiered activities	5	5	10
Compacting	5	5	10
Enrichment	5	5	10
Literacy Circles	2	5	6
Think-Pair-Share	0	0	0
Specific DR activity		3 Literacy Circles 2 same ability group discussions	

All ten teachers used whole class, small group discussion tiered activities and paired groups.

All interviewees and three LP respondents used same ability grouping and three interviewees used literacy circles (Z2,Z4,Z5). All ten teachers used compacting and enrichment activities and tiered work stations. Just one interviewee mentioned using ‘Think-Pair-Share’ (Z4). Three interviewees and one lesson-plan respondent used interest centres/same interest groups Three Interviewees’ specific DR activity involved Literacy Circles (Z2, Z4, Z5), and same ability groups for Z1 and Z3.

The teacher’s special area of interest was peer learning (Z5), shared reading and work stations (Z1); teacher modelled-reading (Z1, Z2, Z3), literacy circles and giving students the tools to achieve reading goals (Z4). Z1 employed individual 1-1 student-teacher reading and running records.

7.4.4 Summary

In summary, most teachers ranked flexible groups for different activities as important in DR, and employed flexible groups once or more a week. All LP respondents and interviewees used whole class and small group discussion tiered activities. All interviewees and most LP respondents used mixed flexible, same ability and paired groups, literacy circles and compacting and enrichment activities.

This discussion on groups completes the discussion on strategies under Research Question One. To avoid unnecessary repetition, other strategies including different levels and choice of activities will be discussed under ‘Processes’ in Research Question Two. Under Research Question Four, DR element including oral language, imitation, collaboration, peer learning and meaning-making will be discussed.

7.5 Differentiating Content, Process and Product

This study investigated teachers’ DR implementation in relation to content, process and product through four questions (Appendix A, q.4-7). First, it was necessary to ascertain if teachers differentiated content, process or product. Teachers responded to the four options – Content, Process and Product in a 6 point Likert scale from ‘*never*’ to ‘*every lesson*.’ Most teachers differentiated through process while fewest differentiated through content.

Table 7.17: Houston (n=315): Process, Product and Content, (%)

InDR I differentiate	Never	Few per month	> once weekly	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Process	1	6	93	26	23	44	4
Product	4	11	84	23	33	28	3.7
Content	2	12	85	28	33	24	3.6

Most teachers, 93%, differentiated through process at least once weekly and 44% differentiated in ‘*every lesson*’. Product was differentiated by 85% at least once weekly and content by 84% of teachers, while 28% differentiated through content and 24% differentiated through product. Analysis revealed significant statistical differences between the responses to three variables by teachers in advantaged/disadvantaged schools - Content (Chi Square = 26.771; df=6; p=.000); process (Chi Square = 40.798; df=5; p=.000) and product (Chi Square =34.173; df=5; p=.000). Teachers in advantaged schools implemented more DR through content, process and product than teachers in disadvantaged schools which is a familiar pattern in this data (Chetty et al., 2013; Goldhaber et al., 2015). Having established that most teachers differentiated through content, process, and product at least once a week, the next section explores differentiation by content (Appendix A-2, q.5).

7.5.1 Differentiation by Content

Teachers responded to the four options on a 6-point-Likert scale from ‘*never*’ to ‘*every lesson*’. Most teachers differentiated by comprehension levels. Rating mean scores and frequency of responses for ‘Every Lesson’ yielded slightly different results. Most teachers, 95%, differentiated oral vocabulary at least once weekly and 43% differentiated in ‘every lesson’.

Table 7.18: Houston (n=315): Differentiation by Content (%)

I differentiate the following content areas in DR	Never	Few monthly	> once weekly	1-2 times weekly	3-4 times weekly	Every lesson	Mean
Vocabulary		5	95	24	28	43	3.4
Comprehension	2	2	94	18	35	41	3.2
Concepts	8	9	83	22	23	38	2.8
Levelled readers	4	11	84	34	24	26	2.9
Research content	10	29	59	41	8	10	1.9

Comprehension was differentiated by 94% at least once weekly and by 41% in ‘every lesson’. However, there was no information on how teachers modified content to aid comprehension. Thirty-eight percent differentiated concepts in every lesson. More teachers differentiated levelled readers (84%) at least once weekly than concepts/skills, (83%) but differentiated less in every lesson (26%). No information on types of levelled readers was provided. Research content was differentiated at least once weekly by 59% and by just 10% differentiated in ‘every lesson’. Analysis revealed significant differences between teachers in advantaged and disadvantaged schools in response to these four variables:

- differentiation of concepts/skills (Chi Square = 19.033; df=5; p=.002);
- research (Chi Square = 62.685; df=6; p=.000);
- levelled readers (Chi Square = 36.887; df=5; p=.000);
- comprehension (Chi Square =33.667; df=5; p=.000).

Teachers in advantaged schools implemented more differentiation of concepts/skills, comprehension and research than teachers in disadvantaged schools. This follows a familiar pattern where advantaged teachers employ more DR practices than their counterparts (Goldhaber et al., 2015; Rockoff, 2004). However, teachers in disadvantaged schools employed more differentiation of levelled readers than their advantaged counterparts. Disadvantaged schools generally employ more levelled readers to match different reading levels.

Statistical analysis also revealed significant differences by teachers of different teaching experience in response to differentiation of concepts/skills (Chi Square = 19.856; df= 10; p=.031). Moderately experienced teachers differentiated more concept/skills than the most experienced counterparts (16+years). Least experienced teachers (1-5 years) differentiated least concepts/skills and this may be due to less established classroom management skills or curriculum knowledge (Chetty et al., 2013; Goldhaber et al., 2015).

7.5.2 Differentiation by Process

The 315 participants responded to the 8 different options in a 5-point-Likert scale from ‘never’ to ‘every lesson’. Mean scores and frequency of responses for ‘every lesson’ yielded the same ratings. Over ninety percent of surveyed teachers differentiated five processes weekly – varying levels of teacher support, flexible groups, continuous assessment, auditory, and visual activities.

Table 7.19: Houston: Differentiation by Process (% Teachers)

I differentiate the following processes in DR	Never	Few per month	1-2 times weekly	3-4 times weekly	Every lesson	At least once Weekly	Mean
Varying levels of teacher support	1	3	12	22	61	95	3.4
Flexible groups		4	14	25	58	97	3.4
Continuous assessment		6	19	17	58	94	3.2
Auditory activities	1	8	29	27	35	91	2.9
Different levels of activities	2	17	27	26	29	82	2.6
Visual activities	2	8	30	34	26	90	2.8
Activity Choices e.g. work stations, etc.	15	19	22	26	18	66	2.1
Kinaesthetic activities	10	25	34	20	11	65	2.0

Varying levels of teacher support, flexible groups (section 7.4.3) and continuous assessment (Section 7.3.5) were the most differentiated processes with 95% of teachers providing varied teacher support at least once weekly and 61% provided it in every lesson. All interviewees and LP respondents provided flexible teacher support.. ‘different teacher support levels to kids in brainstorming, reading, choosing library books, discussions and literacy circles’ (Z2). The fourth highest score for every lesson was auditory activities was 35%, which increased to 91% at least once weekly. Visual activities were used by 90% of teachers at least once weekly but only 26% used it for every lesson. The Houston teachers scored ‘different levels of activities’, visual activities, activity choices and kinaesthetic from fifth to eighth place in every lesson. Fifteen percent of teachers never used activity choices and 10% never used kinaesthetic activities. Statistical analysis revealed a significant difference between teachers of different teaching experience to variable teacher support (Chi Square = 18.762; df=10; p=.002). Least experienced teachers (1-5years) provided more variable teacher support in DR than more experienced teachers. This may be due to updated teacher education college practices. Also analysis revealed significant statistical differences between the responses to these five variables by teachers in advantaged/disadvantaged schools:

- variable teacher support (Chi Square = 19.161; df =5; p=.002);
- tiered activities (Chi Square = 31.056; df =5; p=.000)
- auditory activities (Chi Square = 23.507; d f=4; p=.000) and
- visual activities (Chi Square = 33.907; df =4; p=.000).

Teachers in advantaged schools incorporated more variable teacher support, tiered activities and auditory activities than disadvantaged teachers. This again follows a pattern where advantaged teachers engage in more DR practices than their counterparts (Chetty et al., 2013; Goldhaber et al., 2015). However, more disadvantaged teachers employed more visual activities in DR process. This may account for children with lower reading levels so visual activities may be engaged to support comprehension (Rockoff, 2004).

All five LP respondents used visual and aural activities and offered a choice of activities. Four teachers employed flexible and mixed groups and three teachers offered different levels of activities (Y1, Y4, Y5). Assessment information influenced just two teacher's class activities (Y1, Y5). All interviewees stated that class activities, teacher support, activity levels, and activity choices were influenced by continuous assessment. Auditory activities were employed in every class through reading, listening to reading and discussion (Z1-5), Think-alouds, brainstorming (Z2), and literacy circles (Z4, Z5). Kinaesthetic activities were employed weekly (Z1, Z3, Z5), monthly (Z2), and once a term (Z4).

7.5.3 Differentiation by Product

In the survey (Appendix A-2, 7), teachers responded to the four options in a 5-point-Likert scale from 'never' to 'every lesson'. Details are presented in Table 6.20.

Table 7.20: Houston: Differentiation by Product (% Teachers)

Differentiation by product	Never	Few monthly	1-2 times weekly	3-4 times weekly	> Once weekly	Every lesson	Mean
Written activities	1	9	13	36	95	46	3.2
Oral activities	2	9	22	37	89	30	2.8
Visual display	2	31	29	21	67	17	2.2
Demonstration activities	9	36	24	16	55	15	1.9

Written and oral activities were most often employed to enable pupils to demonstrate skill/concept mastery. Both the mean scores and 'Every Lesson' responses yielded similar ratings. Almost half of teachers (46%) differentiated written activities to demonstrate skill/concept mastery in 'every lesson', increasing to 95% at least once weekly. Less than a third, 30% stated their students used oral activities as product in 'every lesson' rising to 89 once weekly. Just 67% of teachers incorporate visual display as product weekly and 55% employ demonstration activities as product at least once weekly. Nine percent of teachers never used demonstration activities. Statistical analysis revealed a significant difference between teachers of different teaching experience to implementation of written activities

(Chi Square = 17.007; df=8; p=.030). Least experienced teachers (1-5 years) used more written activities than experienced teachers (6-15 years) who in turn employed more oral activities in DR product. This may suggest that perceived oral activities require more subject knowledge and classroom management skills than written skills.

Also, analysis revealed significant statistical differences between teachers in advantaged/disadvantaged schools in response to the incorporation of:

- oral activities (Chi Square = 24.419; df =4; p=.000);
- visual activities (Chi Square = 18.133; df =4; p=.001);
- demonstration activities (Chi Square = 13.868; df =4; p=.008); and
- written activities (Chi Square = 34.062; df =4; p=.000) into DR product.

Again, the familiar pattern emerges revealing that advantaged teachers incorporated more oral, visual, demonstration and written activities in DR product than disadvantaged teachers (Goldhaber et al., 2015; Rivkin et al., 2005).

All LP respondents differentiated product through oral activities, three differentiated written activities (Y2, Y3, Y4), and four differentiated product through visual activities, using TV boardX and comic strips (Y2), shoebox dioramas (Y3), learning contracts and graphic organisers (Y4) and contract templates, posters and tag boards (Y5). Two teachers differentiated product through demonstration activities, TV boards, (Y2) and interviews, filmstrips and puppets (Y3). Y2's lesson-plan concluded with five groups of four students presenting a play, storyboard, TV Show or comic strip to the class on some aspect of Thanksgiving to the class. Each presentation was to be between 3-5 minutes in duration.

All interviewees differentiated product through oral and written activities. Three interviewees differentiated product through visual activities but Z5 stated that *'I'm too busy preparing students for the standardised tests!'*. Three interviewees differentiated product through demonstration activities but two stated that *'If we had time it would be great but it's not possible'* (Z1) and *'the curriculum is too broad'* (Z3).

In summary, most teachers differentiated through process (93%), product (85%) and content (84%) at least once weekly. Teachers in advantaged schools implemented more DR through content, process and product than teachers in disadvantaged schools. Most teachers differentiated oral vocabulary (95%), comprehension (94%), differentiated levelled readers (84%) and concepts (83%) at least once weekly Teachers in advantaged schools implemented more differentiation of concepts/skills, comprehension and research while teachers in disadvantaged schools employed more differentiation of levelled readers than their counterparts. Moderately experienced teachers differentiated most concept/skills. Over ninety percent of surveyed teachers differentiated five processes weekly – varying

levels of teacher support, flexible groups, continuous assessment, auditory, and visual activities. Fewest teachers employed kinaesthetic activities in every DR lesson. Least experienced teachers provided more variable teacher support than experienced teachers. Teachers in advantaged schools incorporated more variable teacher support, tiered activities and auditory activities while teachers in disadvantaged schools employed more visual activities in DR process than their counterparts. Most teachers differentiated product through written and oral activities. Least experienced teachers (1-5 years) used more written activities, experienced teachers (6-15 years) employed more oral activities in DR. Teachers in advantaged schools incorporated more oral, visual, demonstration and written activities in DR product than their counterparts. Having explored how teachers differentiate through product, the focus now shifts to resources used by teachers. This information was explored in interviews and lesson-plans.

7.5.4 Resources

Lack of resources was rated as a significant obstacle by just 7% of teachers and a moderate obstacle by 30% of teachers. The most popular resources included a wide range of class/school library books in different genres and levels, different class novels, interactive whiteboards, tiered worksheets and work station materials, book reviews, book journals and learning contracts. The interviewees and LP respondents used TV boards, comic strips (Z1, Y2) and ‘prop corner’ with story boards (Y2), equipment for shoebox dioramas, interviews, filmstrips and puppets (Y3, Z2, Z4), learning contracts and graphic organisers (Y4,Z4,Z5) and contract templates, posters and tag boards (Y5). Having discussed resources, the next section will focus on the main themes derived from thematic analysis of the five lesson-plan evaluations and the five interviews.

7.5.5 Thematic Analysis of Lesson-plans and Interviews

All five lesson-plan evaluations and five interviews were analysed individually using thematic analysis in order to identify, analyse and report ‘patterns within data’ (Braun & Clarke, 2006, p.79). The following DR themes emerged from the five Lesson-plan evaluations and interviews.

Table 7.21: Houston: Themes of Five LP Respondents and Five Interviewees

Houston	
LP Respondents	Interviewees
Group presentations - peer learning	Set goals WITH children
Product – artefacts	Variety of texts and genres
Book reviews and silent reading	Daily group-work – peer learning
Flexible group-work – literacy circles	Tiered activities
Tiered activities	Literacy Circles

Themes common to both LP respondents and interviewees were group work and discussion in same and mixed ability groups, literacy circles and tiered activities. Differences include use of group presentations and artefacts and activities, book reviews and setting goals WITH children by the interviewees. Having briefly discussed the themes arising from the LP respondents and interviews, the two sets are now joined together.

Table 7.22: Houston (n=10): Combined Themes - Interviewees and LP respondents

Themes	
1	Varied genres and texts
2	Peer Learning
3	Literacy Circles
4	Set DR goals WITH children
5	Child-centred activities

Collaboration, group work, peer learning and discussion emerge as important themes for these ten teachers. Also, child-centred activities and varied genres and texts are important factors for teachers in DR implementation.

7.5.6 Summary of DR implementation through Content, Process and Product

In this section, under Research Question Two, most teachers differentiated through process and secondly through product. The low rating of differentiated content was surprising as teachers can plan content differentiation in advance of DR lessons. This may be linked to lack of planning and preparation which could be linked to time constraints. Most teachers differentiated content through comprehension at least once a week and less than half differentiated some form of content in ‘every lesson’. Most respondents differentiated by process, especially using ‘*varying levels of teacher support*’ and ‘*flexible groups*’ in every lesson. ‘*Continuous assessment*’ and ‘*auditory activities*’ also ranked high on the differentiation by process. Most teachers used written activities followed by oral language in determining product. All teachers used oral and written activities to varying degrees to enable pupils to demonstrate skill/concept mastery. Fewer teachers used visual and demonstration activities as product. Resources included varied ranges genres and levels of texts in class/school libraries, tiered worksheets and materials, etc. Statistical analysis revealed that teachers in advantaged schools incorporate more assessments and DR strategies in content, process and product than teachers in disadvantaged schools while the latter incorporated more visual activities, students’ interests and students’ favourite books suggesting that teachers tried to engage and motivate reading through children’s interests. Experienced teachers engaged in more assessments, child-centred and oral activities, individual goals and differentiation of concepts than less experienced teachers. Less experienced teachers incorporated more discussion with students, variable teacher support and written activities than experienced teachers. Having explored the findings to Research Question Two, we now explore the data for Research Question Three, and the factors that facilitate and hinder DR.

7.6 Factors Facilitating DR

The survey respondents (n=315) selected the four most important factors that facilitated DR from seven options. The mean scores and ‘first choice’ responses provided generally similar results.

Table 7.23: Houston (n=315): Factors facilitating DR (Percentage)

What Factors Facilitate DR?	1 st Choice	2 nd Choice	3 rd Choice	Last Choice	Mean
Positive Learning Environment	36	20	19	25	2.7
Preparation & Structure	33	18	25	24	2.6
ILP, PLP or Goals	30	28	14	28	2.6
Flexible Groups	21	33	27	19	2.5
Continuous Assessment	18	35	26	21	2.5
Activities match ILP	17	32	28	23	2.4
Different Assessments	19	22	26	32	2.3

Positive Learning Environment, Preparation & Structure’ and Individual goals were the top three factors. All three elements are interlinked and created by careful planning. Flexible groups and Continuous assessment received the same mean score (2.5) and were ranked joint fourth place. Analysis revealed significant statistical differences between teachers of varied teaching experience to four variables:

- positive learning environment (Chi Square = 14.292; df=6; p=.027);
- activities match needs (Chi Square = 13.538; df=6; p=.035); and
- different assessments (Chi Square = 13.988; df=6; p=.030).
- individual goals (Chi Square = 14.982; df=6; p=.020);

Less-experienced teachers (1-5 years) rated a positive learning environment, activities matching needs and different assessments, more highly than experienced teachers (6+years). Each variable is important in DR and merits a high rating. However, experienced teachers rated individual goals more highly than their counterparts (Goldhaber et al., 2015). Recognising children’s readiness and establishing relevant goals requires student, curricular and teaching skills knowledge which generally accompanies teaching experience. ‘Activities matching ILPs’, seventh in first choice (17%), was the highest ranking third choice (28%). Providing relevant activities, matching student ability and flexible groups are DR core elements. Children’s individual plans/goals ranked third most important factor yet the low scoring of *assessment* and *activities matching children’s individual goals* appears contradictory, as both activities contribute to children’s individual plans/goals. This was further investigated in the interviews.

Table 7.24: Houston Interviewees: DR Facilitating Factors

Houston Interviewees	n=5
Tiered activities,	3
Student needs,	2
Different levels of questioning,	2
Peer learning,	2
A print-rich environment,	2
Literacy circles,	2

No interviewee mentioned individual Learning Plans/goals, three mentioned tiered activities and two mentioned student needs, varied questioning levels, peer-learning, print-rich environment and literacy circles. *Tiered activities were deemed important (Z1, Z2, Z3); compacting (Z4, Z5); different levels of questioning (Z2, Z5).* The LP respondents provided no information on factors facilitating DR. Having discussed the facilitating factors in DR the focus now shifts to perceived obstacles to DR.

7.7 Perceived Obstacles to DR

Survey Participants rated the eleven options across a 4-point scale from ‘*not an obstacle*’ to ‘*significant obstacle*’ (Appendix A-1, q.9). The mean scores provided some different responses to the ‘*significant obstacle*’ scores.

Table 7.25: Houston (n=315): Obstacles to DR (%)

Obstacles to DR	No Obstacle	Minor Obstacle	Moderate Obstacle	Significant Obstacle	Mean
Lack of time	10	20	39	31	1.9
Lack of resources	35	29	30	7	1.9
Class size	18	27	20	36	1.7
Student misbehaviour	16	27	32	26	1.7
Cover standardized test material	25	32	21	22	1.4
Individual Learning Plans/ goals	24	30	33	12	1.3
Curriculum constraints	24	40	26	10	1.2
Planning and preparation	39	32	19	10	1.0
Assess a child's starting point	35	33	25	7	1.0
Different assessments	32	43	20	6	1.0
Lack of training in DR methods	29	51	13	7	.9

Lack of time’, ‘Lack of resources’ and ‘Class size’ were the top three obstacles from mean scores while Class size, Lack of time and student misbehaviour were ranked as the highest most significant

obstacles. While 10% of teachers viewed 'Lack of time' as 'no obstacle,' it received the highest combined moderate and significant obstacles (70%) with and class size receiving 56% in second place. Most Houston teachers taught classes with 21-25 children (43%) and 16-20 students (32%). Nevertheless, 18% of teachers viewed class size as 'no obstacle' to DR. Assessing a child's starting point, lack of training in DR methods, and different assessments were ranked ninth, tenth, and eleventh most significant obstacles, respectively. Planning and preparation received the highest score as 'Not an obstacle', (39%).

The fifth ranked obstacle, 'Pressure to cover standardized test material', significant obstacle, (22%), is significant in Houston, as school funding is related to student scores achieved in standardized tests. Fear of state assessments was revealed as an obstacle in previous research (Hertberg-Davis & Brighton, 2006; Latz et al., 2009; Moon et al., 2003).

All five interviewees said lack of time was the main obstacle, two interviewees mentioned 'Lack of resources', (Z3, Z4), one mentioned class size (Z5) but student misbehaviour was not included. Other obstacles included '*finding the ZPD*' (Z1); '*trying to meet all kids' needs*' (Z2); '*some teachers fear letting the kids be the centre of learning*' (Z5), peer feedback (Z4) and '*unrealistically high parental expectations*' (Z5). LP respondents did not mention perceived obstacles to DR.

Statistical analysis revealed significant differences between the responses by teachers of different teaching experience (1-5, 6+ years) to two variables – student misbehaviour (Chi Square =16.540; df=6; p=.011); and covering standardised test material (Chi Square = 21.080; df=8; p=.007). The less-experienced teachers rated these two obstacles more highly than experienced teachers. More less-experienced teachers work in disadvantaged schools which often have less funding and resources and more opportunity gaps (Chetty et al., 2013; Goldhaber et al., 2015).

Also analysis revealed significant statistical differences between the responses to nine variables between teachers in advantaged/disadvantaged schools:

- individual goals (Chi Square =17.045; df=4; p=.002);
- different assessments (Chi Square =15.639; df=3; p=.001);
- curriculum constraints (Chi Square =11.280; df=3; p=.010);
- planning and preparation, (Chi Square =11.075; df=3; p=.011);
- assessing starting point (Chi Square = 7.988; df=3; p=.046);
- class size (Chi Square = 10.873; df=3; p=.012)
- lack of time (Chi Square =12.382; df=3; p=.006);
- student misbehaviour (Chi Square =34.741; df=3; p=.000);
- cover standardised test material (Chi Square = 26.327; df=4; p=.000).

Teachers in disadvantaged schools rated individual goals, different assessments, curriculum constraints, planning and preparation and assessing child's starting point more highly as obstacles than advantaged teachers (Goldhaber et al., 2015). Teachers in advantaged schools rated class size, lack of time, student misbehaviour and covering standardised test material more highly as obstacles than disadvantaged teachers (Schanzenbach, 2014; Zyngier, 2014). Advantaged teachers rated four of the top five main obstacles more highly whereas disadvantaged rated lower ranked factors more highly. Further research could explore factors behind these ratings.

In summary, the top three facilitating factors were a 'Positive Learning Environment, Preparation & Structure' and Individual goals', three interconnected elements as each contributes to each other. Flexible groups and Continuous assessment were both ranked joint fourth (mean 2.5). Statistical analysis revealed that less-experienced teachers ranked different assessments, activities matching needs and a positive learning environment more highly than experienced teachers. Interviewees mentioned tiered activities and two mentioned student needs, varied questioning levels, peer-learning, print-rich environment and literacy circles as main DR factors.

'Lack of time', 'Lack of resources' 'Class size' and 'Student misbehaviour' were the top four obstacles. All interviewees mentioned lack of time, two stated lack of resources and one mentioned class size but student behaviour was not mentioned. Statistical analysis revealed that less-experienced teachers ranked student misbehaviour and covering standardised test material more highly than experienced teachers. Meanwhile teachers in advantaged schools rated class size, lack of time, student misbehaviour, covering standardised test material more highly as obstacles than disadvantaged teachers while the latter ranked individual goals, different assessments, curriculum constraints, planning and preparation and assessing the starting point more highly than advantaged counterparts.

Having explored the findings to Research Question Three we now explore the data for Research Question Four.

7.8 Elements Associated with Vygotsky's ZPD that are Relevant to DR

This study investigated teachers' understanding and implementation of DR. Some elements associated with Vygotsky's Zone of Proximal Development (ZPD) are relevant to DR implementation. Learners, in collaboration with teachers and imitation, can develop meaning through discussion and reflection. This section explores the DR elements of oral language, collaboration, modelling, comprehension and meaning-making and how they may relate to the ZPD. Oral language will be discussed first.

7.8.1 Language as a Tool

Language enables children to think, communicate, create and solve problems and is a core idea in CHT (Veresov, 2010). Teachers used language as a tool to develop children's vocabulary, word meaning and comprehension in DR. Teachers commented on the frequency of oral vocabulary

differentiation in two questions (Appendix A-2, q.2,5). All 315 participants incorporated children's oral vocabulary in DR and 52% did so in every DR lesson (Table 7.11. Section 7.4), as did all interviewees/LP respondents. In differentiating process (Table 7.19. Section 7.5.2), 95% of teachers differentiated vocabulary at least once weekly, and 43% differentiated vocabulary in every lesson. One core aspect of CHT is the continuous development of word meanings within personal and social activity. Most teachers differentiated oral (89%) and written (95%) activities in product at least once weekly (Table 7.20. Section 7.5.3), helping children develop word meanings within individual reading (personal) and group discussions/activities (social). All interviewees and LP respondents incorporated oral language and word meaning in DR, helping to develop children's language, fluency and understanding through reading, listening to reading and questioning. *'Students develop language through our daily five – reading aloud, listening to reading, group discussion questioning and individual writing'* (Z5). *'Reading aloud in groups helps the less confident reader with new vocabulary'* (Z4). All ten teachers employed open-ended questions with the class. All interviewees employed both lower and higher order questioning, *'depending on students' abilities and the ability groups'* (Z3) and two employed written cognitively demanding questions in tiered activities, including homework (Z4, Z5). Three LP respondents challenged the students with 'higher order questioning'. Using literacy circles enabled three interviewees (Z2, Z4, Z5) to pose *'different levelled open questions'* to the students (Z5) and provided a good platform for students to practice new skills in vocabulary (Z2), discussion (Z4) and analysis (Z5). Word meaning and sense can also be developed through discussion in DR and help *'develop students'* capacity to understand *'in discussion using relevant open questions'* (Z3).

The 'sense' of a word conveys the true understanding of the word over the dictionary meaning of the word (Vygotsky, 1986). Nine teachers emphasised context in DR instruction and employed discussion to help children understand texts and to interpret meaning in read-alouds and in silent reading. Three interviewees explored context and word 'sense' in specific, same ability small group encouraging students to gain higher levels of understanding than they would reach reading alone. Students learned in different ways from peers, from social interactions, from learning activities and making meaning of their own experiences. Language was employed to enable children to explore and formulate thoughts through listening, questioning and discussing ideas in social activity in paired, small and whole class discussion. Children can generally express what language enables them to express so the development of vocabulary, word meaning and sense (Vygotsky, 1986) is vital. *'Discussion helps students explore vocabulary in new contexts'* (Z1) suggesting links with Vygotsky's word 'sense' (1978). Most teachers (91%) rated discussion with students important in DR and 64% found it *'significantly helpful'* in evaluating understanding and reading readiness (Table 7.10, section 7.3.6). Just one teacher incorporated oral language in think-alouds, helping children problem solve aloud in group discussion/activities, incorporating ego-centric speech (Vygotsky, 1986) requiring the understanding by teachers/peers (Willis, 2001).

In summary, most surveyed teachers incorporated oral vocabulary and language in DR and most differentiated language at least once weekly in DR lessons. All ten teachers employed oral language as a tool to develop fluency and vocabulary through reading and listening to reading. All ten teachers employed open-ended questions and small group discussion to develop vocabulary, language, fluency and thoughts. An important component in language as a learning tool is the employment of modelling/imitation.

7.8.2 Modelling/Imitation

Modelling/imitation is not ‘mindless’ imitation but the modelling of specific skills by pupils once they have reached a certain ‘understanding’ of skills/concepts (Vygotsky, 1986). Survey participants were not invited to comment on modelling/imitation but all ten LP respondents/interviewees modelled exploration of meaning in DR, fluency, pronunciation and respectful skills through reading, discussion, observation and questioning. Seven teachers modelling reading aloud - ‘*modelling reading helps fluency*’ (Z3) and ‘*I model pace, punctuation, tone and pronunciation*’ (Z2). Seven teachers modelled respectful behaviour in discussion and attentive listening and taking turns in small discussion groups. Five teachers modelled and facilitated discussion in Literacy Circles, ‘*to help children express what they already know and maybe develop new perspectives on things*’ (Z4). Children can learn discussion skills by imitating the teacher’s discussion skills. Six teachers modelled comprehension skills to help pupils understand the relevant strategies – prediction, visualisation and making connections with other books personal experiences. One interviewee modelled ‘*teacher’s think alouds*’ (Z4) and one modelled reading silently (Z2). Students, having acquired understanding of concepts, can perform by imitation individually or in collaboration.

7.8.3 Collaboration

One key element of DR is collaboration and teachers guide students through collaboration within their ZPD by direct/indirect interaction. Children learn through collaborative activity with teachers/peers in small group dialogue and discussion. The questionnaire (Appendix A-2, q. 3,6,10,12) provided indirect information on teacher/student collaboration through areas of teacher support (Table 7.19), discussion with students, listening to students and facilitating students, (Table 7.10), and flexible groups (Tables:7.13-7.15). In teacher/student collaboration, most teachers (90%) rated the facilitative and mentoring role of the teacher as ‘important’ and 64% rated it as very important’ in DR including three interviewees and three LP respondents. Most teachers, 95%, provided varied levelled teacher support once or more weekly and 61% provided flexible support in every lesson (Table 7.19). All ten interviewees/LP respondents employed teacher/student collaboration in reading, Q and A and discussion as ‘*student/teacher collaboration*’ is at the centre of DR’ (Z1).

In the survey, teachers rated discussion with students higher than discussion with parents or teachers (Table 7.10). More teachers rated discussion with parents as moderately helpful (40%), than

‘significantly helpful’ (15%). This was supported by qualitative data as just six teachers stated that discussion with parents was important, *‘to synchronise the same reading approach’* (Z4). *‘I keep parents informed through parent conferences and open-class days, which is school policy’* (Z2) but one teacher rarely spoke to parents as *‘a lot of parents don’t speak English’* (Z5). Also, more teachers rated discussion with teachers as moderately helpful (47%), than ‘significantly helpful’ (19%), but the qualitative data did not support this as eight teachers stated that discussion with other teachers was very helpful. Further research could explore possible mitigating factors in this area, e.g. lack of time, etc.

Most teachers, 97%, provided flexible groups once or more weekly, 58% in every lesson (Table 7.19) so teachers regarded flexible groups as important in DR. All interviewees and LP respondents used whole class and pair/small group discussion (Table 7.16) and found one-to-one discussion with students helpful, *‘critical to DR and Language Arts’* (Z3). The survey participants were not invited to comment on student/student collaboration. All interviewees/LP respondents employed student/student collaboration and seven employed peer groups and peer learning as *‘it was not disruptive to the class noise level and it sure helps comprehension!’* (Z2). Four teachers facilitated literacy circle discussions and collaborated with group discussions incorporating class texts providing *‘great peer-learning opportunities for the students’* (Z4), and enabled children to *‘relate texts to their own experiences and other children’s experiences leading to internalised learning’* (Z5). Two teachers used circle time discussion. The child in realizing this leading activity (discussion) participates in tasks that develop the psychological functions required to perform the leading activity and development occurs in the process, not in the leading activity itself (Chaiklin, 2003) so teachers used discussion as a means to ensure meaning-making. Three interviewees also collaborated with students to create reading goals (Z3,Z4,Z5). Individual teachers employed brainstorming (Y2) and discussion on learning contracts (Y4), *‘collaboration is determined by student’s needs and activities provided’* (Z4).

Group work provided collaboration, shared goals and peer learning in in four lesson-plans resulting in group presentations on Thanksgiving (Y2), on book reports (Y3), and on chosen themes from texts through slideshows, dioramas or drama (Y4), and REACTION posters (Y5). Paired work and think-and-share activities encouraged collaboration in Y1’s lesson. One interviewee organised peer reading with an older class (Second Graders) once weekly with her First Grade students – *‘The kids really love this and benefit a lot from it’* (Z1). Three interviewees had their classes sharing presentations on favourite books in class or bringing favourite books to the Class Book Tree.

To summarise, collaborative activity involved flexible group-work and discussion. More teachers rated discussion with parents and teachers as ‘moderately’ helpful rather than ‘significantly helpful’ and less important than pupil discussion. All interviewees/LP respondents used one-to-one discussion with students and nine teachers considered it very important in improving reading in DR. All ten teachers employed whole class and pair/small group discussion, seven employed peer learning in DR

and four used Literacy Circles. Collaboration in DR provides the ‘potential for meaningful intervention action’ and inner development (ZPD), which can lead to competence/skill mastery as children complete an achievable activity in collaboration with peers through discussion (leading activity). However, this self-reporting research data did not produce strong examples of Vygotskian collaboration. Certainly, children formed new understandings and transformation/reorganisation of ideas during meaningful dialogue, group discussions and literacy circles. However, further research involving classroom observations and student interviews/focus groups would be more suitable to investigate this area rather than teachers’ self-reporting surveys, lesson-plans and interviews. Having discussed collaboration, the next section explores findings on comprehension and meaning-making.

7.8.4 Comprehension and Meaning-making

In the survey, most teachers, 94%, differentiated comprehension at least once weekly and 41% differentiated in ‘every lesson’ (Table 7.18). Survey participants were not asked to comment on specific types of comprehension and meaning-making. However, teachers employed the following strategies at least once weekly to help develop comprehension: 90% employed child-centred activities (Table 7.11); 92% incorporated active learning including project work (Table 7.7); 91% used discussion with students and 66% employed student self-evaluation (Table 7.10). Self-evaluation as well as active learning, meaningful research, and stimulating student project work displayed around the classroom all encourage children to be the source of their own learning and 82% stated that classroom display of students’ work/projects was important in DR (Table 7.7) as did four LP respondents and all interviewees. While 78% incorporated ‘*students’ previous reading experiences*’ at least once weekly (seven interviewees/two LP respondents), 85% incorporated ‘students’ interests’ but only 34% included students’ favourite books’ at least once weekly (Table 7.11). However, only 5% incorporated ‘students’ interests’ and just 3% included favourite books’ in every lesson. This was supported by the qualitative data as just two teachers incorporated students’ interests’ and ‘favourite books regularly. Increased incorporation of children’s favourite books involving peer recommendations and learning encourages active learning and reluctant readers. All ten interviewees/LP respondents used different genres and ‘*meaningful texts*’ (Z4) to help meaning-making and all incorporated three or more class texts ‘*depending on students’ability*’ (Z1). Three interviewees provided choices to students from historical and sport biographies, classics, comics, detective and poetry books (section 7.4.2).

All ten interviewees/LP respondents stated that DR improved comprehension and that discussion was the best strategy for clarifying comprehension (section 7.3.2). All ten teachers employed comprehension strategies through whole class, paired and group discussion and questioning, nine employed connecting and visualising, seven encouraged children to describe/analyse the main text characters and six teachers used prediction. Five teachers employed clarifying, retelling the story and inference. Fewer teachers employed other strategies, e.g. just four teachers used student self-

questioning and determining importance and only two teachers encouraged students to provide an alternative ending, compacting and enrichment (Z4, Z5). Developing critical thinking through the use of higher order questions was employed by three interviewees using *'different levels of questioning'* (Z2). Two teachers used REACTION (React, Extend, Assess, Change, Tension, Investigate, Organise, and kNowledge), a seven-step continuous assessment process that incorporates pupils employing different comprehension strategies at individual pacing. Just one teacher used Think-Aloud (Z2). While all teachers employed several comprehension strategies, time constraints were a factor in determining the level and amount of comprehension strategies used in a lesson. *'Students would benefit from more comprehension strategies but I don't have the time'* (Z3).

Four LP respondents and one interview stated that children learned from class presentations and artefacts, encouraging group learning and meaning-making. Presentations included aural activities, (TV interviews and sound-bites), visual activities, (slide-shows, dioramas), and different kinaesthetic activities including drama and simulation. Meaning-making was achieved through collaborative planning, group goals and discussion through listening and watching other children reading and in discussion. Four interviewees stated that children can be the source of their own learning through project work and two stated that independent work is a good source of children's learning while Y1 found that paired reading activities and think-and-share discussions were best for meaning-making.

Literacy circles helped create meaning-making - based on mixed ability *'as 'different abilities seem to provide better meaning-making'* (Z5) and *'different experiences'* (Z2) and *'levels of understanding'* (Z4) as *'students develop understanding when relating texts to their own experiences'* (Z5). Children as a source of their own learning emerged as a by-product of literacy circles in three interviews. *'Every child participates, shares experiences and learns in literacy circles'* (Z4) as *'children share learning through discussion and their easy way of explaining things – much better than I can as children use the language of children'* (Z2). Here, the children reorganised ideas/concepts to think in different ways and in this way DR could apply to the dynamic process in the ZPD which reflects constant changes in children's emotions (Levykh, 2008), resulting in a catharsis or a dramatic collision with emotional effect during the realisation of ZPDs. Circle time enabled one teacher to enable *'kids to learn from other kids in their class in the safe environment of circle time'* (Z1). Circle time, higher order questioning and pictures were used by teachers to aid meaning making. First Graders created oral stories *'we explore understanding in Circle Time'* (Z1). Meaning was developed through linkages when dealing with children who can read fluently, but have little comprehension, *'we use pictures or draw pictures or place the character's actions in the school playground to draw connections with real life to create meaning'* (Z3).

Discussion helped create meaning-making - included class, small group and paired discussion and student/teacher conferences (Y1, Z1, Z2,Z5). Z5 used *'think-alouds'* with Sixth Graders to *'Tell me what you're thinking and why? encouraging questioning of beliefs and attitudes'*. Six teachers

maintained that children became the source of their own learning through individual reading and group reading. *‘Reading leads to internalised learning where students relate text to their own experiences and develop understanding towards making true meaning’* (Z5). However, four teachers did not believe that reading alone helps children be the source of their own learning. *‘Some children read fluently but do not understand the text – therefore they need help to learn’* (Z3). Struggling readers need extra help through discussion to be the source of their own learning’ (Z1). Teachers *‘can model questioning skills’* (Y1) and *‘model think-alouds’* (Z5), and *‘show how to make connections with experiences and ideas’* (Y2) to help children make meaning.

7.8.5 Summary

This section, under Research Question four, investigated elements associated with Vygorsky’s ZPD that are relevant to DR. Language was used as a tool in DR and over 90% of teachers incorporated oral vocabulary and discussion in DR and differentiated oral and written language at least once weekly in DR. Development of word meaning and sense was explored in the lesson-plans and interviews. Teachers used discussion, questioning and group presentations and artefacts to enable children to understand meaning, context and make connections with previous learning, texts and experiences/ideas. All ten teachers stated that reading and listening to reading helped develop children’s vocabulary, oral language and word meanings. Imitation/modelling was explored in the ten lesson-plans and interviews. Seven teachers used imitation in DR, modelling respectful skills through discussion, observation, questioning and listening to others. Nine modelled comprehension skills, seven read-alouds and peer-learning, four literacy circle skills, three problem-solving and two modelled REACTION. Just one modelled think-alouds and silent reading, Children with required understanding of concepts can perform by imitation individually or in collaboration.

Over 90% of surveyed teachers rated the teacher as a facilitator, and discussion with students, and over 95% ranked varied levels of teacher support and flexible groups as important in DR. All ten LP respondents/interviewees employed teacher/student and student/student collaboration helping children develop meaning/competence/solutions through collaboration in whole class, paired/small group discussions, literacy circles and group presentations and artefacts. Here, children were the source of their own learning creating meaningful learning. Most survey participants (94%) differentiated comprehension at least once weekly and employed children as active learners through child-centred activities (90%) weekly and rated active learning/project work (92%), discussion with students (91%), student self-evaluation (66%) and classroom displays of student work (82%) as very important. All ten LP respondents/interviewees stated that DR improved comprehension and all employed discussion and questioning. Other comprehension strategies employed included prediction, visualisation, retelling, inference and summarising. All ten teachers stated that children were helped be the source of their own learning through reading, discussion, thinking, listening and sharing ideas, peer teaching, linking children’s experiences and group presentations. In group presentations students had different skills and processes occurring at the same time e.g. ‘flowers’ matured/developed skills, (retelling a story) and

‘buds of development,’ immature skills e.g. group analysis (Vygotsky, 1986). Students in developing the group presentation can experience Vygotsky’s interaction of real and ideal forms, the ‘real’ (analyse collaboratively) and ideal (analyse individually). The ‘dramatic collision’ or inner tension (e.g. difference of opinion/approache/solution in a small group), experienced only in higher-order thinking, creates ‘a change (positive/negative) in interest, motive or emotion and leads to change in behaviour’ (Murphy, 2017, p.2). It is possible that students could reorganise ideas/concepts to think in different ways and that teachers could locate where students are within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints and collaborating with children in tasks but no lesson-plan or interview discussion revealed an awareness of this. Further qualitative, longitudinal research involving classroom observation and in-depth discussions could explore this DR linkage to the ZPD in greater detail.

7.9 Chapter Summary

Three quarters of the surveyed teachers completed the open qualitative question on their conceptions of DR. Just 5% provided a fully comprehensive DR definition as found in previous research (Piltén, 2016), despite DR training provided by the two ISDs. ‘Individual goals’ and ‘match content and process to individual needs’ were the top two DR definitions which portray a fair understanding of DR. All 315 teachers implemented DR and school initiative (79%) and personal interest (48%) were the main reasons for DR implementation suggesting that ISD and school level planning and support are important in DR implementation. Most teachers stated that flexible groups, (93%), active learning (92%) and the teacher as a facilitator, (90%) were the three most important factors in a DR environment and all teachers stated that a positive learning environment was important in DR so teachers displayed a fair understanding of DR in these choices. All teachers included continuous assessment among the top four DR facilitating factors confirming that assessment is important in DR. Also, 83% incorporated AfL data and 80% included AoL data at least once weekly in DR. Analysis revealed that teachers with the most teaching experience and teachers in advantaged schools incorporated assessment and student self-evaluation more frequently than their counterparts suggesting that teaching experience is a positive factor in employing assessment data. Most teachers assessed children’s reading and readiness in three ways - by listening to children reading (97%), observing students at work (95%) and discussing reading with students (91%). Statistical analysis revealed that teachers in advantaged schools incorporated pre-assessment of concepts and listening to students’ reading more frequently than teachers in disadvantaged schools. Less experienced teachers engaged more in discussion with students than their experienced counterparts. Perhaps, new approaches and understanding in initial teacher education has influenced teachers’ engagement in discussion and more collaborative practices.

Reading practices were explored in the ten interviews and lesson-plans. All ten interviewees/LP respondents stated that DR improved comprehension and that discussion helped comprehension. Nine

teachers stated that DR helped reading. Seven teachers read aloud to pupils, seven employed children reading aloud and just four used paired reading aloud. All teachers employed daily silent reading and all allotted set amounts of reading for different groups of children and one teacher used a reading programme. All teachers used several texts, three interviewees employed different genres. Similar authors were used for a range of grades suggesting that teachers made conservative choices in text selection consistent with previous research (Concannon-Gibney 2014).

Most teachers incorporated individual goals, children's oral vocabulary and students' reading needs most frequently in DR. Few teachers incorporated 'students' favourite books (3%) and students' interests (5%) in every lesson. This is an area that teachers could employ to engage reluctant readers. Statistical analysis revealed that experienced teachers incorporated more child-centred activities and individual goals and that teachers in advantaged schools incorporated more individual goals and students' needs so teaching experience appears to be a positive factor in prioritising individual goals, student activities and needs as a higher proportion of experienced teachers teach in advantaged schools (Chetty et al., 2013; Goldhaber et al., 2015). However, teachers in disadvantaged schools incorporated more students' interests and students' favourite books than their counterparts most likely to encourage reading.

Most teachers ranked flexible groups for different activities as important in DR, and employed flexible groups once or more a week. All LP respondents and interviewees used whole class and small group discussion tiered activities. All interviewees and most LP respondents used mixed flexible, same ability and paired groups, literacy circles and compacting and enrichment activities.

Most teachers differentiated through process (93%), product (85%), content (84%) at least once weekly. The low rating of differentiated content was noteworthy as teachers can plan content differentiation in advance of DR lessons. This may be linked to planning and time constraints. Moderately experienced teachers differentiated most concept/skills and that teachers in advantaged schools implemented more DR through content, process and product and implemented more differentiation of concepts/skills, research and comprehension supporting research stating that more effective and experienced teachers tended to work in advantaged schools (Rivkin et al., 2005; Rockoff, 2004). Over 90% differentiated five processes weekly – varying levels of teacher support, flexible groups, continuous assessment, auditory, and visual activities. Less experienced teachers provided more variable teacher support and used more written activities while experienced teachers employed more oral activities in DR than their counterparts. Perhaps, new approaches and understanding in initial teacher education has influenced teachers' provision of varied levels of teacher support. Experienced teachers realise the importance of oral skills in learning.

Most teacher differentiated product through written and oral activities to enable pupils to demonstrate skill/concept mastery. Fewer teachers used visual and demonstration activities as product. Resources included varied genres and levels of texts in class/school libraries, tiered worksheets and materials,

etc. Teachers in advantaged schools incorporated more variable teacher support, tiered activities and auditory activities, more oral, visual, demonstration and written activities in DR product suggesting that more effective and experienced teachers tended to work in advantaged schools (Chetty et al., 2013; Goldhaber et al., 2015). Teachers in disadvantaged schools incorporated more visual activities, students' interests and students' favourite books and more differentiation of levelled readers than their counterparts as levelled readers are most often used with below grade readers suggesting that teachers tried to engage and motivate reading through children's interests than their counterparts.

The top three DR facilitating factors were a 'Positive Learning Environment, Preparation & Structure' and Individual goals', three interconnected elements in meeting children's learning needs. Interestingly, interviewees identified different DR facilitating factors including identifying student needs, varied questioning levels, peer-learning, print-rich environment, tiered activities and literacy circles. 'Lack of time', 'Lack of resources' 'Class size' and 'Student misbehaviour' were the top four obstacles (Pilten 2016). Interviewees cited the first three factors but student behaviour was not mentioned. Less-experienced teachers ranked different assessments, activities matching needs and a positive learning environment more highly as facilitating factors and rated student misbehaviour and covering standardised test material more highly as obstacles than their counterparts suggesting that teaching experience is a positive factor in managing student behaviour and covering test material. Meanwhile teachers in advantaged schools rated class size, lack of time, student misbehaviour, covering standardised test material more highly as obstacles than their counterparts while disadvantaged teachers ranked individual goals, different assessments, curriculum constraints, planning and preparation and assessing the starting point more highly than advantaged counterparts. Assessing children's readiness and establishing individual goals are acquired skills requiring student, curricular and assessment knowledge along with teaching and learning strategies accomplished with teaching experience by effective teachers and advantaged schools have the best resources and teachers (Goldhaber et al., 2015; Kozol, 2005).

Language was used as a tool in DR and most teachers incorporated oral vocabulary and discussion in DR and differentiated oral and written language. Development of word meaning and sense was explored in the lesson-plans and interviews. Teachers used discussion, questioning and group presentations and artefacts to enable children to understand meaning, context and make connections with previous learning, texts and experiences/ideas. Reading and listening to reading helped develop children's vocabulary, oral language and word meanings. Teachers modelled discussion skills, questioning and listening skills, comprehension skills, read-alouds, literacy circle skills and problem-solving and children imitated read-alouds, questioning and discussion skills. Few teachers modelled REACTION, think-alouds and silent reading, All teachers employed teacher/student and student/student collaboration helping children develop meaning/competence/solutions through collaboration in whole class, paired/small group discussions, literacy circles and group presentations

and artefacts. All ten LP respondents/interviewees stated that DR improved comprehension and all employed discussion and questioning. Other comprehension strategies employed included prediction, visualisation, retelling, inference and summarising. All ten teachers stated that children were helped be the source of their own learning through reading, discussion, thinking, listening and sharing ideas, peer teaching, linking children's experiences and group presentations. However, it was difficult to ascertain if children were the basis of their own learning just from self-reported data. Class observations combined with interviews would provide a more suitable method of linking DR practices with elements of Vygotsky's ZPD. Students in developing group presentations can experience Vygotsky's interaction of real and ideal forms and differences of opinion/approache/solution in a small group ('dramatic collision'), experienced only in higher-order thinking creating a change in interest, motive or emotion leading to behavioural change (Murphy, 2017). It is possible that students could reorganise ideas/concepts to think in different ways and that teachers could locate where where students within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints and collaborating with children in tasks but no lesson-plan or interview discussion revealed an awareness of this. Further qualitative, longitudinal research involving classroom observation and indepth discussions could explore this DR linkage to the ZPD in greater detail.

The next chapter, Chapter 8, provides a discussion on the systems and practices in Dublin and Houston, how they relate to each other, to the theoretical framework and to previous research.

Chapter Eight: Case Study Analysis

8.0 Introduction

This chapter presents the analysis of the comparative data from the survey (n=645), ten lesson-plan evaluations, and ten interviews from two case studies in culturally diverse contexts, in sixty-two primary and elementary schools in Dublin, Ireland, and in Houston, Texas, US. Having established that 643 teachers implemented DR in the questionnaire, the survey analysis and the thematic analysis provided case study database evidence (Yin, 2009). The data analysis processes are outlined in Chapter Five. This chapter relates the findings to research and important themes identified in the Literature Review (Chapters 2 and 4) and the four research questions:

1. What are teachers' conceptions about DR and pedagogical practices?
2. To what extent is the modification of content, process and product related to DR pedagogical practices?
3. What factors facilitate and hinder DR implementation?
4. To what extent are elements associated with Vygotsky's Zone of Proximal Development (ZPD) relevant to teachers' understanding and implementation of DR?

Key findings and themes emerging from the data analysis are presented in Table 8.1.

Table 8.1: Themes based on Research Questions and Literature Review

Research Question	Themes	Literature Review
1. Teachers' conceptions	• What DR means to me ... • Reasons for Implementation	4.2 4.2-4.3
2. Modification of content, process and product	• Content, Process, Product • Learning Environment • Assessment, Flexible groups • Reading practices	4.5.1-4.5.3 4.5.4 4.8 - 4.9 4.3 - 4.4
3. Obstacles and Facilitating factors	• Lack of time, class size • Group-work; questioning; discussion; collaboration	4.6 4.7
4 Elements associated with ZPD relevant to DR	• Oral Language • Modelling/Initiation • Collaboration • Comprehension, meaning-making	4.10.1 3.3.2 4.10.3 3.3.5 4.10.4 3.3.6 4.10.5 3.4

This chapter analyses findings from the two case studies – Dublin (Chapter Six) and Houston (Chapter Seven). The analysis explored similarities and differences in results (mainly percentages of teachers) yet some of these differences were small and may not be “significant”, in a statistical sense. The

purpose of the comparison was to bring together two separate case studies, conducted in different contexts and to relate the two sets of data to each other, involving some statistical tests of difference, as appropriate. Table 8.2 presents the codes applied to participants

Table 8.2: Coding of Respondents and Schools

	Dublin	Houston
Survey participants	A 1-330	X 1-315
LP respondents	B 1-5	Y 1-5
Interviewees	C 1-5	Z 1-5

8.1 Participating Schools and Teachers

This section outlines the biographical similarities and differences of participants and the statistical differences between less-experienced and experienced teachers and teachers in advantaged and disadvantaged schools.

8.1.1 Similarities

All 645 participants were class teachers, resource teachers, or specialist reading teachers and employed DR with children (6 -13 years) in schools, as presented in Table 8.3.

Table 8.3: Similarities – Teachers and Scho

Teachers (n=645)	Dublin (n=330)	Houston (n=315)
Most teachers - Female B. Ed graduates	yes	yes
Male Teachers - Class/Learning Support	yes	yes
Private schools	3	3
Classes/Grades	First – Sixth	1 – 6

Most schools were state schools and most teachers were female B.Ed. graduates, teaching mainstream classes, with 6-10 years teaching experience (31%). This supports the GUI report findings, stating that most nine-year-old children were taught by female teachers aged in their twenties (Williams et al., 2009). No teacher held a doctorate degree and over 20% of females had a Master's degree. Only female teachers taught as teaching specialists, resource teachers, or taught individual children. All 645 participants completed the DR survey from which twenty participants self-selected themselves and participated in the ten semi-structured interviews and the ten DR lesson-plan evaluations.

8.1.2 Differences

The fourteen Houston schools were large, one elementary school had over 100 teachers, while the forty-eight Dublin schools were smaller, one school had only four teachers. The one Houston denominational elementary was a private Christian school. Forty Dublin denominational schools were Roman Catholic and seven were Church-of-Ireland schools. There was a higher proportion of male teachers in Dublin (52) than in Houston (10). Participation by the twelve ‘Boys only’ schools may have impacted positively on male numbers, as more males traditionally teach in these schools.

Table 8.4: Differences – Schools and Teachers

	Dublin (n=330)	Houston (n=315)
Schools	48 Primary	14 Elementary
Schools	24 Co-ed, 2 Gaelscoil 12 Boys only, 12 Girls only 5 Junior, 3 Senior	14 Co-ed
Denominational Schools	47	1
Female Teachers (n=583)	278 - 84%	305 - 97%
Male Teachers (n=62)	52 - 16%	10 - 3%
Males with Master's qualification	6%	0
Females with Master's qualification	22%	25%
Lesson-plan participants with MEd.	4	1
Interviewees with MEd.	3	1
Male Lesson-plan participants	0	1
Male Interviewees	1	0
Most females taught	First Class	Grade 5
Most males taught	Sixth Class	Grade 3
Most females' teaching experience	6-10 years	6-10 years
Most males' teaching experience	2-5 years	1 year
Class size range	16-35	1-25
Most teachers taught class size	26-30	21-25

While most Dublin males taught senior classes - Sixth Class, it was interesting that most Houston females taught senior classes - Grade 5. Class size was a major difference (Hootstein, 1998; Kerry & Kerry, 1997). Some Dublin teachers taught ten more children in class, compared to the Houston teachers. This is considerable when considering grouping and individual activities and 1-1 teacher support. Interestingly, this survey found that class size was a significant obstacle to DR (Section 8.3), so all teachers found large class numbers challenging in DR implementation. As participants self-selected themselves for both interviews and lesson-plan evaluations, the higher proportion of Dublin Master's graduates may have an impact on the findings. Most Dublin teachers had more teaching-years-experience than their Houston counterparts. Perhaps, there are more promotional opportunities for Houston teachers in the ISD sectors or perhaps Houston teachers retire earlier or move to different employment. Table 8.5 highlights teachers' years teaching experience.

Table 8.5: Dublin and Houston: Years Teaching Experience %

Years Teaching Experience	Dublin (n=330)		Houston (n=315)	
	Females 84% (n=278)	Males 16% (n=52)	Females 97% (n=305)	Males 3% (n=10)
1-5	43	47	39	50
6-15	36	44	41	40
16 +	21	9	20	10

Similarities included the predominance of females in the Primary/Elementary teaching sector. However, more males participated in Dublin. The majority of females had over six years teaching experience (Dublin 57%, Houston 60%). McCoy et al., found that nine-year-olds taught by more experienced teachers received higher reading test scores (2014b) suggesting that teacher experience can influence literary academic attainment. Most males had 1-5 years teaching experience (Dublin 47%, Houston 50%). Few males had 16+ teaching experience suggesting that males seek managerial positions or leave teaching after fifteen years.

8.1.3 Less-experienced and Experienced Teachers

Analysis revealed statistically significant differences between less experienced and more experienced teachers in both Dublin and in Houston and certain patterns emerged in the data.

Table 8.6: Dublin and Houston: DR Implementation: Less Experienced and Experienced Teachers

	Dublin (n=330)		Houston (n=315)	
	Less-experienced 1-5 years	Experienced 6+ years	Less-experienced 1-5 years	Experienced 6+ years
Assessment				AoL, formal district assessment, standardised assessment,
Establish Reading Readiness			discussion with students	
Factors informing DR		child-centred activities,		child-centred activities, individual goals
Content		concept/skills,		concept/skills,
Process	variable teacher support,		variable teacher support,	
Product			written activities	oral activities
Ranking Facilitating DR Factors		Individual Goals	different assessments, activities match needs, positive learning environment	
Ranking Obstacles		'Assessing child's starting point'	student misbehaviour, cover std. test material	

Note: Variables listed are statistically different within Dublin and Houston

Teachers incorporated the elements listed in Table 8.6 more frequently than their counterparts. There are three similarities between the two cohorts. Less-experienced teachers (1-5 years) provided varied teacher support more frequently than experienced teachers (6+years). Updated teacher education practices incorporating differentiation training may have impacted on this finding (DES, 2011). Experienced teachers (6-15years) employed child-centred activities and differentiated concepts/skills more frequently than less-experienced teachers. Therefore, it appears that teaching experience can impact positively on teachers' differentiation skills leading to higher literacy scores (McCoy et al., 2014b). Child-centred activities involving planning are associated with teaching experience and established classroom practice (Chetty et al., 2013; Goldhaber et al., 2015).

There was little difference in DR implementation between less-experienced and experienced teachers in Dublin. Lack of consistent differentiation training may be responsible as this study was conducted in 2013-2015 before the PLC differentiation training took place. However, a higher difference rate was expected than revealed in the Houston data, considering that ISDs provided inservice differentiation training and school differentiation policies for all teachers. Experienced teachers *incorporated* individual goals, oral activities, student self-evaluation and assessment data more frequently in DR, (even though less-experienced *ranked* different assessments higher as DR facilitating factors). This good practice requiring student, curricular and strategy knowledge and good classroom management skills suggests that teachers learn and acquire DR strategies through teaching experience (Goldhaber et al., 2015; Rivkin et al., 2005; Rockoff, 2004).

Less-experienced teachers in Houston engaged in discussion with students and written activities more frequently suggesting benefits from initial teacher education changes involving differentiation and discussion/learning through meaning. Written activities may be employed as classroom management strategies. More less-experienced teachers work in Houston's disadvantaged schools which often have less funding and resources and more opportunity gaps (Chetty, Friedman, & Rockoff, 2013; Goldhaber et al., 2015). This may account for the higher rating of student misbehaviour and covering standardised test material as obstacles. A positive learning environment and activities matching needs are important in DR. Children with positive relations with teachers are more positive about school (Chetty et al., 2013). Having explored experienced and less-experienced teachers' practices the next section explores differences between teachers in advantaged and disadvantaged schools.

8.1.4 Teachers in Advantaged and Disadvantaged Schools

Table 8.7 summarises the statistical differences on selected variables in DR implementation between teachers in advantaged and disadvantaged schools in Dublin and in Houston and the statistical differences are outlined in Chapters Six and Seven.

Table 8.7: Dublin and Houston: DR Practices: Teachers in Advantaged and Disadvantaged Schools

Dublin (n=330)		Houston (n=315)	
	Advantaged Schools	DEIS Schools	Advantaged Schools Disadvantaged Schools
Assessment		AFL	AfL, AoL, Standardised assessment, Formal district assessment
Establish Reading Readiness			Self-evaluation, Different assessments, Pre-assessment of concepts, Listen to child's reading
Factors informing DR		Students' interests,	Individual goals, Students' needs, Listen to child's reading Flexible groups
Differentiate		Content, Process, Product	Content, Process, Product
Content		Comprehension	Concepts/skills, Research Comprehension
Process		Flexible Groups	Variable teacher support, Tiered activities, Auditory activities
Product			Oral, Visual, Written & Demonstration Activities
Ranking Obstacles	Curriculum constraints	Resources, Student misbehaviour	Class size, Lack of time, Student misbehaviour, Cover std. test material
DR environment		Teacher as Facilitator	Individual goals, Different assessments, Curriculum constraints, Planning & preparation, Assess starting point

Note: Variables listed are statistically different within Dublin and Houston

More Houston teachers (74%) taught in disadvantaged schools than Dublin teachers (34%). The discrepancy in numbers of teachers teaching in disadvantaged schools is acknowledged as a limitation as the two samples are not highly comparable. Statistical analysis revealed that teachers in DEIS/disadvantaged schools incorporated students' interests more frequently in DR, which encourages children to read (Little et al., 2014; Reis et al., 2011). DEIS reports have revealed better results for lower-achieving pupils (DES, 2015; Shiel et al., 2015; Kavanagh, et al., 2017), due to literacy initiatives including students' interests incorporation (Weir et al., 2011). Clear patterns emerged from the present study. The teachers who implemented DR strategies most frequently worked in DEIS schools in Dublin (contrary to some research) and taught in advantaged schools in Houston (supporting previous research). Possible reasons for the DR implementation strategies in this study

could be due to literacy initiatives including homework clubs/summer camps, school books grant scheme and additional funding targeted at book loan/rental schemes (Weir et al., 2011). The 2015 Inspectorate's DEIS Report recommended more differentiation in literacy, more challenging programmes for EAS and raising teacher expectations and the ongoing CPD support provided by the PDST to DEIS schools may also be a positive factor in this data (DES).

Previous research highlighted that DEIS teachers employed more teacher-centred and structured approaches, more frequent ICT usage and less active teaching methods and flexible group-work than their counterparts (McCoy et al., 2012b; McMahon et al., 2015; Smyth et al., 2015). Also, the DES Inspectorate evaluation of DEIS schools found deficiencies in assessment practices, data collection and utilisation and most of the 110 recommendations on assessment and differentiation related to literacy and numeracy practices (DES, 2015b). However, McCoy et al. (2014a) found between-class ability grouping and 'separate special classes' more common in DEIS schools which could be regarded as ability grouping.

In the present study, more teachers in advantaged schools in Dublin ranked curricular constraints as a 'significant obstacle' than DEIS teachers. Possible contributing factors could include large class sizes, PLC implementation and lack of time (Obstacles, Table 8.23). NonDeis schools have a higher pupil/teacher ratio with 36% of participants teaching classes with 26-30 and 15% teaching classes with 31-35 children (Table 6.3).

Previous research found that a disparity exists between advantaged and disadvantaged schools in the US due to lack of funding, segregated schools and pressure to cover standardised test materials resulting in lower academic attainment for students in disadvantaged schools (Kozul, 2005). Teachers in advantaged schools in the US employ more interactive strategies and engage in more effective practices than their counterparts (Goldhaber et al., 2015; Rivkin et al., 2005) resulting in increased academic attainment (Borman & Hewes, 2002; Slavin et al., 2008). Teacher effectiveness is inconsistent in different districts (Goldhaber et al., 2015; Darling-Hammond, 2010) and advantaged schools have the best resources and best teachers (Kozol, 2005). Kozul argued that federal policies such as 'No Child Left Behind' (2001) and 'Race To The Top' (a 2009 federal funded school reform investment) rely too heavily on standardized test scores and punitive measures for low-grade schools creating a two-tier system where low-income students are taught to regurgitate supplied answers while advantaged students are taught to question and make decisions. There exists a disparity (Howard, 2015), an income gap (Reardon, 2013), an opportunity gap (Putnam, 2016) and a teacher quality gap (Goldhaber et al., 2015) between advantaged and disadvantaged schools.

In this study, teachers in disadvantaged schools in both cohorts incorporated students' favourite books, visual activities and differentiation of levelled readers more frequently than their advantaged counterparts attempting to encourage and motivate children to read consistent with Csikszentmihalyi

(1997). Visual activities can encourage oral language development and discussion for struggling readers and children with lower reading levels supporting comprehension (Rockoff, 2004). Few teachers in both cohorts mentioned picture books which are a wonderful aid for all students. Houston teachers in disadvantaged schools rated individual goals, different assessments, curriculum constraints, planning and preparation and assessing child's starting point more highly as obstacles than advantaged teachers (Goldhaber et al., 2015). Children in disadvantaged schools (frequently below-grade-level readers), would benefit from DR implementation guided by assessment data which would help identify children's 'starting point'. Previous research indicates that teachers in disadvantaged schools spend more time responding to student misbehaviour (Rivkin et al., 2005) and so spend less time on effective teaching strategies.

In summary, most teachers were female B.Ed. graduates and Houston schools were larger but had smaller classes than Dublin schools. Patterns confirmed by chi square analysis revealed that experienced teachers implemented DR strategies more frequently but that less experienced teachers provided more varied teacher support than their counterparts. Statistical analysis also showed that teachers in Dublin's DEIS schools and in Houston's advantaged schools implemented DR strategies more frequently than their counterparts. Having discussed the participating schools and participants, the next section discusses teachers conceptions about DR based on Research Question One.

8.2 Conceptions about DR and DR implementation

Research question one investigated teachers' conceptions about DR and pedagogical practices in analysis of responses to the open qualitative question 'What does DR mean to you?' Teachers' reasons for implementing DR were also investigated.

8.2.1 Teachers Conceptions about DR

There was a higher response rate from Houston teachers in the completion of this qualitative open-ended question which was analysed using thematic analysis. More Houston teachers (75%) provided definitions than Dublin teachers (69%). This may be due to the lack of DR training available in Ireland before the launch of the PLC (DES, 2015) while Houston teachers had access to DR training for over 10 years. The top two responses 'Match content and process to individual needs' and 'Individual, achievable goals' presented by both cohorts include important DR elements in keeping with Williams & Baumann (2008). This demonstrates that approximately 70% of teachers provided a fair understanding of DR. Both cohorts ranked five of the ten categories in approximately similar order - categories 1, 2, 6, 9 and 10, demonstrating similar DR perspectives from two culturally different cohorts. Both cohorts ranked developing comprehension and reading skills and differentiating product in sixth and ninth places respectively.

Table 8.8: Similarities: Teachers' Conceptions of DR

Qualitative Responses		Dublin n= 227 - 69%		Houston n= 237 - 75%	
		%	Rank	%	Rank
1	Match content and process to individual needs	56	2	70	1
2	Individual, achievable goals	65	1	68	2
3	Flexible groups	29	5	66	3
4	Match content to each child's needs	35	3	15	7
5	Differentiate content, process, and product	32	4	10	8
6	Develop comprehension and reading skills read-aloud, silently etc.	21	6	22	6
7	Dialogue, discussion listening	20	7	42	4
8	Flexible teacher support	11	8	35	5
9	Differentiate homework, product/outcome,	12	9	6	9
10	I'd like to do more DR but obstacles emerge - lack of time	1	10	3	10

Developing comprehension/reading skills and differentiating content, process, product and homework are also core DR elements (Ankrum, 2006; Shaunessy-Dedrick et al., 2015). Category 10, obstacles preventing DR implementation, was ranked last by both cohorts. Lack of time was the main obstacle to DR (Section 8.3) in this survey as found in previous research (Hootstein, 1998; Pilten, 2016). Houston teachers mentioned '*flexible Groups*' and '*flexible teacher support*' twice as often as Dublin teachers. Houston teachers incorporated these two strategies statistically more frequently than Dublin teachers in the survey (Section 7). Meanwhile, more Dublin teachers gave a comprehensive definition of DR, mentioning content, process, and product incorporating the differentiation-by-method DR models (Section 4.3 Table 4.1), where content, process, and product are differentiated (Chapman & King, 2009). Nine DR factors were mentioned by only one cohort and these are presented in Table 8.9 below.

Table 8.9: Differences: Teachers' Conceptions of DR

Dublin only (n=227)	%	Houston only (n=237)	%
Positive reading experience - reading is fun, builds confidence	25	Focus on needs not on standardised tests	24
Extensive planning and preparation	9	Identify child's correct starting point	16
Differentiate NCCA's 7 factors - Task, Outcome Resource, Support, Dialogue, Pace, Choice (2007)	2	Assessment based on child's ability - different assessments, observations	9
Obstacles to DR - class size	1	Obstacles to DR - lack of resources	3
		'I don't always use it - 'Don't have time! Kids want to be treated the same'	1

Only Dublin teachers mentioned that DR provided positive responses to reading for children (Reis et al., 2007)

al., 2007), promoting confidence (Wray et al., 2002) including reading for fun, encouraged by the 1999 Curriculum (DES). This is despite the US nationwide SEM-R initiative, (Shaunessy-Dedrick et al., 2015), which aims to promote reading enjoyment and enrichment incorporating flexible teacher support, higher-level questioning, varied genres and student choice of texts (section 4.4). Fostering an enjoyment of reading is one of the targets for improving Literacy in the National Literacy and Numeracy Strategy (DES, 2011). This reflects the four differentiation-by-interest DR models (Chapman & King, 2009; Opiz & Forde, 2008), highlighting reading for pleasure (Cremin, 2014) and encouraging “*higher engagement in reading*” (Little et al., 2014, p. 386).

Meanwhile, Houston teachers (24%) highlighted the importance of children’s needs - ‘*Focus on child’s need not on standardised tests*’ (Heacox, 2002). The appropriate starting point was mentioned by 16% of Houston teachers and assessment was included by 9% of Houston teachers (Firmender et al., 2013) These factors reflect the differentiation-by-assessment DR models (Chapman & King, 2009; Opiz & Forde, 2008; Walpole & McKenna, 2009), highlighting matching of instruction to children’s needs, monitored by assessment as in the RTI tiered instruction model (Jenkins et al., 2013), mandated from the ‘Reading First’ initiative from the NCLB Act (2001). A few Dublin teachers also mentioned the NCCA’s seven differentiation factors for EAS (2007).

The obstacles to DR highlight class size by Dublin teachers supporting previous research (Pilten, 2016; Sharabi, 2009) and ‘lack of resources’ by Houston teachers consistent with Hootstein, (1998) and Pilten, (2016) support the top three obstacles to DR in this survey (Section 8.6.2). Finally, the two Houston teachers who sometimes use DR, (X35, X38) refer to children wanting the ‘same treatment’ reflected the ‘peer alienation’ found in the UK study (Kerry & Kerry, 1997, p. 455) but was not reflected in other research.

8.2.2 Impact of DR on Reading and Comprehension

The impact of DR on reading and comprehension was explored with the twenty interviewees and LP respondents. All cited discussion and questioning as the best comprehension strategies and stated that DR improved comprehension (Pilten, 2016). Previous research found that DR had a positive effect on students’ reading comprehension (Baumgartner et al., 2003; Reis et al. 2007; 2011) with significantly higher scores than control groups (Shaunessy-Dedrick, 2015). Nine Houston and six Dublin teachers stated that DR improved reading and encouraged children to engage in reading. The remaining four Dublin teachers stated that DR ‘*sometimes*’ improved reading and the final Houston lesson-respondent wrote that ‘*it depends on how DR is implemented*’ (X1). Previous research reported positive effects on fluency (Baumgartner et al., 2003; Little et al., 2014; Reis et al., 2008, 2011) and modest improvements in attitudes to reading (Reis et al., 2007).

8.3 Reasons for DR Implementation

This section will analyse the similarities and differences between the two case studies. Most teachers in both cohorts employed DR because of school initiative, as school support is important in differentiation implementation (Hootstein, 1998; Pilten, 2016).

Table 8.10: Reasons for DR Implementation

Responses	Dublin (n=330) %	Houston (n=330) %
School initiative	62	79
Personal interest	54	48
In-service course	5	29
DR Training in Preservice Teacher Education	5	1.3

Approximately, half of all teachers employed DR due to personal interest (Hawkins, 2009) which was rated second by both cohorts. DR involves time-consuming planning and preparation, so personal interest and concern for student progress supports teacher input and act as intrinsic motivation (Delaney, 2017). DR Training in Preservice Teacher Education was ranked last by both cohorts and was ranked third main obstacle to DR by Dublin teachers (section 8.6.2). All Houston teachers have received in-career differentiation training for over ten years. Both groups received little DR training in pre-service teacher education (Holloway, 2000, Pilten, 2016), highlighting the requirement of pre-service education for all and in-career development opportunities for Dublin teachers in reading development (Concannon-Gibney & Murphy, 2012; Firmender et al., 2013). Pre-service teacher education in Ireland now includes differentiation as a result of the National Strategy recommendations (DES, 2011). There were no statistical differences in the mean responses of teachers in Dublin and Houston probing the reasons for differentiation.

8.3.1 Differences in Reasons for DR Implementation

Houston teachers received DR in-service courses, as CPD was provided by schools and ISDs. Few Dublin teachers had any DR training and, where applicable, was inconsistent (Hawkins, 2009) before the school-wide PLC (DES, 2015) differentiation training implementation. Teachers in both Dublin and Houston expressed the need for further training in DR, as on-going CPD should be embedded within professional learning communities within schools for teachers (Firmender et al., 2013; Kennedy et al., 2012; Reis et al., 2007; 2008, 2011). Houston teachers would appreciate other school support - time, resources and school planning - (Pilten, 2016) in DR over colleague input (Firmender et al., 2013; Hootstein, 1998).

8.4 Differentiating Content, Process and Product

This section will discuss the differentiation through content, process, and product by the 645 research participants answering research question two - *To what extent is the modification of content, process and product related to DR pedagogical practices?*

Table 8.11: Content, Process and Product

	Dublin n=330		Houston n=315	
In DR I differentiate	Mean	Every lesson %	Mean	Every Lesson %
Process	4.1	46	4.0	44
Product **	4.0	40	3.7	28
Content	3.6	24	3.6	24

** Statistical difference means P = .01

7.4.1 Similarities in Relation to Content, Process and Product

Both cohorts differentiated most through process and both received the same weekly score - 93%, with similar mean scores. Both cohorts ranked the three options in the same order and provided the same mean for content (3.6).

Table 8.12: Dublin and Houston: Elements in Differentiation by Process

	Dublin n=330		Houston n=315	
This occurs in my DR	Mean	Every lesson %	Mean	Every Lesson %
Varied teacher support *	3.25	56	3.41	61
Continuous assessment *	3.08	53	3.26	58
Flexible groups **	3.00	41	3.37	58
Auditory activities	3.0	41	2.9	35
Tiered activities *	2.84	36	2.63	29
Visual activities	2.7	28	2.8	26
Activity Choices **	1.68	11	2.13	18
Kinaesthetic activities	1.6	5	2.0	11

* Statistical difference means P = .05

** Statistical difference means P = .01

There were no statistical differences in the mean responses of teachers in Dublin and Houston to a general question probing the frequency of differentiating by content and process. Product is discussed in Section 7.4.2. In differentiating process, varied teacher support was provided most frequently by both cohorts. Houston teachers differentiated varying levels of teacher support more frequently than Dublin teachers. Using the t-test for independent samples, this difference was found to be statistically significant ($t = -2.139$; $df = 637$; $p = .033$). This may be linked to the higher frequency of flexible

groups employed by Houston teachers. Providing varying levels of teacher support (Dickinson and Wright, 1993), acknowledges the pivotal role of the teacher and scaffolding (Vygotsky, 1986). Teachers chose the teacher as a facilitator as the most important factor in the DR environment and this is supported by research (Bailey & Williams-Black, 2008). Continuous assessment will be discussed later (Section 8.5.4). Both cohorts ranked the last four options in similar order. Kinaesthetic activities were rated last by both groups, suggesting that teachers place less emphasis on kinaesthetic activities. Over 90% of teachers agreed that different learning styles were important in DR. Pupils may achieve more success if teachers respond to learning profiles (Sternberg, Torff and Grigorenko, 1998) but Kirschner and van Merriënboer disagree calling learning styles an ‘urban legend’ without sound academic research or evidence (2013). Matching children to learning styles is ‘unreliable’ and ‘impractical’, as ‘divisions are fluid’ because learning happens in various ways and pupils benefit from different ways of learning (Delaney, 2017, p. 101). The other options are discussed under Section 7.4.2.

Both cohorts differentiated least in content than process and product (Table 8.11) despite research showing that differentiating content helps pupils progress in fluency, reading and comprehension (Reis et al., 2011; Shaunessy-Dedrick et al., 2015).

Table 8.13: Dublin and Houston: Differentiation by Content

	Dublin, n=330		Houston, n=315	
	Mean	Every lesson %	Mean	Every Lesson %
I differentiate these content areas in DR				
Vocabulary	3.2	45	3.4	43
Comprehension	3.0	43	3.2	41
Levelled readers	2.7	27	2.9	26
Concepts, skills etc.	2.6	21	2.8	38
Research content *	1.6	12	1.9	10

* Statistical difference means $P \leq .05$

Also, in differentiating content, both cohorts ranked all options in similar order with vocabulary and comprehension (Section 8.7), ranked highest. While Dublin teachers scored higher in four ‘every lessons’, the Houston mean scores were higher in all options. Language and comprehension skills will be discussed in Section 8.7 and research content was addressed in section 7.4.2.

Both cohorts differentiated more product than content (Table 8.11), contrary to previous research, where no teachers differentiated product and only some differentiated content (Bailey & Williams-Black, 2008; Piltén, 2016). However, though the previous research employed mixed methods and small samples in different areas and so produced different data to this study. Bailey and Williams-Black explored differentiated instruction with fourteen teachers across America employing a survey,

interviews and classroom observations. Pilten investigated DR with seventeen teachers in Turkey employing three sets of interviews, an online DR seminar and analysis of teachers' lessons' plans.

Table 8.14: Elements in Differentiation by Product

I Differentiate by Product	Dublin n=330		Houston n=315	
	Mean	Every lesson %	Mean	Every Lesson %
Oral activities	3.27	55	2.82	46
Written activities	2.94	29	3.22	30
Visual display	2.00	9	2.20	17
Demonstration activities	1.96	8	1.90	15

* Statistical difference means P = .05

** Statistical difference means P = .01

In differentiating product, both groups ranked the last two options in similar order. There were no statistical differences in the mean responses to visual and demonstration activities which received low scores despite the fact that four of the five Houston lesson-plans concluded with group demonstrations/artefacts. No teacher indicated that product modification included levels of transformation, evaluation or problem-solving which can extend student understanding and internalisation (Vygotsky, 1962).

8.4.2 Differences in differentiating Product, Process and Content

T-tests of difference in means showed that Dublin teachers differentiated by product more frequently than Houston teachers, ($t = 4.12$, $df = 634$, $p = .000$). In relation to product, more Dublin teachers differentiated oral activities than in Houston ($t = 5.825$; $df = 638$; $p = .000$). More Houston teachers differentiated written activities ($t = -4.030$; $df = 637$; $p = .000$) and also employed more written work than Dublin teachers in evaluating student readiness (section 8.5.4). This may be influenced by the Houston standardised testing preparation, where written work is part of the testing process.

In differentiating process, Houston teachers employed flexible groups more frequently than Dublin teachers ($t = -4.870$; $df = 637$; $p = .000$) supporting teachers' conceptions' data (8.2.1) and DR facilitating factors (8.5.5), (Ankrum, 2006; Tobin & McInnes, 2008). This supports findings of low prevalence of group-work and active learning methods by the 1999 PSC Review (DES) and the predominance of whole-class teaching in primary schools (McCoy, Smyth & Bank, 2012; Murphy, 2004; NCCA, 2005, 2008) and traditional classroom practice (Concannon-Gibney & Murphy, 2012). Also, Houston teachers provided more activity choices than Dublin teachers ($t = -4.478$; $df = 635$; $p = .000$). This may be linked to higher frequency of flexible groups. In contrast, Dublin teachers employed more tiered activities than Houston teachers, ($t = -2.341$; $df = 635$; $p = .020$) which may have aided Dublin's

higher score in differentiating product. Tiered activities and activity choices can encourage student engagement, accommodating children's interests (Shaunessy-Dedrick et al., 2015) encouraging active learning and student autonomy (McLaughlin & Talbert, 1993), where pupils can become 'sources of their own learning' (Vygotsky, 1986).

In summary, both cohorts differentiated most through process, then product and least through content. Analysis revealed statistical significant differences in differentiating process, Houston teachers differentiated varying levels of teacher support, flexible groups and activity choices more frequently than Dublin teachers; in differentiating content, Houston teachers differentiated research content and in differentiating product, Houston teachers differentiated written activities more frequently than Dublin teachers. In contrast, statistical analysis revealed that Dublin teachers differentiated more by product, differentiated more oral activities in differentiating product, and provided more tiered activities in differentiating process than Houston teachers.

8.5 DR Environment

The DR environment includes the community, school, teacher and student factors. Data from two survey questions (Appendix A-1, q.3, 12) are displayed in Table 8.15 and in Table 8.20.

8.5.1 Similarities in a DR Environment

All teachers ranked a positive learning environment among the top four DR facilitating factors (section 8.6), demonstrating the importance of a positive learning environment in DR (Ankrum, 2006; Pilten, 2016).

Table 8.15: Dublin and Houston: Elements in a DR Environment

	Dublin (n=330)		Houston (n=315)	
What is important in a DR environment?	Mean	Strongly Agree %	Mean	Strongly Agree %
Teacher as facilitator, **	3.69	71	3.45	64
Flexible groups *	3.35	50	3.52	60
Classroom display of students' work **	3.55	62	3.20	42
Active learning - project work etc.	3.49	58	3.47	56
Students' interests, culture **	3.47	56	3.26	48
Different/tiered activities	3.41	52	3.44	49
Individual Learning Plans/goals	3.39	53	3.33	53
Respect	3.32	40	3.33	48

* Statistical difference means P = .05

** Statistical difference means P = .01

When teachers match instruction to pupils' needs, and when children feel their needs are met, a positive learning environment can be created, suggesting a reciprocal relationship between DR and a positive learning environment (Ankrum, 2006; Shaunessy-Dedrick et al., 2015). Most teachers (Dublin, 71%; Houston, 64%) strongly agreed that the teacher as a facilitator was important' in a DR environment (Ankrum, 2006; Pilten, 2016) but was ranked third in Houston teachers' mean scores. Analysis showed that Dublin teachers ranked the teacher as a facilitator higher than Houston teachers ($t = 4.223$; $df = 635$; $p = .000$). Effective teachers 'facilitate' and 'model' reading skills for children in positive reading environments (Miller, 1989) and station teaching research in Ireland found that the 'expertise of the teacher is key to improving literacy achievement of pupils' (Daly, 2015). However, mean scores revealed that 'Active learning' was the second (Houston) and third (Dublin) most important factor in a DR environment (Lawrence-Brown, 2004) A positive learning environment is child-centred, encourages independence and reflects learner interests, ideas and experiences through individualised goals (Maker, 1986; Farmer, 1996). Both cohorts, (53%) 'strongly agreed' that 'Individual Goals' were important in the DR environment. Respect was rated last by Dublin teachers and fifth position by Houston teachers according to mean scores. This was supported by qualitative data.

8.5.2 Differences in a DR Environment

Mean scores revealed that Houston teachers rated flexible groups as most important in a DR environment while Dublin teachers rated it in seventh position ($t = -3.114$; $df = 633$; $p = .002$). This supports previous statistical analysis revealing that Houston teachers employed more flexible groups in differentiating process (Section 7.4.2, Table 8.9). Meanwhile, Dublin teachers rated 'classroom display of student work' higher than Houston teachers ($t = 5.878$; $df = 634$; $p = .000$). Classroom displays of children's work promote engagement (Dolezal et al., 2003), encouraging possible learning and motivational opportunities. Also, Dublin teachers rated 'students' interests, culture, etc.' higher than Houston teachers ($t = 3.413$; $df = 634$; $p = .001$). Linking students' interests to activities can increase attitudes to reading (Shaunessy-Dedrick et al., 2015), fluency and comprehension (Reis et al., 2008, 2011; Shaunessy-Dedrick et al., 2015), achievement (Amabile, 1996; Torrance, 1995), intrinsic motivation, student autonomy, productivity, and creativity (Amabile, 1983; Brunner, 1961; Collins & Amabile, 1999; Sharan & Sharan, 1992). This was supported by qualitative data in the present study.

In summary, cohorts differed in their perspectives of a DR environment. All teachers ranked a positive learning environment and active learning as important in a DR environment. However, analysis showed that Houston teachers on average reported more frequent use of 'flexible groups' higher than Dublin teachers. Meanwhile, analysis revealed that Dublin teachers ranked the teacher as a facilitator, 'classroom display of student work' and students' interests higher than Houston teachers in a DR environment.

8.5.3 Flexible Groups

Flexible groups were investigated in three questions in the survey, (Appendix A-1, 6, 12, 3) and the terms ‘whole class, pairs, small groups and individual work’ were included in questions to avoid misinterpretation. Houston teachers scored flexible groups higher than Dublin teachers. Firstly, analysis showed that Houston teachers employed flexible groups more frequently in differentiating process than Dublin teachers (Table 8.9). Secondly, analysis revealed, that Houston teachers rated ‘flexible groups’ as more important in a DR environment than Dublin teachers (Table 8.13).

Houston teachers also rated flexible groups higher as a facilitating DR factor than Dublin teachers ($t=-2.409$; $df=487$; $p=.016$). This research data differs from other US and Canadian research, where all DR teachers used flexible groups (Ankrum, 2006; Bailey & Williams-Black, 2008; Tobin & McInnes, 2008) whereas this study includes data from Dublin and Houston, samples from two diverse cultural contexts. Group-work improved reading skills (Gilles & Ashman, 1998), promotes academic and cognitive development (Gilles & Ashman, 2003), achievement (Johnson et al., 2000), transfer of learning and critical thinking skills (Cockrell et al., 2000). It also helps develop communication, organization and problem-solving skills, (Cheng & Warren, 2000) self-esteem, confidence and ‘*motivation to learn*’ (DES, 1999, 16). Low scoring of group-work may indicate traditional whole-class teaching methods used by teachers in Ireland, as opposed to flexible group-work (Concannon-Gibney & Murphy, 2012) and the pre-dominance of whole-class teaching in primary schools (McCoy, Smyth & Bank, 2012; Murphy, 2004; NCCA, 2005, 2008).

All 20 interviewees/LP respondents used whole class, small and flexible groups, so the qualitative findings did not reflect the survey’s lower incidence of flexible groups in Dublin. This may be due to the fact that teachers interested in DR self-selected themselves for the qualitative studies and so engaged in more DR strategies or it could be due to the Hawthorne Effect where participants modify behaviour due to research participation experience. Groups emerged as a main theme in the interview and lesson-plan thematic analysis (Ankrum, 2006; Pilten, 2016; Tobin & McInnes, 2008), contrasting with some research where most teachers used whole-class instruction rather than working with flexible groups (McCoy, Smyth & Bank, 2012; Murphy, 2004; Smit & Humpert, 2012). All interviewees and most LP respondents employed paired groups, same and mixed ability groups. Research demonstrates that effective reading teachers regularly use small-group instruction (Block et al., 2002; Taylor et al., 2000). Same ability groups were most often used with tiered activities, while mixed ability groups were most often used in open discussions, literacy circles, jigsaw and snowball activities. Three Dublin and three Houston interviewees employed literacy circles, which will be discussed later (Section 8.7). Five interviewees and three LP respondents employed same interest groups. Children working together in small groups being sufficiently challenged by a supportive teacher can move beyond their ZPD, as previously discussed in section 2.8 (Vygotsky, 1986; Read, 2004) through meaningful, discussion and sharing, comparing and making connections in ‘whole class’ differentiation (Delaney, 2017, p. 88).

In summary, statistical analysis from three questions revealed that Houston teachers employ more flexible groups in DR than Dublin teachers. However, interview and lesson-plan findings do not support this data. This may be due to the Hawthorne effect where participants positively alter behaviour due to research participation experience or to the fact that committed DR teachers in both cohorts self-selected themselves for interviews and lesson-plan analysis. However since just twenty teachers were involved in the qualitative study it is difficult to draw firm conclusions from it. Further research on DR could explore this area.

8.5.4 Assessment

Assessment informs differentiation (Eivers et al., 2010). Assessment was investigated in the survey in five questions (Appendix A-1, Q. 11, 9, 3, 6, 10). Most teachers stated that their DR strategies were influenced by data from AfL and AoL at least once a week, as ongoing use of assessment practices ‘facilitates differentiation and acceleration of children’s literacy development’ (Kennedy et al., 2012, p. 331). AfL data was the most frequently employed assessment data in ‘*every lesson*’. Most teachers incorporated standardised assessment and diagnostic assessment data a few times monthly. Analysis showed that Houston teachers incorporated more AoL data than Dublin teachers ($t=-2.295$; $df=628$; $p=.022$).

Table 8.16: Dublin and Houston: Assessment Employed in DR

Question	In DR implementation	Dublin n=330		Houston n=315	
		%	Mean	%	Mean
11	Assessment for Learning, (AfL) in every lesson	32	2.78	35	2.86
11	Assessment of Learning, (AoL) – weekly *	84	2.5	80	2.7
11	Diagnostic Assessment – monthly	58	1.93	54	2.20
11	Standardised Assessment – monthly	59	2.09	66	1.92
9	Cover std. test material – significant obstacle	14	0.96	12	1.42
3	Continuous assessment - main DR Factor **	12	2.13	18	2.50
6	Continuous Assessment – every lesson	53	3.08	58	3.26
3	Different Assessments - main DR Factor	25	2.4	19	2.3
10	Different assessments ‘significantly helpful’	46	2.4	47	2.4
10	Pre-assessment of concepts’ – helpful	80	2.2	79	2.1
10	Discussion with teachers – helpful **	87	2.43	66	1.80
10	Discussion with parents – helpful **	79	2.13	55	1.64
10	Self-evaluation – helpful **	76	2.11	66	1.89

* Statistical difference means P = .05

** Statistical difference means P = .01

T-tests of difference in means showed that Houston teachers viewed covering standardised test material as a more significant DR obstacle than Dublin teachers ($t=-5.299$; $df=627$; $p=.000$). This may be influenced by the NCLB (2001) emphasis on assessment and funding requirements. Formal District Assessments were only used by Houston teachers.

Continuous assessment was explored in two questions. Statistical analysis revealed that Houston teachers ranked continuous assessment higher as a DR facilitating factor than Dublin teachers ($t=-4.089$; $df=479$; $p=.016$). Over half of all teachers used continuous assessment in every DR lesson. Also, analysis revealed that Houston teachers employed more continuous assessment than Dublin teachers ($t=-2.152$; $df=637$; $p=.032$).

More Dublin teachers ranked 'different assessments' as an important DR facilitating factor than Houston teachers and all teachers included this option in the top four facilitating DR factors. Most teachers, (90%), chose '*different assessments*' as *helpful* and 46% of Dublin and 47% of Houston teachers found them '*significantly helpful*'. However, this was not statistically significant.

Evaluating students' reading readiness is central to DR delivery. Most teachers (98%) employed 'Listening to students' to evaluate student readiness and also observation (95%) and discussion (Dublin 95%, Houston 91%). Dublin participants ranked the following variables higher than Houston participants: discussion with teachers ($t=10.611$; $df=634$; $p=.000$); discussion with parents ($t=7.869$; $df=634$; $p=.000$); and thirdly, self-evaluation ($t=3.231$; $df=630$; $p=.001$). These data could suggest that Dublin teachers engage more stakeholders in assessing readiness while Houston teachers involve more formal assessment or that Houston teachers consult pupils/teachers/parents less because of choice, lack of time or school policy. This is especially pertinent in situations where parents do not speak English or when school has a different 'cultural capital' to the home (Bourdeau, 2011). It could also be suggested that the emphasis on assessment in school culture and practices in Houston has partially displaced discussion as a tool for establishing children's readiness and learning needs. This is one area that merits future research. All Houston interviewees stated that increased discussion with parents and teachers would be helpful but that lack of time and a broad curriculum hindered such opportunities and four employed student self-evaluation in DR. In Ireland, self-evaluation was introduced as part of a continuum of assessment methods in 2007 (NCCA, p.13). Increased provision for school and state assessments was outlined by Circular 0056/2011 (DES, 2011) following the publication of the National strategy (DES, 2011). Three Dublin interviewees used student self-evaluation and all five employed discussion with other teachers and parents 'regularly with junior classes' (C1) and as required with Sixth Class' (C5).

All 20 interviewees/LP respondents used questioning as in assessing children. All listened to students reading, text discussions and observed group discussions. All ten LP respondents used assessment information in DR lessons. Just one Dublin and three Houston LP respondents used running records as

reading assessment. Assessment was important to all ten interviewees, as it was mentioned in responses to nine of the 16 interview questions. ‘It’s essential’ (C3) and ‘*I use AfL as continuous informal assessment in DR*’ (Z2).

In summary, AfL was the most frequently employed assessment in every lesson, while AFL and AoL were the most frequent weekly assessments. Statistical analysis revealed that Houston teachers employed more AoL, viewed covering standardised test material as a more significant obstacle to DR, ranked continuous assessment higher as a DR facilitating factor and employed more continuous assessment than Dublin teachers. Dublin teachers ranked discussion with teachers and parents and thirdly, ranked student self-evaluation higher than Houston teachers. All 20 interviewees and LP respondents assessed children’s reading and reading readiness by listening to children reading, questioning and discussing texts with students and observing students in discussion. Assessment was mentioned in responses to nine of the 16 interview questions demonstrating that ‘assessment is now regarded as an essential aspect of teaching and learning in ... primary school settings’ (Kennedy et al., 2012, p. 266).

8.5.5 DR Elements

This section investigates some DR factors teachers incorporate into DR lessons.

Table 8.17: Frequency of DR Elements Employed by Teachers

My DR incorporates...	Dublin n=330		Houston n=315	
	Mean	Every lesson %	Mean	Every Lesson %
Achievable Goals	4.48	66	4.61	73
Oral Vocabulary	4.46	66	4.50	52
Students’ reading needs *	4.13	48	4.35	63
Identifying students’ readiness	4.00	49	4.20	56
Child-centred activities	4.00	43	4.09	43
Previous reading experiences	3.70	41	3.60	30
Students’ interests **	2.53	4	2.84	5
Students’ favourite books	2.01	2	2.10	3

* Statistical difference means P = .05

** Statistical difference means P = .01

8.5.5.1 Similarities in DR Elements

Both cohorts ranked all factors in similar order based on mean scores. Achievable goals, oral vocabulary and students’ reading needs were the top three factors. Most teachers employed four important DR factors - *identifying students’ readiness, incorporating reading needs; previous reading*

experience and *child-centred activities* - at least once weekly. These factors help teachers to gain a good understanding of children's strengths and needs (IRA, 2000) to meet pupil variance. Interestingly, 43% of both cohorts incorporated child-centred activities in every lesson. Students' favourite books were incorporated least frequently by both cohorts.

8.5.5.2 Differences in DR Elements

Analysis revealed that Houston teachers incorporated both children's reading needs ($t=-2.680$; $df=637$; $p=.008$) and children's interests ($t=-3.509$; $df=638$; $p=.000$) more frequently than Dublin teachers. In fact, Houston teachers employed seven factors more frequently than Dublin Smaller Houston classes (section 8.1.2) and over ten years of DR in-service training may have facilitated these practices while Dublin teachers received very little differentiation training pre the 2015 PLC (DES). Differentiation was officially introduced in Dublin in 2016 for Infants-2nd Class in the PLC (DES, 2015) training. Also, all Houston interviewees/LP respondents used at least four different class texts for different abilities and offered more choice in class texts and genres (Section 8.5.7) than their Dublin counterparts (Allington, 2005; Westwood, 2003). Dublin teachers incorporated more students' previous reading experience and more discussion with teachers in evaluating student readiness (Table 8.15) so information acquired from previous teachers may provide previous reading experience information. Few teachers incorporated '*students' favourite books*' which can encourage reluctant readers to read and develop 'flow' (Csikszentmihalyi et al., 1997) towards improved performance (Carbonaro and Gamoran, 2002), discussing topics they like and selecting topics for projects (Wolfe, 2001). DR teachers are encouraged to design tasks around pupils' backgrounds and culture and match pupils' strengths (MacGillivray & Rueda, 2001) and include children's interests to ignite motivation (Guild, 2001; Hall, 2002).

In summary, achievable goals and oral vocabulary were most frequently incorporated in DR. Statistical analysis revealed that Houston teachers incorporated students' needs and interests more frequently than Dublin teachers. Indeed Houston teachers employed all factors more frequently than Dublin teachers except students' previous reading experience. Smaller Houston classes and ten years of DR in-service training may have facilitated these practices.

8.5.6 Reading Practices

The twenty interviewees and LP respondents discussed types of reading and class texts. All children read aloud individually or in pairs. Eighteen teachers incorporated daily silent reading, as scheduled class reading-time is very important as found in McGeown, (2013). All lesson-plans involved reading. All interviewees scheduled 'set amounts of text' for pupils. Teachers modelled pronunciation, tone, and phrasing in reading aloud as both help children's reading supporting previous research (Gambrell, 1996; Miller, 1989). All Dublin teachers read aloud to children compared to seven Houston teachers.

Table 8.18: LP respondents and Interviewees: Reading Practices Employed

Reading Practices	Dublin n=10		Houston n=10	
	Lesson-Plans B1-5	Interviews C1-5	Interviews Z1-5	Lesson-Plans Y1-5
Teacher read aloud to class	5	5	4	3
Daily read aloud	4	5	4	4
Whole class read aloud	1	0	3	2
Read aloud in pairs	3	1	2	2
Child reads aloud to class	2	4	4	3
Child reads aloud to teacher	2	5	4	3
Teacher models silent reading	1	3	1	0
Daily silent reading	3	5	5	5
DEAR 'Drop Everything and Read'	0	3	0	0
Read set amounts	3	5	5	5
Read at child's own pace	1	5	4	3
Listen to CD	0	5	2	1

Three Dublin teachers and three Houston teachers employed children reading aloud in pairs rather than individual reading aloud. Five Houston teachers and one Dublin teacher had the whole class read together. Teachers stated that reading aloud helped '*children listen to the story*' (B1); '*struggling readers follow the story*' (C3); '*improved vocabulary*' (Z1), '*phrase and read coherently*' (B5), '*improve fluency*' (Y4), '*pupils to love reading*' (C4) and '*share love of books*' in their search for meaning and literacy skills development consistent with previous research (Concannon-Gibney, 2014; King & Briggs, 2012).

Teachers employed more time on silent reading than reading aloud, as '*every child can read their own book choice*' (Z3), '*they don't disturb anyone*' (C2) and '*it's a great incentive to finish a task*' (C3). More Houston (10) teachers had their children read silently for 2-10 mins daily, while eight Dublin teachers had daily silent reading between 5-10 mins '*most days a week*' (C5). All teachers had a special class reading area as found by Dolezal et al., (2003). Four Dublin teachers modelled reading silently compared to one Houston teacher. '*I model silent reading as this encourages pupils to read*' (B1). Teachers, who read books during silent-class-reading-time and shared reading interests with pupils, generally were more familiar with children's literature (Cremin et al. 2009). Only three Dublin interviewees used DEAR stating that it helped children love reading '*When the children see me read it encourages them to read and enjoy books*' (C1). However, two Dublin interviewees disagreed with DEAR, stating that '*it's artificial!*' (C5) and '*time-consuming*' (C2).

In summary, all teachers stated that reading aloud helped develop children's fluency, understanding and love of reading. All teachers had children read aloud individually or in pairs. All Houston and eight Dublin teachers incorporated daily silent reading and required children to read 'set amounts of

text'. Teachers employed more time on silent reading than reading aloud. More Houston teachers (five) involved whole class reading aloud together (Dublin, one) and more Dublin teachers (four) modelled reading silently than Houston teachers (one). All Dublin and seven Houston teachers read aloud to the class.

8.5.7 Class Texts

Different genres and texts enable teachers to match content with learners (Heacox, 2002), as readers' attitudes and experiences are important as the strategies employed (King & Briggs, 2012). Only one teacher from Houston used the 'Pearson Successnet' reading programme as reading schemes '*cannot cater for the pupil variance in my class*' (C2), supporting Levy's findings that dominance of reading schemes in junior classes discourages wider reading (2009). Nine teachers offered chapter books on different themes. Just one Dublin interviewee (C5) used different class chapter-books to cater for different reading levels, all other Dublin teachers had class texts for 'standard class level'. All Houston teachers used at least four different class texts for different abilities and children were divided into reading ability groups. Only one Dublin interviewee used newspapers and a play (Dublin lesson-plan) with the children. Just two interviewees incorporated picture-books and these were specifically for struggling readers in junior classes (C1, Z1). Four Houston interviewees offered different chapter book genres - *'detective books'* (F1); *'comics'* (F3); *'biographies and the classics'* (F5), and *'American History and Sportsmen'* (F4).

Texts by similar authors were used in a range of classes in both jurisdictions - Michael Morpugo, Roald Dahl, Louis Sachar, J.K. Rowling and Mary Pope Osborne. Texts by Ian Serraillier, Marita Conlon-McKenna and FB White were used in a range of classes in Dublin, while texts by Rosa Lester, Kathryn Lasky, Geronimo Stilton, James Daugherty, Mark Twain, Rachel Vail, Jane Kurtz, Darren Shang, and Laura Ingalls Wilder were used in Houston. All teachers emphasised the importance of well-stocked class and school libraries and six interviewees stressed pupils discussing and sharing their favourite books with classmates helped to create collaborative learning environments (Kennedy et al., 2012) and social learning (Hall & Harding, 2003; Williams & Baumann, 2008). Pupils '*bring their own favourite books and share them with the class 5 Min Magic*' (C3) and '*peer collaboration and book sharing takes place in reading*' (C4, C3). Classes shared presentations on favourite books or brought favourite books to the Class Book Tree in Houston (three interviewees).

All teachers stated that pupils liked class texts regardless of ability for different reasons – '*form of escapism*' (C3), '*struggling readers know the story*' (C1) '*stretches advanced readers to do advanced tasks*' (C2), '*love literacy circles on texts*' (C4), '*different perspectives,*' (Z4), '*different abilities*' (Z1), '*students from different cultures can associate and identify with different texts*' (Z6).

In summary, similar authors were used in a range of classes and all teachers stated that pupils enjoyed class texts regardless of ability. Nine teachers offered chapter books on different themes. All Houston

teachers and just one Dublin teacher used at least four different class texts for different abilities, other Dublin teachers employed ‘standard class level’ texts highlighting lack of choice for students. All Houston teachers employed reading ability groups. One Houston teacher used a reading programme. Only one Dublin teacher used newspapers and a play. Just two interviewees incorporated picture-books and only for struggling readers in junior classes (C1, Z1). Four Houston teachers offered different book genres. This information highlights the lack of picture books, genres (newspapers, plays, etc.) and online materials in reading. All teachers employed traditional children’s literature rather than newly published texts.

8.6 Factors that Facilitate and Hinder DR

This section analyses the findings related to research question three - what factors facilitate and hinder DR implementation? Perceived individual, structural and policy factors that both facilitate DR and pose as obstacles to DR are analysed from the survey, lesson-plan and interview data.

8.6.1 Similar Factors found in Dublin and Houston

Both cohorts chose the same top three factors but in different rankings- *Individual goals*, *Positive Learning Environment* *Preparation and Structure* (Hall & Harding, 2003; Westwood, 2003).

Table 8.18: Dublin and Houston: Factors Facilitating DR

What Factors Facilitate DR?	Dublin n=330		Houston n=315	
	1 st Choice %	Mean	1 st Choice %	Mean
Individual goals & varied teacher support **	60	3.18	30	2.61
Detailed preparation and structure *	40	2.85	33	2.60
Positive Learning Environment	35	2.73	36	2.65
Different Assessments	25	2.44	19	2.29
Flexible Groups *	16	2.31	21	2.54
Continuous assessment **	12	2.13	18	2.50
Activities match need/goals	11	2.34	7	2.43

* Statistical difference means P = .05

** Statistical difference means P = .01

Individual goals, *Planning and preparation* and *Positive Learning Environment* were ranked top three factors by both cohorts in different order. Mean scores ranked *Individual goals* factor first by Dublin and second by Houston while *Positive Learning Environment* was ranked first by Houston but third by Dublin. *Planning and preparation*, ranked second (Dublin) and third (Houston) is involved in setting

individual goals and creating a positive learning environment so all three are interlinked (Heacox, 2002). Both cohorts chose the same last four factors but in different rankings. Matching activities to individual goals is important in DR, so the low rating of this option is surprising and questions teachers' understanding of DR. Furthermore, children's individual plans/goals ranked highly yet the low scoring of *assessment* and *activities matching goals* appears contradictory as both activities contribute to children's individual goals.

8.6.2 Different Factors in Dublin and Houston

T-tests of difference in means showed that Dublin teachers ranked both Individual Goals ($t=4.906$; $df=377$; $p=.000$) and preparation and structure ($t=2.011$; $df=351$; $p=.045$) higher as factors facilitating DR than Houston teachers. Both factors are interlinked. Conversely, as already discussed statistical analysis revealed that Houston teachers ranked both flexible groups (Section 8.5.3) and continuous assessment (Section 8.5.4) higher than Dublin teachers. Factors facilitating DR were not explored in the lesson-plans. No interviewee mentioned individual Learning Plans/goals but all mentioned observation, listening to students reading and discussion with students. Other facilitating factors mentioned are listed in **Table 8.21**.

Table 8.19: Houston and Dublin Interviewees: DR Facilitating Factors.

Houston only	n=5	Dublin only	n=5
Tiered activities	3	Children select books	3
Student needs	2	Know the child	3
Levels of questioning	2	Interesting texts, well-stocked library,	3
Peer learning	2	Flexible, responsive teaching,	3
A print-rich environment	2	Good preparation and lesson-plans,	3
Literacy circles	2	Different questions, levels,	3
		Pair work and peer recommendation	1
		Collaboration	1

Both cohorts mentioned different levels of questioning (Bailey & Williams-Black, 2008; Hootstein, 1998), as recommended by Seán Delaney's eight types of differentiation questions (2017). Only Houston interviewees mentioned tiered activities in relation to facilitating factors but both Houston and Dublin interviewees mentioned tiered activities in relation to process and product. Some factors were closely linked - know the child and student needs; a print-rich environment and a well-stocked library; collaboration, pair-work and peer learning. It is clear that there is no one emerging factor but that several factors combine to facilitate DR.

8.6.3 Perceived Obstacles to DR

Obstacles to DR were investigated in the survey (n=645), and in the ten interviews. LP respondents did not comment on perceived DR obstacles.

8.6.3.1 Similar Obstacles

Both cohorts chose lack of time, class size and lack of resources as the three main obstacles. Lack of time received the highest mean scores yet both cohorts ranked class size as the main significant obstacle. Previous research found lack of time and class size as the two main obstacles to differentiation (Hootstein, 1998; Kerry & Kerry, 1997; Pilten, 2016).

Table 8.20: Dublin and Houston: Obstacles to DR

Obstacles to DR	Dublin n=330		Houston n=315	
	Mean	Significant Obstacle %	Mean	Significant Obstacle %
Lack of time **	2.4	61	1.9	31
Class size **	2.3	65	1.7	36
Lack of resources **	1.9	41	1.9	7
Lack of training in DR **	1.9	39	0.9	7
Planning and preparation **	1.7	27	1.0	10
Student misbehaviour **	1.3	18	1.7	26
Curriculum constraints	1.3	16	1.2	10
Cover std. test material **	1.0	14	1.4	22
Individual Learning Goals **	1.1	12	1.3	12
Assessing starting point	1.2	5	1.0	7
Different assessments	.9	4	1.0	6

**** Statistical difference means P = .01**

Lack of time was the main obstacle for eight interviewees (three Dublin and five Houston). ‘Time’ is important in literacy (Allington, 2002) and teachers and principals identified time as a main challenge in implementing the 1999 PSC (DES) and in two curriculum reviews (NCCA, 2005; NCCA, 2008a). Some interviewees mentioned that increased non-class contact time provision for teachers to provide adequate time for lesson preparation would be beneficial. More teachers ranked ‘Individual learning goals’ as ‘no obstacle’ (Houston, 38%) and (Dublin, 24%) rather than a ‘significant obstacle’ (12%, both cohorts). No interviewee mentioned individual goals but mentioned ‘*trying to meet all kids’ needs*’ (Z2); ‘*fear of letting the kids be the centre of learning*’ (Z5), peer feedback (Z4) and ‘*unrealistically high parental expectations*’ (Z5) as obstacles. More teachers also ranked ‘planning and preparation’ and ‘curriculum constraints’, as ‘no obstacles’ (Houston, 39%) and (Dublin, 19%) rather than a ‘significant obstacle’ (fourth/fifth obstacles respectively). Only one interview mentioned

planning, '*establishing different kids' ZPDs takes too much time and planning!*' (Z1). Previous research found planning lessons for individual students unpopular with teachers (Johnsen et al., 2002) and while teachers were knowledgeable on differentiation, implementation was more reactive rather than planned (Roe, 2010). Assessing children's *starting point* and *different assessments* were the lowest ranked significant obstacles.

8.6.3.2 Differences in Obstacles

T-tests of difference in means revealed that Dublin teachers ranked five obstacles higher than Houston teachers. Analysis showed significant differences in both lack of time ($t=7.784$; $df=636$; $p=.000$) and in class size ($t=7.784$; $df=636$; $p=.000$). As discussed in Section 8.2.1, Dublin class sizes (16-35 pupils) were larger than Houston classes (1-25 pupils) so this was a major obstacle for Dublin teachers (Hootstein, 1998; Kerry & Kerry, 1997; Pilten, 2016). Indeed, some Dublin teachers (15%) taught classes of 31-35 pupils (Table 5.2). Just two interviewees (C3, Z5) mentioned class size as a major obstacle. On a policy level, class sizes will not change immediately. In the absence of a fundamental shift in fiscal policy, other options must be explored by teachers.

Statistical analysis of DR obstacles revealed that Dublin teachers ranked both lack of resources ($t=9.767$; $df=630$; $p=.000$) and lack of training ($t=11.618$; $df=634$ $p=.000$) higher than Houston teachers. Time to prepare resources and lack of resources were obstacles identified in other studies (Hootstein, 1998; Pilten, 2016). Drawbacks of preparing additional resources included extra preparation time, cost for teachers, and the additional work (Kerry & Kerry, 1997), linking resources with the lack of time. Only three Dublin interviewees cited lack of resources as a major obstacle including lack of personnel and school structures to facilitate DR and inadequate libraries. Just three Dublin teachers cited lack of training as the main obstacle to DR, two teachers wished to observe a DR lesson and one cited inconsistency among teachers (C3). Previous research identified lack of pre-service and in-service training, (Edwards et al., 2006; Hawkins, 2009; Pilten, 2016; Sharabi 2009; Wormeli, 2005) as obstacles to differentiation. Lack of training was the fourth main obstacle chosen by Dublin teachers. This data supports DR implementation data where just 5% of Dublin teachers used DR due to in-service training (Section 8.3). Finally, Dublin teachers ranked planning & preparation ($t=7.926$; $df=634$; $p=.000$) higher than Houston teachers as perceived obstacles to DR. Roe (2010) found that teachers often provided reactive DR rather than purposefully planned DR which may be caused by lack of time, training and resources.

Meanwhile, Houston teachers rated three obstacles higher than their Dublin counterparts - student misbehaviour ($t=-4.483$; $df=634$; $p=.000$), covering standardised test material ($t=-5.299$; $df=627$; $p=.000$) and individual goals ($t=-3.663$; $df=631$; $p=.000$). Student misbehaviour was the third significant obstacle chosen by Houston teachers. Hootstein found disruptive students to be an obstacle in the US (1998) and Kerry & Kerry found teachers had difficulty managing different groups in the

UK, keeping all children on task and differentiating work with more able students amid ‘demands’ of help from others (1997). Interestingly, no interviewees or LP respondents mentioned this obstacle. As few Dublin teachers (18%) ranked this an obstacle the question arises whether this is a sociocultural issue (Hawkins, 2009) or a large school phenomenon as the fourteen participating Houston schools were much larger than the 48 Dublin schools (Table 8.4). Fear of state assessments, classroom management challenges and little administrative support were obstacles in other studies (Hertberg-Davis and Brighton, 2006; Latz et al., 2009; Moon et al., 2003; Reis et al., 2004). This is significant in Houston, as school funding is related to student scores achieved in standardized tests.

In summary, both cohorts found lack of time and class size as the two main obstacles to DR. Analysis revealed that Dublin teachers ranked five obstacles higher than Houston teachers – lack of time, class size, planning and preparation, lack of resources and lack of training. Meanwhile, Houston teachers rated three obstacles higher than their Dublin counterparts - student misbehaviour, individual goals and covering standardised test material. Previous research supported these findings. Interviewees only mentioned four obstacles cited in the survey, lack of time, class size and three Dublin teachers declared lack of training and resources as major obstacles. Individual Houston teachers mentioned establishing the ZPD, peer feedback, meeting children’s needs and teachers’ fearing of letting children be the source of their own learning as major obstacles. It is clear there are more than a few obstacles to DR.

8.6.4 Teachers’ DR Practices: Summary

Research Questions One, Two, and Three investigated teachers’ conceptions and practices in DR. All 645 teachers employed DR and most, (79% Houston; 62% Dublin) did so because of school initiative and personal interest (48% Houston; 54% Dublin). More Houston teachers (75%) provided DR definitions than Dublin teachers (69%) in the qualitative survey question (Appendix A-1, q.8). This may be due to the lack of DR training available in Ireland before the launch of the PLC (DES, 2015) while Houston teachers had access to DR training for over 10 years. Approximately 70% of teachers provided a fair understanding of DR - matching content and process to individual needs’ and ‘individual, achievable goals’. All 645 teachers ranked a positive learning environment among the top four DR facilitating factors. Statistical analysis revealed that while experienced teachers implemented DR strategies more frequently less experienced teachers provided more varied teacher support. The teachers who implemented differentiation strategies most frequently taught in DEIS schools in Dublin (somewhat contrary to previous research) and taught in advantaged schools in Houston (supporting previous research). Both cohorts differentiated most through process, then product and least through content. Statistical analysis revealed that Houston teachers incorporated varying levels of teacher support, activity choices; research content, written activities; students’ needs and interests; flexible

groups, AoL and continuous assessment data; more frequently and ranked continuous assessment higher as a DR facilitating factor than Dublin teachers. However, interview and lesson-plan findings did not support this data. This may be due to the Hawthorne effect or to the fact that committed DR teachers self-selected themselves for interviews and lesson-plan analysis.

Meanwhile, statistical analysis showed that Dublin teachers differentiated more by product especially in oral activities and incorporated tiered activities and students' previous reading experience more frequently than Houston counterparts. Dublin teachers ranked the teacher as a facilitator, 'classroom display of student work' and students' interests significantly higher than Houston teachers in a DR environment and ranked discussion with teachers and with parents and student self-evaluation significantly higher than Houston teachers. This data reveals that Dublin teachers scored higher on oral discussions with teachers/parents and on oral activities with students. Further research could reveal if this is related to cultural differences, educational practices or structures. Analysis shows that while Dublin teachers ranked individual goals and preparation higher but Houston teachers implemented individual goals more frequently. Overall, Houston teachers incorporated more DR strategies than Dublin teachers. Possible reasons could include the lack of DR training available to Dublin teachers before the 2015 PLC (DES). Further research in Ireland post the 2015 PLC (DES) could explore this area. Smaller Houston classes and ten years of DR in-service training may also have facilitated these practices.

AfL data was the most frequently employed assessment in every lesson, while AFL and AoL data were most frequently incorporated weekly. All 20 interviewees/LP respondents assessed children's reading and reading readiness by listening to children reading, discussing reading with students and observing students in discussion and questioning children on texts. Most teachers believed that discussion with students was important in DR in evaluating student understanding and readiness. Discussion with teachers and parents was rated less important than discussion with pupils. Over half of teachers incorporated student' readiness, reading needs, previous reading experiences, child-centred activities and pupils' favourite books at least once a week. Fewer than half of all teachers included pupils' interests weekly.

Achievable goals and oral vocabulary were most frequently incorporated in DR. Both cohorts chose the same top three factors but in different rankings- *Individual goals, Positive Learning Environment Preparation and Structure* as facilitating DR factors. The main obstacles were lack of time and class size. Dublin teachers highlighted lack of resources and training while student misbehaviour and pressure to cover standardised test material was emphasised by Houston teachers. Statistical analysis revealed that Dublin teachers ranked five obstacles higher than Houston teachers – lack of time, class size, planning and preparation, lack of resources and lack of training. Meanwhile, Houston teachers rated three obstacles higher than their Dublin counterparts - student misbehaviour, individual goals and covering standardised test material. Interviewees

Data from the ten interviews and ten lesson-plans revealed that all employed more silent reading than reading aloud, all employed children reading aloud individually or in pairs, all stated that reading aloud helped develop children's fluency and understanding; and that DR improved comprehension with discussion as the main element. All used similar authors in a range of classes and all teachers stated that pupils enjoyed class texts regardless of ability. Fifteen teachers declared that DR improved reading. All Houston and eight Dublin teachers incorporated daily silent reading and required children to read 'set amounts of text'. All Dublin and seven Houston teachers read aloud to the class. Nine teachers offered chapter books on different themes. All Houston teachers and one Dublin teacher used at least four different class texts for different abilities, other Dublin teachers employed 'standard class level' texts highlighting lack of choice for students. All Houston teachers employed reading ability groups. Four Houston teachers offered different chapter book genres and two incorporated picture-books for struggling readers. This information highlights the lack of picture books, genres (newspapers, plays, etc.) and online materials in reading. All teachers employed traditional children's literature rather than newly published texts. The next section analyses data from the three studies, answering research question four, and the relationship between elements associated with the ZPD that are relevant to DR..

8.7 Elements Associated with Vygotsky's ZPD that are Relevant to DR

The development of literacy including language and reading is complex (Konza, 2014) involving cognitive, affective and socio-cultural aspects (RAI, 2011). A sociocultural perspective on reading highlights the centrality of oral language, scaffolding and responsiveness to children's reading needs. This study investigated teachers' understanding and implementation of DR. Some elements associated with Vygotsky's Zone of Proximal Development (ZPD) are relevant to DR implementation. The ZPD can be described as children doing independently tomorrow what they do in collaboration today (Vygotsky, 1962). Learners, guided through collaboration by teachers, can complete challenging, achievable tasks and develop understanding through imitation, discussion and reflection. This Section explores the DR elements of oral language, collaboration, imitation comprehension and meaning-making and how they may relate to the ZPD. Oral language will be discussed first.

8.7.1 Oral Language - Language as a Tool

Oral language is the foundation of all literacy development (Konza, 2014) and 'learning to read should not be regarded as a hierarchy of skills from lower to higher order, but as a developmental language process' (Clark, 2014, p. 11).

8.7.1.1 Similarities

Survey and qualitative data demonstrate that most teachers recognised the importance of oral language in DR in developing vocabulary, comprehension and discussion. All teachers differentiated content vocabulary and comprehension at least once weekly but less than half did so in every lesson (Table 8.13). Vocabulary is central to literacy instruction (Neuman, 2011), to children's reading (Juel, 2006) and vocabulary knowledge impacts on comprehension development (Scarborough, 2001; Snow, Burns & Griffin, 1998).

One core aspect of CHT is the continuous development of word meanings within personal and social activity. Qualitative data, (interviews and lesson-plans) revealed that all twenty teachers used questioning and discussion to help children develop word meanings within individual reading (personal) and group discussions/activities (social). Most respondents stated that oral language was used to help children think, communicate and solve problems (Vygotsky, 1986) in paired/small group discussions or literacy circles. Same ability, mixed ability and same interest groups in literacy circles were used to help students develop oral language skills, comprehension and meaning-making through discussion using themselves as the source of their own learning, encouraging students to gain higher levels of understanding than they would reach reading alone. Six interviewees (three Dublin and three Houston) stated that literacy circles provided a good platform for students to practice oral language skills in discussion (Z4), analysis (Z5) and in learning new vocabulary (Z2), *'Literacy circles help children think-aloud through discussion'* (C4).

Qualitative data revealed also that while reading, listening to reading and asking questions helped develop children's oral language, vocabulary, understanding (Table 8.22) and comprehension of texts, few teachers taught vocabulary before, during and after reading a text (Healy, 2015; Mehigan, 2009), where content-specific words are best learned and explored in the relevant context enhancing comprehension (Beck, McKeown and Kucan, 2002). Most interviewees and LP respondents incorporated the 'sense' of a word (Vygotsky, 1986) or word context in DR instruction, employing discussion to help children understand texts and to interpret meaning in read-alouds and in silent reading. Students learned in different ways from peers, from social interactions, from learning activities and making meaning of their own experiences. Language was employed to enable children to explore and formulate thoughts through listening, questioning and discussing ideas in social activity in paired, small and whole class discussion. Word meaning is Vygotsky's unit of analysis and is the main unit of both thinking as children can generally express only what language enables them to express so the development of vocabulary, word meaning and sense (Vygotsky, 1986) is vital. *'Discussion helps students explore vocabulary in new contexts'* (Z1) suggesting links with Vygotsky's word 'sense' (1978). C3 and C1 stated that discussion developed word meaning and *'Children love the discussions which help develop their vocabulary and understanding'* (B5).

All twenty teachers had children read aloud individually or in pairs as ‘reading helps in so many ways to develop language’ (B4). All twenty teachers incorporated oral language and word meaning in DR through Q&A sessions to help children’s learning and understanding of concepts and skills. ‘Targeting questions in class discussions’ helps make ‘ideas accessible to all students’ (Delaney, 2017, p.95). Miller in her research found that mutual assistance creates new ways of thinking and talking about texts in teacher-mediated open-forum discussions where teachers created ZPDs ‘through their approaches to literature and interactions’ drawing on methods of ‘reading to mediate students’ meaning making’ using support and ‘questions as strategies’ (2003, p312). Knowledge can be jointly constructed to help students make meaning of texts towards a deeper understanding through narrative reflection and critical narrative thinking. In DR, flexible groups where children engage in short, focused, meaningful discussions with peers on texts, incorporating linkages with other texts, previous experiences and cultural activities enable children to reach higher levels of understanding than they would reach reading independently. Children acquire knowledge from social interactions within the environment as well as from others, from learning activities and making meaning of their own experiences. ‘Children need practice in oral language to develop their ideas’ (Z3) and ‘discussion helps students explore vocabulary in new contexts’ (Z1). All teachers used lower order questions.

8.7.1.2 Differences

Dublin teachers differentiated oral activities in product and employed student self-evaluation in reading more frequently than Houston teachers. This could be related to cultural differences, educational practices or structures. Seven Dublin teachers and just one Houston teacher incorporated oral language in think-alouds helping children formulate ideas as well as problem solve in group discussion/activities, incorporating ego-centric speech (Vygotsky, 1986) requiring the understanding by teachers/peers (Willis, 2001). Also all Dublin teachers read aloud and modelled reading while most Houston teachers read aloud to the class. However, more Houston participants employed higher order questions. ‘Lower order questions get children into class discussion’ (B1) but ‘higher order questions stimulate critical thinking, help kids make connections’ (Z3). From this small sample of 20 teachers, more Dublin teachers employ read-alouds and think-alouds while more Houston teachers use higher-order questions. Having considered the implications of oral language usage, the next section addresses modelling.

8.7.2 Modelling/Imitation

Imitation is the modelling of specific skills by pupils once they have reached a certain ‘understanding’ of the respective skills/concepts and is not a ‘mindless’ activity (Vygotsky, 1978). Children, while copying the teacher’s actions, extend and transform the modelled activities by imitation (Lantolf, 2000) developing concepts/ideas resulting in potential increased understanding. Modelled activities

include thinking-aloud, listening respectfully to others' opinions, discussing texts, comprehension and collaborative group skills. Imitation was not explored in the survey but was employed with students by all twenty interviewees and LP respondents supporting Hootstein's findings that modelling was an important differentiation method (2008).

8.7.2.1 Similarities

Modelling was employed in fluency, pronunciation, reading, discussion, observation and questioning towards the exploration of meaning. Most teachers (17) modelled reading aloud skills including fluency (Z3), pace (C3), pronunciation, tone and punctuation (Z2). '*Modelling reading aloud in groups helps the less confident reader with new vocabulary*' (Z4). Teachers' use of modelling resonates with research, where exemplary elementary classroom teachers modelled useful reading strategies that proficient readers employ (Williams & Baumann, 2008). Half of all teachers modelled literacy circle skills and eight modelled comprehension skills. Modelling specific reading skills is effective teaching (DES, 2010). In DR, while children can imitate the teacher's modelled reading skills (pronunciation, phrasing etc.), real imitative activity (Vygotsky, 1984,) is where children use imitation in collaboration (Zaretskii, 2009), leading to development of concepts/ideas resulting in increased understanding incorporates listening, questioning, summarising, evaluating and clarifying in small discussion groups (dialogue skills). Modelled discussion skills included respectful behaviour, attentive listening and turn-taking in discussion groups. There was an overlap here with literacy circles, as similar skills were ascribed to both activities - '*respectful behaviour, attentive listening and taking turns*' (C2). While respectful behaviour is important in the classroom, it could also have sociocultural significance, as Houston teachers' ranked student misbehaviour as the third main obstacle to DR, compared to Dublin's low ranking of seventh position (Section 8.6.2).

8.7.2.2 Differences

Just five teachers modelled silent reading (one Houston and four Dublin), even though eighteen teachers had silent reading periods weekly (Table 8.20). The other teachers completed administrative work during silent reading time, contrary to Miller's advice to teachers to model silent reading (1989). Three Dublin interviewees modelled comprehension skills, including questioning, prediction, visualisation and making connections in 'Transactional Strategies Instruction' (TSI), where collaborative, mixed ability groups created their own understanding of the text while simultaneously modelling the strategy for their peers (Courtney & Gleeson, 2010), as discussed in Section 4.10.5. Two Houston interviewees and one lesson-plan respondent employed modelling of comprehension skills. No teacher used the GRRM instruction of comprehension (Pearson & Gallagher, 1983). Just one Houston interviewee and five interviewees and two LP respondents from Dublin modelled think-alouds and four Dublin interviewees employed this to evaluate students' learning and readiness levels. Here, teachers made the '*implicit thinking process explicit*' to help pupils learn how to use comprehension strategies (Courtney & Gleeson, 2007, p. 14). Only one Dublin lesson-plan respondent modelled reading aloud poetry. There were very few references to poetry by teachers in this study.

Three Dublin LP respondents stated they used imitation but provided no activity details. The teacher uses language to model learning processes and both teacher and children share language and activity in learning. Children's language development is crucial to their intellectual development. Modelling is very important in DR, as teachers share with students what they think, as well as engaging in communication and collaborative learning (Smit & Humpert, 2012).

8.7.3 Collaboration

Collaboration is a key DR component and children are guided through collaboration within their ZPD by direct/indirect interaction. Collaboration also helps children learn to work together (Belbin, 2012; NCCA, 2007), reflecting various personalities and specific abilities of group members, and enhances reading comprehension (Gilles, 2003). Children learn through the collective activity with teachers/peers, using communication and collaboration in small group dialogue and discussion. The questionnaire (AppendixA-1, q. 3,6,10,12) provided indirect information on teacher/student collaboration through areas of teacher support (Table 8.12), discussion with students, listening to students (Table 8.23), and flexible groups (Tables 8.12; 8.16; 8.21).

Table 8.21: Dublin and Houston: Collaboration

In DR implementation	Dublin (n=330)			Houston (n=315)		
	Mean	Significant Help %	Moderate Help %	Mean	Significant Help %	Moderate Help %
Listen to child reading	2.7	73	25	2.7	70	27
Discuss with student	2.6	71	24	2.6	64	27
Observe solo/group work	2.6	67	28	2.6	68	27
Written samples	2.5	60	34	2.5	62	27
Discuss with teachers **	2.4	56	31	1.8	19	47
Discuss with parents **	2.1	36	43	1.6	15	40
Student self-evaluation **	2.1	35	41	2.1	28	38

* Statistical difference means P = .05

** Statistical difference means P = .01

8.7.3.1 Similarities

Both cohorts provided similar mean scores for the top four options and both ranked listening to children reading as most important. Therefore, teachers in Dublin and Houston accorded similar levels of importance to listening to, discussing with, observing and employing writing as methods of facilitating learning in DR. Through discussion and collaboration with the teacher/peers, children talk to think, understand and learn (Barnes and Todd, 1977; Wells, 1986). Chaiklin argues that Vygotsky's 'collaboration' in relation to the ZPD refers to 'any' situation where children receive some interaction with others towards problem-solving while the main purpose of collaboration is to identify maturing

psychological functions and not to provide constant support to inadequate maturing functions (2003, p. 11).

All 20 interviewees/LP respondents assessed children's reading and reading readiness by listening to children reading, discussing reading with students and observing students in discussion and questioning children on texts. Collaboration is important in DR, as pupils and teachers 'jointly interpret and negotiate meaning as they work together to make connections between prior knowledge and new ideas' (Adams & Hamm, 2005, p. 107), supporting the collaborative nature of ZPD achievement under the guidance of teacher/peer (Vygotsky, 1986). Most teachers rated discussion with the student as helpful in DR. Both surveyed cohorts ranked discussion with students higher than discussion with teachers which in turn was rated higher than discussion with parents. All interviewees/LP respondents stated that discussion with students was important in DR in evaluating student understanding and readiness and they rated discussion with pupils more important than discussion with teachers and parents. Through the study of the leading activity (small group discussion and collaboration) assigned by the teacher, and neoformations (predicting/questioning/clarifying/summarising versus analysis of characters/plot) children working through the conflict of comprehension strategies versus analysis can realise themselves through dialogue and linkages with previous knowledge and experiences and create their own ZPDs. In a discussion on the Magic Treehouse Series by Mary Pope Osborne (suitable for ages 7-11 years) children could discuss the fact that Jack and Annie (the two leading characters), never tell their parents or friends about their travels and adventures. Various groups could discuss the wisdom of keeping 'secrets' and consider the dangers of sharing confidential information online, etc.

All ten interviewees used teacher/student collaboration in one-to-one discussion, group discussion and talking to think, understand and learn. *'Trust is really important, children need to know that it's okay to make a mistake as we can learn that way'* (C5). Teacher/student collaboration was *'absolutely necessary'* (C2), *'very important'* (Z3), a *'vital first step'* (C4, C5), the *'basis of DR'* (Z4) and *'central to DR'* (Z1). *'The heart of teaching, is how teachers and students interact with one another around the content to be taught'* (Delaney, 2017, p. 63), in a reciprocal learning experience (Riddle & Dabbagh, 1999; Shambaugh & Magliaro, 2001), making meaning in social interaction (Vygotsky, 1978).

8.7.3.2 Differences

Statistical analysis revealed a number of significant differences between the two cohorts in relation to collaboration. Dublin teachers ranked the teacher as a facilitator higher in DR (Table 8.16) and employed more student self-evaluation (Table 8.24) but the qualitative data did not support this. Indeed the Houston interviewees and LP respondents revealed substantial teacher facilitation of DR activities and student self-evaluation through student/teacher contracts, individual learning plans, book journals and book reviews. DR highlights the importance of the collaborative, facilitative and

mentoring role of teachers rather than mere dispensers of facts (Heacox, 2002). Also, statistical analysis revealed that Dublin teachers engaged in more discussion with teachers and with parents than Houston teachers and this was supported by qualitative data. Further research could reveal if this is related to cultural differences, educational practices or school practices and policies. Hootstein's research found that discussion 'provided opportunities for students to support and learn from each other... working together to solve problems...seeing what their peers can do and the role peer pressure can play in motivating students' (1998, p.7). Activities and texts should be based on pupils' reading abilities, skills and interests (McGeown, 2013).

Statistical analysis revealed that Houston teachers incorporated varying levels of teacher support and flexible groups more frequently than Dublin teachers (Tables: 8.12; 8.21; 8.16). Smaller Houston classes and ten years of DR in-service training may have facilitated these practices. However, interview and lesson-plan findings did not support this data possibly due to the Hawthorne effect or to the fact that committed DR teachers self-selected themselves for interviews and lesson-plan analysis.

All LP respondents and interviewees mentioned both teacher/student collaboration and student/student collaboration and employed them in reading and discussion. Dublin teachers mentioned group activities including jigsaw, snowball and think-pair-share. Houston teachers mentioned brainstorming, learning contracts and group presentations. Collaborative activities also included text selection and reading progress discussions (C4). Most interviewees used teacher/student collaboration '*depending on students*' needs (Z4). Seven interviewees (three Houston and two Dublin) collaborated with students to create their own reading goals as collaborators in learning. Collaborative tasks 'broaden and deepen children's understanding' (DES, 1999b, p. 17) and are 'efficient and effective in promoting mastery of knowledge and skills' (Sencibaugh and Sencibaugh, 2016, p. 357).

8.7.4 Comprehension and Meaning-making

Comprehension is the main goal of reading (Konza, 2014; Smith, 1985; Tennent et al., 2016). 'Comprehension skills are best developed through discussion of texts' (DES, 1999, p. 62), enabling children to understand relevance and context towards the development of meaningfulness (Hall, 2013). The ZPD involves children working in collaboration with a teacher/knowledgeable other towards meaning-making, internalisation or transformation of information. In this research, teachers identified specific activities that encourage comprehension and meaning-making in DR, including comprehension skills, collaborative group discussion, literacy circles and children as their own source of learning through projects, artefacts and presentations.

8.7.4.1 Comprehension Strategies - Similarities

All 645 teachers collaborated with students, employing discussion, observation and listening to students read, evaluating and developing pupils' understanding and meaning-making. This was supported by the qualitative data. Most teachers differentiated comprehension and employed child-

centred activities at least once weekly to help develop comprehension (Kennedy et al., 2012) and meaning-making, developed in social contexts (Hall, 2003). Other strategies including student self-evaluation, individual goals, project work, activities incorporating students' needs and interests will be discussed later under 'differences.' Using comprehension strategies, readers create meaning (Kennedy et al., 2012) employing deep interaction with texts (Delaney, 2017), in a constructivist interactive process (Kennedy et al., 2012), incorporating interpretation, prior knowledge and experience (Irwin, 1991; Pardo, 2004). Seventy-eight percent of both cohorts incorporated students' previous reading experience weekly but more Dublin teachers (41%) incorporated it in every lesson than Houston teachers (30%), but this was not statistically significant (Table 8.19). Comprehension strategies and meaning-making was explored in more depth through the interviews and lesson-plan evaluations (Table 8.22).

Table 8.22: Comprehension Strategies – Ten Interviewees and Ten LP respondents

Comprehension Strategies	Dublin (n=10)	Houston (n=10)
Observation, Questioning and Listening to Peers	10	10
One-to-One, Paired and Small Group discussion	10	10
Literacy Circles	6	4
Peer Learning – Think-pair-share, Jigsaws, etc.	6	7
Description and analysis of main text characters	8	7
Prediction	6	6
Visualisation	7	5
Retelling the story	6	5
Provide an alternative ending to story	2	2
Inference	4	3
Compacting and Enrichment	2	2
Think-alouds	7	1
Research and project work	5	4
Group presentations and Artefacts		5
TSI (<i>Transactional Strategies Instruction</i>)	4	
REACTION (<i>React, Extend, Assess, Change, Tension, Investigate, Organise, and Knowledge</i>)		2

All twenty teachers employed observation, questioning and listening to peers. Comprehension strategy instruction (CSI) is an important element in the teaching of reading (Dole, 2000; Pressley, 2000; Courtney, King and Pedro, 2006) and all twenty teachers employed teacher modelling skills in CSI, which supports Hootstein's research, where modelling was the most popular differentiation method (2008). Just seven teachers employed inference, which is an important part of reading comprehension (Williams, 2014). All teachers used different levels of questioning, observation, listening to peers, one-to-one and pair/small group discussion as comprehension strategies in DR, employing deep level

engagement (Konza, 2014) and helping children understand, reflect, remember and ‘communicate with others’ about the text (Delaney, 2017, p. 230). ‘*Discussion is the best strategy I know to help comprehension*’ (C1), as ‘discussion externalises the thinking process’ (Warner, 2013, p. 2). Similar numbers from both cohorts employed prediction, providing alternative story endings and compacting and enrichment. However the qualitative data was sourced from a very small sample (n=20) so the findings cannot be generalised to a wider group of teachers.

8.7.4.2 Differences

Statistical analysis revealed that Houston teachers employed individual goals, project work and strategies incorporating students’ needs and interests (Table 8.19) more frequently than Dublin teachers. Children in the same class have different central neoformations so it is important that children work according to their specific neoformations and not to a general class goal. Consistent DR training (Table 8.10) and smaller classes (Table 8.4) may have facilitated Houston teachers. However, statistical analysis revealed that Dublin teachers employed more student self-evaluation (Table 8.24) than Houston teachers as already discussed (Section 8.7.3). These strategies identify individual children’s starting points and so help teacher and student to collaborate in learning activities to promote children’s development and understanding.

The main differences between the two cohorts’ qualitative data were the incorporation of think-alouds and group presentations. Most Dublin teachers modelled think-alouds, which are relatively easy to implement and require few resources. Meanwhile, only Houston teachers employed group presentations and artefacts where teachers as facilitators (Delaney, 2017; Dewey, 1910), provided text and activity choices (Schweinhart and Weikart, 1988), which require teacher planning, preparation and additional resources. Large class sizes and lack of resources and training were ranked as main obstacles to DR by Dublin teachers, so these may impact on the lack of group presentations implemented by Dublin teachers. While most teachers employed peer-learning, more Dublin teachers used Think-Pair-Share, Jigsaw and snowball activities. Slightly more Dublin teachers employed literacy circles and visualisation than Houston teachers. However the qualitative data was sourced from a very small sample (n=20) so the findings cannot be generalised to a wider group of teachers. As already discussed, statistical analysis of means showed that Houston teachers consistently employed more flexible groups and group practices in DR than Dublin teachers. TSI (Courtney & Gleeson, 2010) and REACTION appear to be localised initiatives. Only Dublin teachers employed ‘Transactional Strategies Instruction’ (TSI), where collaborative, mixed ability groups create meaning from the collaborative interpretation of the texts (Courtney & Gleeson, 2010), engaging pupils in collaborative shared learning (Borko, Mayfield, Marion, Flexer, and Cumbo, 1997). Two Houston teacher employed REACTION (React, Extend, Assess, Change, Tension, Investigate, Organise, and kNowledge) – a seven-step method to enable students to interact with and understand a text,

progressing from low-level to higher level-thinking skills in a preordained order (Davis & Guest, Hawks Elementary School).

Irish primary schools were encouraged to implement a whole school approach to developing comprehension skills by the Chief Inspector's Report (DES, 2013) yet no teacher commented on school approach/policy on comprehension strategies. While all ten interviewees described the comprehension strategies used, three Dublin and three Houston teachers stated that they would like further CPD on implementing CSI. Several Irish studies have acknowledged that the teaching of comprehension strategies in reading instruction could be improved (DES, 2005a, Martin & Morgan, 1994; Shiel & Hogan, 1997) but little guidance was provided (DES, 2000) until Courtney & Gleeson's (2010) study. While teaching comprehension strategies in an explicit manner e.g. through cognitive modelling is encouraged (Pressley and Wharton-McDonald, 2006), an Irish study demonstrated that teachers usually assessed comprehension rather than taught it (Concannon-Gibney & Murphy, 2012). CSI guidance is provided in Houston but it appears that most teachers would welcome more CSI support to provide relevant resources to help pupils' comprehension development. However, although 'teaching methods are helpful, how successful they are depends on how they are used' (Delaney, 2017, p. 64), incorporating the expertise of the teacher (Daly, 2015).

8.7.4.3 Meaning-Making

Reading is 'a type of thinking' (Smith, 2012, p. 21). Vygotsky states thought is a social process and that society shapes thought and how children think (1978). However, thought is also a very private process and our thoughts are private, 'unless we share...what goes on in the private spaces of our own minds can be our own entirely' (Smith, 2012, p. 21). Thought is complex and multifaceted and is an important part of learning and reading (Smith, 2012). The main aim of reading is to make meaning of texts or reconstruct meaning (DES, 1999b). Meaning-making skills are developed in social contexts (Hall, 2003), where learning and meaning-making do not take place in a linear fashion. Using comprehension strategies, readers reflect on texts after reading (Delaney, 2017), engaging with deeper layers of meaning (Tennent et al., 2016). Learning should be inclusive of lived experience (Freire, 1973) so pupils' previous experiences and knowledge are relevant and important to aid meaning-making. '*Students' favourite books*' were incorporated at least once weekly by almost one third of teachers. The survey participants were not invited to comment on 'meaning-making'. Instead, meaning-making was explored with the twenty interviewees and LP respondents.

8.7.4.4 Discussion

All twenty teachers used questioning, paired and group discussion to help pupils to think, learn and to make meaning using themselves as sources of their own learning through *peer teaching*, *PALs*' (B3), paired reading activities (Y2) and think-and-share discussions (Y4) and '*children develop meaning themselves through their discussion*' (B4) but '*kids need time to reflect*' (Y3). . Children's actions are rooted in individuality when they are aware of themselves as the source of their actions and activity. The ZPD relates to both emotional and intellectual processes and its developmental significance is

associated with children's awareness of themselves as the main source of their learning, behaviour and activity. Children can reach new understandings through the leading activity of play or discussion where the activity is not as important as the process. This learning, extension of concepts or questioning of already accepted ideas forces children to step outside their comfort zone to question, reflect and broaden their understanding through peer interaction. C5 stated that she extended children's reading and meaning making by not over explaining – *'let the children do the thinking, interpreting and inferring as they come up with so many different ideas' in answer to the same question'* (C5). Three teachers stated that children 'sometimes changed their views having considered peers' viewpoints and *'this helps to extend their reading and meaning-making'* (C3). Most teachers agreed that active learning and student autonomy were important (McLaughlin & Talbert, 1993; Queen, 1999; Vygotsky, 1986). Sean Delaney's second model of differentiation 'the 'whole class' approach' is relevant here – 'an intrinsic part of any group is the variation arising from children's different ideas and approaches which become a resource for rich meaningful, discussion through sharing, comparing and making connections' (Delaney, 2017, p. 88). All 20 interviewees and LP respondents mentioned that children became the source of their own learning through small group discussion, listening and watching other children (and the teacher) in discussion and in individual and group reading. Teaching in the ZPD requires personal and relational (affective) aspects of teaching as well as cognitive approaches where students are a community of learners rather than a collection of individuals engaged in problem-solving through collaborative discussions (Miller, 2003). Seven interviewees and six LP respondents stated that the main source of children's learning was student/student discussion on texts. Discussion helped the children *'learn new ideas and helped clarify their thinking'* (Y3). Talking and discussing reading texts *'can externalise the thinking processes'* involved in reading enabling students to *'internalise cognitive strategies and articulate their thoughts, feelings and ideas'* (Warner, 2013, p. 2). Four Houston teachers found teacher conferences and eight Dublin teachers stated that discussion with the teacher facilitated meaning-making. Four Houston teachers *encouraged students in individual-student-contracts to be the source of their own learning by 'questioning their beliefs and attitudes to incidents in the texts'* (Y4). One Dublin interviewee stated that *'Questioning and discussion help children link their opinions to books and experiences'* (C5). Through dialogue, teachers can scaffold readers, encouraging pupils to ask questions and explore meaning through discussion (Tennent et al., 2016).

Five Houston teachers employed small group presentations and artefacts at the conclusion of the lessons, enabling group learning and meaning-making. These presentations employed aural, visual and kinaesthetic activities (TV interviews, slide-shows, drama, simulation, poetry and song). Meaning-making was achieved through collaborative planning, group goals, discussion, sharing presentation ideas and responsibility as collaboration encourages shared responsibility among group members to make learning meaningful (Slavin, 1995). Two Dublin interviewees used debates, *'drawing pictures, drama, simulation and comparing one text to another to capture the meaning of the text'* (C1). Four

Houston teachers used individual and group reading to create meaning-making (Y2, Y4, Y5). For children who read fluently but have little comprehension, *'we use pictures in books or we draw pictures or we place the character's actions in the school playground to draw connections with real life to create meaning'* (Z3). Relevance helps pupils make connections. Children make sense of new learning (Elmore, Peterson, and McCarthy, 1996) when they understand the relevance of activities and learning (Pintrich and Schunk, 1996; Vygotsky, 1986).

8.7.4.5 Literacy Circles

Literacy circles incorporate reasoning tasks that support the construction of meaning and understanding (Petty, 2009) and enable pupils to be meaningfully challenged (George, 2005; Subban, 2006; Smit & Humpert, 2012). Mixed ability and same interest groups were employed in Literacy Circles. Two Dublin LP respondents used same-interest groups – *'the children like this lesson as they read and discuss what they are really interested in'* (B4) and *'the boys love the discussions and don't see them as 'work' (B5)*. Children can share insights with peers and if confused, they can question and seek responses from peers *'who see the idea more clearly'* (Delaney, 2017, p. 88). Mixed ability groups were used by other teachers as *'children benefit most from mixed ability groups'* (Z4), *'different abilities seem to provide better meaning-making'* (Z5), *'different experiences'* (Z2) and *'levels of understanding'* (C4). Empathy with characters was highlighted when pupils *'look for meaning through connections with characters – how do you think he/she felt? What would you do – why?'* (C5). Literacy Circles enabled discussion to facilitate transactions required between the understanding/meaning readers bring to and take from texts (Rosenblatt, 1978). Ten teachers (six interviewees and four LP respondents) used literacy circles to help children make connections with other books, ideas and experiences through *'collaborative interaction where students can discuss the meaning of the text'* (C3). Three Houston interviewees found that literacy circles provided *'great peer-learning opportunities for the students'* (Z4) and enabled children to *'relate texts to their own experiences and other children's experiences to internalised learning'* (Z5). Other benefits of collaboration in Literacy Circles were highlighted – *'in collaborative work the children can create meaning by interacting with the text using previous knowledge, information in the text and the reader's stance'* (C2). Meaning making occurs when teachers plan instruction (Palincsar, 1984), building on pupils' prior knowledge and understanding (Callison, 1998; Marlowe & Page, 1998; Vygotsky, 1986) as *'sometimes children learn more from each other than from me'* (C4).

Children become aware of themselves as the source of their actions and activity within the ZPD, so it is important that teachers try to create conditions (stimulating environment, positive enforcement, etc.) in which children are the sources of their own learning through collaboration. Children, when reading, create mental images or *'other worlds'* in their minds and this *'understanding of what they have read can be enhanced through discussion... when such talk happens, the teacher and children negotiate meaning together'* (King and Briggs, 2012, p. 30). In DR, children in paired, guided or group reading,

negotiate meaning through texts, children's experiences and discussion. The ZPD is a process and a product, and children reorganise ideas/concepts to think in different ways and the dynamic process in the ZPD reflects constant changes in children's emotions (Levykh, 2008). In DR, teachers emphasise context or word 'sense' in whole class introductions to texts and read-aloud sessions and also is explored in small group discussions where children engage in short, focused, meaningful discussions (leading activity) with peers on texts, incorporating linkages with other texts, previous experiences and cultural activities, enabling children to reach higher levels of understanding than they would reach reading independently. Vygotsky's interaction of real and ideal forms and differences of opinion/approach/solution in a small group ('dramatic collision'), experienced only in higher-order thinking creating a change in interest, motive or emotion leading to behavioural change (Murphy, 2017). Students can reorganise ideas/concepts to think in different ways. Children create meaning through reading and reflecting on texts, communicating with peers about the text (Delaney, 2017), sharing, discussing and constructing understanding (DES, 1999), based on prior knowledge and experience (Irwin, 1991; Pardo, 2004), and combining these with outside experiences/cultures/approaches, to result in 'fluid meanings in the Construction Zone' (Newman, Griffin and Cole, 1989). This 'Construction Zone,' a magical place where different learners with different ideas link fluid meanings together in shared activities, reorganising and transforming original understandings linked to different text interpretations of meanings in a constructivist interactive process (Kennedy et al., 2012). This is where children become the source of their own learning. The ZPD relates to both emotional and intellectual processes and its developmental significance is associated with children's awareness of themselves as the main source of their learning, behaviour and activity. Children can reach new understandings through the leading activity of play or discussion where the activity is not as important as the process. This learning, extension of concepts or questioning of already accepted ideas forces children to step outside their comfort zone to question, reflect and broaden their understanding through peer interaction. Using the leading activity of discussion and play, children imitating teacher's discussion skills (questioning, offering opinions, listening, thinking, debating) can develop ideas, thoughts, concepts and new ways of thinking. Using prior experiences and prior knowledge of books, stories, children can construct new meanings and assumptions under the facilitation of the teacher. More advanced students can use the dialectical process to consider opposing viewpoints.

Vygotsky's dialectical process in a DR lesson involving two groups of pupils in Sixth Class (Grade 6) simulating/analysing day-to-day living from opposing viewpoints - the two boys (one Jewish concentration camp inmate and, the son of the German concentration camp captain) from 'The Boy in the Striped Pyjamas' by John Boyne was outlined in Section 2.2.1.1. The two groups swap roles after ten minutes and examine/probe the alternate stance leading to a deeper understanding of each position. A quiet two-minute reflection on both discussions followed by a whole class discussion would provide opportunities for the children to assimilate their own thoughts with the discussion content from this dialectical process. This dialectical process is possible but was not evidenced in this research. Further

qualitative research involving classroom observations and teacher and children interviews could explore other dialectical processes in DR.

Students in developing dialectical process skills or group presentation skills can experience dual understandings of one situation. Teachers can locate where students within the ZPD by a combination of methods - discussion and questioning, observing progress, providing hints and collaborating with children in tasks but no lesson-plan or interview discussion revealed an awareness of this. Most interviewees stated that children were helped be the source of their own learning through reading, discussion, thinking, listening and sharing ideas, peer teaching, linking children's experiences and group presentations. However, it was difficult to ascertain if children were the basis of their own learning just from self-reported data. Further qualitative, longitudinal research involving classroom observation and in-depth discussions could explore this DR linkage to the ZPD in greater detail. Class observations combined with interviews would provide a more suitable method of linking DR practices with elements of Vygotsky's ZPD.

DR teachers perform four roles in the application of the ZPD in the classroom: organising or structuring meaningful social interactions; basing instruction/activities in sizeable chunks on skills/tasks children can already perform independently; helping children master decontextualized, systematic concepts; and providing flexible support until children can individually perform tasks. Through these roles, DR teachers provide opportunities for children to learn through small groups discussion and literacy circles. Teachers encouraged children to create meaning through group reading, listening, reflecting, thinking aloud, different levels of questioning, comprehension and modelling strategies (operational dimension), discussion, paired work and peer teaching, creating stories in circle time, and literacy circles (cultural dimension) and, finally, small group presentations, simulation, debates, drawing pictures and literacy circles (critical dimension). Teachers, in social contexts can employ the new 3R's – *reflect* on the past approaches, *respond* to students and contexts and *relate* pedagogical, curricular alignment to learning (Ludwig, 2003), incorporating Green's three literacy dimensions (1988) and Freebody and Luke's four resources model (1990). Children can partner with the teacher/peers to generate and develop more knowledge and skills once they have acquired basic reading and discussion skills (Chall, 1996). The real development is a process that takes place as a result of the tasks/discussion when children make connections between concepts and experience, not in the actual achievement of the tasks.

8.7.5 Summary

This section, under Research Question four, investigated elements associated with Vygotsky's ZPD that are relevant to DR.

8.7.5.1 Similarities

Most participants collaborated with students, employing discussion, observation and listening to students read, evaluating and developing pupils' understanding and meaning-making. The survey and qualitative data demonstrate that most teachers recognised the importance of oral language in DR in developing vocabulary and comprehension and employed child-centred activities to help develop comprehension and meaning-making, developed in social contexts (Hall, 2003). Most participants assessed children's understanding and readiness levels by listening to children reading, discussing texts with children and observing children in individual and group-work. Participants rated the teacher as a facilitator as most important in a DR environment so this highlights teachers' understanding of the role of scaffolding and collaboration in DR. In the qualitative data, most teachers incorporated the 'sense' of a word or word context in DR instruction and employed discussion to help children understand texts and to interpret meaning in read-alouds and in silent reading. Ten teachers (Dublin 6, Houston 4) used mixed ability and same interest groups in literacy circles to help students develop oral language skills, comprehension and meaning-making through discussion. All 20 teachers stated that teacher/student collaboration and student/student collaboration were important in meaning-making.

8.7.5.2 Differences

In the survey, Houston teachers consistently employed more DR strategies than Dublin teachers including flexible groups and teacher support, individual goals, project work, students' needs and interests but the qualitative data did not support this. Smaller Houston classes and over ten years of consistent DR in-service training may have facilitated these practices. These strategies identify individual children's starting points and so help teacher and student to collaborate in learning activities to promote children's development and understanding. In the survey, Dublin teachers ranked the teacher as a facilitator higher, employed student self-evaluation and differentiated oral activities more frequently than their Houston counterparts but this was not supported by the qualitative data. Dublin teachers also engaged in more discussion with teachers and parents than Houston teachers and this was supported by qualitative data. In the qualitative data, more Dublin teachers modelled read-alouds, think-alouds and silent reading than Houston teachers. Only Houston teachers employed small group presentations and artefacts at the conclusion of the lessons, enabling group learning and meaning-making. Large class sizes and lack of resources and training were ranked as main obstacles to DR by Dublin teachers, so these may impact on the lack of group presentations implemented by Dublin teachers. While most teachers employed peer-learning, more Dublin teachers used think-pair-share, jigsaw and snowball activities. Slightly more Dublin teachers employed literacy circles and visualisation than Houston teachers. However the qualitative data was sourced from a very small sample (n=20) so the findings cannot be generalised to a wider group of teachers. Understanding texts was important to all twenty teachers but no teacher mentioned evaluating texts critically and just two teachers mentioned questioning the purpose of texts. Most teachers in this study employed discussion to enable learners to understand relevance and context towards the development of meaningfulness

(Hall, 2013). It is possible to link DR implementation with elements of the ZPD as teachers can locate where children are within the ZPD by a combination of method; imitation, discussion, questioning and collaborating with children in tasks or children reorganising ideas/concepts to think in different ways. However, further qualitative research could explore this DR linkage to the ZPD in greater detail.

8.8 Differences between the Survey Data and the Qualitative Data

The three main areas where the surveyed data differed from the qualitative data were: flexible groups; obstacles; and facilitating factors. Statistical analysis revealed that Houston teachers incorporated flexible groups in DR implementation and in conceptions more frequently higher than Dublin teachers. The smaller Houston classes and ten years of DR in-service training may have facilitated these practices. However, the qualitative data did not support this revealing that both cohorts employed flexible groups and teacher support. This may be due to the Hawthorne effect or to the fact that committed DR teachers self-selected themselves for interviews and lesson-plan analysis. Qualitative data supported most major obstacles but student misbehaviour, ranked joint second obstacle by Houston participants, was not mentioned. This may be due to the fact that participants were accomplished in DR implementation and so this factor was not an issue.

All ten interviewees mentioned observation, listening to students reading and discussion with students as facilitating factors. Some interviewees listed planning and preparation, knowing learner needs; well-stocked libraries and varied questioning levels (Bailey & Williams-Black, 2008). Nineteen participants offered different levels of activities and activity choices. Four Houston lesson-plans concluded with creating artefacts which was at variance with the survey data.

The relative similarities between the qualitative and survey data validate the findings but also could indicate some possible self-selection bias as the sample self-selected from the survey sample. This is one possible limitation of the study. However, this self-selection also provided more in-depth investigation of DR to counteract the constraints of the survey method.

8.8.1 Survey Data - Differences between Dublin and Houston

Most Dublin and Houston teachers employed the same practices but in different frequencies as they taught in different educational systems in culturally diverse contexts. Key differences between the survey data are summarised in Table 8.23

Table 8.23: Survey Data: Differences between Dublin and Houston

DR	Dublin (n=330)	Houston (n=315)
Teachers' conceptions about DR	• Better concept of DR • Reading for pleasure	• Flexible groups • Flexible teacher support • Focus on needs not std. tests
Content		• Research content
Process	• Discussion with teachers • Discussion with parents • Student self-evaluation	• Flexible groups • Flexible teacher support • Activity choices • Child-centred activities • Students' needs • Students' interests • Assessment
Product	• More product • Oral activities	• Written activities
Environment	• Classroom display of student work	• Flexible groups
Facilitating factors	• Individual Goals • Preparation & structure	• Flexible groups • Continuous assessment
Obstacles	• Lack of training • Lack of resources	• Student misbehaviour • Pressure to cover std test material
Individual goals	• <i>Rated</i> individual goals	• <i>Implemented</i> individual goals
Collaboration	• Teacher as facilitator • Discussion with teachers • Discussion with parents • Student self-evaluation	• Flexible teacher support • Flexible groups
Experienced v. Less-experienced Teachers	• Little difference	• Experienced – individual goals, oral tasks, child self-evaluation, assessment • Less-experienced - discussion
Advantaged v. Disadvantaged schools	• DEIS – more DR strategies	• Advantaged – more DR strategies

The main differences between the two cohorts were that Houston teachers employed more DR strategies including flexible groups and teacher support, activity choices and child-centred activities, and incorporated assessment data and students' needs and interests more frequently (different genres and texts in qualitative data). Houston also highlighted flexible groups and continuous assessment as DR facilitating factors and experienced Houston teachers and teachers in advantaged schools implemented more DR strategies than less-experienced counterparts. This suggests that Houston teachers' DR implementation benefitted from consistent differentiation training and school differentiation policies. Meanwhile, Dublin teachers highlighted individual goals and preparation and structure as DR facilitating factors and ranked lack of resources and training higher as obstacles. The inconsistent DR training available to Dublin teachers before the introduction of the PLC (DES) in 2015 is an important factor in DR practices as experience did not appear to affect DR implementation in Dublin schools. Further research on Dublin teachers' DR implementation post the PLC introduction

and schoolwide differentiation training would yield significant insight into teachers' understanding of and practices in DR. In DR conceptions, Dublin teachers' emphasis on reading for enjoyment and Houston teachers' high rating of covering standardised test material as an obstacle can be possible traced back to policy initiatives, the 1999 Curriculum (DES) and the Literacy and Numeracy Strategy (DES, 2011) and the NCLB Act (2001). Sociocultural factors also influence DR perceptions and practices. Dublin teachers engaged in more oral activities and more discussion with other teachers and parents than Houston counterparts suggesting that they are comfortable with informal oral communication. Also, student misbehaviour was rated higher as an obstacle by Houston teachers and by DEIS Dublin teachers suggesting sociocultural factors as found in previous research (Banks et al.,2012; McCoy et al.,2012; McMahon et al.,2015; Rivikin et al.,2005). Therefore, sociocultural factors, policy and school structures impact on teachers' practices and conceptions.

8.8.2 Qualitative Data - Differences between Dublin and Houston

Key differences between the qualitative data in Dublin and Houston are summarised in Table 8.24

Table 8.14: Qualitative Data: Differences between Dublin and Houston

Dublin and Houston Similarities	Dublin only	Houston only
Flexible Groups	DEAR	Tiered activities ??
Read aloud & read silently	Think-alouds	Choice of activities
Discussion & Literacy Circles	Newspapers, Plays	At least 4 Class texts
Comprehension strategies	Children's plays	Reading Contracts
Teacher modelling silent reading & read-alouds	TSI	Class texts in various genres
Book reviews		Group presentations
Sharing favourite books		REACTION

There were seven main similarities and eleven differences. Only Dublin teachers used DEAR, think-alouds and employed newspapers and children's plays. Houston teachers offered at least four class texts in different genres and levels, incorporated group presentations and reading contracts and provided more activity choices, tiered activities than Dublin teachers. Both cohorts offered comprehension strategies including TSI in Dublin and REACTION in Houston.

8.9 Chapter Summary

This chapter provided the comparative data analysis on the DR conceptions and practices of 645 teachers in culturally diverse contexts, in sixty-two primary and elementary schools in Dublin, Ireland, and in Houston, Texas, US, in response to the four research questions. The self-reported data from the

survey established all 645 teachers implemented DR. The survey analysis and the thematic analysis from the ten lesson-plan evaluations and from the ten semi-structured interviews provided different sources of evidence (Yin, 2009). These findings were related to research and important themes identified in the Literature Review in Chapters Two and Four and are summarised in similarities and differences.

8.9.1 Similarities

Most teachers were female B. Ed graduates with 6-10 years teaching experience. T-tests of differences in means revealed that less-experienced teachers (1-5 years) provided varied teacher support more frequently than experienced teachers (6+years) while experienced teachers employed child-centred activities and differentiated concepts/skills more frequently than less-experienced teachers. Updated ITE, incorporating differentiation training, may have impacted on this finding and teaching experience can impact positively on teachers' differentiation skills leading to higher literacy scores (McCoy et al., 2014b). Child-centred activities involving planning are associated with teaching experience and established classroom practice (Goldhaber et al., 2015). Approximately 70% of teachers provided a fair understanding of DR and defined DR by matching content and process to children's individual needs, incorporating individual goals and flexible groups, important DR elements. Most teachers implemented DR because of school initiatives and personal interest but ranked preservice DR training last. Both cohorts differentiated most through process, then product and least by content, contrary to some previous US research, where no teachers differentiated product and only some differentiated content (Bailey & Williams-Black, 2008; Pilten, 2016). Most teachers used assessment data from AfL in every lesson and employed data from AFL and AoL weekly. Teachers incorporated oral language and students' reading needs most in DR lessons but stated that the teacher as a facilitator was central to a DR learning environment. Individual goals, planning and preparation and a positive learning environment were ranked the top three DR facilitating factors by both cohorts (Ankrum, 2006; Pilten, 2016). The main obstacles to DR were lack of time, lack of resources and class size. Teachers in disadvantaged schools in both jurisdictions incorporated students' interests more frequently in DR than their advantaged counterparts. All 20 interviewees and LP respondents used AfL in every lesson, assessing reading and readiness by listening to and observing children reading and discussing and questioning children on texts. All cited discussion and questioning as the best comprehension strategies and stated that DR improved comprehension. All 20 teachers employed more time on silent reading than reading aloud but all incorporated individual or paired reading aloud. Similar authors were used in a range of classes and all teachers stated that pupils enjoyed class texts regardless of ability. Most teachers recognised the importance of oral language as a DR tool to develop vocabulary, word meaning and comprehension. Both cohorts rated listening to children reading as the most important activity followed by discussion and observation of students. In the qualitative data, most teachers incorporated the 'sense' of a word in DR instruction and employed discussion to help

children understand texts and to interpret meaning in read-alouds and in silent reading. All 20 stated that collaboration was important in meaning-making.

8.9.2 Differences

The Houston schools had smaller class sizes (1-25) than the Dublin schools (16-35). More males from Dublin participated in the research (16%) than from Houston (3%). Only Dublin teachers mentioned that DR encouraged reading for fun while only Houston teachers mentioned accessing readers' correct starting point. Chi square analysis revealed that there was little difference in DR implementation between less-experienced and experienced teachers in Dublin. Lack of consistent training in differentiation may be a reason for this. Houston's experienced teachers incorporated individual goals, oral activities, student self-evaluation and assessment data more frequently in DR, while Houston's less-experienced teachers engaged in discussion with students more frequently suggesting benefits from initial teacher education involving differentiation and discussion for meaning. Dublin DEIS teachers implemented DR strategies including flexible groups and differentiation of comprehension, content, process and product more frequently than their nonDEIS counterparts contrary to previous research (DES, 2015b; McMahon et al., 2015; Smyth et al., 2015). The data may have been influenced by the self-reporting nature and possible Hawthorne effect. Houston teachers in disadvantaged schools incorporated students' favourite books, visual activities and levelled readers more frequently, encouraging children to read. They rated planning, assessing readiness and individual goals higher as obstacles than their advantaged counterparts.

Statistical analysis revealed that Houston teachers differentiated research content, flexible groups, teacher support, activity choices, students' needs and interests more frequently while Dublin teachers differentiated product and oral activities more frequently than Houston counterparts. Cohorts also differed in their perspectives of a DR environment. Dublin teachers ranked the teacher as a facilitator higher while Houston teachers ranked flexible groups in DR implementation. The smaller Houston classes and ten years of DR in-service training may have facilitated flexible groups. However, the qualitative data revealed that both cohorts employed similar levels of flexible groups and teacher support. However, self-reported data can be impacted by the Hawthorne effect perhaps committed DR teachers self-selected themselves for interviews and lesson-plan analysis.

The cohorts differed in assessment and in ranking obstacles. Houston teachers employed more AoL and more continuous assessment while Dublin teachers ranked discussion with teachers, parents and student self-evaluation higher than Houston counterparts. Dublin teachers ranked the obstacles, lack of resources and lack of training higher while Houston teachers rated three obstacles higher - student misbehaviour, individual goals and covering standardised test material than Dublin counterparts. Qualitative data supported major obstacles but mentioned others.

In the qualitative data, while all 20 teachers stated that DR improved comprehension three-quarters of teachers stated that DR always improved reading and encouraged children to engage in reading. More Dublin teachers modelled read-alouds, think-alouds and silent reading while only Houston teachers employed small group presentations and artefacts at the conclusion of the lessons, enabling group learning and meaning-making. Just nine teachers offered chapter books on different themes. All Houston teachers employed reading ability groups and four offered different book genres. More Houston teachers used at least four different class texts for different abilities, while Dublin teachers employed one/two 'standard class level' texts highlighting lack of choice for students. This study highlights the lack of picture books, genres (newspapers, plays, etc.) and online materials employed in reading. All teachers employed traditional children's literature rather than newly published texts. Understanding texts was important to all twenty teachers but no teacher mentioned evaluating texts critically and just two teachers mentioned questioning the purpose of texts. Most teachers in this study employed discussion to enable learners to understand relevance and context towards the development of meaningfulness (Hall, 2013). It is possible for teachers to locate where children are within the ZPD by a combination of discussion and questioning, observing progress, providing hints and collaborating with children in tasks. However, further qualitative research could explore this DR linkage to the ZPD in greater detail.

Chapter Nine will provide a summary of the key findings of this thesis arising from the two case studies – Dublin (Chapter Six) and Houston (Chapter Seven). It will also present the main conclusions and recommendations arising from this research.

Chapter Nine: Conclusions and Implications

Reading is a skill we use every day... reading is an integral part of our lives. It is not merely a functional tool to meet the demands of society, but a mechanism by which we can acquire knowledge and new ideas, gaining a greater understanding of the world around us (Elborn, UKLA, 2015, p. 4).

9.0 Introduction

This study critically evaluated DR implementation by 645 primary and elementary teachers in sixty-two schools in two diverse cultural contexts in Dublin, Ireland, and in Houston, Texas. The key findings from the literature and the empirical evidence are summarised in relation to the research questions. Conclusions emerging from the case studies' data analysis and literature review are presented. The implications from the two studies can inform future policies and guidelines for teachers, schools, and school districts, with more general implications for pre-service teacher education and professional development. The contribution of the current thesis and implications for future research are documented. Finally, the limitations of the study are outlined, culminating with a reflection of the researcher's PhD journey in pursuit of answers to the four research questions:

1. What are teachers' conceptions about DR and pedagogical practices?
2. To what extent is the modification of content, process, and product related to DR pedagogical practices?
3. What factors facilitate and hinder DR implementation?
4. To what extent are elements associated with Vygotsky's Zone of Proximal Development (ZPD) relevant to teachers' understanding and implementation of differentiated reading?

9.1 Context of this Study

Reading is a basic life skill (Clark, 2014) and teachers strive to provide children with varied opportunities to reach their potential (Pilten 2016). Demographic changes and conflicting results from international surveys e.g., PIRLS, (OECD, 2017) and national surveys e.g., N.A. (Shiel et al., 2014) and NAEP (2013) have resulted in different literacy initiatives e.g. PLC (DES, 2015) and ESSA (2015) impacting on literacy instruction. Research demonstrates that pupils with varied ability can benefit from DR (Little et al., 2014), supported by research on student achievement (Shaunessy-Dedrick et al., 2015) and grounded in sociocultural theory (Vygotsky, 1986). Differentiated reading (DR) is one reading instruction approach that is compatible with curricular and literacy policies and responds to learner variance. DR encompasses the sociocultural perspective, where cognitive and social development work together (Vygotsky, 1986) and the theoretical framework for DR was discussed in Chapter Two. A brief summary was provided of the two diverse educational systems in Chapter Three. In Chapter Four, the concept of DR and elements of reading were discussed. Research

on teachers' DR conceptions and implementation in different cultural contexts demonstrated that DR teachers incorporated teacher/child collaboration, varied teacher support and materials, flexible groups, individual and guided reading sessions, text discussions and comprehension strategies but few teachers could define DR accurately. Research showed that many strategies employed by exemplary literacy teachers are important DR elements. Most teachers modified content and process but modification of product was less clear. Facilitating factors and obstacles to DR were documented. Key DR elements associated with Vygotsky's ZPD were discussed including oral language, modelling/imitation, collaboration and meaning-making.

A sequential, pragmatic mixed methods design was employed and quantitative data from the 645 participants were analysed using SPSS and qualitative data from ten interviews and ten lesson-plan evaluations were evaluated using thematic analysis (Braun & Clark, 2006) and document analysis (Bowen, 2009) as outlined in Chapter Five. Chapter Six provided the Dublin findings and Chapter Seven outlined the Houston Findings followed by analysis and comparative analysis of data between the two case studies in Chapter Eight.

9.2 Overall Conclusions

While most participants had a fair understanding of DR, their conceptions partially supported their practices, consistent with previous research on teacher conceptions and practices (Devine et al., 2013). Most participants differentiated process and fewest differentiated content yet, most defined DR by matching *content* and process to children's needs and setting individual goals. Product was rarely mentioned in teachers' conceptions while the survey data revealed that teachers differentiated product more frequently than content. Therefore, participants conceptions on content and product modification were misaligned. Most participants implemented DR because of school initiative and personal interest so school support is very important in DR implementation. DR is also dependant on teacher skill, facilitation and planning as the teacher as a facilitator was ranked most important in a DR learning environment and individual goals with varied teacher support, a positive learning environment, and preparation and structure were the three factors that most facilitated DR, all actively created by teachers. The two main obstacles to DR were lack of time and class size, consistent with previous research. Most participants assessed children's reading by listening to reading, discussing texts with children and observing children at work. Most teachers used data from AfL to influence DR strategies in every DR lesson and AoL was the most frequent assessment influencing DR strategies on a weekly basis.

There were six main differences. Houston participants employed more DR strategies including flexible groups and teacher support, child-centred activities and assessment while Dublin participants incorporated more oral activities and emphasised reading for enjoyment and discussion with teachers and parents in assessing readiness. Experienced teachers in Houston employed DR strategies more frequently than less-experienced teachers, consistent with previous research. However there was little

difference between the self-reported DR practices of Dublin experienced and less-experienced teachers possibly due to lack of DR training. Also, Houston teachers in advantaged schools employed DR strategies more frequently than teachers in disadvantaged schools supporting previous research. However, Dublin DEIS teachers employed DR strategies more frequently than teachers in advantaged schools possibly due to increased resources and lower teacher/pupil ratio. Houston participants ranked student misbehaviour and covering test material as major obstacles while Dublin participants found lack of training and resources as major DR obstacles highlighting the influence of policy and sociocultural contexts.

The qualitative data, (interviews and lesson-plans), generally supported the surveyed data validating the findings but differed in three areas – flexible groups, Dr facilitating factors and onstacles to DR. Both cohorts employed flexible groups (with similar frequencies) in process unlike the survey data. Many combined factors facilitated and hindered DR so no single factor emerged as in the survey data.

9.3 Conclusions in relation to the Research Questions

The following section will address each of the four research questions and discuss the relevant key findings from the two case studies in Dublin and in Houston.

9.3.1 Question One: Teachers' Conceptions about DR

Most teachers had a fair understanding of DR consistent with previous research (Pilten, 2016), and most defined DR as matching content and process to children's needs and setting individual achievable goals for children. However, in practice, most participants differentiated process, some differentiated product and fewest differentiated content yet product was rarely mentioned in teachers' conceptions. Clearly there is a gap between participants' perspectives and implementation of content and product modification to meet child variance. This finding supports previous research that teachers have some deficiencies and misunderstandings in differentiation knowledge and practice (Pilten, 2016; Sharabi, 2009, Wormeli, 2005) and also that participants' conceptions are only partially aligned with their practices supporting previous research (Devine et al., 2013). This has implications for practice and could imply that teachers are unaware or have not reflected on DR and on their DR practices, possibly due to lack of DR training and/or a lack of time. Very few teachers received ITE DR training, very few Dublin teachers received in-service DR training, and all 20 teachers represented in the data requested further relevant DR training. Relevant DR training and DR lesson observation provision would help develop teachers' DR knowledge and practice.

9.3.2 Question Two: Modification of Content, Process, and Product Related to DR Practices

Most participants differentiated process, some differentiated product and fewest differentiated content so it would appear that teachers view process modification as relevant to DR. Process describes how

skills are taught and the strategies and activities employed. This suggests that most teachers knew how to differentiate process be it proactive or reactive differentiation (Roe, 2010). In differentiating process, flexible teacher support, continuous assessment and auditory activities were the top three factors which are incorporated easily into reading instruction. Houston teachers consistently implemented more DR strategies than Dublin teachers including flexible groups, activity choices, students' needs, interests and various assessments. This finding is not surprising as the fourteen participating Houston schools had DR policies and all Houston teachers had received in-service DR training. More Houston teachers mentioned flexible groups in their conceptions supporting their DR implementation. Also, Houston teachers employed more assessment and this data can help teachers identify students' needs (Firmender, et al., 2013), which in turn promotes relevant activity choices, accommodating children's interests. Previous research and curriculum reviews in Ireland found low-prevalence of group work (McCoy et al., 2012; Murphy, 2004; Concannon-Gibney & Murphy, 2012). Future qualitative research can track possible changes from the PLC professional development in differentiation and flexible group-work in Dublin.

Experienced teachers in Houston employed DR strategies more frequently than less-experienced teachers, so it appears that experience and additional in-service DR training impacts positively on DR consistent with previous research (Darling-Hammond & Ball, 1997). However there was little difference between practices of Dublin experienced and less-experienced teachers. This may be due to the lack of differentiation training available to Dublin teachers before the introduction of the 2015 PLC (DES).

Houston teachers in advantaged schools employed DR strategies more frequently than teachers in disadvantaged schools as advantaged schools usually are better resourced in materials and personnel supporting previous research (Chetty et al., 2013) signifying possible cultural historical ramifications in historical schooling provision for minority groups (Section 3.2.4). However, a higher proportion of less-experienced teachers teach in Houston's disadvantaged schools (Goldhaber et al., 2015) so this finding may be due both lack of experience and resources. Surprisingly, Dublin DEIS teachers employed DR strategies more frequently than teachers in advantaged schools differing from previous research. The extra funding, resources, in-school training and smaller classes in DEIS schools may have influenced this finding.

Teachers differentiated more by product than content, a finding that differs somewhat from previous research, where very few teachers differentiated product (Bailey & Williams-Black, 2008; Pilten, 2016). Possible reasons for this could include a different and much larger population sample in different cultural contexts and different research methods as participants in this current study provided self-reported data. Dublin teachers differentiated by product and oral activities more frequently and also engaged in more discussion with teachers and parents than Houston teachers. Since oral language is a common denominator in all these factors there could be a possible cultural factor or policy linking

these factors. It could be suggested that there is a stronger emphasis on the oral language and story-telling in Dublin while there is a greater emphasis on written standardised tests in Houston following the NCLB funding requirements (2001).

The low rate of differentiated content was noteworthy and may be linked to lack of time, resources or relevant DR training. Differentiated content helps pupils progress in reading, comprehension and fluency (Shaunessy-Dedrick et al., 2015) and can be planned in advance of DR lessons. Most teachers differentiated vocabulary and comprehension in content modification. Qualitative data demonstrated that all ten Houston teachers offered more choice in (four or more) class texts and genres while most Dublin teachers employed one/two 'standard class level' texts highlighting lack of choice for students. Ill-matched texts can cause boredom (NRC, 1999), disengagement (Csikszentmihalyi et al., 1993) or frustration (Bransford, et al., 2000). Providing a wider range of texts would help Dublin teachers cater for different reading abilities (Shaunessy-Dedrick et al., 2015). The qualitative data highlights the lack of picture books, different genres (newspapers, plays, etc.), online materials and award-winning newly published texts employed in reading as all 20 teachers used only traditional children's texts.

Having discussed the key findings in relation to teachers' DR implementation through content, process and practice we now explore the findings in relation to the main factors that facilitate and hinder DR implementation.

9.3.3 Question Three: Factors that Facilitate and Hinder DR Implementation

DR is dependent on teacher skill, facilitation and planning as the teacher as a facilitator was ranked most important in a DR learning environment and the three factors that facilitated DR most were individual goals with varied teacher support, a positive learning environment, and preparation and structure. All three factors entail planning and teacher facilitation highlighting the impact of teachers on children's learning. Dublin teachers ranked individual goals and preparation and structure higher than Houston teachers. Meanwhile, Houston teachers ranked flexible groups and continuous assessment higher as facilitating factors, a consistent pattern throughout the data. Factors facilitating DR were intentionally not explored in the lesson-plan checklist so as not to influence strategy inclusion in lesson-plans. All ten interviewees stated that observation, listening to students reading and discussions with students were the main facilitating factors which were also the top three factors used by the surveyed participants to assess student readiness.

The two main obstacles to DR were lack of time and class size supporting previous studies (Pilten, 2016; Sharabi, 2009). Lack of time was the main obstacle in both quantitative and qualitative data and was also an obstacle in implementing the 1999 PSC (DES) and in two curriculum reviews (NCCA, 2005; NCCA, 2008a). With increased demographic changes and broader curricula in classrooms, lack of time is a challenge. On a policy level, teachers could be awarded increased non-class contact time

to cater for adequate planning and lesson preparation, resulting in brief lesson introductions and reviews creating time for DR (Walpole & Mc Kenna, 2009).

Class size was the second most-widely reported obstacle supported by previous research (Hootstein, 1998; Pilten, 2016). Dublin classes (16-35 pupils) were significantly larger than Houston classes (1-25 pupils), (Section 8.2.1). Only two interviewees reported class size as a major obstacle but other obstacles included peer learning, meeting children's needs and independent work. On a policy level, there may be limited opportunity to decrease class size, but other avenues to develop exist and all options must be explored e.g. co-teaching, work-stations, etc.

Lack of resources was highlighted by both cohorts as a DR obstacle. On a policy level, teachers and schools could be encouraged to share resources online resulting in supplementary resources at low cost (Walpole & Mc Kenna, 2009). More Dublin teachers ranked lack of resources and training as DR obstacles than Houston teachers. Lack of training was also highlighted in the responses to the reasons supplied for DR implementation. As DR implementation requires considerable teacher skills (Kerry & Kerry, 1997), previous research has recommended relevant training (Little et al, 2014; Pilten, 2016) and the Kennedy et al., Report (2012) called for CPD provision within schools. The National Strategy (DES, 2011) initiated formal differentiation professional development in ITE in Ireland. While the PLC (DES, 2015) training for all schools incorporating differentiation in oral language, reading, and writing is a welcome introduction to differentiation, teachers would benefit from more in-service CPD and a school-wide policy/approach to planning and managing differentiation in class and observation of effective DR teaching as recommended by Firmender et al., (2013).

Meanwhile, Houston teachers rated student misbehaviour and covering standardised test material higher as obstacles than their Dublin counterparts. US teachers identified both factors as obstacles in previous research (Hootstein, 1998). Student misbehaviour could also have sociocultural significance as it was rated highly as an obstacle by teachers in disadvantaged schools in both cohorts. Perhaps, modelling appropriate behaviour and incorporating more student interests and favourite books in class to encourage 'flow' (Csikszentmihalyi et al., 1997) could discourage student misbehaviour. Pressure to cover standardised test material is significant in Houston as school funding is related to student tests scores so this obstacle was consistent with previous US research (Latz et al., 2009).

Having discussed the main factors that facilitate and hinder DR implementation we now address the elements associated with Vygotsky's ZPD that are relevant to teachers' understanding and implementation of DR.

9.3.4 Question Four: Elements Associated with Vygotsky's ZPD that are Relevant to DR

This study investigated teachers' implementation of DR elements associated with Vygotsky's ZPD - oral language, modelling, collaboration, comprehension and meaning-making. These elements are

relevant to DR implementation as children interact with teachers and peers using oral language to communicate, question, discuss, imitate, collaborate and reflect to create meaning. Most participants collaborated with students, employing discussion, observation and listening to students read, evaluating and developing pupils' understanding and meaning-making. The survey and qualitative data demonstrate that most teachers recognised the importance of oral language in DR in developing vocabulary and comprehension and employed child-centred activities to help develop comprehension and meaning-making, developed in social contexts (Hall, 2003). Most participants assessed children's understanding and readiness levels by listening to children reading, discussing texts with children and observing children in individual and group-work. Participants rated the teacher as a facilitator as most important in a DR environment so this highlights teachers' understanding of the role of scaffolding and collaboration in DR.

The lesson-plan evaluations and interviews enabled the study to explore oral language, modelling, collaboration, comprehension and meaning-making in more depth. All twenty teachers modelled read-alouds, questioning and discussion to help develop children's language and understanding but just a few Dublin teachers modelled reading silently. Most interviewees and LP respondents modelled read-alouds to help children develop understanding, pronunciation and fluency. Most interviewees and LP respondents incorporated the 'sense' of a word (Vygotsky, 1986) in discussion to help children understand texts and to interpret meaning in read-alouds using differentiated questioning to help children make connections between texts and prior knowledge/experience to create meaning. All twenty teachers employed and modelled comprehension strategies and used differentiated questioning and group discussion, externalising thinking, developing meaning-making skills in social contexts (Hall, 2003). Some teachers used literacy circles in same ability, mixed ability and same interest groups, using children as the source of their own learning, helping children connect with texts, enabling them to be meaningfully challenged, supporting previous research (Smit & Humpert, 2012) and incorporating reasoning tasks that support the construction of meaning and understanding (Petty, 2009). All stated that DR helped comprehension and that discussion was the best tool to help students understand relevance and context towards the development of meaningfulness (Hall, 2013). Teachers used discussion as a leading activity, incorporating oral language, imitation, and collaboration where students can be the source of their own learning. Interestingly, the surveyed Dublin teachers rated student self-evaluation and differentiated more oral activities and more than the Houston teachers. Also Dublin interviewees/LP respondents employed think-alouds (modelling ego-centric speech, Vygotsky, 1986) and literacy circles to develop comprehension than Houston teachers. This suggests possible socio-cultural factors as Dublin teachers may use more informal methods of communication than Houston teachers.

Peer learning was employed by nineteen teachers. Only Houston teachers employed small group presentations and artefacts in DR lessons, enabling group learning and meaning-making. This may have been due to smaller classes, extra resources and DR training and more frequent groupwork

implementation in Houston. Six interviewees, three from both cohorts incorporated class-sharing of favourite books, a great method of peer learning and teaching and encouraging weak readers creating collaborative learning environments (Kennedy et al., 2012) and social learning (Hall & Harding, 2003; Williams & Baumann, 2008). All teachers should encourage children to share their favourite books with the class enabling peer-learning.

Qualitative data revealed that peer learning, project work, independent work, reading, think-alouds, group presentations and artefacts all encourage children to be the source of their own learning. Group discussion and literacy circles enable students to merge ideas arising from texts and previous learning through discussion (leading activity), allowing the fluid meanings of the ‘construction zone’ ‘to help them develop/transform meanings through shared activities in the reorganisation or transformation of original understanding (Newman, Griffith & Cole, 1989) to become the source of their own learning. The literature review provided a very tangible link between DR and the ZPD. Some DR practices could be linked to ZPD elements. However, the self-reporting nature of the data was not sufficient to prove that teachers did incorporate fully ZPD elements but rather provided scaffolding and meaning-making as discussed by Chaiklin (2003). Teachers can link DR implementation with elements of the ZPD when children explore meaning through read-alouds, think-alouds, discussion, questioning, imitating skills, observing progress, following hints and collaborating with peers. Future qualitative research incorporating classroom observations and interviews and focus groups linking conceptions and practice could explore this DR linkage to the ZPD in greater detail.

Now that the main findings from the research questions have been discussed, the next Section addresses the significance and contribution of this thesis.

9.4 Significance and Contribution of Current Thesis

The findings from this research on DR implementation in Dublin and in Houston may provide guidance for policy makers, practitioners and for future research. This current research is the first of its kind, to the researcher’s knowledge, to investigate:

- DR concepts explored with unique large datasets, in two diverse locations
- Primary teachers’ conceptions and implementation of DR in Ireland
- Adoption of mixed methods approach including investigation of DR lesson-plan evaluations from both case studies.
- Explicit theoretical framing of differentiated reading in relation to Vygotsky’s ZPD

While DR is acknowledged as an important instructional approach for students (Shaunessy-Dedrick et al., 2015), and research highlighted the lack of knowledge of DR implementation from teachers’ perspectives (Ankrum & Bean, 2008). No research, to the researcher’s knowledge, has compared DR conceptions and practices in two diverse cultural contexts and few studies explored whether teachers’

DR conceptions match their DR implementation (Pilten, 2016). This research makes a unique contribution to our knowledge of DR practices employed by teachers in two different cultural contexts in two different countries and provides information of how teachers' DR conceptions match their DR implementation.

The recent results from the 2014 NAERM and 2016 PIRLS demonstrate significant improvements in reading achievements of Irish primary children. The reading improvements may be due to a combination of initiatives arising from the National Strategy (DES, 2011), PLC (DES, 2015), increased class time spent on literacy and additional ITE and onsite teacher training in reading and oral language. The PLC actively promotes differentiation (DES, 2015). The NCCA published guidelines on differentiation for EAS (2007b) and for SEN (2007c) but none were issued for 'regular' pupils. No study, to the author's knowledge, has investigated teachers' DR conceptions and implementation in Ireland so this research makes a unique contribution to this area.

Most of the DR studies evaluated in the literature review incorporated mixed methods including surveys and interviews. The addition of lesson-plan analysis strengthened Pilten's data validity (2016). The choice of lesson-plan evaluations provided an insight into teachers' understanding and implementation of DR. The employment of a mixed, sequential methodological approach allowed for findings realised from the survey analysis to be further explored in the lesson-plan evaluations and semi-structured interviews, providing an insight into teachers' perspectives on the effectiveness of DR instruction and contributing new knowledge.

This research is based on current perspectives and research on DR, (Nurmi, et al., 2012; Pilten, 2016; Smit & Humpert, 2012), DR models (Firmender, et al., 2013; Jenkins et al., 2013; Little et al., 2014; Shaunessy-Dedrick et al., 2015) and reading (Edmunds & Bauserman, 2006; Hall, 2013; Kennedy et al., 2012). The theoretical framework of this research is based on DR and reading theories and perspectives, in conjunction with Vygotsky's learning theories and the ZPD (1978, 1986). Vygotsky highlighted the social and cultural features of children's cognition and language as a learning tool in interactions between the teacher and children and this has implications for learning in diverse classrooms. While there was much similarity between the DR practices in the two case studies, it was evident that the educational system, environment, curriculum, and culture all impact on teachers' delivery of DR. Teachers' personal interest in DR, their pedagogical knowledge and their conceptions of DR also impacted on their DR implementation. These theories were evident in the findings in teachers' DR conceptions and practices. The sociocultural perspective on reading (Section 4.4.2) supports Vygotsky's sociocultural theory and children's language and social development as a form of communication and problem-solving with collaboration with peers, and supports children's cognitive and social development. Further qualitative research, including classroom observation, on different DR methods and their impact on children's reading and exploration of links between DR and Vygotskian theories are recommended. The role of digital literacy was not mentioned by participants

in this research but has viable implications for DR classroom practice perhaps especially due to digitised assessment as part of PIRLS 2016 – ePIRLS (OECD).

9.5 Personal Reflection on the Research Journey

The case for differentiating instruction has long been identified as the most logical and fair way to respond to ever-increasing students' cognitive, demographic, and racial diversity and their disengagement regarding purposeful learning (Hawkins, 2009, p. 11)

This research has been a personal journey in understanding DR practices and implementation. This will be written in the first person, as it pertains to a reflective professional journey. I am passionate about reading! I was lucky as my Mum took me to the local library weekly and encouraged me to love reading. From my ontological perspective, reading is a basic life skill and children's perception of themselves as learners is impacted by their reading skills. Consequently, improving children's reading skills and developing their reading confidence influences their educational success and is important to me. From my perspective, DR is one instructional method that places children's needs at the core of learning, where teachers devise flexible learning activities including flexible groups and peer learning to meet student variance. However, DR can be interpreted from multiple realities and different sociocultural environments as experienced by teachers in this study. Teachers offered their interpretations of DR through the survey, lesson-plan evaluations and interviews. From an epistemological stance, since I have taught as both a primary teacher in Dublin and as an elementary teacher in Houston, my relationship with my research interest (DR) was both that of a practitioner and researcher.

From my initial experience as a teacher, in a small three-teacher rural school, to a large urban school, with 39 eleven-year-olds in Dublin, encouraging children to love reading and perceive themselves as readers posed challenges. I completed several in-service primary summer courses, a Teaching English as a Foreign Language (TEFL) course, and a Diploma in Curriculum Studies - 'Teaching English in Primary School' in Trinity College Dublin, as part of my M.St degree. Through these, I learned how to develop oral language activities and instructional strategies in reading, writing, extending oral language through drama, and exploring English through media and technology. My classes responded positively to the new methods and suggested variations themselves - we used literacy circles to make sense of difficult newspaper articles in our 'World Discussion' every Monday. I noticed that collaborative dialogue aided connection-making, developing children's meaning-making through peer-learning.

Family circumstances intervened and I relocated to Scotland and later to Houston, Texas and taught Language Arts (English) in an elementary school and differentiation was introduced as a whole school initiative. A copy of Tomlinson's 'The differentiated classroom: Responding to the needs of all learners' (1999) was given to all teachers. I observed and engaged in discussions with teacher peers

on the challenges of planning and structuring instruction and activities based on perceived students' needs. Instruction based on children's needs and interests appeared to me to be a flexible approach for all sociocultural contexts. However, I questioned how practical this approach could be for teachers in different sociocultural contexts and so I embarked on this research. Reality is subjective and DR can be an abstract concept dependent on teachers' philosophies of education and experience as learners, their identification of children's needs, classroom management skills and the sociocultural contexts of each classroom. So I embarked on collecting 645 teachers' conceptions and implementation of DR. I was surprised at how the conceptions (qualitative) supported the DR practices (quantitative) as I had expected similar contradictions in philosophy and practice to what I had witnessed in my school in Houston.

I was keen to investigate whether there was a sound research base to this approach as much of Tomlinson's guidelines were based on her experiences as a teacher. I realised that what I deemed was 'good practice' was called 'differentiation' and I began to read extensively on a framework for differentiation. I was interested in the cultural and educational differences between Houston and Dublin. Yet, similar challenges faced the teachers - how to best match pupil variance with relevant activities. Also, various researchers mentioned that differentiation was based on Vygotskian learning theories but never provided tangible links. I decided I needed to study Vygotsky's sociocultural theories myself. My PhD journey had just begun. I discovered similarities between ZPD and DR including using language as a tool, imitation, collaboration, meaning-making and learners as the source of their own learning. However, some DR practices appeared to be at variance with the ZPD approach. Vygotsky advocated establishing the ZPD through collaborative activities with knowledgeable 'others', while some DR assessment is conducted without collaboration. These discrepancies and possible solutions were developed through my own ZPD – understanding DR and then linking DR to Vygotsky's ZPD during my PhD journey.

I learned much about DR through my PhD journey. DR is complex, has multiple interpretations so no one method is appropriate for all studies. I discovered similarities and differences in DR implementation between both cohorts and also between quantitative and qualitative data. I learned about DR instruction and strategies and the importance of content, process, product, and the learning environment. This has helped me become a more understanding teacher, especially towards my two teenage children as differentiation applies in all areas of life.

This study differed from previous DR studies which provided practical and theoretical information about DR to research participants, (Little et al., 2014; Pilten, 2016; Reis et al., 2007; 2008; 2011; Shaunessy-Dedrick et al., 2015). I intentionally did not do this, but sought participants' understanding and implementation of DR thereby minimising the Hawthorne effect. I carefully monitored my language, questions, comments, body language and reactions during interviews allowing participants

to discuss their understanding and implementation of DR without divulging my opinion thereby minimising the Hawthorne effect.

I learned much about social science research in DR. I personally delivered all surveys to 86 schools and personally collected completed surveys from 59 of the participating 62 schools after numerous visits. This resulted in a positive response sample of 55%. I enjoyed developing relationships with school principals, secretaries and gate keepers as I learned about each school's vision, ethos, culture and approach to differentiation and reading. I enclosed an explanatory letter to all participants but I chose not to meet teachers directly so as not to influence their responses. Conducting mixed methods analysis was extremely challenging and time-consuming! I was systematic in negotiating my way through SPSS and statistical analysis after painstakingly entering the data of all 645 surveys. There was a great pleasure in seeing all the variables producing tangible results. Then, I changed tack and systematically trawled through many, many pages of qualitative data, devising methods of colour-coded thematic analysis through numerous rereads of data. The most challenging data was the 464 responses to the qualitative survey question on DR definitions which was more easily distilled as 227 Dublin and 237 Houston responses. However, the definitions were interesting and relevant so that made the analysis a little easier! I undertook steps to be as objective as possible in the interpretation of social science research considering researcher bias. Three PhD students read through partial samples of my qualitative data (DR definitions, evaluations and interview data) and their interpretation of themes closely resembled my interpretation. This exercise helped to validate my interpretations.

As a teacher, it is important to me that all children are afforded every opportunity to develop reading skills. Reading is an essential life skill (Clark, 2014; Elborn, 2015) and teachers are advised to use a variety of reading strategies (Kennedy et al., 2012; Hall, 2003) from 'direct explanation and explicit teaching to modelling, scaffolding, facilitating and guided participating' (Hall, 2003, p. 1992). DR is one teaching model that supports children's needs and learning and teachers should allow pupil variance to guide the relevant strategies (Hall, 2003).

9.6 Limitations of this Research

This section identifies several possible limitations of this research. Firstly, Houston participating schools represented seven advantaged and seven disadvantaged areas yet 74% of participants (n=315) taught in disadvantaged schools. Meanwhile, just 34% of Dublin participants (n=330) taught in DEIS schools even though 20 DEIS schools and 28 advantaged schools (some had 1-5 teachers) participated in this research. This unintentional weighting towards disadvantaged schools was outside the control of the researcher but may have impacted on data. Secondly, the researcher personally delivered all surveys to 86 schools and personally collected completed surveys from 59 of the participating 62 schools after numerous visits. Three Houston elementary schools had rescheduled survey completion due to school-wide state-tests conducted in April 2013. It is possible that the high survey completion

rate (55%) was due to the numerous school visits and resulting good relationship between the researcher and the schools but the subsequent teacher responses may have yielded an overly positive response to DR due to the research participation experience or the Hawthorne Effect (Section 5.9).

Thirdly, the qualitative participants self-selected themselves from the survey for the interviews and lesson-plans resulting in possible self-selection bias yet, this self-selection also provided more in-depth investigation of DR to counteract the constraints of the survey method. This sample may have been more positive to DR than a random sample as participants may have positively altered their DR conceptions or reported practices favoured by DR due to the research participation experience or the Hawthorne effect or to the fact that teachers committed to DR self-selected themselves for interviews and lesson-plan analysis. However, the data demonstrates that most teachers implemented DR because of school initiative, so most teachers had some level of access to DR support from differentiation training, colleagues, school policy, or resources. Over half of all teachers implemented DR because of personal interest, so teachers were interested in DR. This is important, as DR requires substantial expertise and preparation, supporting Dymna Daly's findings that teachers' expertise is key to improving literacy achievement' (2015). The relative similarities between the qualitative and survey data validate the findings. Fourthly, seven of the ten Dublin LP respondents and interviewees held Masters' qualifications compared to 22% of the total sample (n=330) while just two Houston qualitative respondents held Masters' qualifications compared to 25% of the total sample (n=315). This disproportionate sample may have influenced the qualitative data. Finally, the researcher's research proposal was accepted by two Interschool Districts (ISDs) in Houston. The Houston respondents were sourced from school lists supplied by the ISDs. These lists and recent training may have impacted positively on data in favour of DR. Despite the aforementioned limitations, this research presents teachers' current conceptions and implementation of DR in Dublin primary schools and in Houston elementary schools and provides a unique opportunity to get a snapshot of DR practice in two culturally diverse contexts.

9.7 Recommendations

Recommendations are offered on policy, practice and on future research:

- I. The provision of clear DR guidelines for 'regular' classrooms, and relevant, in-service DR professional development, including observation of effective DR lessons, DR teacher-modelling skills and flexible group management.
- II. Revisit teacher contracts and award increased non-class contact time to provide adequate time for planning and preparation, teacher collaboration and sharing of best practice.
- III. More school and teacher support, incorporating a whole school DR policy, additional resources, a wide range of varied genres and texts and online resources.

- IV. Increased incorporation of teacher modelling of reading, discussion and comprehension skills, flexible groups and literacy circles to facilitate meaning-making, varied class texts and genres including award-winning children's publications and peer recommendations.
- V. Qualitative research including classroom observations on different DR methods and their impact on children's reading and student achievement data and exploration of links between DR and Vygotskian theories are recommended.

This research was conducted before the PLC introduction (DES, 2015). Teachers' understanding and practices are expected to evolve so it would be interesting to track these changes. These recommendations can help shape future policies and guidelines for teachers, schools, professional development, and pre-service teacher education in Dublin and in Houston.

9.8 Conclusion

This research explored primary and elementary teachers' understanding and implementation of DR. Previous studies provided information on DR but a gap exists in three areas: in DR research in Ireland, in research literature relating teachers' DR conceptions to their practices and in research comparing conceptions and practices in two diverse cultures. This study has extended and provided new knowledge in these areas and also provided important implications for practice and research. Additional DR training and resources are required. The PLC (DES, 2015) training for primary schools is a welcome step but ongoing training and support is necessary in both Houston and in Dublin. Relevant CPD provides teachers with the information, skills, support and resources to support diverse student needs in the classroom and help children reach their potential as readers and meaning-makers. Teachers' confidence in DR implementation will grow as they develop a greater understanding of DR practices.

Dealing skilfully with differences among children is a key part of what teachers do... Teaching remains for now an essentially human activity and that means understanding, respecting and supporting differences among children (Delaney, 2017, p. 116).

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APPENDICES

APPENDIX A-1: FINAL QUESTIONNAIRE DUBLIN

Teachers' Perspectives on Differentiated Reading

Dear Teacher,

I invite you to participate in this research. I am a PhD student with previous experience as a primary teacher and a lecturer in education.

I am researching teachers' perspectives on differentiated reading in primary schools as part of my PhD with Trinity College Dublin under the supervision of Dr. Damian Murchan.

Teachers' views and their teaching and learning experiences are critical to the success of differentiated reading *yet no research has been carried out considering teachers' perspectives in Ireland*. What is *your* attitude to differentiated reading? I am interested in what works best for *you* in the classroom.

Your participation is voluntary but your contribution will ensure that teachers' perspectives are presented and considered in research on this important area. Please feel free to comment on any factor that supports or hinders differentiation.

This research involves a *short* questionnaire after which participants are invited to participate in one single lesson-plan commentary/reflection and/or one semi-structured interview. You can participate in one, two or all areas.

Please answer each question as **spontaneously** as possible.

All questionnaires and information will be treated with complete anonymity.

Please return the completed form in the sealed envelope provided to reception before

Wednesday 25 September.

Many thanks,

Helen Heneghan

Email: heneghah@tcd.ie

Thank you for participating in this study.

Section 1: The Teacher

a. Are you	Male	Female

b. Please indicate your highest qualification	Diploma	Bachelor.	Master	Doctor	Other

c. Type of School	State	Private	Advantaged	DEIS	Denom	Non-Denom.	Co-ed	All Boys	All Girls	Junior	Senior

d. Role	Class Teacher	Teaching Specialist	Learning Support Teacher	Reading Teacher	Other – please specify

e. How many years have you been teaching reading?	1 year	2-5 years	6-10 years	11-15 years	16+ years

f. Which class do you teach?	1 st Class	2 nd Class	3 rd Class	4 th Class	5 th Class	6 th Class	All Classes	Other

g. How many students in your class?	1-5	6-10	11-15	16-20	21-25	26-30	31-35	Other

Section 2: Differentiated Reading Instruction

1. Why did you decide to use Differentiated Reading Instruction?	School Initiative	In-service course	Personal interest	Other – please explain

2. My reading instruction incorporates	Never	A few per term	A few per month	1-2 times per week	3-4 times per week	Every lesson
Students' favourite books						
Students' interests						
Students' needs						
Students' previous experiences						
Identifying students' readiness						
Achievable goals for all students						
Continuous formative assessment						
Child-centred activities						
Child's oral vocabulary						

3. Please rank FOUR factors that <i>help you provide differentiated reading?</i> Place 1 <i>opposite the factor that helps you most, etc.</i>	
Detailed preparation and structured lesson plans	
Reading instruction guided by continuous assessment and student progress	
Flexible grouping – whole class, pairs, small groups, individual work,	
Different assessments – diagnostic, informal, continuous, summative, etc.	
Individual learning goals for each child with different levels of teacher support	
Activities match students' needs, interests and learning profiles	
Positive learning environment	
Other – please explain	

4. In my reading instruction class I differentiate	Never	A few per month	1-2 times per week	3-4 times per week	Every lesson
Content e.g. concepts, skills, etc.					
Processes e.g. activities, groups, etc.					
Product or Output – <i>how students demonstrate mastery of skill or concept</i>					
Homework					

5. The following content areas are differentiated in my reading instruction	Never	A few per month	1-2 times per week	3-4 times per week	Every lesson
Concepts, skills, etc.					
Levelled readers					
Vocabulary					
Comprehension					
Research content					
Other – please specify					

6. These processes occur in my differentiated reading instruction	Never	A few per month	1-2 times per week	3-4 times per week	Every lesson
Visual activities – pictures, diagrams, etc.					
Auditory activities – oral, listening, etc.					
Kinaesthetic activities – movement, simulation,					
Flexible grouping – whole class, pairs, small groups, individual work					
Different levels of activities e.g. tiered activities					
Choice of activities e.g. work stations					
Varying levels of teacher support					
Continuous assessment					
Other – please specify					

7. The following ‘products or output’ are used by my students in differentiated reading class to show their mastery of a concept	Never	A few per month	1-2 times per week	3-4 times per week	Every lesson
Oral activities					
Visual display					
Demonstration activities					
Written activities					
Other – please specify					

8. What does differentiated reading instruction mean to you?

9. To what extent do you view the following as obstacles to providing differentiated reading instruction in your class?	Not an Obstacle	Minor Obstacle	Moderate Obstacle	Significant Obstacle
Accurately assessing a child's <i>starting point</i> in each activity				
Planning and preparation				
Lack of time				
Lack of resources, materials, book, space, etc.				
Curriculum constraints – e.g. too broad, etc.				
Different assessments – diagnostic, continuous, summative, etc.				
Individual learning <i>plans or goals</i> for each child				
Lack of training in differentiated instruction methods				
Pressure to cover material for standardized tests				
Student misbehaviour				
Class size				
Other – please specify				

10. What helps you evaluate students' level of understanding and readiness?	No Help	Minor Help	Moderate Help	Significant Help
Observation of student in individual and group work				
Listening to the student reading				
Discussion with the student				
Pre-assessment of concepts, etc.				
Different assessments – diagnostic, continuous, summative, etc.				
Discussion/Feedback from other teachers				
Discussion/Feedback from parents				
Self-evaluation				
Writing samples				
Other – please explain				

11. My differentiated reading instruction strategies are influenced by data from:	Never	A few per month	1-2 times per week	3-4 times per week	Every lesson
Diagnostic assessment					
Formative assessment					
Assessment for learning					
Assessment of learning					
Summative assessment					
Formal district assessments					
Standardised assessments					

12. What is most important in a <i>DR</i> environment?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Respect					
Consideration of students' interests, culture, learning preferences					
Teacher as facilitator, guide, mentor, role-model, instructor					
Students working towards <i>Individual Student Goals</i> , Learning Profile or <i>Personal Learning Plan</i> (PLP)					
Students involved in flexible groups for different activities					
Different learning style activities					
Students engaged in active learning - project work etc.					
Students' work and projects displayed around classroom					
Other – please specify					

13. What *tips* would you offer a teacher about how to *begin* differentiated reading instruction?

14. Would you like to share with me <i>one lesson-plan with an accompanying reflection</i> (a template will be provided), where you used differentiated reading instruction? If 'yes' please print email address in <i>block capitals</i> in the box below and I will contact you.	Yes	No
Email Address		

15. Would you like to participate in a <i>semi-structured interview on differentiated reading instruction</i> ? If 'yes' please print email address in <i>block capitals</i> in the box below and I will contact you.	Yes	No
Email Address		

Thank you for participating in this study. I greatly value your opinion.

Helen Heneghan

heneghah@tcd.

APPENDIX A-2: FINAL QUESTIONNAIRE HOUSTON EXTRACT P.1-2

Teachers' Perspectives on Differentiated Reading

Dear Teacher,

I invite you to participate in this research. I am a PhD student with previous experience as a primary teacher and a lecturer in education.

I am researching teachers' perspectives on differentiated reading in primary schools as part of my PhD with Trinity College Dublin under the supervision of Dr. Damian Murchan.

Teachers' views and their teaching and learning experiences are critical to the success of differentiated reading *yet no research has been carried out considering teachers' perspectives in Ireland*. What is *your* attitude to differentiated reading? I am interested in what works best for *you* in the classroom.

Your participation is voluntary but your contribution will ensure that teachers' perspectives are presented and considered in research on this important area. Please feel free to comment on any factor that supports or hinders differentiation.

This research involves a *short* questionnaire after which participants are invited to participate in one single lesson-plan commentary/reflection and/or one semi-structured interview. You can participate in one, two or all areas.

Please answer each question as **spontaneously** as possible.

All questionnaires and information will be treated with complete anonymity.

Please return the completed form in the sealed envelope provided to reception before

Friday 12 April.

Many thanks,

Helen Heneghan

Email: heneghah@tcd.ie

Thank you for participating in this study.

Section 1: The Teacher

a. Are you	Male	Female

b. Please indicate your highest qualification	Diploma	Bachelor.	Master	Doctor	Other

c. Type of School – please tick all that apply	ISD	Private	Advantaged	Disadvantaged	Denominational	Non-denominational

d. Role	Class Teacher	Teaching Specialist	Learning Support Teacher	Reading Teacher	Other – please specify

e. How many years have you been teaching reading?	1 year	2-5 years	6-10 years	11-15 years	16+ years

f. Which class do you teach?	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	All Classes	Other

g. How many students in your class?	1-5	6-10	11-15	16-20	21-25	25-30	30-35	35-40	40+

APPENDIX A-3: PILOT QUESTIONNAIRE

Section 1: The Teacher

1. Are you: Male ☐ Female ☐
2. Age 20 – 30 years ☐ 31– 40 years ☐ 41 – 50 years ☐ 51+ years ☐
3. Number of Teachers in your School: _____
4. Type of School: All Girls ☐ Co-ed ☐ All Boys ☐ State ☐ Private ☐
5. School Classification: Advantaged ☐ Disadvantaged ☐
6. What class or classes are you teaching? _____
7. How many children in your class?
Boys ☐ Girls ☐
8. How many years have you been teaching Literacy/Language Arts?
☐ 1st year ☐ 2-3 year ☐ 4-6 years ☐ Other _____
9. When did you begin to use differentiation?
☐ 1 year ☐ 2-3 years ☐ 4-6 years ☐ 7-10 years ☐ Other _____
10. How did you learn about Differentiated Instruction?
☐ College/University
☐ Elementary school Initiative
☐ In-service Courses on Differentiated Instruction
☐ Personal Research and Reading
☐ Other

11. Why did you decide to use Differentiated Instruction?
☐ Elementary School Initiative
☐ Discussion amongst teaching colleagues in school
☐ In-service Courses on Differentiated Instruction
☐ Personal Research and Reading
☐ Other

Section 2: Differentiated Reading

1. What factors do you find support differentiation? Please rate 1- 7

- ☐ In-depth knowledge of curriculum? ☐ Detailed and careful planning?
☐ Plenty of resources? ☐ Flexible approach to strategies?
☐ Supportive environment within school? ☐ Mentor or Buddy system
☐ Regular grade/ subject meetings where challenges are discussed? ☐ Other?
-

2. What factors support/facilitate differentiated instruction in Literacy?

3. What factors do you find hinder differentiation? Please rate 1 – 8

- ☐ Accurately assessing each child's starting point in each activity
☐ Lack of resources e.g. materials, works stations, etc
☐ Lack of time?
☐ Paperwork involved in planning activities, observation and assessment?
☐ Curriculum constraints?
☐ Lack of reflection time to develop instructional strategies?
☐ Large class numbers?
☐ First year teaching a new grade, new subject or teaching in a new school?
☐ Guided observations
☐ Other _____

4. What factors hinder differentiated instruction in Literacy?

5. Do you use learning style activities in the class?

- ☐ Yes ☐ No If yes what activities do you use?
-

6. What is essential in a differentiated learning environment?

- ☐ Student readiness, interest and learning profile? ☐ Student generated rules?
☐ Student readiness, interest and learning profile? ☐ Student Code/Contract?
☐ Fluid or growth mindsets (Dweck:2006)? ☐ Differentiated Homework
☐ Students avail of opportunities to help other – reading, teamwork
☐ Empathy? ☐ Respect? ☐ Other? _____

7. Please rate 1 – 6 the following methods you use to evaluate a student's levels of understanding?

- ☐ Observation of student in individual and group work ☐ Discussion with the child
☐ Discussion/Feedback from other teachers ☐ Pre assessment
☐ Discussion/Feedback from parents ☐ Written work ☐ Other _____

8. What methods do you use to assess children informally? Rate 1-9

☐ Short answer responses	☐ Reading samples
☐ Writing samples	☐ Journal entries
☐ Frayer Diagrams	☐ Guided observations
☐ Student reflections on learning conditions	☐ Exit Cards
☐ Student indicators e.g. thumbs-up/down/sideways	☐ Other _____

9. What summative assessments do you use with your class?

During the year _____ End of the year _____

10. In what ways do you demonstrate to students that they are in charge of their own academic success – that effort is the key to their success?

11. Please rate these elements of differentiation in order of importance 1 - 8:

- ☐ The teacher focuses on the essential concepts, principles and skills of a topic.
- ☐ The teacher attends to the student differences to best address student needs.
- ☐ Assessment and instruction are inseparable – assessment is ongoing and diagnostic.
- ☐ The teacher modifies content, process and products:-
- ☐ Students participate in respectful work
- ☐ The teacher and students collaborate in learning.
- ☐ The teacher balances assessment, instruction and feedback in group and individual norms
- ☐ The teacher and students work together flexibly in whole class, small group or individual activities
- ☐ Other _____

12. Please rate these instructional strategies that support differentiation 1– 9.

- ☐ **Tiered Activities** – All students focus on essential understandings and skills but at different levels of complexity and abstractness.
- ☐ **Work Stations** – Students work on different tasks simultaneously in different areas or ‘stations’
- ☐ **Centers** – distinct areas where students master a topic or set of skills.
- ☐ **Agendas** – Students complete a personalized list of activities or ‘Agendas’ in a specific time.
- ☐ **Complex Instruction** - Strategies accommodating academic, cultural and linguistic abilities.
- ☐ **Orbital Studies** – independent research of 3-6 week duration - children choose topics
- ☐ **Entry Points** – Students in Grades 3 - 5 explore set topic through 5 different areas
- ☐ **Learning Contracts** – Student and teacher negotiation
- ☐ The teacher and students work together flexibly
- ☐ Other _____

13. Rate these Specialists in Differentiation in order of importance to you 1-15

☐ Jennifer Beasley	☐ Mary Ann Carr	☐ Richard M Cash	☐ Judith Dodge	☐ Debbie Diller
☐ Louis Fidge	☐ Jessica Hockett	☐ Marcia Imbeau	☐ Sally M Reis	☐ David A Sousa
☐ Margo Southall	☐ Cindy Strickland	☐ Carol Ann Thompson	☐ Rick Wormeli,	☐ Other _____

14. Do you have a favorite specialist/s in literacy/Language arts? Why?

15. What would help you deliver differentiated instruction more effectively in the classroom? Why?

16. What tips would you offer a teacher about to begin differentiated instruction?

17. Is there an area of differentiation you would like to discuss further?

18. Would you like to participate in a short semi-structured interview on the factors that support/hinder differentiation?

[] Yes Email address

[] No

Thank you for participating in this study.

I greatly value your opinion.

APPENDIX A-4: PILOT SURVEY FEEDBACK SHEET

The purpose of this questionnaire is to explore teachers' current practices in differentiated reading instruction and to examine the differentiated reading models used by primary teachers in First – Sixth Classes.

- What is understood by 'differentiated reading?'
- What content, processes, product are differentiated by teachers?
- What evaluation methods do teachers use to ascertain students' readiness and comprehension?

Please write comments in the box on how the Questionnaire can be improved.

Please give your reaction to the questions below.	Comments
1. Is the purpose of the Questionnaire clear?	
2. Is the design effective?	
3. Is the Language clear and concise?	
4. Are the questions clear and easy to follow?	
5. Are there ambiguities in wording or phrasing?	
6. Is the question style easy to understand?	
7. Are the questions varied?	
8. Are there any 'leading' questions that might prompt the respondent to give a specific answer?	
9. Is the questionnaire too long?	
10. How long did it take to read?	
11. How long did it take to complete?	
12. Please add specific comments - page 1	
13. Page 2	
14. Page 3	
15. Page 4	
16. Is the accompanying letter, clear, concise and informative?	

Thank you. Helen

APPENDIX B-1: FINAL DR LESSON-PLAN EVALUATION TEMPLATE

1. Please submit your **lesson-plan** with this commentary/reflection.
2. A reflection template is included for your lesson reflection
3. Please comment on all questions.
4. Your sincere reflection is the most important part of this commentary.
5. Please email your lesson-plan and commentary to henezhah@tcd.ie

*Thank you for participating in this study.
All information will be treated with complete confidentiality.*

Lesson-plan Commentary

I.	Lesson topic	
II.	Class/Grade	
III.	Number of students	
IV.	Time & duration	

<i>In this lesson I differentiated by:</i>	YES	NO
1. CONTENT		
o Concepts/ Skills		
o Different texts		
o Other – please specify		
2. PROCESS		
o Whole class		
o Small groups/pairs		
o Individual work		
o Collaboration		
o Imitation		
o Flexible groups		
o Mixed ability groups		
o Same ability groups		
o Small group discussion		
o Teacher support		
o Visual and Aural Activities		
o Different levels of activities – please explain		
o Choice of activities – please explain		
3. PRODUCT	YES	NO
o Oral activities		
o Visual activities		
o Demonstration activities		
o Written activities		
o Other – please explain		
4. HOMEWORK – please explain		

5. Did you use collaboration in this lesson – teacher-student, student-student?
6. Was context important in this lesson?

7. Did you assess <i>students' learning</i> in this lesson?
8. Did this assessment information influence activities?
9. How did children create/make meaning in this class?
10. What resources were used in this lesson?
11. What was the source of the children's learning
12. How long did it take to prepare for this lesson?
13. Did Differentiated Reading help to improve reading? Why?
14. Did children's understanding/comprehension change in the lesson? Why?

Your evaluation is the most important part of this commentary.

Here are some reflection suggestions - please include what is relevant for you

- What part of the differentiated reading lesson went well? Why?
- What differentiated practices were used?
- Was there a 'never want to do that again' moment in differentiated reading? Why?
- What would you do differently in your next differentiated reading lesson? Why?

15. *Evaluation – Please comment on the lesson*

Thank you for participating in this study.

APPENDIX B-2: LESSON-PLAN EMAIL AND CONSENT FORM

September 1 2013.

Email: heneghah@tcd.ie

Dear Teacher,

Thank you for completing the Differentiated Reading Questionnaire. The information was both informative and insightful and has helped clarify teachers' perspectives on Differentiated Reading.

In the questionnaire, you offered to submit a differentiated reading lesson-plan and evaluation. There are many different types of differentiated reading lesson plans and I am interested in what works best for you in the classroom.

I invite you to submit a differentiated reading lesson plan of your choice. I enclose a template evaluation to aid your reflection and your comments on all questions are greatly appreciated. I have offered some suggestions to aid your reflection but these are purely optional and your sincere reflection is the most important part of this commentary.

All evaluations and information will be treated with complete anonymity.

NO information which identifies a student, teacher or school will be used in this study

Please return the completed evaluation and lesson-plan and completed authorisation to my email address heneghah@tcd.ie

by **Friday 25 October.**

Looking forward to hearing from you,

Many thanks,

Helen Heneghan

Helen Heneghan

Authorisation

I give my permission for the contents of my lesson-plan and reflection to be used for the purpose of this research on differentiated reading.

All evaluations and information will be treated with complete anonymity.

NO information which identifies a student, teacher or school will be used in this study

I understand that I may withdraw from this research, without any repercussions at any stage during the duration of this study.

_____ Date _____

APPENDIX B-3: PILOT LESSON-PLAN FEEDBACK SHEET

The purpose of this lesson-plan reflection is to explore teachers' current practices in differentiated reading instruction and to examine the differentiated reading models used by primary teachers in First – Sixth Classes. Please give your reaction to the questions below

	Your Comments
Is the purpose of the lesson-plan reflection clear?	
Are the questions clear and easy to follow?	
Are there any ambiguities in wording or phrasing?	
Is there enough variety in the questions used?	
Are there any 'leading' questions that might prompt the respondent to give a specific answer?	
How long did it take to read?	
Should other questions be included?	
Questions i – iv - Page 1	
Content	
Process	
Product	
Homework	
Question 5	
Question 6	
Question 7	
Question 8	
Question 9	
Lesson prep time - Question 10	
Improve reading - Question 11	
Improve comprehension - Question 12	
Reflection suggestions- Question 12	
Is the accompanying letter, clear, concise and informative?	

Thanks for your input – I really appreciate it! Helen

APPENDIX B-4: LESSON-PLAN EVALUATION SAMPLE - HOUSTON (Y2)

- Please submit your **lesson-plan** with this commentary/reflection.
- A reflection template is included for your lesson reflection
- Please comment on all questions.
- Your sincere reflection is the most important part of this commentary.
- *Please email your lesson-plan and commentary to heneghah@tcd.ie*
All information will be treated with complete confidentiality.

I.	Lesson topic	Thanksgiving
II.	Class/Grade	Grade 2
III.	Number of students	20 – (ISD disadvantaged)
IV.	Time & duration	50 mins

<i>In this lesson I differentiated by:</i>		YES	NO
1. CONTENT			
o Concepts/ Skills		✓	
o Different texts		✓	
o Other – please specify	Research on internet, fiction/nonfiction books	✓	
2. PROCESS			
o Whole class		✓	
o Small groups/pairs		✓	
o Individual work			✓
o Collaboration		✓	
o Imitation	Some kids imitated each other in drama moves	✓	
o Flexible groups		✓	
o Mixed ability groups		✓	
o Same ability groups			✓
o Small group discussion		✓	
o Teacher support	Added support given to a few weaker pupils. This included one to one teacher support and encouraging certain students to engage more during group discussions.	✓	
o Visual and Aural Activities		✓	
o Different levels of activities – please explain	Research topic had different levelled books for different abilities from picture books to advanced history books – same activity – different levels.	✓	
o Choice of activities – please explain	Children chose presentation mode on Thanksgiving. Group discussion enabled the children to include their choice of texts, ideas and experiences related to the topics being discussed.	✓	
3. PRODUCT		YES	NO
o Oral activities		✓	
o Visual activities		✓	
o Demonstration activities		✓	
o Written activities		✓	
o Other – please explain	2-5 min group presentation	✓	
4. HOMEWORK – please explain			✓
5. Did you use collaboration in this lesson – teacher-student, student-student?			

4. HOMEWORK – please explain		✓
5. Did you use collaboration in this lesson – teacher-student, student-student? Yes, student-student in group discussion including group presentation activity. Teacher-student was briefly used in group discussion at introduction and conclusion of lesson. Teacher also interacted with various groups according to the different needs of the children.		
6. Was context important in this lesson? Yes, the children applied their own understanding and experiences of Thanksgiving to the research and discussions. Thanksgiving is always a special holiday time so kids enjoy it!		
7. Did you assess <i>students' learning</i> in this lesson? Through questioning, observing and listening to the children as they worked together in groups and observing as they presented their work to the class.		
8. Did this assessment information influence activities? Yes, I facilitated the discussions. Having observed and listened to the discussions, two children were having difficulties understanding aspects of the story so I used questions to aid understanding. One child was too dominant in a discussion so I interjected and directly posed questions to a silent child to help her participate more in the discussion.		
9. How did children create/make meaning in this class? Book discussions create great interest. Peers' views of books greatly influence other children and they love teaching their peers and make meaning while having fun! Children create meaning themselves through their own teaching and discussion through the group presentations		
10. What resources were used in this lesson? Individual Thanksgiving texts, whiteboard, play boards, story boards, TV Show strips, comic strips, presentation, materials/props, scissors, glue, costumes, Thanksgiving hats, food, pumpkins, artwork, etc.		
11. What was the source of the children's learning? 3 ways a. Children sourced ideas from different Thanksgiving texts to clarify their own thoughts and give them confidence in their own opinions. b. Discussion helped the children learn and clarify new ideas and prepare the presentations. c. Children teaching other children in the presentation activity – I suppose the children were teaching themselves and others. They thought, listened and shared their ideas.		
12. How long did it take to prepare for this lesson? I hour. I created some Information sheets, varied texts from picture books to history books and compiled a wide range of resources on Thanksgiving		
13. Did Differentiated Reading help to improve reading? Why? Yes, it helped to improve their reading because they learned specific new vocabulary, e.g. hearth, English pilgrims, Wampanoag, Squanto. As they enjoyed this fun lesson, they are encouraged to read and to find pleasure in the story as it unfolds. The research, history discussions and visualisations help kids understand more and so they can read more.		
14. Did children's understanding/comprehension change in the lesson? Why? Yes because the research, discussions and teaching peers stimulated interest and further engaged the children in reading, making it a more meaningful experience and expanding their understanding.		

Your evaluation is the most important part of this commentary.

Here are some reflection suggestions - please include what is relevant for you

- **What part of the differentiated reading lesson went well? Why?**
- **What differentiated practices were used?**
- **Was there a 'never want to do that again' moment in differentiated reading? Why?**
- **What would you do differently in your next differentiated reading lesson? Why?**

15. Evaluation – Please comment on the lesson

The pupils enjoyed the lesson and showed good understanding of the tasks –

- to research through history about the English pilgrims arriving in Massachusetts in 1620;
- to visualise what it was like so long ago
- to teach their peers about new topics
- to represent their ideas in different activities and through Drama
- to create a good opening and closing line in group presentations
- to work together to produce a short presentation

We have really worked on how to learn through small group discussion where everyone listens, takes turns speaking and where children teach their peers. This helps all levels of children as it gives them a chance to share and discuss their opinions regardless of their reading ability. Language is a tool and children need to be able to speak their ideas before they write them. Reading helps in so many ways to develop language.

The text was challenging for some, but too easy for others but the group presentations facilitated all levels. The children researched different levels of books from picture books to advanced history books.

For the next DR lesson I could :

- guide the weaker children to easier books.
- put more emphasis on challenging the stronger students and use same ability groups for this.
- allow 5 mins for silent reading.

Thank you for participating in this study.

APPENDIX B-5: LESSON-PLAN SAMPLE – HOUSTON - Y2

DR Lesson Plan Grade 2

Topic: Thanksgiving

Duration: 50 mins.

Informal Assessment

Rationale: To help students understand the contribution of Thanksgiving to cultural history in Texas through customs and practices. This lesson integrates reading, writing and speaking and is interesting to the students as they will celebrate Thanksgiving holiday next week.

Learning Outcome – the students will gain a deeper understanding of how the practices and customs of the first Thanksgiving impact on our celebration of Thanksgiving today.

Instruction Strategy: Differentiation Reading

- **Content** – Class text – Magic Treehouse ‘Thanksgiving’ by Mary Pope Osbourne
- **Process** - students in mixed ability groups draw upon their own ideas, knowledge and experience to make new meaning.
- **Product** - will vary according to the different presentations by the four groups of students and students’ knowledge and interests.
- **Resources** – Class texts, nonfiction library books on Thanksgiving, Internet access, and various Thanksgiving materials and implements from the Drama Department.

Introduction: 10 mins

- Brainstorm – what does Thanksgiving mean to you?
- Teacher and Students Read aloud Chapter Class Text – Magic Treehouse - Thanksgiving
- The whole class discuss unfamiliar words, customs and practices and interpret their meaning.
- The teacher explains the exercise directions to the whole class
- The teacher assigns students in mixed ability work groups of 4-5 students each.

Activity: 20 mins

- Students will choose an area of Thanksgiving to present to the class.
- Students discuss and decide presentation method - play, story board, TV Show or comic strip.
- Students plan presentation, materials/props required, meaning of the chosen area to the rest of the class.

Teacher Support: The teacher provides the necessary support and assistance to different groups as she circulates the room. Some groups will need minimal support and the teacher will ask probing questions to help them develop deeper meaning. Other groups will need direct help as the teacher guides and directs them to structure their activity.

Product: 20 mins

All 4 groups present their 2-5 min presentation to the class. The teacher and students give feedback to the presenting groups.

APPENDIX C-1: FINAL INTERVIEW QUESTIONS

Differentiated Reading Interviews

Interviews (60-90 mins)

1. Tell me about your use of differentiated reading.
2. When you use differentiated reading what works best for you?
3. What helps you most in the classroom?
4. When planning differentiated reading practices what you are thinking?
5. What influences you in relation to differentiated reading practices?
6. If I was in your class what would I see? How do you approach learning?
7. Think about the last two months and tell me about one specific activity you set and how you used it. Did you learn anything from this?
8. When you're setting out to use differentiated reading what do you want to teach?
9. What differentiated reading materials do you use with students?
10. If I was to come to observe one of your typical classes what would I see?
11. It is hard to get into the mind of students – tell me the steps you take.
 - What are your thoughts on the approaches you use?
12. What type of reading do you use in your classroom?
|
13. When you are implementing differentiated reading what is difficult for you?
14. What is essential in differentiated reading?
 - What are essential components/elements?
 - What makes it work best?
15. What support/assistance would you like?
16. Is there anything we haven't covered here given the focus of my research?

Note : All information identifying personnel, schools have been omitted in accordance with the conditions of the schools' approval of research on differentiated reading.

Thank you for participating in this very important research.

APPENDIX C-2: INTERVIEW EMAIL AND CONSENT FORM

Differentiated Reading Interview

Trinity College Dublin,
April 1st 2015.
Email: heneghah@tcd.ie

Dear Teacher,

Thank you for completing the Differentiated Reading Questionnaire. The information was both informative and insightful and has helped clarify teachers' perspectives on differentiated reading.

In the questionnaire, you offered to participate in an interview on Differentiated Reading

I invite you to participate in a differentiated reading interview at a location of your choice. The interview can be conducted in person or via Skype.

I enclose a consent form if you are happy to participate in this important research.

All information will be treated with complete anonymity. On completion of the interview, a transcript of the interview will be emailed to you for your approval. NO information which identifies a student, teacher or school will be used in this study.

Please return the completed consent form to my email address heneghah@tcd.ie

by 25th April.

Looking forward to hearing from you,

Kind regards,

Helen Heneghan

Helen Heneghan

Authorisation

I give my permission for the contents of my interview to be used for the purpose of this research on differentiated reading.

All information will be treated with complete anonymity.

NO information which identifies a student, teacher or school will be used in this study.

I understand that I may withdraw from this research, without any repercussions at any stage during the duration of this study.

Signature _____ Date _____

APPENDIX C – 3: PILOT INTERVIEW FEEDBACK SHEET

The purpose of this interview is to explore in-depth teachers' current practices in DR

Please write comments in the box. ALL comments appreciated especially on how I can improve the Interview questions.

	Comments
1. Was the purpose of the Interview clear?	
2. Was the sequence of questions effective?	
3. Was the Language clear and concise?	
4. Were the questions clear and easy to follow?	
5. Were there any ambiguities in wording or phrasing?	
6. Was the question style easy to understand?	
7. Was there enough variety in the type of questions used?	
8. Were there any 'leading' questions that might prompt the respondent to give a specific answer?	
9. Were the interviewer's contributions and possible interruptions appropriate?	
10. Did you get an opportunity to expand on issues that were important to you?	
11. Was the interview too long?	
12. Any other comments?	

Thank you. Helen

APPENDIX C – 4: INTERVIEW SAMPLE TRANSCRIPT - DUBLIN

C5 – Detailed Transcript - 6th Class DR Interview (Skype) 2015 *Researcher and Interviewee (C5) – Interview conducted via Skype*

Researcher: Hello, can you hear me?

C5: Hello. Yes, I can hear you clearly. The sound is pretty good.

Researcher: Yes, it is thankfully! I just want to thank you for participating in this interview. You know that you can withdraw from this research, without any repercussions at any stage during the duration of this study?

C5: Yes, you've already told me about that and I've signed the consent form.

Researcher: Yes, that's good. Also, all information will be treated with complete anonymity and no information which identifies a student, teacher or school will be used in this study.

C5: Yes, that has been made very clear.

Researcher: Okay and I'll email you a transcript of this interview tomorrow so you are happy with the interpretation. Is that okay?

C5: That's fine, you're very organised.

Researcher: Oh, thank you, but it is important that you are happy with everything. Will we start?

C5: Yes, I'm ready.

Researcher: Right. Can you me about your use of differentiated reading or is it okay if we call it DR?

C5: Yes, that's fine. Well, where do I start? Right, I use DR 3 days a week. I have a class of 28 mixed children with mixed abilities in Sixth class so it's busy and challenging. Well I always have oral discussions on the various texts but it depends on the time I have each day. It varies. Oh, yea, I believe that listening to each child reading a text is so important in reading

Researcher: Why is it important?

C5: Well, it's the best way to know exactly how each child is progressing, if they're interested in the text or if they have problems with vocabulary or understanding. I try to hear every child reading at least twice a week but it's difficult with 28 Sixth Class as there's so much else to do! I try to hear the 'weak' kids more often while the others are doing 'quiet' activities

Researcher: Okay

C5: Oh, yes. I get the children to listen to each other read in pairs – it's a great way of mixing up abilities and interests and the children learn a lot from each other. Most of the time we'll read aloud a paragraph or two, then I'll tell the class to read quietly for a page or so and then the pupils discuss that content in pairs. The weaker kids have different texts so I put them together and sometimes with more able kids – it depends on the theme, the time I have and the activities I want the children to do on a particular day. I also try to match a child's reading ability to text materials. This takes time but as I'm teaching a few years now, I've built up quite a bit of material. This really helps as I've always got extra materials when children get bored or have problems completing a class task.

APPENDIX D: RESEARCH ETHICS APPROVAL, COLLEGE DUBLIN

TRINITY

Ethics approval was granted in March 2013 but was not confirmed in writing. Consequently, this ethics approval letter was provided in December 2016.



Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

Approval Helen Heneghan

5th December 2016

Dear Helen,

The School of Education's Ethics Committee has considered your application for approval of your PhD research project (your application form dated 11/3/2013 refers, a copy of which was presented to the Committee at their meeting of Monday 5th December 2016).

It is the decision of the Committee that no additional information is needed regarding your application. Therefore, approval is granted for your research, on the condition that it is carried out as indicated on your application. Should there be a change in the design of your research project, you will need to re-apply again for approval from the School of Education's Ethics Committee.

You are required to include a copy of this letter as an appendix to your thesis.

If you have any queries regarding this decision, please contact the Chair of the School of Education's Ethics Committee and Director of Research, Dr Stephen James Minton (mintonst@tcd.ie).

We wish you all the very best with your research project.

Kind regards,


Fiona McKibben

Research Officer at the School of Education
on behalf of Professor Stephen James Minton
Director of Research



Scoil an Oideachais
3087 Foirgneamh,
Coláiste na Tríonóide, Baile Átha Cliath,
Ollscoil Átha Cliath,
Baile Átha Cliath 2, Éire.

School of Education
Room 3087,
Trinity College Dublin,
The University of Dublin,
Dublin 2, Ireland.

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APPENDIX E: LETTERS AND CORRESPONDENCE

APPENDIX E – 1: LETTER TO PRINCIPAL/HEADTEACHER

From: Helen Heneghan

Sent: Wednesday, March 07, 2012 11:20 AM

Differentiation Research Application

Houston, Texas, 77077

Dear,

I am a former elementary teacher and lecturer in education living in Houston.

I am researching the factors that best support/facilitate differentiation in Literacy/Language Arts in selected elementary schools in Houston towards my PhD with Trinity University, Dublin.

My research proposal has been recently approved by your ISD. (See attached Letter of Approval.)

I have discussed my research with the District Advanced Academic Coordinator. She advised me to seek permission from the principal of each prospective school.

The research will require no student or instructional time and will not interfere with student regular schedules. No information which identifies a student, a campus or the district will be used in this study.

The research is a comparative study between selected elementary schools in Houston and Dublin starting in March 2013. The main participants will be teachers involved in Literacy in Grades 1-5. All participation is voluntary.

Please find attached:

- *ISD Letter of Research Approval - December 16, 2011*
- *Initial Questionnaire*
- *Two letters of Validation from my PhD supervisor and from the Postgraduate Research Student Co-Ordinator in Trinity University, Dublin (TCD).*
- *Curriculum Vitae of Researcher*

I would be grateful if I could discuss my research interest with you at your convenience.

Looking forward to hearing from you,

Yours Sincerely,

Helen Heneghan

Helen Heneghan. B Ed, M Ed, HDEA, TQFE, LLSM

281 827 4979 (cell)

APPENDIX E – 2: ISD RESEARCH APPROVAL LETTER

December 16, 2011

Ms. Helen Heneghan
14107 Edinburgh Court
Houston, Texas 77077

Dear Ms. Heneghan,

Your request to conduct a teacher survey for your doctoral dissertation titled the *Implementation of Differentiated Reading in Elementary Schools – A Case Study* has been approved. No information which identifies a student, a campus or the district may be used in the report. Additionally you must receive permission from the principal of the schools prior to surveying their teachers. You may use this letter to indicate that you have completed the requirements required by the district to do research.

If you plan to conduct a follow-up questionnaire, then you will need to provide additional information and complete the district Research Approval form again.

We appreciate your interest in doing research in this ISD.

Thank you.

.....
Director of Special Populations

Note: All information identifying personnel or the specific ISD have been removed in accordance with the conditions of the above approval.