



**School of Education, Communication and Language**

**Sciences**

“Shifting the I-R-F Paradigm: an Action Research Approach  
to Improving Whole-class Interactional Questioning  
Competence”

**Doctorate in Education**

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## **ABSTRACT**

The Initiation-Response-Feedback (I-R-F) questioning sequence is perhaps the most common pedagogical discursive interaction, not just in classrooms, but in virtually every learning context; the educator asks a question, the learner responds and the educator gives feedback about that response. Children are introduced to these sequences from a very early age - usually through their formative communications with parents or adults - and continue to participate in them throughout their academic careers.

In a whole-class school setting, these exchanges are notoriously teacher-dominated and tightly-controlled, characteristically offering students little time and opportunity to construct and develop their own ideas and thinking. Despite the myriad of changes in education over the last 20 years, it seems somewhat paradoxical that the stereo-typical I-R-F questioning sequence has exhibited such durability in its current form.

The main aim of this research study was to investigate the degree to which the epistemological foundations of the whole-class I-R-F questioning sequence could be relocated from a traditionally behaviourist perspective towards a position more concomitant with social constructivism. Underpinning this philosophy is the belief that students should be given a much greater degree of interactional autonomy.

The chosen methodology was based on an action research model with a multi-method approach for data collection. A framework of 'best questioning practice' was constructed in order to support teachers in improving their Interactional Questioning Competence (IQC) over the course of three action research cycles. In addition to this, three facilitators of change were employed as catalytic devices for enhancing teacher performance during the research; self-evaluation, focus group interviews and specialist coaching.

The results show that although progress was made in many areas, other features of IQC were more resistant to change, largely as a result of the pedagogical goals of the teacher, the institutional motives of the school establishment and the political aspirations of current educational policy.

## DEDICATION

*Dedicated to Richard Horn, a truly inspirational man and  
leader*

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## TABLE OF CONTENTS

<b>TITLE PAGE</b>	Page I
<b>ABSTRACT</b>	Page II
<b>DEDICATION</b>	Page III
<b>ACKNOWLEDGEMENTS</b>	Page IV
<b>LIST OF TABLES</b>	Page IX
<b>LIST OF FIGURES</b>	Page X
<b>LIST OF APPENDICES</b>	Page XII
<b>ABBREVIATIONS AND ACRONYMS</b>	Page XIII
<b>CHAPTER 1: INTRODUCTION</b>	Page 1
1.1 Introduction	Page 1
1.2 Whole-class Questioning in a School Setting	Page 1
1.3 Rationale Behind the Study	Page 2
1.3.1 <i>Personal Experience and Interest</i>	Page 3
1.3.2 <i>Institutional Goals</i>	Page 6
<b>CHAPTER 2: LITERATURE REVIEW</b>	Page 8
2.1 I-R-F Sequences and Formative Assessment	Page 8
2.2 Why Do Teachers Question?	Page 9
2.3 I-R-F as a Communication Model	Page 10

2.4	I-R-F from the Students' Perspective	Page 12
2.5	The Paradox of I-R-F	Page 14
2.6	Best Questioning Practice- the Research	Page 15
2.6.1	<i>The Initiation Phase</i>	Page 17
2.6.2	<i>The Response Phase</i>	Page 22
2.6.3	<i>The Follow-up Phase</i>	Page 27
2.7	Praise	Page 31
2.8	Teacher Paradigms and Change	Page 32
<b>CHAPTER 3: FOCUS OF THE RESEARCH</b>		Page 38
3.1	Introduction	Page 38
3.2	Purpose of the Research	Page 39
3.3	The IQC Framework of Best Practice	Page 39
3.4	The Conceptual Framework	Page 40
3.5	Research Questions	Page 47
3.6	School and Teacher Profiles	Page 48
3.6.1	<i>Profile of Haverton High School</i>	Page 49
3.6.2	<i>Profile of Emily</i>	Page 49
3.6.3	<i>Profile of Rory</i>	Page 50
<b>CHAPTER 4: METHODOLOGY</b>		Page 52
4.1	Introduction	Page 52
4.2	Research Paradigms	Page 52
4.3	Research in a Classroom Setting	Page 53
4.4	Research Design	Page 54
4.4.1	<i>The Case For a Mixed Methods Approach</i>	Page 54
4.4.2	<i>Choosing an Action Research Approach</i>	Page 60

<b>4.4.3</b>	<i>Data Collection</i>	Page 62
<b>4.5</b>	Using the IQC Framework of Best Practice	Page 69
<b>4.6</b>	Ethical Considerations	Page 75
<b>CHAPTER 5: RESULTS AND ANALYSIS</b>		Page 81
<b>5.1</b>	Emily's Results	Page 81
<b>5.1.1</b>	<i>Student Questionnaire Results</i>	Page 81
<b>5.1.2</b>	<i>IQC Framework Data</i>	Page 86
<b>5.1.3</b>	<i>Teacher Evaluations</i>	Page 95
<b>5.1.4</b>	<i>Specialist Coach Feedback</i>	Page 95
<b>5.1.5</b>	<i>Pre/Post Test Results</i>	Page 95
<b>5.1.6</b>	<i>Analysis and Discussion</i>	Page 97
<b>5.2</b>	Rory's Results	Page 114
<b>5.2.1</b>	<i>Student Questionnaire Results</i>	Page 114
<b>5.2.2</b>	<i>IQC Framework Data</i>	Page 117
<b>5.2.3</b>	<i>Teacher Evaluations</i>	Page 125
<b>5.2.4</b>	<i>Specialist Coach Feedback</i>	Page 125
<b>5.2.5</b>	<i>Pre/Post Test Results</i>	Page 126
<b>5.2.6</b>	<i>Analysis and Discussion</i>	Page 126
<b>CHAPTER 6: MAIN DISCUSSION</b>		Page 148
<b>6.1</b>	To What Degree Did Teachers Improve Their IQC?	Page 148
<b>6.2</b>	Self-evaluation, Focus Group Interviews and Specialist Coaching	Page 165
<b>6.3</b>	Teachers and the Process of Change	Page 176
<b>6.3.1</b>	<i>Personal Characteristics</i>	Page 178

<b>6.3.2</b>	<i>Teacher Training Programmes</i>	Page 178
<b>6.3.3</b>	<i>Institutional Goals and Educational Policy</i>	Page 182
<b>CHAPTER 7: CONCLUSION</b>		Page 187
<b>7.1</b>	Shifting the Epistemological Roots: Three Critical Factors	Page 188
<b>7.2</b>	Sustaining Improvement in the Longer-term	Page 193
<b>CHAPTER 8: BIBLIOGRAPHY</b>		Page 200
<b>CHAPTER 9: APPENDICES</b>		Page 209



## LIST OF TABLES

<u>Table No.</u>	<u>Description</u>	<u>Page No.</u>
2.1	Aspects of Formative Assessment	Page 9
2.2	Askew and Lodge's Framework: Models of Teaching	Page 17
2.3	Three-level Categorisation of Teacher Questions	Page 21
2.4	Assessment Framework for Reflection	Page 35
3.1	Decision-making Options During Whole-class I-R-F	Page 41
4.1	Time-line for a Single Performance Cycle	Page 70
5.1	Results of Student Pre-questionnaire (Emily)	Page 82
5.2	Results of Student Post-questionnaire (Emily)	Page 83
5.3	Comparison of Student Questionnaires using Mann-Whitney U Test (Emily)	Page 84
5.4	Topics Used in the Three Audio-recordings (Emily)	Page 86
5.5	Specialist Coach Analysis: IQC Framework (Emily)	Page 87
5.6	Average-think Time and Student Utterance (Emily)	Page 91
5.7	Results of the Pre and Post-test Analysis (Emily)	Page 96
5.8	Results of Student Pre-questionnaire (Rory)	Page 114
5.9	Results of Student Post-questionnaire (Rory)	Page 116
5.10	Comparison of Student Questionnaires Using Mann-Whitney U Test (Rory)	Page 116
5.11	Topics Used in the Three Audio-recordings (Rory)	Page 117
5.12	Specialist Coach Analysis: IQC Framework (Rory)	Page 118
5.13	Average-think Time and Student Utterance (Rory)	Page 122
5.14	Results of the Pre and Post-test Analysis (Rory)	Page 126

## LIST OF FIGURES

<u>Figure No.</u>	<u>Description</u>	<u>Page No.</u>
1.1	A Parody of Whole-class I-R-F	Page 5
2.1	The Three Interacting Domains of Pedagogy	Page 16
2.2	Bloom's Taxonomy	Page 19
3.1	Enhanced Life Cycle of a Whole-class Question	Page 42
4.1	The Action Research Spiral	Page 62
5.1	Pre/Post Questionnaire Comparison: Statement 1 (Emily)	Page 84
5.2	Pre/Post Questionnaire Comparison: Statement 2 (Emily)	Page 85
5.3	Pre/Post Questionnaire Comparison: Statement 4 (Emily)	Page 85
5.4	Activity Profile Graph (Emily)	Page 88
5.5	Display or Referential Graph (Emily)	Page 88
5.6	Cognitive Status of Questions Graph (Emily)	Page 89
5.7	Questioning Mode Graph (Emily)	Page 89
5.8	Student Interruptions Graph (Emily)	Page 89
5.9	Think-time Graph (Emily)	Page 90
5.10	Student Utterances Graph	Page 90
5.11	Latching Graph (Emily)	Page 90
5.12	Follow-up Moves Graph (Emily)	Page 91
5.13	Praise Graph (Emily)	Page 91
5.14	Average Think-time Graph (Emily)	Page 92
5.15	Average Student Utterance Graph (Emily)	Page 92
5.16	Pre/Post Questionnaire Comparison: Statement 9 (Rory)	Page 117

<b><u>Figure No.</u></b>	<b><u>Description</u></b>	<b><u>Page No.</u></b>
5.17	Activity Profile Graph (Rory)	Page 119
5.18	Display or Referential Graph (Rory)	Page 119
5.19	Cognitive Status of Questions Graph (Rory)	Page 119
5.20	Questioning Mode Graph (Rory)	Page 120
5.21	Student Interruptions Graph (Rory)	Page 120
5.22	Think-time Graph (Rory)	Page 120
5.23	Student Utterances Graph (Rory)	Page 121
5.24	Latching Graph (Rory)	Page 121
5.25	Follow-up Moves Graph (Rory)	Page 121
5.26	Praise Graph (Rory)	Page 122
5.27	Student Response Language Graph (Rory)	Page 122
5.28	Average Think-time (Rory)	Page 123
5.29	Average Student Utterance Graph (Rory)	Page 123

## **LIST OF APPENDICES**

<b><u>Appendix</u></b>	<b><u>Description</u></b>	<b><u>Page No.</u></b>
<b>A</b>	IQC Framework of Best Practice	Page 209
<b>B</b>	Glossary of Terms	Page 210
<b>C</b>	Teacher Interview Schedule (Pre-study)	Page 214
<b>D</b>	Student questionnaire	Page 215
<b>E</b>	Student Questionnaire Rationale	Page 216
<b>F</b>	Student Information Sheet and Consent Form	Page 217
<b>G</b>	Example of Detailed Specialist Coach Feedback	Page 218
<b>H</b>	Summary of Specialist Coach Feedback for Emily	Page 219
<b>I</b>	Summary of Specialist Coach Feedback for Rory	Page 220
<b>J</b>	Questions Asked During the Study	Page 221
<b>K</b>	Teacher Evaluations of Routines	Page 225

## LIST OF ABBREVIATIONS AND ACRONYMS

<u>Abbreviation/ Acronym</u>	<u>Full Title</u>
<b>AfL</b>	Assessment for Learning
<b>TS</b>	Thinking Skills
<b>PGCE</b>	Post-Graduate Certificate in Education
<b>DfES</b>	Department for Education and Skills
<b>L2</b>	Second Language
<b>ZPD</b>	Zone of Proximal Development
<b>Ofsted</b>	Office for Standards in Education
<b>EFL</b>	English as a Foreign Language
<b>BET</b>	Best Estimate of Trustworthiness
<b>BERA</b>	British Educational Research Association
<b>MFL</b>	Modern Foreign Languages
<b>SEN</b>	Special Educational Needs
<b>MAT</b>	More Able or Talented
<b>SPSS</b>	Statistical Package for the Social Sciences
<b>CPD</b>	Continuing Professional Development
<b>NQT</b>	Newly Qualified Teacher
<b>PISA</b>	Programme for International Student Assessment
<b>GCSE</b>	General Certificate of Secondary Education
<b>SATs</b>	Standard Assessment Tests
<b>SLT</b>	Senior Leadership Team
<b>RAISE (online)</b>	Reporting and Analysis for Improvement through school Self-Evaluation

# **CHAPTER 1: INTRODUCTION**

## **1.1 Introduction**

Asking and answering questions is fundamental to how we communicate and learn about the world, driven perhaps by inexorable human curiosity, the unremitting pursuit of knowledge and an insatiable desire for explanation and understanding. As Dillon (1990, p.1) explains, “all around our own little circle of affairs turns a world of questioning where people think and do marvellous things with question and answer.” It seems appropriate that when embarking on a doctoral thesis of this nature, I should begin with my own question; “What is a question?” The Oxford Dictionary defines it as “a sentence worded or expressed so as to provoke information.” Of course not all questions seek to provoke a response, as is the case with the so-called ‘rhetorical’ question, whose sole purpose is to make a statement or convey an opinion. For example, we may well remember a parent asking, “How many times have I told you not to do that?” and clearly not expecting an answer!

## **1.2 Whole-class Questioning in a School Setting**

Questioning is probably the most frequently used instructional tool employed by teachers. Indeed, Graesser and Person (1994, p.105) confirm that the frequency of teacher questions is quite high, reporting that they ask between 30 and 120 per hour, with a mean of 69 questions. Kerry (1998, p.11) later concurred with these figures concluding that if teachers ask an average of 43.6 questions per hour, this would translate to between 1.5 and 2 million questions in an average career. Almeida and Neri de Souza (2010) confirm that decades later, these patterns of questioning behaviour were still the norm with teachers continuing to dominate classroom discourse.

In a classroom setting, questions have very specific functions and Morgan and Saxton (1991, p.41) categorise them in three ways; to elicit information, shape understanding or encourage reflection. Historically, the Initiation-Response-Feedback (I-R-F) sequence has been regarded as the ‘default’ position for whole-class questioning routines. In fact, as Seedhouse (2004, p.74) points out:

“The IRF/IRE cycle (and display questions) seem not to be interactional features which are specific to a particular culture or age; they appear to be universal phenomena in education and learning contexts.”

This indomitable feature of classroom practice first came to prominence in a study by Sinclair and Coulthard (1975), who highlighted the fact that the majority of teacher-learner interactions involve a standard three-turn exchange where the teacher asks a question (initiation), the learner answers the question (response) and the teacher evaluates the response and gives feedback. The 'F' move can be referred to as either the *evaluation* (and is therefore known as I-R-E), *feedback* or *follow-up* phase. Henceforth, I will refer to it as the 'follow-up' stage (therefore, I-R-F) and the rationale for this decision will be elaborated on later. As MacBeth (2004, p.704) explains, the I-R-F questioning sequence:

“Is organised by the understanding that teachers routinely know the answers to their questions, and that this is understood by everyone else in the room, whether those others know the answers or not. The question with known answer is a deeply familiar and pervasive way of organising instructional sequences in classrooms, and it delivers the last word, and sequence closure, to the teacher.”

At its most simplistic level, an example of a typical I-R-F exchange would be:

**Teacher:**        *So how do you find one third of a number? (I)*

**Student:**        *You divide by three (R)*

**Teacher:**        *Yes, you divide by three (F)*

The process is cyclical in nature and so one cycle can lead to the next one. For example, the teacher could now initiate a new cycle with another question. This could be directed towards the same student or other members of the class:

**Teacher:**        *So why do you divide by three? (I)*

**Student:**        *You divide by the bottom number in the fraction (R)*

**Teacher:**        *That's right, you always divide by the denominator (F)*

Whilst the I-R-F questioning sequence can be used in any learning situation, this study focusses on I-R-F within the context of whole-class questioning.

### **1.3 Rationale behind the Study**

Undertaking a doctoral degree can be a rather challenging and foreboding experience given that, in my case, it can take up to 8 years to complete. As a practising teacher, sustaining the energy and commitment to complete a project of this magnitude was always likely to be daunting and, at times, incredibly challenging. There are bound to be 'highs' and 'lows' along this type of academic journey and so it was critical to choose the right area of research in order to

maintain motivation and momentum. There were two main elements underpinning the selection of this topic as a basis for my doctoral thesis.

### **1.3.1 Personal Experience and Interest**

The whole-class questioning process has always held a fascination for me, firstly as a student myself and later as a teacher of mathematics and assistant head teacher. Even as a child, I recall the tribulations of whole-class I-R-F (although not called that at the time) where it seemed that the teacher's over-riding aim was to catch you out when you were not listening or rebuke you for answering incorrectly, concluding that you were not working hard enough! Even at this early age it was obvious that I-R-F was a unique pedagogical process, controlled exclusively by the teacher.

Later when I became a teacher in the mid-1980s, the mechanics of whole-class I-R-F had not changed, but the climate within which it operated was becoming more conciliatory. Despite having completed a PGCE, being a newly qualified teacher in those days was very much about 'learning on the job', with little advice given about 'questioning'. At this time, there was virtually no scrutiny or intervention from other colleagues and in my first year of teaching (the so-called probationary year), I was only observed twice; once by the subject leader and once by the deputy head (how things have changed!). At this point, my main objectives during whole-class I-R-F were:

- Do not continually select the same students to answer
- Try to involve the whole class as much as possible
- Do not show frustration or displeasure if a student gives a wrong answer
- Try to tease the answers out of the class rather than 'hand it on a plate'

Even at this stage it seems that I was beginning to display constructivist inclinations, in that I believed that students should actively contribute to the questioning process and be given the opportunity to think for themselves.

When I eventually became an assistant head, my knowledge of teaching and learning (and therefore I-R-F) began to develop more rapidly, particularly outside the remit of mathematics. In a senior position like this, it is incumbent upon oneself to have an up-to-date awareness of teaching methods and existing educational policy and trends, particularly as one of my senior leadership roles



was to observe other staff as part of performance management procedures. In addition, I had also recently enrolled on a Master of Education course which meant that I was beginning to develop a much greater awareness of educational research and the scholarly literature.

Around this time, the *Assessment for Learning* (AfL) initiative was launched nationally, and was to leave an indelible impression on teaching and learning for years to come. The AfL movement first surfaced in 1998 when Paul Black and Dylan Wiliam were commissioned by the Assessment Reform Group to review existing literature and research on classroom assessment and its impact on learning. After evaluating the results of over 250 studies, they produced a now famous booklet entitled *Inside the Black Box* which concluded that for assessment to improve learning, five key issues needed to be addressed:

- The active involvement of students in their own learning
- The need for students to assess themselves and know how to improve
- A recognition of the profound effect assessment has on motivation and self-esteem and how critical these are in influencing learning
- An ability to adapt teaching to take account of the results of assessment
- The provision of effective feedback to students

AfL brought a prescriptive and structured dimension to most lessons, with its features now considered to be essential pre-requisites of a successful lesson. The DfES (2004b, p.2) was also clear that “the interaction between teacher and learners is the most important feature of the classroom” and was very forthcoming with advice about how to acquire a greater degree of questioning competence. A teacher should understand how to:

- Plan questioning for a lesson
- Use questions to engage students and promote responses
- Use questions to develop students’ cognitive abilities
- Apply a taxonomy to questioning in your own subject
- Use classroom tactics to become an effective questioner
- Avoid pitfalls and plan for alternatives to questions
- Respond to answers so that students are encouraged to participate

Many of the afore-mentioned features of AfL were readily incorporated by teachers into their lessons and this was very apparent when conducting lesson observations in my role as assistant head. Yet, it remained perplexing that, despite the plethora of advice available about 'effective' questioning, there appeared to be little appetite or capacity for teachers to adopt the guidance offered. In truth, the quality of questioning observed remained generally poor, with students contributing very little to the proceedings. My evaluation of whole-class I-R-F within the school at this point can be seen in the questioning parody below. Of course, this is rather frivolous and somewhat exaggerated but it sums up my observations at this time.

Figure 1.1: A Parody of Whole-class I-R-F (adapted from Clarke, 2005b, p.54)

*The teacher begins the lesson with the usual quick-fire questions. Same hands go up, same students chosen. Teacher chooses students that will give the correct response; this is no time for wrong answers. In the unlikely event of a wrong answer, quick sidestep, find someone who will give the correct one. No time to examine misconceptions, after all it's not in the lesson plan. Oh dear, no hands up, the question must have been too hard, I'll make them easier in future. Hope he doesn't ask me a question, reflects a student; if I get it right they will think I'm a swot, if I get it wrong they will think I'm stupid; all my mates watching me make a fool of myself. Please be an easy question ponders another, nothing too complicated, hope it's obvious what he's after. Do hurry up with your answer, muses the teacher, I have a lesson plan to get through. This is testing my patience, I'll finish it off for her, she's got the gist of it. Oh look Harry's not listening, I'll ask him a hard question, catch him out; that'll teach him. Better ask a token question to the weaker students, contemplates the teacher reluctantly, don't want them to feel left out; have to make it easy though, such fragile self-esteem. Right that's sorted, concludes the teacher, excellent starter, gave me what I wanted, they all know what they should. First box ticked in the lesson plan, time to move on.....*

My feedback to teachers generally focussed on increasing think-time, asking more open-ended and challenging questions and encouraging students to develop their oral skills without being interrupted; later, these features would become central to my research goals. What puzzled and frustrated me at the time was that teachers seemed very reluctant to take on board any feedback about their questioning techniques. Indeed, for the first time, I began to contemplate the possibility that whole-class I-R-F may be 'paradigmatic' in nature and that changing existing practice would prove to be extremely challenging. Furthermore, it seemed likely that for this transition to take place, it would need to involve a more substantial and extensive teacher development programme.

Embarking on this doctoral course gave me the perfect opportunity to attempt to instigate this desired change in teachers' questioning practice and it was on one of the earlier modules on the course, that a defining moment was to arise. It was at this point that I first came across Walsh's (2006, p.62) notion of Classroom Interactional Competence (CIC), which highlights a teacher's ability to facilitate learning-oriented interactions in the classroom. Walsh developed a SETT framework (Self-evaluation of Teacher Talk) which is designed to help teachers analyse and understand the interactional processes occurring within L2 lessons. He reasons that there is no such thing as a single L2 context but that "contexts are locally constructed by participants through and in their interaction in the light of over-all institutional goals and immediate pedagogic objectives."

In the context of my thesis, this discovery was an inspiration to me and was a pivotal moment in identifying the focus of my research and the methodology I would come to adopt. It was at this point that I recognised the potential for developing a similar framework which would evaluate a teacher's questioning competence during I-R-F. Furthermore, the framework could be cultivated so as to reflect endorsements from the academic and research world, my own epistemological viewpoint and the school's institutional goals. I will now explain the contribution of the latter in this process.

### **1.3.2 Institutional Goals**

I was very fortunate that, as I was beginning to formulate my research plans, Haverton High School was also embarking on a comprehensive CPD programme. Indeed, in the previous couple of years there had been a relentless drive to improve teaching and learning across the school. However, in June 2012, the school was given a 'Section 5' Ofsted inspection and received an over-all judgement of '*requires improvement*'. Ofsted reported that the school should improve by:

- Giving students more opportunity to participate actively in lessons and develop their collaborative skills
- Ensuring that the insightful questioning practice used by some teachers is consistently embedded across the school

They concluded that often teachers spend too much time talking and limit the opportunities for students to actively participate in the lesson. A follow-up Ofsted (2013) inspection was conducted in October 2013 and in this instance, the school achieved an over-all judgement of “good”. Notwithstanding this outcome, there were still concerns about how some teachers were interacting with their students, with Ofsted again concluding that in a number of lessons, teachers continue to spend too much time talking and do not give students enough opportunity to reflect on their learning.

As a result of the Ofsted judgements, one of the priorities of the SLT was to ensure that teachers attempted to develop greater student autonomy in their lessons and this ‘dove-tailed’ conveniently with my own research goals. This was a critical consideration, as without support from the SLT and the teachers taking part, it is unlikely that the research would have got off the ground. Schools and teachers are under immense pressure to meet demanding performance targets and research of this magnitude was bound to place an additional demand on the participants involved. However, the fact that there was also an institutional motive behind the research made it easier to gain the required authorisation for it to take place.

To summarise, this research study focussed on attempting to improve the questioning competence of two teachers within the context of whole-class I-R-F. Underpinning the research is an implicit acknowledgement that the philosophical roots of traditional I-R-F are firmly embedded within both societal and institutional paradigms and that whole-sale change of this fundamental position was not realistic. However, the aim was to continue to work within these parameters but to engender a shift in prevailing behaviourist dogma towards a position more in line with social constructivism. In simplistic terms, it was intended that this would involve a less teacher-oriented approach where students would be given a much greater degree of autonomy and allowed to think more, collaborate more and talk more.

## **CHAPTER 2: LITERATURE REVIEW**

In this chapter, I will be looking at the critical issues associated with whole-class I-R-F questioning sequences but will be framing it within the context of formative assessment. I will discuss the rationale behind the use of these routines and highlight both the strengths and limitations of this long-standing pedagogical tool. There is no doubt that this particular activity is a critical feature of successful classroom practice and when exulting the powers of questioning, Morgan and Saxton (1994, p.4) somewhat quixotically reflect that “a good question is seductive; like a work of art, the response it generates is for enjoyment, not analysis!”

### **2.1 I-R-F Sequences and Formative Assessment**

The diagnostic nature of whole-class I-R-F sequences means that this process is a central component of *formative assessment*. According to Sadler (1989, p.120):

“Formative assessment is concerned with how judgements about the quality of student responses (performances, pieces or works) can be used to shape and improve the student’s competence by short-circuiting the randomness and inefficiency of trial-and-error learning.”

Black and Wiliam (2009, p.7) suggest that for formative assessment to be truly effective, the responsibility for learning needs to lie with both the teacher and learner but additionally, peers should also play a role in that process. They highlight the key strategies which underpin effective formative assessment procedures and these can be seen in table 2.1 below.

Allal and Pelgrims Ducrey (2000) report that the objective of formative assessment is to provide scaffolding in the student’s *zone of proximal development (ZPD)*, a concept made famous by Vygotsky (1978), who hypothesised that mature cognitive development is unlikely to take place without interaction with and the intervention of others. Heritage and Heritage (2013, p.3) suggest that:

“When working within the ZPD, part of the teacher’s task is to resist the temptation to foreclose the child’s own conceptual work through the use of known-answer questioning, overly transparent directive questioning or even providing explicit solutions.”

As this chapter progresses, it will become clear that effective whole-class I-R-F practice is inextricably enmeshed with the principles of formative assessment.

Table 2.1: Aspects of Formative Assessment - Black and Wiliam (2009, p.8)

	Where the learner is going...	Where the learner is right now...	How to get there...
<b>Teacher</b>	1. Clarifying learning intentions and criteria for success	2. Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	3. Providing feedback that moves learners forward
<b>Peer</b>	Understanding and sharing learning intentions and criteria for success		
<b>Learner</b>	Understanding learning intentions and criteria for success		
		4. Activating students as instructional resources for one another	
		5. Activating students as owners of their own learning	

## 2.2 Why do Teachers Question?

Long and Sato (1983, cited Walsh, 2006, p.8) conclude that “a teacher’s use of questions is the single most used discourse modification to aid and maintain participation amongst learners.” Wragg and Brown (2001, p.7) suggest that there are many other reasons as to why teachers ask questions, amongst them:

- Arouse interest and curiosity concerning a topic or focus attention on a particular issue or concept
- Develop an active approach to learning
- Structure a task in such a way that learning will be maximised
- Provide an opportunity for pupils to assimilate and reflect upon information
- Diagnose specific difficulties inhibiting pupil learning
- Involve pupils in using an inferred cognitive operation on the assumption that this will assist them in developing thinking skills
- Afford an opportunity for pupils to learn vicariously through discussion
- Develop reflection and comments by pupils on the responses of other members of the group

The DfES (2004a, p.2) asserts that “the interaction between teacher and learners is the most important feature of the classroom”, concluding that ‘questioning’ can engage and focus pupils, check prior knowledge and understanding and extend thinking from the concrete and factual to the analytical and evaluative. Clarke

(2005a, p.49) affirms that 'questioning' is an area of formative assessment which "encapsulates the active involvement of students in their own learning" and can result in "relatively rapid, positive changes in the classroom." Indeed, this particular feature was at the centre of the AfL initiative mentioned earlier. The DfES (2004b, p.12) concludes that:

"Oral feedback is a powerful force for moving pupils on and will be the most regular and most interactive form of feedback. It is both direct (targeted to individuals or groups) but also indirect (others listen and reflect on what has been said)."

Hyman (1980, p.38) concludes that, whilst teacher questioning is an essential component of classroom teaching, questioning is not solely the remit of teachers but may also be generated by the students themselves. He concludes that these types of questions serve as an effective vehicle for gaining information from other people and "allow a person to clarify a fuzzy idea, to critically assess someone else's point of view, and to seek solutions to personal and social problems." However, as will become apparent in the next section, not everything in the 'questioning garden' appears to be rosy. Furthermore, students themselves appear to remain fundamentally passive, making a restricted contribution to their own learning.

### **2.3 I-R-F as a Communication Model**

The traditional whole-class I-R-F sequence is much maligned in many academic quarters and not without good reason. Questioning routines of this type rarely follow the conventions one would normally associate with genuine and natural communication patterns. Nunan (1987, p.137) suggests that:

"Genuine communication is characterised by the uneven distribution of information, the negotiation of meaning (through for example, clarification requests and confirmation checks), topic nomination and negotiation by more than one speaker, and the right of interlocutors to decide whether to contribute to an interaction or not. In other words, in genuine communication, decisions about who says what to whom and when are up for grabs."

Dillon (1990, p.11) concurs with this viewpoint and explains that a genuine interaction should involve a "mix of moves by a mix of speakers - questions and statements and responses by students and teacher." However, in the world of the I-R-F, interactions and communications are anything but authentic and these types of routines are usually underpinned by very specific expectations and protocols, with the teacher very much in control of the proceedings. This distinct

form of discourse is highlighted by Dillon (1990, pp.8-9) who points out that during any whole-class questioning routine, numerous people are being asked questions all at once by one other person; most other forms of questioning involve one questioner and one respondent. However, he goes on to conclude that the circumstances in which questioning routines unfold are particularly complex. When citing Doyle (1986), he identifies six properties that contribute to such a multifarious situation:

- **Multidimensionality**; a large number of events occur by the minute
- **Simultaneity**; numerous events can happen at once, not serially
- **Immediacy**; events occur rapidly with little time to reflect before acting
- **Unpredictability**; events typically take unexpected turns
- **Publicity**; events are witnessed by a large number of people who may be influenced in different ways when observing what is transpiring between two parties at hand
- **History**; pupils and teacher accumulate a common set of expectations and routines that provide a basis for conducting future activities

Cazden (2001, p.82) suggests that in traditional classrooms, the most important asymmetry in the rights and obligations of teachers and students, is who has control over who can speak and this, she concludes, is firmly with the teacher:

“Teachers have the role-given right to speak at any time and so to any person; they can fill any silence or interrupt any speaker; they can speak to a student anywhere in the room and in any volume or tone of voice. No one has the right to object.”

Invariably, the teacher directs ‘verbal traffic’ by requesting that students raise their hands before selecting someone to speak. As Cullen (2002, p.118) points out, this type of learning environment “fails to give students the opportunities to ask questions themselves, nominate topics of interest to them, and negotiate meaning.” Wragg and Brown (2001, p.28) are equally as disdainful, asserting that many teachers ask too many questions, answer their own questions and often ask questions that are irrelevant, closed or difficult too early in the sequence of events.



## **2.4 I-R-F from the Students' Perspective**

Most students learn to adhere to the rules at a very early age and are often introduced to the restrictive nature of whole-class protocol through 'circle-time', a wide-spread and well-established practice in primary schools. Morris (1999, p.30) advises teachers that this facet of classroom practice can be invaluable in "steering" the class towards established 'norms' within the classroom "so that the class can 'perform' effectively and happily." To do this, she explains, it is important to introduce some clear 'ground-rules':

- No one has to speak if he/she doesn't want to
- Only one person can speak at a time
- Try to show respect when someone is talking (this often takes courage); listen attentively and, even if you don't agree, try to understand their point of view, no 'put downs'!
- Everyone should be taking an active and positive part in the circle all the time, not one person talking while everyone day-dreams!

For students, this early 'survival' template serves as a useful pre-cursor to the more demanding rigors of whole-class I-R-F. Edwards (1992, cited Mercer 1995, p.44) disparagingly describes what a child needs to do in order to be a 'competent student', highlighting concisely the constrictive nature of teacher-student interactions:

- Listen to the teacher, often for long periods
- When the teacher stops talking, bid for the right to speak and in doing so, balance the risk of not being noticed with the risk of being ignored for being too enthusiastic
- Put up with having any student's answer treated by the teacher as evidence of a common understanding or misunderstanding; thus, the teacher will often explain something when you understand it first time or proceed when you are still struggling with what was previously said
- Look for clues as to what a right answer might be from the way the teacher leads into the question and evaluates the responses; in the end, even a wild guess may lead the teacher to answer the question for you

- Ask questions about the administration of the lesson but not the content and certainly never suggest the teacher might be wrong
- Accept what you already know is unlikely to be asked for, or to be accepted as relevant, unless it fits into the teacher's frame of reference

Even where teachers *appear* to ask open questions, students soon learn that this is not necessarily an invitation to construct a personalised response or viewpoint. For example, Wragg (1994, p.110) refers to a study by Barnes et al (1967) who suggest that many apparently 'open' questions were in fact '*pseudo-open*' because, whilst appearing open on the surface with the teacher inviting a wide range of possible responses, in reality the teacher was seeking a preferred response; pupils quickly learn to play a 'guessing game', scanning the teacher's facial and linguistic responses in order to grapple towards the approved reply. Whilst this particular study was conducted many years ago, evidence suggests that events have not significantly changed.

Cazden (2001, p.46) concludes that teachers, being mindful of such criticisms, are often coerced into asking supposedly 'authentic' questions by appearing to ensure that they are typical of informal conversation. When analysing some discourse analysis between teacher and students in a study in the USA, her conclusion was that:

"The questions are, in short, 'inauthentic'. Either T (teacher) is simply testing student knowledge, so the criticism goes, or is co-opting students to participate in what could otherwise be a lecture- transforming a monologue into a dialogue by eliciting short items of information at self-chosen points."

Thus, whilst attempting to give the outward impression of conducting an open and authentic conversation, teachers are in fact furtively adhering to a tightly controlled and self-directed protocol, probably driven by pre-determined learning objectives.

The fact that whole-class I-R-F takes place in a 'public' arena can itself be problematic in the eyes of many students. Many learners are thought to find the nature of such routines threatening or intimidating and there is certainly evidence to suggest that many pupils endure negative experiences. Buss (1980, cited Anderson, 2005) asserts that some pupils suffer from 'audience anxiety' if they have been laughed at or publicly corrected in the past. These pupils, it is suggested, often withdraw or remain passive in the learning process or learn to avoid similar situations in the future. This is particularly the case in cognitively

challenging situations, where students are often more pre-occupied with 'saving face', than developing a deeper understanding of the topic.

## **2.5 The Paradox of I-R-F**

As discussed earlier, there has been much investment in education over the last few decades in order to improve the quality of teaching. From the early part of this century, AfL became the 'gold standard' for teachers in the way that they planned, delivered and assessed their lessons. Yet against this backdrop, and considering the barrage of negative criticism directed at the I-R-F structure over the years, it seems somewhat paradoxical that this apparent bastion of behaviourist ideology has displayed such durability. So what is the driving force behind such implausible pedagogical longevity?

Much of the responsibility for this appears to be levelled firmly at teachers themselves. For example, Morgan and Saxton (1994, p.5) suggest that teachers are often completely unaware of their own questioning frailties and imply that much of their questioning behaviour is driven by their own needs, rather than by those of the students. They assert that many teachers:

- Do not realise that they use questions as part of their 'control' repertoire
- Believe learning is knowing the right answer and knowledge is immutable
- Become uncomfortable when a question has no one right answer
- Do not recognise the significance of peer talk to the learning process and worry about the consequences of good questions because of the noise of the resultant talk and perceived lack of control

They also point out that many teachers are often oblivious to their own tendency to continually select the same students to answer questions, usually the brightest or most likeable ones. Kerry (1998, p.59) concurs with this viewpoint concluding that they often:

- Have an unconscious gender bias
- Target students as a means of controlling the class, rather than getting the class's attention first
- Are biased towards those who respond and fail to notice non-participants

- Attempt to differentiate by targeting open questions to the more able and only closed ones to the less able

Cullen (2001, p.118) suggests that I-R-F prevails simply because of the way that teachers value the process:

“One reason for this may be that teachers instinctively adopt an I-R-F mode of instruction, because it is perceived, perhaps unconsciously, to be a powerful pedagogic device for transmitting and constructing knowledge.”

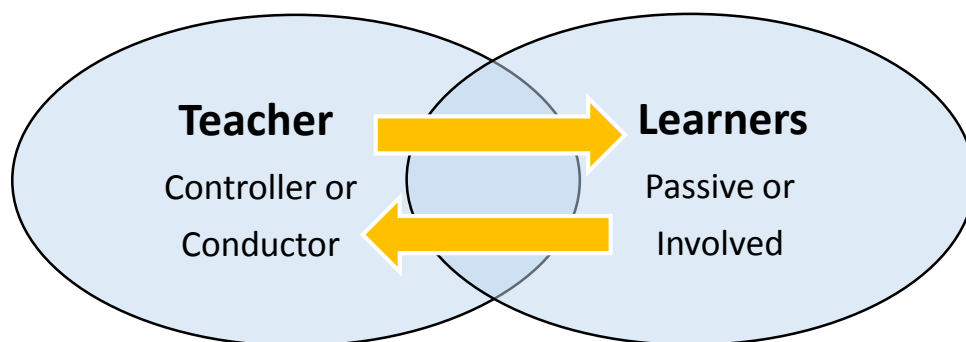
When discussing the concept of “institutional interaction” within an L2 setting, Seedhouse (1996, p.22), asserts that, even where teachers perceive themselves to be relinquishing control of interactions in the classroom, the resultant linguistic patterns and interactions are inevitably driven by the pedagogical purposes introduced by the teacher. In this sense, he explains, there seems to be an “inherent paradox in the communicative orthodoxy,” in that, whilst many communication theorists would prefer to see teachers attempting to replicate *genuine* discourse in the classroom, as soon as the teacher introduces any pedagogical purpose, the discourse becomes an *institutional* conversation.

In terms of the I-R-F sequence, Seedhouse concludes that there may be a more deep-rooted explanation for its remarkable durability, highlighting the fact that there is invariably a high incidence of I-R-F communications in transcripts involving *parent-child* talk. He concludes that, because of this, it is surprising that communication theorists do not promote this type of interaction rather than actively discouraging it.

## **2.6 Best Questioning Practice: the Research**

On the surface, the I-R-F sequence might appear to be a fairly straightforward and simplistic procedure. However, even within the constraints of this style of questioning, there is scope for variation and the outcomes are very much dependant on the philosophy and approach of the teacher delivering it. Black and William (2009, p.7) highlight the three domains of interaction which typically reflect the opportunities available during an I-R-F questioning sequence and can be seen in Figure 2.1 below.

Figure 2.1: Three Interacting Domains of Pedagogy- Black and Wiliam (2009, p.7)



The overlapping area represents a classroom where the learners are actively involved, either by hearing the exchanges or possibly joining in; in this situation, the arrows could be pointing in all directions. Thus, as Black and Wiliam point out, the interactions that take place can represent “either a genuinely dialogical process or one in which the students are relegated to a supporting role.” The process can be decomposed into three critical steps:

1. The teacher’s interpretation of the student’s response
2. The teacher’s decision about the best response; this is primarily a strategic decision and is taken in light of the purpose for which the over-all task was designed
3. The teacher’s final tactical decision; how to formulate the detail of the response to best serve the over-all strategy

Askew and Lodge (2000, p.4), promote a feedback framework which highlights three different models of teaching and that explores the goals that inform them; these can be seen in Table 2.2 below. In reference to the framework, Clarke (2005a, p.8) suggests that the aim should be to include more ‘loops’, though she accepts that ‘gifts’ and ‘ping-pong’ may be necessary pre-requisites for arriving at that point.

As will become apparent in later chapters, the underlying thrust of this study is that, within the context of whole-class I-R-F, the teacher should attempt to assume the role of *conductor* and the students should be actively *involved* in the questioning process. Whilst *instruction* (gifts) and *construction* (ping-pong) will still play a big part, the hope is that teachers will place a much greater emphasis on *co-construction* (loops).

Table 2.2: Based on Askew and Lodge's Framework (2000, p.4)

Model of Teaching	Role of the Teacher	View of Feedback
<b>Receptive-transmission</b>	To impart new knowledge, concepts and skills	Feedback is a <i>gift</i>
<b>Constructive</b>	To help make connections, discover meaning, gain new insights	Feedback as a two-way process like <i>ping-pong</i>
<b>Co-constructive</b>	Facilitate a reflexive process in others about learning through a collaborative dialogue	Feedback is a dialogue, formed by <i>loops</i> connecting the participants

Of course, there will always be competing philosophies in education about what actually constitutes 'good practice' but, over the years, a general consensus has emerged within the research and scholarly literature about what effective whole-class questioning might look like and conversely, what teacher actions should be avoided. I will now look at the questioning features that I believe can be used in order to make I-R-F a more effective learning model as well as highlighting the negative characteristics to avoid. I will discuss these issues within the context of the three I-R-F phases of Initiation, Response and Follow-up.

### **2.6.1 The *Initiation* Phase**

This phase is entirely teacher driven and involves the actions of the teacher up to and including the asking of the question. Although on the surface, the action of asking a question may appear to be rather simplistic, there are several important issues which need to be considered by the teacher:

- ***Planning***

Black et al (2003, p.41) are very critical of the *quality* of the questions asked by teachers and suggest that "more effort has to be spent in framing questions that are worth asking - that is, questions which explore issues that are critical to the development of students' understanding."

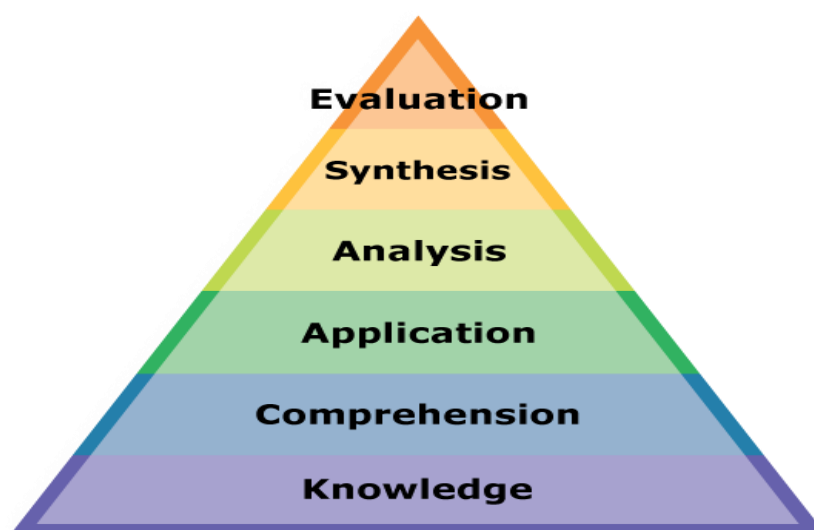
Clarke (2005a, p.55) concurs with this standpoint and suggests that for questioning to be more effective, questions need to be more carefully planned, concluding that teachers with highly effective questioning skills might not appear to have carried out much planning and often “reel off questions, it would appear, from the tops of their heads”. However, she adds that, in reality these ‘instinctive’ teachers have usually planned their questions beforehand, taking account of what questions are required for a particular topic, which ones are the most important and how the questions should increase in challenge.

- ***Types of questions***

Whether a question is open or closed and its cognitive level are critical considerations in the questioning process and over the years these particular issues have, at times, courted much controversy and dismay. Many of the ‘thinking models’ over the years have evolved from what is commonly referred to as ‘Bloom’s Taxonomy’. Bloom classified thinking on six hierarchical levels, from lower-order (knowledge) to higher-order (evaluation) and can be seen in Figure 2.2 below. Many subsequent classification systems have emanated from this taxonomy and most place ‘factual information’, ‘re-call’ or ‘convergent thinking’ at the lower end of the cognitive scale and ‘evaluating’, ‘synthesising’ and ‘divergent thinking’ at the upper end. However, if I-R-F sequences are to develop the complete range of cognitive skills in students, then the routines themselves need to include questions which reflect that aspiration.

Despite this, Kerry (1983, p.148) highlighted a lack of cognitive challenge in questions when he conducted an analysis of 6,928 questions from 147 lessons involving 36 teachers across 8 different subjects. The results revealed that the overwhelming majority of questions asked were either managerial (21%) or directed towards factual information or recall (75.5%). Indeed only 3.5% characteristically involved higher-order thinking. Yet, notwithstanding the passage of time, Black et al (2003, p.11) report that, according to classroom research, questions of a lower cognitive nature still dominate classroom practice. They conclude that this propensity is particularly evident in teachers’ assessment procedures, concluding that “teachers’ tests encourage rote and superficial learning; this is seen even where teachers say they want to develop understanding and many appear unaware of this inconsistency.” Tan (2007, cited

Figure 2.2: Bloom's Taxonomy



Jiang 2014, p.290) also reports that “over the ensuing three decades little has changed regarding teachers’ emphasis on re-call questions.” The conclusion is that “low cognitive questions tend to engage students in rote learning and discourage critical thinking.” Wood (1998, p.175) supports this standpoint when discussing the findings of Nuthall and Church (1973) and Redfield and Rousseau (1981) who studied the effects of different types of questions on student performance. They report that teachers’ use of specific questions led to rapid learning of factual information, but when examining the longer-term effects of different questioning ‘regimes’, achievement was shown to be higher when pupils experienced more cognitively demanding questions. Furthermore, Sigel and McGillicudy-Delisi (1998, cited Wood 1988, p.176) suggest that when *parents* ask these types of questions it was shown to be predictive of a number of measures of a child’s educational achievement. Wintergest (1993) reports that ‘why-questions’ are also more likely to instigate longer responses from learners but concludes that the frequency of such questions is very low.

Musumeci (1996, p.287 and p.307) describes ‘archetypal patterns’ of classroom interaction where teachers instigate the majority of exchanges by asking ‘display’ questions as opposed to ‘referential’; that is, they ask questions they know the answer to. She suggests that one of the main reasons why this situation prevails is the fact that, due to time constraints, the teacher perceives this type of approach as being the most effective way of advancing the discourse. She concludes, however, that the length or complexity of a learner’s response is



dictated more by whether the question is 'open' or 'closed' rather than whether it is 'display' or 'referential'.

However, many regard the pairs of terms 'display and referential' and 'closed and open' as being inter-changeable. Ho (2005, p.298) explains that a closed or display question is when "the teacher already knows the answer and when students are prompted to display that they have already learnt (sic)." According to Ho, these types of questions invariably elicit "short, mechanical responses." On the other hand, an open or referential question "seeks an answer not known to the teacher and requires lengthy, often complex responses." These types of questions, she explains, are not "factual or text-embedded" but often require students to "draw answers from their own experiences and viewpoints," meaning that the responses are more reflective of genuine communication patterns.

Ho argues, however, that not all questions can be evaluated in terms of their "communicativeness" and categorised as simply open or closed. She suggests that, in fact, there is an intermediary level which falls between those two polarised positions. These types of questions are particularly common in 'reading comprehension' and often assess vocabulary power, grammar and general knowledge; they can be considered to be neither open nor closed. Her three-level categorisation of teacher questions can be seen below in Table 2.3.

Whilst the general consensus appears to be that too many closed, display questions are asked in classrooms, this is not to say that these types of questions do not have a significant part to play in a student's education. As Nunn (1999, cited Ho, 2005, p.308) points out, display questions may be regarded as worthless from a communicative point of view but may be of great value when considering either the teacher's pedagogical goals or those of the institution. Seedhouse (1996, p.21) supports this viewpoint, concluding that "in the classroom and in parent-child interaction, the core goal is learning or education, and both the IRF cycle and display questions are interactional features well-suited to that goal."

Table 2.3: Three-level Categorisation of Teacher Questions (based on Ho, 2005)

Categories of Teachers' Questions	Description
<p style="text-align: center;"><b>Level 1</b> (Closed/Display)</p>	<p><i>Questions which:</i></p> <ul style="list-style-type: none"> <li>• Ask for answers the teacher already knows</li> <li>• Prompt short, simple responses</li> <li>• Often require limited, sometimes one word answers</li> <li>• Allow students to display knowledge acquired within the classroom context</li> </ul>
<p style="text-align: center;"><b>Level 2</b> (Neither Closed/Display nor Open/Referential)</p>	<p><i>Questions which:</i></p> <ul style="list-style-type: none"> <li>• Ask for answers related to, though not found, in the topic</li> <li>• Are designed to gauge students' proficiency; for example, vocabulary and general knowledge</li> <li>• Have two or more possible answers</li> <li>• Ask for answers students may not have acquired within the classroom context</li> <li>• Stimulate more thoughtful responses, though not necessarily linguistically lengthy or complex</li> </ul>
<p style="text-align: center;"><b>Level 3</b> (Open/Referential)</p>	<p><i>Questions which:</i></p> <ul style="list-style-type: none"> <li>• Are purely exploratory</li> <li>• Ask for answers which the teacher genuinely wants to know</li> <li>• Have no right or wrong answers</li> <li>• Promote interaction resembling a non-classroom setting</li> <li>• Stimulate complex and lengthy language output from students</li> </ul>

- ***Differentiation***

Kerry (2002, p.82) reflects on the tasks set for students and asserts that the teacher's skill of 'differentiation' has a "profound" effect on the quality of the learning that takes place in a classroom. He concludes that:

"This skill operates in a context of challenge and support for the pupils to bring out the best learning in each individual, and that learning has to be set against a context of cognitive demand."

Thus, an important element of whole-class I-R-F from a teacher's perspective, is to ensure that the cognitive level of any particular question is appropriate to the ability of the students being questioned.

Historically, in questioning routines, it is the 'more able' students that are particularly thought to 'miss out', due to many of the questions asked being undemanding and lacking in cognitive challenge. George (2003, p.9) highlights the specific needs of 'gifted and talented' children, arguing the case for a

differentiated educational programme beyond those usually provided for the majority of children. These pupils, he concludes, require more complex tasks and use of more sophisticated language and vocabulary when expressing their conclusions and thoughts.

With regard to the more able students, Stopper (2000, p.22) advocates the use of Kerry's (1990) hierarchy of 9 question types, during questioning routines. The specifications not only distinguish between 'closed' and 'open' questions, but also take account of the extent to which the student response requires higher cognitive skills as well as factual recall. The first five categories are identified as 'closed' and require shorter answers, less reflection and a lower level of language use. The remaining four categories are designed to produce questions which are particularly demanding for the more able pupils; speculative or hypothesis-generating questions, analytical or reasoning, discriminatory and problem solving.

Bennett et al (1984, cited Wragg 1994, p.124) found that, whilst the more able pupils were regularly given tasks with a distinct lack of challenge, the less able students also 'missed out' because they were often set tasks that were beyond them. The conclusion was that teachers typically tend to teach towards the middle of the ability range with any particular class.

### **2.6.2 The Response Phase**

It is during this phase that students will be given the opportunity to verbalise their thinking in relation to the question that the teacher has just asked. However, the degree to which students will be permitted to articulate their thoughts and the quality of these responses will depend greatly on the questioning behaviour of the teacher and the classroom climate which is prevalent at the time.

- ***Wait-time (Think-time)***

Before the teacher has finished asking a question, the students will already be in the process of formulating a response, although they may not yet be in a position to articulate it. Even where questions have been meticulously planned, teachers notoriously fail to maximise the opportunities for learning due to a shortage of student *processing* time. One of the key elements of an effective question and answer routine is the use of appropriate 'wait-time' (think-time); the time a teacher waits before selecting a student to respond after asking a question. However, over

the years, a lack of wait-time has notoriously reduced the quality of questioning routines in classrooms.

Rowe (1986), Black et al (2003) and Morgan and Saxton (1991) verify that the average wait-time employed by teachers is usually less than one second. They conclude that such a short time interval prevents most students from engaging in the classroom discourse because it does not allow sufficient time to process a response, let alone verbalise an answer. They hypothesise that this proclivity may be explained by the dynamics of social discourse which make us liable to experience discomfort and insecurity when confronted with extended silence; it seems that teachers are particularly prone to this where the classroom climate is perceived as being potentially threatening. Results from a study by Black et al (2003, p.33) concur with this view where initially, “teachers were unable to increase their wait-time above a few seconds and talked of unbearable silences and concerns about kids switching off or misbehaving.”

In her own research on questioning, Rowe (1986, p.47) purports that by waiting three seconds or more, there are pronounced changes in the students’ use of language as well as in both student and teacher expectations. She concludes that by increasing wait-time:

- Teachers show much greater flexibility and more pronounced continuity in developing ideas
- They ask less questions but more that are cognitively challenging
- The increased wait-time encourages teachers to listen more to students’ responses and thereby become better at using the outcomes to provoke further thought
- The increased time seems to encourage normally inconspicuous students to play a more active role in the proceedings

Clarke (2001, p.87) suggests that the optimum time that teachers should wait after asking a question is 5 seconds. She postulates that if teachers do not wait this long, students will refrain from thinking of a response because they will know that the answer or another question will quickly follow; many students, she claims, are content on leaving the answering of questions to the few who are capable of responding the quickest. In doing so, many teachers keep a lesson going in this

way, perhaps unaware that only the understanding of a select few has been assessed. A study by Tobin (1980, p.470) found that when teachers were able to use an extended wait-time, “student responses contained evidence of higher-level thought.”

- ***Student-talk***

At the end of the ‘think-time’ phase, students are normally given an opportunity to communicate their own ideas or opinions in response to the teacher’s question; this could be to other students or more commonly, to the teacher. Jiang (2014, p.290) asserts that “student talk represents the externalisation of individual thinking coded in language,” but reports that research shows that “student responses are not always accurate representations of their thinking.” She discusses three main barriers preventing students from overtly exhibiting their internal thought processes:

- Students may be reticent about answering the teacher’s question and respond with silence; information about how they are thinking will then be non-existent (Tsui,1996)
- Teachers notoriously answer their own questions, depriving students of the opportunity to display their thinking, making them more teacher-dependent (Hu et al, 2004)
- Where ‘choral answers’ are sought by the teacher (whole-class responses), the amount of information on an individual basis is completely limited (Chick, 1996)

Historically, interactions during whole-class I-R-F routines have been confined to the teacher and individual students, with the teacher dominating most of the proceedings. However, in recent years there has been a much greater drive for students to learn through ‘talk’. In attempting to improve literacy skills, the DfES (2004c, p.7) identifies three main ‘strands’ for development; learning through text, learning through writing and learning through talk. The conclusion is that ‘talk’ can improve learning in three ways:

- Through purposeful ‘speaking and listening’, pupils come to understand new information by connecting it to prior learning

- The process of striving to express their own or other pupils' ideas in words helps to clarify and confirm understanding
- Talking together in discussion is interactive and allows a pupil's understanding to be challenged and extended

Certainly, there are many who believe that the quality of verbal interactions within a classroom setting is critical to enhancing the learning experience. From a socio-cultural perspective, language is regarded as central to the acquisition of knowledge and understanding. Mercer (1995, p.4) reveals his fundamentally Vygotskian standpoint when explaining that although language essentially has two functions - cultural (communication) and psychological (thinking) - they should not be viewed separately. He concludes that some of the most creative thinking often takes place when people are talking and suggests that one of the opportunities that schools should offer students is "the chance to involve other people in their thoughts - to use conversations to develop their own thoughts."

On the 'talk' issue, Alexander (2005a, p.19) unveils his disdain for the British educational system, when highlighting its irrational fixation with written work. He points out that this is in stark contrast to our international counterparts where oral competence is regarded as having the same status as literacy. To validate his viewpoint, he reports that curricula abroad generally display a higher ratio of oral to text-based learning tasks than in the United Kingdom. He concludes that the perception that only work of the written assortment is 'real' work, is firmly entrenched in students' and teachers' cultural belief systems. He adds that abroad:

"The purpose of classroom talk is seen as mainly cognitive, whereas in Britain it tends to be seen as primarily social and affective - about developing children's confidence rather than developing their thinking."

Yet, it is not that advice about the power of talk is necessarily sparse in this country, rather that there would appear to be little appetite across the profession for acting upon it. The DfES (2005, p.15) cites research by Harrison et al who report that:

"Assessment for learning is at its best when learning is shaped as evidence of pupils' understandings and misconceptions are being revealed during dialogue. To do this well, teachers need to draw upon their knowledge of the subject, of pedagogy and most of importantly of the pupils themselves."

Alexander (2005a, p.30) conducted a comparative study of teachers in five different countries and identified two contrasting styles of 'teacher-talk':

- **Direct instruction;** rote learning, recitation and exposition which involved the explanation of facts, principles or procedures.
- **Dialogic teaching;** this approach was largely underpinned by classroom discussion and involved the exchange of ideas, the sharing of information to solve problems and cumulative questioning which helped to achieve a common understanding but which expedited the handing over of concepts and principles to pupils.

He concludes that the first type is "the familiar and traditional bedrock of teaching by direct instruction" though some teachers do actually use the second approach, albeit, much less frequently.

Mercer (1995, p.104) identifies three distinctive modes for talking and thinking; *disputational*, *cumulative* and *exploratory*. The first type is characterised by disagreement and individualised decision-making with little effort to pool resources together. The next type - cumulative - involves participants building positively but uncritically on what the other has said; this process is characterised by repetitions, confirmations and elaborations. In the final type - exploratory - the players engage critically but constructively with each other's ideas; these can be challenged and counter-challenged but justifications and alternative hypotheses are offered. Mercer is particularly complimentary about 'exploratory' talk whose process, he claims, has an analytical element which embodies accountability, clarity and constructive criticism; features which are highly valued in many societies.

Clarke (2005b, pp.54-55) advocates the use of 'Talking Partners' and a 'no hands' approach in order to enhance the quality of interactions during whole-class I-R-F sequences. In essence, students can collaborate with a partner in order to formulate a response to a particular question. The answers are then gathered by the teacher (no hands up allowed) until a full explanation is arrived at. Clarke claims that this approach allows students time and space to extend their thinking and articulate their ideas. This, she concludes, creates a more respectful

and co-operative culture because students lacking in confidence are less inclined to be anxious about verbalising their thoughts in public.

### **2.6.3 The Follow-up Phase**

This phase is a critical point in the teacher-student interaction; in response to the student's utterance, a decision has to be made about how best to maximise learning for both the individual and the rest of the class:

- ***Evaluative and discorsal roles***

When discussing teacher-talk in EFL classrooms, Cullen (2002, p.118) suggests that it is the third phase in I-R-F that distinguishes classroom talk from verbal interactions outside the classroom, though he points out that 'follow-up' moves do actually take place in other contexts. Francis and Hunston (1992, p.136) agree with this standpoint but suggest that, unlike in I-R-F, these moves are usually optional, unpredictable and take place much less frequently. From his analysis of lesson transcripts of EFL discourse, Cullen concludes that the follow-up move encompasses two broad pedagogical roles, *evaluative* and *discorsal*.

The evaluative role focusses on the learner's response and is intended to provide feedback to *individuals* about their performance, for example, whether "the lexical item" or grammatical structure proposed by the student is appropriate or not. The feedback is usually an explicit and short acceptance or rejection of the response and may involve a 'repair' strategy. The discorsal role however, is "qualitatively" different in that its aim is to use students' responses "in order to sustain and develop a dialogue between the teacher and the class." Mercer (1995, p.26) explains that this technique has two main purposes and is used:

"So that students get feedback about their attempts but also so that the teacher can incorporate what students say into the flow of the discourse and gather students' contributions together to construct more generalised meanings."

Cullen concludes that 'evaluative-type' moves predominantly occur after the use of display questions whilst the 'discorsal-type' follow-up is typically associated with questions that are referential in nature.

- ***Specific follow-up moves***

Once a student has articulated a response, a range of follow-up strategies are available to the teacher. It would appear that the manner in which the teacher proceeds at this point in the interaction is very much driven by his or her



epistemological beliefs and the degree to which student autonomy is being pursued.

- ***Latching***

Unfortunately, in many classrooms, the follow-up phase begins even before the student has fully negotiated the response phase. Walsh (2002, p.14) discusses the notion of '*latching*' where, despite well-founded intentions, teachers "fill the gaps in" or 'feed lines' to pupils in an attempt to advance the proceedings. However, this restrictive manoeuvre often denies learners the opportunity to think independently or negotiate a more profound level of understanding. Kasper (2001, cited Walsh, 2004, p.6) suggests that this type of teacher behaviour is one of the main reasons as to why I-R-F is regarded by so many in such a negative manner and concludes that "this position is improved when teachers offer learners greater participation rights and a more central position in the interaction."

- ***Reformulation***

When analysing transcripts from an EFL classroom discourse, Cullen (2002, p.8), identifies the process of *reformulation* as being an effective follow-up move because "the teacher uses this strategy to repair a student's contribution and thus provide the class with a model of correct usage, without interrupting the flow of discourse she is developing with the class." Edwards and Mercer (1987, p.147) are equally complimentary about the deployment of this particular strategy, concluding that:

"These reconstructive paraphrases demonstrate another function of the feedback stage of I-R-F sequences; they provide an opportunity for the teacher not only to confirm what the pupils say, but to recast it in a more acceptable form, more explicit perhaps, or simply couched in a preferred terminology."

There is clearly a need for the teacher to act as a 'gatekeeper' in the learning process and to refine students' responses in order to ensure clarity or to question invalid lines of thinking. However, I would argue that there is a fine line between the process of *reformulation* and that of *latching*; the critical factor being the degree to which the teacher has 'high-jacked' the interaction.

- ***Scaffolding***

Walsh (2006, p.120) describes 'scaffolding' as "the ways in which teachers provide learners with linguistic props to help self-expression." This action, he explains, provides learners with cognitive dialogic support during tasks that lie

outside their capabilities. He asserts that “helping learners to say what they mean, shaping and fine-tuning their contribution is an important interactional skill, occurring most frequently in the feedback move.” However, Walsh (2006, p.36) also concludes that:

“Deciding to intervene or withdraw in the moment by moment construction of classroom interaction requires great sensitivity and awareness on the part of the teacher and inevitably teachers do not ‘get it right’ every time.”

Myhill and Warren (2005, p.55) discuss the significance of ‘critical moments’, defining them as “points in a lesson where something a child or teacher says creates a moment of choice or opportunity for the teacher.” They suggest that there is often a failure to maximise specific learning opportunities by not providing the appropriate level of *scaffolding*. Instead, it is claimed, teachers often use controlling tactics which, in reality, act “as heavy prompts or even as a straight-jacket upon pupil learning.”

- **Teacher echo**

Walsh (2006, p.123) concludes that this particular action is deployed for “amplifying a learner’s contribution for the rest of the class, confirming correctness, acknowledging the relevance of an utterance.” He explains that the move can be deemed to be both positive and negative, depending how it is used. If it is over-used, particularly as the student is in the process of speaking, it can interrupt the flow of the discourse and deprive the student of “interactional space”. However, where used more sparingly, it can play an important role in facilitating learning. Cullen (2002, p.9) agrees with this position and describes the strategy as a “time honoured way of acknowledging a student response and confirming it as acceptable and in the process, ensuring that all the students have heard it.” He concludes that when the teacher repeats a student’s contribution to confirm, question or express surprise, the teacher is making use of a strategy which has “sound pedagogical foundation and which critics of the practice might do well to reappraise.”

- **Probing**

Piccolo et al (2008, p.404) conclude that:

“Conceptual understanding of the content coupled with an ability to engage in rich (Mathematical) discourse through a probing, guiding and interactive dialogue is a goal many teachers should strive to attain.”

The Secondary National Strategy (2007, p.8) suggests that ‘probing’ questions can be used by teachers to generate dialogue in order to explore the depths of student understanding and contribute to the strengthening of learning. Thus, where appropriate, rather than accept students’ responses at face value, teachers should probe further and encourage students to expand, clarify and justify their answers. The DfES (2004a, p.8) asserts that “probes are useful follow-ups and can be used to seek more information, to clarify responses or to get pupils to extend their answers.” Walsh (2006, p.121) suggests that ‘seeking clarification’ is a valuable strategy to use in an L2 classroom, highlighting “the need for teachers to be active listeners, constantly reaffirming, questioning and clarifying learner contributions.” He concludes that, by accepting a response which is only partially understood, it may ensure a more free-flowing discourse but will also deny learners valuable learning opportunities.

- **Re-cycling**

Clarke (2005a, p.13) suggests that “constructivist teachers allow student responses to drive lessons, shift instructional strategies and alter content.” Black et al (2003, p.34) suggest that enhanced opportunities for class discussion can be created by focussing on what students have said rather than just accepting an answer and moving on. In this way students can be encouraged to listen to and comment on the responses given by their peers.

Ofsted (2012) highlight the thoughts of Professor Dylan Wiliam who advocates the use of the questioning technique ‘Pose, Pause, Pounce, Bounce’. Here, the teacher *poses* a question, *pauses* to allow some think-time, *pounces* on a student to respond and then *bounces* the student’s response onto other students. He gives an example of how this could work in mathematics:

<b>Teacher (to Student 1):</b>	How might you describe a hexagon?
<b>Student 1:</b>	It’s a shape with six sides.
<b>Teacher (to Student 2):</b>	How far do you agree with that answer?

He explains that, depending on the response of the students, this process could continue with additional questions such as, “How could we improve the question?” In this way the students’ responses are being *re-cycled* to generate additional answers and extend thinking, as well as ensuring that the rest of the class is actively involved in the questioning process.

However, Walsh (2006, p.134) adds a word of caution, explaining that there is often a propensity in L2 classrooms to collect as many student contributions as possible, without taking account of their quality or comprehensibility. He concludes that:

“Opportunities for genuine communication exchange abound; learners are naturally curious about other learners- especially from different countries and cultures- and yet fail to connect because contributions are not adequately exploited or shaped.”

Thus, when using this technique, it is important that the teacher can re-iterate or reformulate (see above) the students’ responses in order to bring an over-all clarity of thought to the outcomes.

## **2.7 Praise**

Praise can of course be directed towards students at any point in the lesson but is perhaps most prominent during whole-class I-R-F sequences. However, this facet of teacher behaviour is, in my experience, one of the most controversial and least understood features of classroom practice. Coe et al (2014, p.22) explain that many popular but ineffective teacher practices are susceptible to ‘confirmation bias’ and conclude that the well-intentioned use of ‘lavish’ praise is certainly one of them.

Borich and Tombari (1995, p.234) concur with this viewpoint and suggest that specific actions by the teacher often unwittingly perpetuate a climate of low-expectation. Being sympathetic when a student fails, showing surprise when a student succeeds, giving excessive and unsolicited support and lavishly praising easy tasks, all reinforce the student perception that they have low ability. They recommend that students should feel that *effort* is rewarded by success and that feedback should also be directed towards the strategies that students use, as well as the outcomes achieved. They suggest that:

- Comments should be directed at a student’s actions not his or her character
- Feedback should reflect an accurate and honest evaluation of student performance
- Student achievement should be attributed to internal rather than external factors

Dweck (1999, p.4) somewhat contemptuously concludes that, all too often, extravagant and unwarranted praise from the teacher is too forthcoming in a naive attempt to bolster students' self-esteem:

“We should not be giving students the impression that we place a high value on their doing work on tasks that are easy for them. A better approach would be to apologise for wasting their time for something that was too easy and move them on to something that is more challenging. When students make progress in or master that more challenging work, that's when our admiration –for their efforts– should come through.”

Dweck (1999, p.9) concludes that 'lying' to students to make them feel 'smart' when they are essentially doing poorly, simply “robs” them of the information and knowledge required in order to help them work harder and improve.

## **2.8 Teacher Paradigms and Change**

Evidence suggests that, in many cases, whole-class I-R-F sequences are often viewed differently to other classroom activities. Even where teachers are comfortable using 'pair' or 'group' work in other phases of the lesson, questioning routines are often characterized by a 'direct instruction' approach rather than by 'exploratory talk' as advocated by Mercer (1995). Carlsen (1991, p.157) adopts a sociolinguist perspective when suggesting that “research on questioning has generally failed to recognise that classroom questions are not simply teacher behaviours but mutual constructions of teachers and students.”

He identifies two research paradigms when it comes to questioning behaviours. *Process-product* research strives to account for student outcomes as a function of teacher behaviours. *Sociolinguistics* offers an alternative paradigm for the study of questioning in classrooms and seeks to “emphasise the role of social context in the interpretation of spoken language.”

Alexander (2005, p.6) identifies six opposing teacher paradigms and it appears that current educational policies and pedagogy are aligned to the first two categories and the last:

- ***Teaching as transmission***; education is seen as a process of instructing children to absorb, replicate and apply basic information and skills
- ***Teaching as initiation***; teaching is seen as providing access to the culture's stock of high-status knowledge such as the arts and sciences

- **Teaching as negotiation;** reflects the idea that teachers and students jointly create knowledge and understanding, rather than one being authoritative and one passive
- **Teaching as facilitation;** the teacher is guided by developmental issues rather than cultural or epistemological. The teacher respects individual differences and waits until the student is ready to progress
- **Teaching as acceleration;** the teacher implements the principle that education is planned and guided acculturation rather than facilitated 'natural' development
- **Teaching as technique;** is seen as relatively neutral in its stance on society. The focus is on efficiency so that imperatives such as structure, assessment and feedback are more pressing than ideas such as democracy, autonomy and development

That many questioning routines fail to develop initiative and understanding in students is confirmed by the recurring themes found in the Ofsted findings cited by Hughes (1997, p42):

- Insufficient attention continues to be paid to the development of understanding
- The pupils were not required to take initiative or think for themselves
- Learning that is over-directed by the teacher (or worksheets) often produces superficial knowledge without real understanding
- There is a tendency in too many classes to 'spoon-feed' rather than to encourage students to think for themselves
- The pupils had a good knowledge but their levels of understanding were much more variable

Although the main purpose of this study was to improve the questioning competence of teachers, it inevitably touched on some of the critical issues related to professional development and the management of change. As Blandford (1997, p.175) explains, "Education has to respond to the circumstances and events that happen in society. Schools as organisations need to develop, mature and adjust to both internal and external changes." Hall and Oldroyd (1990, p.63) suggest that


there are a number of reasons as to why staff may be resistant to change, amongst them, where:

- Morale is low
- Leaders are inflexible in their attitudes
- The strategies offer no sense of collective 'ownership'
- Innovations are not seen as beneficial and are poorly understood
- New initiatives are at odds with professional beliefs
- Required changes are not accompanied by practical training and support

Turner-Bisset (2001, p.112) asserts that for teachers to develop, they need to be able to reflect on their performance through a deliberate process of self-evaluation. Exercising the process of meta-cognition, she claims, requires the teacher to possess 'knowledge of self' and to analyse his or her performance consciously and critically without showing an inclination towards 'rationalisation'. She adapted McIntyre's (1992) proposals to produce an assessment framework in order to highlight the fact that trainee teachers (and I would suggest teachers) can reflect on four different levels. This can be seen in Table 2.4 below. The levels run parallel with a continuum from external to internal orientation; the former involves displaying a mind-set that problems are caused by external issues imposed on a teacher's practice, whilst those with an internal orientation take full responsibility for their teaching outcomes and critically evaluate the success of their practice with the sole aim of seeking improvement.

On a similar note, Boydell and Leary (1996, p.7) classify employee performance on three different levels. The first is '*implementing*' where the employee is attempting to satisfy the basic requirements of the job and often there is a discrepancy between what is desirable and what is actually achieved. At the second level, '*improving*', the employee is beginning to assume a more pro-active and independent position in his or her professional development. At the final level, '*innovating*', the employee is beginning to develop new ideas and experiment in an attempt to discover new strategies and skills and is willing to take risks to achieve this.

Table 2.4 McIntyre's Assessment Framework for Reflection (Turner-Bissett, 2001, p.123)

Levels of Reflection	Description	Orientation to Learning to Teach
<b>Rationalisation</b>	Weak performance is often explained in terms of external factors beyond the trainee's control	External Orientation  Internal Orientation
<b>Technical</b>	Trainees are able to reflect on a technical level on given goals such as maintaining order	
<b>Practical</b>	Trainees progress to a more practical level where they begin to articulate their own criteria in order to develop their practice	
<b>Critical</b>	This final stage of critical reflection concerns wider political, ethical and social issues rarely practised even by experienced teacher	

There is evidence that many teachers may be prepared to change, but only in specific circumstances and under certain conditions. For example, Wright (2010, p.282) concluded that early adoption of technical innovation by 'mainstream' teachers depends on several factors, including:

- A relatively undemanding commitment in the initial stages in learning about its functionality
- The application fitting in well with existing practice
- A perceived immediate gain in terms of learning for the students
- An outside influence to provide an initial 'boost' and to sustain the promotion of innovative activities

Biesta et al (2015, p.624) describe 'teacher agency' as a teacher's active contribution to shaping their practice and its conditions for the over-all good of education. They highlight its importance in determining how teachers' perceptions, judgments and decision-making motivate and drive their actions. However, they assert that there is:

"An ongoing tension within education policy worldwide between countries that seek to reduce the opportunities to exert judgement and control over their own work, and those who seek to promote it."



They conclude that some see ‘teacher agency’ as a weakness and seek to replace it with “evidence-based and data-driven approaches”, whilst others maintain that, due to the complexities of situated educational practices, teacher agency is an “indispensable element of good and meaningful education.” Spillane (2010, p.159) highlights the fact that teachers respond to external reform initiatives in different ways and discusses the notion of a teacher’s ‘zone of enactment’ which he describes as:

“That space where the reform initiatives mobilised by the school system, construed broadly, interact with the world of practitioners and ‘practice’. Teachers’ zones of enactment refer to the space in which they make sense of, and operationalise for their own practice, the ideas advanced by the reformers.”

He concludes that differences in teachers’ enactment zones are key to understanding their efforts in changing the core of their practice.

Gipps (1994, p.1) defines a ‘paradigm’ as “a set of interrelated concepts which provide the framework within which we see and understand a particular problem or activity.” It is my belief that some of the problems bedeviling whole-class questioning routines may be due to the fact that most teachers operate within a teacher-dominated I-R-F paradigm; both as learners in their formative educational years and later as teachers when entering the teaching profession. In other words, it is what they have always known. Despite the fact that the academic literature is unequivocal in its disdainful appraisal of the teacher-fronted I-R-F structure, I believe that, with the right approach and strategies, there is light at the end of the ‘I-R-F tunnel’. For example, after examining the interactions between a teacher and four students during an I-R-F structured speaking practice, Hall (1998, cited Kasper 2001, p.518) concludes that the unwelcome reputation of IRF, which has built up over the years in many quarters, may not be entirely justified.

The teacher in question had assigned different interactional positions to the students; two were given ‘primary’ status which involved greater participation rights and where their contributions were treated as being more knowledgeable and relevant. The other two students assumed more of a ‘support’ role, receiving less attention and limited participation rights. Hall concludes that the learning opportunities and development of interactional skills were likely to have been significantly curtailed with the latter two students but observes that:

“It was not the IRF exchange *per se* that limited learning here. Rather it was both the amount and qualitative nature of the opportunities for participation in the exchange that the teacher made to each of the students.”

Abd-Kadir and Hardman (2007, p.2) concur with this viewpoint when analysing research on the discourse of whole-class teaching. They maintain that the levels of pupil engagement and participation in a basic I-R-F structure can vary from teacher to teacher, concluding that:

“By paying greater attention to pupil answers and to what they do with those answers, teachers can bring about greater continuity so as to transform classroom talk from the familiar IRF sequence into purposeful and productive dialogue where questions, answers and feedback (and feedforward) progressively build a thematically coherent stretch of discourse.”

These last two points are critical in terms of the aims of this study. I contend that, whilst the nature of whole-class I-R-F is generally restrictive in nature, it is still possible to work within its conventional parameters and tangibly increase the ‘participation rights’ of students and improve the quality of the learning experience. Thus, the study will look at the degree to which teachers’ questioning competence can be improved within the context of the whole-class I-R-F questioning structure and what strategies can be employed to engender that improvement. It will also investigate the extent to which teachers are prepared to change in order to develop these new skills.

## **CHAPTER 3: FOCUS OF THE RESEARCH**

### **3.1 Introduction**

There is no doubt that conducting meaningful research within an educational establishment is likely to present a number of logistical and ethical challenges. Kemmis and McTaggart (1981, p.18) offer some insightful advice for those embarking on this type of empirical journey:

“You do not have to begin with a ‘problem’. All you need is a general idea that something might be improved. Your general idea may stem from a promising new idea or the recognition that existing practice falls short of aspiration.”

They conclude that, whatever direction the research takes, it is important to focus attention on three considerations. Firstly, it is imperative to establish and evaluate the existing status-quo, secondly, contemplate why this may be problematic and finally, consider whether anything can be done to improve this state of affairs. These three points were uncannily relevant to the prevailing situation at Haverton High School; a problem had been identified by Ofsted which related to teacher behaviours and, as a result, this issue had been designated as a whole-school priority in the school improvement plan. Furthermore, it was acknowledged that this research study could make a significant contribution towards improving whole-class I-R-F across the school.

Hopkins (2002, p.56) affirms the importance of evaluating the worthiness, viability and significance of the individual focus or issue which has been identified for proposed research. He highlights a number of cogent suggestions that can be of particular use when conducting school-based research:

- Do not tackle issues that you cannot do anything about
- Do not underestimate the scale and amount of time a project will take
- Choose a subject or topic that is intrinsically motivating and important to the school and the students
- As far as possible, try to work collaboratively on the basis that professional partnerships are a powerful form of staff development and personal support
- Make connections between the research, teaching and learning and the school’s development plan or the school’s aims

Hopkins offers some sound advice here and these points certainly served as a useful 'check list' when I was contemplating the planning and logistics of the research study.

### **3.2 Purpose of the Research**

The over-riding aim of this study was to investigate the degree to which two teachers, within Haverton High School, could improve their whole-class I-R-F skills, in line with my own epistemological beliefs and the strategic vision of the school. For the purposes of this study I have termed this proficiency, '*Interactive Questioning Competence*' (IQC). To support this improvement, I developed an IQC framework - a framework of 'best questioning practice' - which was used to assess the teachers' IQC over the course of the study; the data and information produced by the framework was used as a vehicle for improving their IQC. The study also sought to investigate how effective the catalytic processes of self-evaluation, focus group interviews and specialist coaching were in helping to achieve this goal and the degree to which teachers were able to instigate change in order to improve their practice.

### **3.3 The IQC Framework of 'Best Practice'**

Two questions immediately spring to mind when constructing a framework of this nature:

- 1) *What exactly is 'effective' whole-class I-R-F (IQC)?*
- 2) *How can we measure or evaluate it?*

If the intention was to improve this competency in teachers, then clearly it was essential to have a set of standards against which to judge it. No doubt, however, these questions would provoke a variety of responses from different people. The final IQC framework can be seen in Appendix A and a glossary with descriptions and rationale for each feature can be seen in Appendix B.

The act of a teacher asking a *single* question to the class has the potential to trigger a series of dynamic and interlinked verbal exchanges. Despite being much maligned in some academic quarters, the I-R-F sequence is generally acknowledged as being the 'status-quo' regarding whole-class questioning routines. Yet I have always regarded the 'classic' whole-class I-R-F questioning sequence as being one-dimensional, teacher dominated and lacking in substance and versatility. However, when contemplating how I could set about improving

IQC across the school, I realised that it would be completely unrealistic to expect teachers to dismiss this long-standing instructional technique entirely. Within Haverton High School, it was my experience that this practice (or a variation of it) was deeply entrenched in most teachers' day-to-day classroom activities.

Thus, one of the aims of the research was to accept this practice as the 'default position' for whole-class questioning, but to attempt to transform the process by making it more student-oriented. I wanted teachers to think more carefully about each stage of the I-R-F cycle and to contemplate using additional strategies that might enhance the questioning process at various points.

Although the three actions depicted in a typical I-R-F routine are generally discrete, the aim was that teachers would become much more *flexible* and *interactive* in their approach. Thus, from the teacher's perspective, the stages would become more complex and essentially become enmeshed with each other; as the interaction advances, the teacher would be required to assess the existing situation, evaluate a myriad of variables and postulate as to what might be the most appropriate strategy to employ next (see Table 3.1 below). Thus, with the amount of decision-making now involved in asking even a solitary question, we can begin to acknowledge that, in such a multi-dimensional and unpredictable situation, acquiring a high degree of IQC becomes a formidable task.

The enhanced I-R-F template that I was hoping teachers would aspire to, can be seen in Figure 3.1. The process is generally iterative in nature and the interactions can be either teacher-student or student-student. The IQC framework, itself, has been set out chronologically to take account of this cycle, thereby making it easier to evaluate a routine. However, a few elements of the framework are independent and can occur at any given moment; for example, a student may '*interrupt the interaction*' at any stage in the routine by shouting out the answer or the teacher could administer praise at any point.

### **3.4 The Conceptual Framework**

At this point, I will now attempt to construct a plausible *conceptual* justification for the research and, in particular, the construction and use of the IQC framework as a 'scaffolding' tool. The conceptual framework begins to reveal the location of my epistemology and, as will become clear later on, serves as a pre-cursor for my methodological approach to the research.

Table 3.1: Decision-making Options during Whole-class I-R-F

Stage	Teacher Considerations
<p><b>Initiation</b> (teacher asks a question)</p>	<p>Will I ask a display or a referential question? Is the question cognitively challenging? Do I want students to work independently or collaboratively? What will I do if a student shouts out? How much think-time will I allow? Who will I select to respond? Is the question appropriate to the ability of the student?</p>
<p><b>Response</b> (student answers the question)</p>	<p>Am I expecting a short or extended response? Is the student giving a coherent answer or struggling? Has the student covered the main issues? Are there any misconceptions in the response? Am I managing to avoid latching?</p>
<p><b>Follow-up</b> (teacher responds to the student's answer)</p>	<p>If the student is struggling, should I scaffold? If the student has covered the main issues, should I seek clarification or probe deeper? Do I need to re-iterate any of the responses to the class? Is it appropriate to re-cycle the response, if so, what should I ask? If re-cycling the response, which mode should I use? Is it appropriate to praise any students and if so, how? Is it time to ask a new question yet?</p>

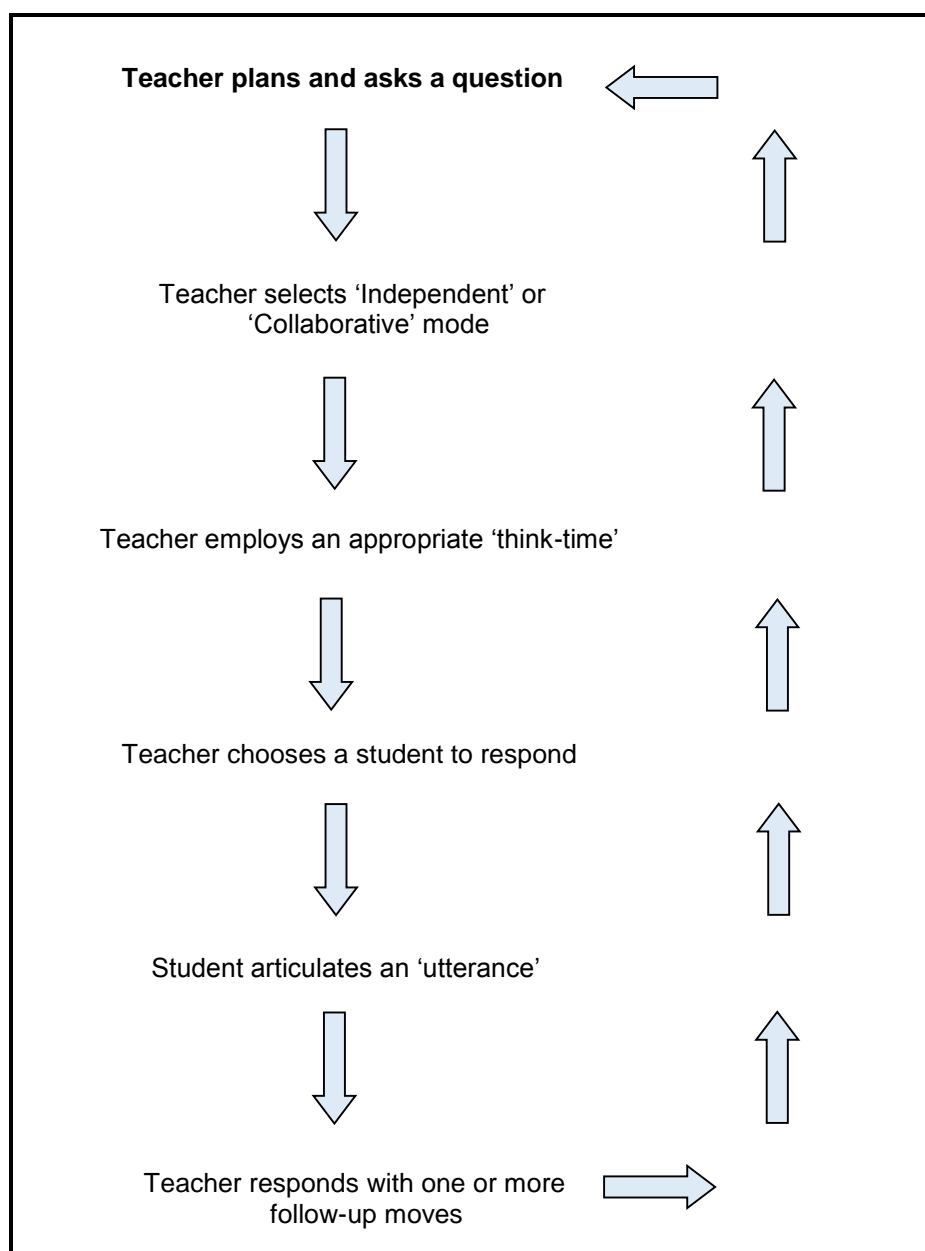
My position very much aligns itself with the thoughts of Smyth (2004, p.168) during a major study on 'educational change management'. She discusses how her conceptual framework supported and directed her research by linking the literature to the research goals, informing the research design and providing reference points from which the literature, methodology and data could be discussed. She concludes that, for her framework to be credible as an investigative research tool, it should also attempt to satisfy a number of criteria, including:

**1) Provide a common language from which to communicate the events being scrutinised and to report findings.**

Smyth suggests that satisfying this condition can help to provide a broad foundation for the investigation as well as ensuring greater consistency in the discussion and clarity of reporting. One of the aims of the IQC framework was to develop a common 'I-R-F language' so that teachers could communicate ideas and concepts more effectively. In this way, the features of the IQC framework would become more 'concrete' and familiar to teachers, thereby making it easier to construct a 'mental representation' of good questioning practice. For example,

the term '*latching*' would be unfamiliar to most teachers but would hopefully generate a powerful mental image and reference point for this feature, hopefully making it less likely for them to indulge in this essentially negative practice.

Figure 3.1: Enhanced Life Cycle of a Whole-class Question:



**2) Develop a set of 'guiding principles' against which judgements and predictions can be made.**

The IQC framework sets out to identify the 'guiding principles' or essential skills underpinning effective whole-class I-R-F practice. In arriving at these 'guiding principles' I have also taken account of the 'three essential elements' endorsed

by Ravitch and Riggan (2012, p.10), which support the validity of a conceptual framework:

- ***Personal interest***

These include personal curiosities, biases, ideological commitments and epistemological assumptions. When reviewing a classic study by Kolb (1984), Stichler and Hamilton (2008, p.4) report that our day-to-day experiences and observations lead us to reflect on how various strategies affect specific outcomes; this in turn leads to the development of theory. However, “in the real world of practice we call it expert advice, strong opinion, or even examples of best practice.” Kolb, they add, suggests that abstract thinking about the “notions of interest” results in conceptualisations which then need to be tested by research to determine whether our assumptions are credible and can be replicated or used as a basis for future practice.

In educational establishments such as Haverton High School, there are invariably established ‘figureheads’ or groups of ‘experts’ who come to be regarded as designated ‘authorities’ in the field of teaching and learning. The opinions of these individuals or groups inevitably propagate the ideologies behind the school’s shared vision and long-term priorities. As both the researcher and an assistant head within the school, my own epistemological position was bound to influence both the school’s shared vision and any research that aligns itself to that position. Inevitably, this vision will also be influenced by government policy, the head teacher, the governors and the perspectives of the teachers themselves. Thus, it must be recognised that this research is inevitably driven by both personal and ‘institutional’ motives and so the conduct and performance of the teachers throughout the study must be viewed within this context.

- ***Topical research***

Ravitch and Riggan (2012, p.12) suggest that existing research (often empirical) on a specific topic or issue can provide valuable insights into the nature and degree of the problem, as well as providing potential arguments regarding the study’s significance; in addition, it can also help to identify ‘gaps’ in the literature. The IQC framework is effectively an aggregate of ‘best practice’ in questioning, based on recommendations from previous research and endorsements from the ‘scholarly’ literature (Appendix A). As an example, virtually all research studies on ‘questioning’ conclude that employing a reasonable ‘think-time’ is likely to have a positive effect on the quality of the student responses. Yet, research also informs



us that the average think-time commonly utilised by teachers is invariably around one second or less. These points, therefore, underpin the justification for the inclusion of 'think-time' as a feature on the IQC framework. Of course, my contention is that the other features in the framework can be validated in the same way; further supportive evidence for this can be found in Chapter 2 (Literature Review) and in the 'Glossary of Terms' document (Appendix B).

- ***Theoretical framework***

Whilst many researchers regard the notions of theoretical and conceptual frameworks as being inter-changeable, Ravitch and Rigan (2012, p.12) suggest that, whereas the conceptual framework reflects the entire conceptualisation of the research both philosophically and methodologically, the theoretical framework deals more specifically with the formal theories that inform the study and are usually found in the scholarly literature. They conclude that, "theoretical frameworks represent a combination or aggregation of formal theories in such a way as to illuminate some aspect of your conceptual framework."

From a philosophical standpoint, the two major theories of learning, behaviourism and constructivism, emanate from contrasting schools of thought and both have had an impact on teaching models over the years to varying degrees. Behaviourists essentially embrace a *positivist* standpoint and believe that a shared understanding of the world is possible and that learning is a product of the environment; as such, behaviour can be predicted and tested using the appropriate external stimuli. Conversely, constructivists generally operate from an *anti-positivist* or *interpretivist* position and, whilst accepting that an external world exists, they assert that the construction of meaning within that world is specific to each individual's sensory input, prior learning and unique experiences. In the case of *social* constructivism, talk and social interaction are regarded as crucial elements in this process.

I would argue that, according to previous research, typical whole-class questioning routines (based on the I-R-F cycle) tend to be driven by behaviourist rationale since routines are usually highly prescriptive and teacher dominated. The learning objectives and success criteria associated with these routines are often dutifully aligned to the departmental scheme of work or exam board specifications; there are rarely any opportunities for students to indulge in personal construction or negotiated understanding.

This position is never more apparent than in my own subject domain, mathematics, which succinctly highlights the dominance of behaviourist thinking over constructivism. Many topics in mathematics can be taught using different methods but will still lead to identical outcomes (i.e. the correct answer). A mathematics teacher with behaviourist tendencies would insist that the students adopt the method explained to them, on the basis that the thinking underpinning it is 'external'; in this way, it can be *imposed* on students and therefore *learned*.

A constructivist teacher, however, acknowledges that few students start with 'blank canvases' and will already possess an embedded network of mathematical concepts, inextricably constructed from prior knowledge and unique learning experiences. Thus, account would be taken of individual starting points and students would be given a degree of autonomy in allowing them to navigate their own way towards a preferred approach, based on what makes most sense to them. This standpoint is supported by Skemp (1964, p.9) who argues that mathematics is not a multiplicity of discrete methods but a structure of interconnected skills. He asserts that we use our existing schema to understand and learn new knowledge, concluding that:

"It is this process of assimilation to an existing schema that constitutes understanding; without which learning becomes only rote memorising, and remains isolated from other knowledge."

Thus, the 'constructivist' maintains that real mathematical understanding cannot be imposed entirely from an 'external' position but must be nurtured alongside an individual's existing schema. However, a lack of deeper understanding is all too common-place in mathematics and this is particularly apparent when students fail to connect the skills they have mastered in mathematics with those in, say, geography or science, even though the skills involved may be one and the same.

It is my belief that, whilst whole-class I-R-F sequences should be built on the fundamentals of both learning theories, there needs to be a shift in emphasis towards a position more aligned with social constructivism and this stance is reflected in the compilation of the IQC framework of best practice. In the current educational climate, it would be naïve to deny a place for the traditionally behaviourist-driven strategies of 'rote learning' and 'drill and practice', since the mastery of factual and procedural knowledge is a necessary component of most academic disciplines and examination success. However, this type of knowledge can only propel a learner so far up the 'academic ladder' and students need to

develop skills of a much higher cognitive disposition. Clarke (2005a, p.12) asserts that a 'constructivist' teacher would:

- Accept student autonomy and initiative
- Be prepared to alter the content and learning objectives of the lesson so as to facilitate student learning
- Encourage students to engage in dialogue both the with teacher and peers
- Allow 'wait-time' after asking questions
- Seek elaboration of students' initial responses and inquire about students' understanding before sharing their own
- Encourage student enquiry by asking thoughtful open-ended questions
- Use cognitive terminology and encourage higher-level thinking

Livingston et al (2004, p.15) assert that people proficient in critical thinking and reasoning "might be expected to use criteria they can justify when they make decisions to do things one way rather than another."

Being able to transfer these skills to a different context or domain would also be indicative of higher-order thinking. Perkins and Salomon (1989, p.22) distinguish between two types of transfer, *low road* and *high road*. Low road transfer involves "the automatic triggering of well-practised routines in circumstances where there is considerable similarity to the original learning context"; in effect, this mind-set aligns itself with 'behaviourist' dogma. High road transfer, however, has its roots firmly planted in the constructivist domain:

"One learns something by *mindful* abstraction that is by means of a deliberate, volitional process through which a central idea, principle, rule, generalisation or strategy becomes de-contextualised and available for far reaching transfer to entirely novel situations."

Leat (1999, p.392) suggests that 'transfer' is an important aspect of developing 'thinking skills' (TS) and suggests that these types of programme rely heavily on collaborative group work, in which understanding is constructed through student discussion.

However, he reports that TS programmes often struggle to make a lasting impact in schools, partly because of "socialising forces at work." Whilst students may be enthusiastic about engaging in open and challenging tasks, followed by debriefing or mediation, "teachers are socialised to behave in certain ways, by a

variety of pre-training, training and in-service influences” and as a result, there is often an inherent resistance to this approach to learning. This, he concludes, is exemplified by the classic I-R-F interaction during teacher-student exchanges.

The IQC framework represents a profound epistemological shift because it seeks to develop practice which is less teacher-dominated and to encourage students to make a more significant verbal contribution to the interactions. This is particularly the case with the inclusion of the ‘*collaborative mode*’ where the intention is to empower students more by allowing them to negotiate, review and co-construct their ideas and thinking. In this situation, the teacher’s role begins to shift from ‘instructor’ to that of ‘facilitator’. Indeed, an interesting line of inquiry during the research involved exploring the degree to which the teachers in the study were prepared to embark on this particular philosophical journey.

In conclusion, therefore, the broad aim of the IQC framework was to support teachers throughout the study in improving their IQC and to engender a shift away from teacher-dominance and prescription towards a greater degree of student autonomy. Implicit in this approach was the philosophy that students should be given more opportunities to verbalise their thinking and it was hoped that a shift towards a more constructivist mind-set would support them in achieving this. In the next section, I will discuss the research goals in greater detail and reveal the research questions that I hoped would be answered by the end of the study.

### **3.5 Research Questions**

Brown and Dowling (1998, p.13) suggest that “the initial step towards a research question may well involve the articulating of localised observations and problems with more general professional discourse and debates.” Taber (2007, p.121) suggests that research questions:

“Should be informed by the conceptual framework developed from reading previous research, and will inevitably be informed by our understandings of the nature of the phenomena being studied and the type of knowledge educational research can develop.”

According to Robson (2002, p.59), good research questions should be:

- **Clear**; unambiguous and easily understood
- **Specific**; it should be clear what constitutes an answer
- **Answerable**; we can see what data are needed and how it they will be collected

- ***Interconnected***; the questions are related in some meaningful and coherent way
- ***Substantively relevant***; non-trivial questions worthy of the effort to be expended

Bryman (2004, p.33) is in broad agreement with these points and advocates that research questions should be neither too broad nor too narrow, should be connected to established theory and research and should have the potential for making a contribution to the topic concerned. He adds that they should be capable of supporting a research design so that relevant data can be collected; for this reason, he concludes, “extremely abstract terms are unlikely to be suitable.” When constructing the research questions I took account of all of the advice offered above. As well as the main research question, I also sought to explore, on a deeper level, some of the issues which have historically bedevilled whole-class questioning routines and whether teachers have the capacity to improve their IQC in the longer term. Clearly, the findings were specific to the context of the school as well as the teachers who took part in the research.

#### **Main Research Question**

- *To what degree can teachers improve their IQC within the context of the whole-class I-R-F questioning structure?*

#### **Sub-Questions**

- *What are the relative merits of self-evaluation, focus group interviews and specialist coaching as facilitators of professional development?*
- *To what degree can teachers negotiate a process of change in order to improve their IQC?*

### **3.6 School and Teacher Profiles**

This research study was conducted over a period of approximately six months between January and July in 2014. At this point, it is important to note that the names of any schools or participants in the study have been changed in order to ensure anonymity. Originally, five teachers participated in the study but, at various stages, three withdrew for either personal, professional or medical reasons. All three consented to the use of their data in the final analysis, where appropriate.

### **3.6.1 Profile of Haverton High School (November 2013)**

*Haverton High School is a smaller than average-sized secondary school in the north-east of England where students are of white British heritage and speak English as their first language (Ofsted report, 2013). In November 2013, immediately prior to this study, there were approximately 800 students on roll, of which about 40% were known to be eligible for Free School Meals (FSM) and 20% were supported by either School Action, School Action Plus or a statement of SEN. The school's deprivation indicator was approximately 0.3 against a national figure of 0.22, whilst over-all attendance was reported as being about 92% compared to 94.1% nationally (RAISEonline report, 2013). The students enter Year 7 with broadly average attainment and leave at the end of Year 11 with standards that are above average, based on several indicators. The proportion of students who gain five GCSE A\* to C grades, including English and Mathematics, is rising and has been above average for the last three years. In all year groups, most students' progress, relative to their starting points, is good and this includes students who are disabled, have educational needs, are eligible for pupil premium or are in the most able category. Over the last three years, there have been considerable changes in staffing, including at senior and middle leadership level (Ofsted report, 2013).*

### **3.6.2 Profile of Emily (Aged 24)**

#### Teaching Experience:

*Emily was in her NQT year at Haverton High School.*

#### Responsibilities:

*None.*

#### Training and Qualifications:

*Honours degree in History and a PGCE.*

#### Teaching Subject:

*History.*

#### Target Class Used in Study:

*Year 7 higher ability class ranging from National Curriculum Level 5 to Level 7. The class consisted of 16 boys and 13 girls.*

#### Reasons for Taking Part in the Study:

*"When I was on my second placement, it was something that was brought up, my questioning was something that I could work on. My mentor Sophie was fantastic*

*at questioning and it was something I always thought you could get so much out of. Especially your high ability kids from really pushing them and when I got observations off Leanne (subject leader) before taking part, she had said about working on questioning. When this opportunity came up it was a good chance to try and practise and become really good at questioning kids and really drawing as much information out of them as possible. I knew it was something I had to be able to do in order to stand and teach or be a good teacher and this would give me the opportunity to do that.”*

### **3.6.3 Profile of Rory (Aged 33)**

#### **Teaching Experience:**

*Rory had been teaching for 7 years and was in his third year at Haverton High School. Previously he had worked at a school in Newcastle but also did a variety of supply work in other schools in the North-East.*

#### **Responsibilities:**

*He was responsible for an initiative called ‘Haverton Honours’ which sought to encourage more students to participate fully in school extra-curricular life. He was also appointed in the pastoral role of Deputy Head of Year, immediately prior to the study.*

#### **Training and Qualifications:**

*Honours degree in Law and French followed by a PGCE.*

#### **Target Class used in Study:**

*Year 7 higher-ability class ranging from National Curriculum Level 3 to Level 5. The class consisted of 10 boys and 7 girls. None of the students were also members of Emily’s Year 7 class.*

#### **Reasons for Taking Part in the Study:**

*“To work with a more experienced teacher is always quite interesting. I’m interested in any action research myself and it’s just to give myself an opportunity to do a bit of reflection, to think. I do plenty of questioning and stuff but I very rarely stop to think about it, especially this year from September. This year has been crazy. The CPD and things have gone by the wayside because you’ve got to meet parents, you’ve got to make these phone calls, so actually having some dedicated time where I’ve forced myself to look at teaching, to think about it and think of ways of improving it. If you go back to the training year where you’re doing it all the time and now it doesn’t happen at all. I’ve taken on little projects working within groups within school, teaching and learning communities, I think everybody should be encouraged to do it. I’ve spoken to senior staff here about coaching, about action research, about how that really should be at the core of what teaching*

*and learning is in school and it's not, but the message back is that you need the staff to want to do it. You can't force them to do it, which I totally understand. My wife does quite a lot of it at her school. She is doing a Master's degree in September, and I'm looking into it, so without sounding too geeky, it is something we've talked about."*

In the next chapter, I will be discussing how I set about attempting to answer the research questions and reveal my chosen methodology. This will include my methodological epistemology as well as the rationale behind my choice of research design and data collection tools. Furthermore, I will also be reporting on how I dealt with the many challenging ethical issues, a critical consideration in any school-based research project.



## CHAPTER 4: METHODOLOGY

### 4.1 Introduction

Cohen et al (2000, p.3) affirm that “people have long been concerned to come to grips with their environment and to understand the nature of the phenomena it presents to their senses.” They suggest that the means by which they accomplish these goals can be classified into three broad categories; experience, reasoning and research. They conclude, however, that the three categories are not mutually exclusive but rather, “must be seen as complementary and over-lapping,” particularly when seeking answers to complex modern problems.

### 4.2 Research Paradigms

Bassey (2002, p.37) defines a ‘research paradigm’ as:

“A network of coherent ideas about the nature of the world and of the functions of researchers which, adhered to by a group of researchers, conditions the patterns of their thinking and underpins their research actions.”

He asserts that sometimes the network of a paradigm is so embedded, it rejects the existence or validity of other paradigms. This thinking is echoed by Bryman (2004, p.4) who purports that the methods of social research are inherently linked to the different versions of how social reality should be investigated. He concludes that “the practice of social research does not exist in a bubble hermetically sealed off from the social sciences and the various intellectual allegiances that their practitioners hold.” Burrell and Morgan (1979, cited Cohen et al 2000, p.5) identify the implicit and explicit assumptions that underpin the different ways of viewing social reality:

- **Ontological;** this questions whether social reality is external to individuals, imposing itself on our consciousness from without, or whether it is a product of individual consciousness.
- **Epistemological;** this concerns the very bases of knowledge and questions whether it is possible to identify and communicate the nature of knowledge as being hard and real and transmittable in a tangible form, or whether it is a softer more subjective form based on experience or insight.
- **Human nature;** this set of assumptions concern the relationship between human beings and their environment. It questions whether they respond mechanically to their environment or are imitators of their own actions.

Cohen et al (2000, p.6) assert that the three sets of assumptions described above will have direct implications for a researcher’s methodological approach since the

contrasting positions will inevitably demand different research methods. They conclude that investigators adopting a *positivist* (or objectivist) standpoint will treat the social world as being hard, real and external to the individual and full of natural phenomena. Conversely, the anti-positivist (or subjectivist) will consider the social world to be “a much softer, personal and humanly created kind.”

Bassey (2002, p.39) argues that, whilst the positivist and interpretivist (an alternative term for anti-positivist) paradigms are well documented in the research world, the field of educational research gives rise to a third, less renowned paradigm, that of *action research*. He describes this paradigm as being “about actors trying to improve the phenomena of their surroundings” and is rooted in the advancement of practice (I will be elaborating on this train of thought later).

#### **4.3 Research in a Classroom Setting**

Conducting research in a classroom setting is an inimitable and challenging experience and there are many logistical, moral and ethical considerations that need to be taken into account. Hopkins (2002, pp.52-53) identifies clear principles which should be respected when carrying out the research, some very relevant to my own situation:

- ***A teacher’s primary job is to teach and research methods should not disrupt the teaching commitment***

The teachers involved in the study were already operating within a highly pressurised and demanding environment and so it was important to ensure that the quality of the lessons being taught and the teachers’ general well-being, were not compromised.

- ***Data collection procedures should not be too onerous on a teacher’s time***

One of the huge challenges I faced was being able to collect reliable and informative data without placing excessive demand on the teachers themselves.

- ***As far as possible, classroom research should adopt a ‘classroom exceeding’ perspective; it should fit in with the shared strategic vision within the school for school and professional development***

The fact that the focus of my study was aligned to a whole-school priority, meant that there was steadfast support for the research from the SLT and the teachers themselves. That said, it was important to recognise that the results and findings would be largely specific to this specific scenario.

- ***The methodology employed must be reliable enough to allow researchers to formulate hypotheses confidently enough to drive or change future practice for the better***

One of the agreed aims of the research was to develop IQC in the teachers taking part in the study, so that they could support development in this area across the school. Thus, it was important that the methodology employed was robust enough to support future professional development within the school.

Hopkins asserts that this final point is perhaps the most contentious issue in relation to classroom research and I would certainly concur with this viewpoint. The fact that there are countless variables in operation at any given time in a classroom setting, makes achieving internal and external validity a very difficult proposition. Without suspending the curriculum temporarily, it is notoriously difficult to confidently establish links between dependent and independent variables in an ongoing teaching and learning situation.

#### **4.4 Research Design**

##### **4.4.1 The Case for a Multi-method Approach**

The combined strengths of the qualitative and quantitative ‘paradigms’ have given rise to a comparatively new concept in social science research, the *multi-method* approach. However, this development has brought with it much contention within the social science research fraternity. According to Bryman (2004, pp.452-454), this dissenting perspective is usually underpinned by two main arguments:

- ***Research methods carry epistemological commitments***

This concept implies that “research methods are ineluctably rooted in epistemological and ontological commitments.” For example, the decision to employ ‘participant observation’ is not simply a question of data collection but rather, an epistemological position that is consistent with being an interpretivist.

- ***Quantitative and qualitative research are separate paradigms***

The fact that both types of methods are viewed as paradigms means that they are incompatible and any attempt at integration is only at a superficial level within a single paradigm integration.

However, Bryman asserts that it is by no means clear that qualitative and quantitative research are actually paradigms and explains that there are “areas of commonality and over-lap between them.” He concludes that, ultimately, the

debate comes down to whether the researcher believes that two “versions”, *epistemological* and *technical*, can be combined. The epistemological version is underpinned by the paradigmatic argument which states that quantitative and qualitative research are “grounded in incompatible epistemological principles.” The technical version, however, gives greater prominence to the strengths of the data-collection and data-analysis techniques associated with each type and views the two standpoints as compatible and the research methods as “autonomous.”

I believe that due to the nature of educational research, (particularly classroom-based), the ‘epistemological’ version as described by Bryson is questionable and in the current climate, probably untenable. For example, Robson (2002, p.370) discusses the notion of *inappropriate certainty* which can be associated with singular methods of data collection:

“Using a single method and finding a pretty clear-cut result may delude investigators into believing that they have found the ‘right answer’. Using other, additional methods may point to differing answers which remove specious certainty.”

I am in complete agreement with this point; it would be very precarious, and even unethical, to change the way students learn, based on one set of unsubstantiated data. Classrooms are complex and multi-faceted environments and if we are going to make changes that could have a significant bearing on the educational futures of our students, we need to be more circumspect and robust in our approach. For this reason, I naturally lean towards the latter, more pragmatic position, the ‘technical version.’

Burke Johnson and Onwuegbuzie (2004, cited Scott 2007, p.4) adopt a similarly pragmatic position in the quantitative-qualitative dilemma, arguing that it is possible to “separate out” ontological and epistemological beliefs from the adoption of methods and strategies. They conclude that “research should be judged by its practical applicability rather than its truthfulness or correspondence with external reality.” As Robson (2002, p.372) points out, there are substantial benefits to be gained from combining both qualitative and quantitative methods:

- The most common reason cited for the use of multi-methods is the potential for *triangulation*; that is, corroborating the results of a qualitative method with those of a quantitative method. Denzin (1988, cited Robson, 2002, p.371) suggests that this can be achieved by considering not only different *methods*, but also multiple *sources, investigators* or *theories*.

- Quantitative methods are well suited to establishing relationships between variables but do not always identify reasons behind them. Qualitative methods can be used to provide greater explanation for outcomes or phenomena.
- Qualitative methods tend to focus on the small-scale, micro aspects of social life, whereas, quantitative data targets the large-scale, macro aspects; combining the two can integrate both levels.
- Fixed designs tend to concentrate on the 'structural' aspects of social life whilst the flexible designs are more effective at dealing with 'processes'.
- Different methods may be appropriate at different stages of the research process; for example, a fixed design study may be preceded by, or followed by, the use of qualitative methods.
- Multiple methods can be used in a complementary fashion to enhance interpretability. For example the interpretation of statistical analysis can be enhanced by a qualitative narrative account.

Thus, using both quantitative and qualitative data in this research is entirely valid because they both offer a perspective which is critical to achieving the research goals of this study. I will now seek to construct a more personalised epistemological justification for adopting a multi-method approach and for using both types of data in the study.

### Quantitative Data

Quantitative data is located firmly in the domain of *positivism* and seeks to identify the merits of a particular intervention or strategy on the basis of whether or not it 'works'. In addition, because this standpoint is associated with an 'external reality', the resultant data can often be used to construct generalisations which apply to the wider population (external validity). I would argue that both of these conditions are critical features of this research study and I will now explain my reasoning behind this line of thinking.

There is immense pressure and scrutiny on schools in the current educational climate, through the ever-increasing demands of Ofsted and the annual publication of RAISEonline. As a result, the drive to increase 'standards' and attainment is understandably at the top of most head teachers' priority list. This inevitably places a burden of responsibility on a prospective researcher to

present a convincing argument that any new intervention actually '*works*' in practice; senior leaders and teachers are much more likely to 'trust' the data and facilitate changes in pedagogy if there is *quantifiable* evidence that those changes will bring about an improvement in attainment.

### Qualitative Data

In the context of this study, the case for the use of qualitative data is equally as convincing. As Watling and James (2007, p.355) point out, a qualitative researcher "is likely to be searching for understanding rather than facts; for interpretations rather than measurements; for values rather than information." Thus, apart from knowing what '*works*', it is also critical that we take into account the participants' attitudes and beliefs so that we can begin to understand the rationale behind their actions and behaviour; in this way, effective strategies can be deployed to engender change where appropriate.

Stake (1995, p.41) points out that qualitative studies often seek to uncover "patterns of unanticipated as well as expected relationships" and so it was essential to produce qualitative research data at a 'micro-level' so that these patterns and relationships could be identified and investigated. Stake also stipulates that it is crucial that the researcher has the interpretive powers to be in touch with developing events so as to re-direct analysis and pursue emerging issues. A good example of this last point occurred during the study with Rory, the MFL teacher. It only became apparent during one of the feedback sessions that the *average student utterance* was hugely dependent on the language the students were responding in (English or French). Discovering this meant that I was then in a position to 'backtrack' and re-analyse the recordings in order to establish the degree to which students were requested to answer in each language. This then had to be taken into account in the final analysis, since it is clearly more challenging for a student to answer a question using the target language (this issue will be discussed in more depth later).

### Combining Both Types of Data

I will now describe a hypothetical teaching scenario which illustrates the importance of utilising both types of research data within the context of whole-class I-R-F. Imagine we want to investigate the relative effects of asking display and referential questions on the quality of interactions. The *quantitative* data is

important because it can tell us exactly how many of each type of question the teacher has asked and whether there is a predilection for one particular type. Let us assume that the data is informing us that the teacher tends to ask a high proportion of *display* questions and that the *average student utterance* measure is significantly low; from this we might deduce that the two are inextricably linked.

This deduction might lead us to then theorise that asking too many display questions reduces the quality of interaction because the students give shorter answers, often of a low cognitive nature. In turn, we may feel that there is sufficient evidence to allow us to construct a generalisation that can be applied to the rest of the school. The fact that there is quantifiable evidence supporting that generalisation, makes it much more likely that other teachers will accept the legitimacy of this position and change their practice.

However, what this data cannot do, is tell us *why* the original problem occurred and, more importantly, how it can be rectified. In the context of the study, this is a particularly salient point since the primary aim was to *improve* teachers' practice. It is only through the use of *qualitative* data that we can hope to unravel the underlying forces driving the teacher's actions. For example, is the teacher actually aware of the different types of questions and how they affect subsequent interactions? Perhaps it is not an 'awareness' issue but a 'planning' one and the teacher has a problem with producing good quality questions. On the other hand, the problem might be ideological or maybe the teacher is using 'display' questions as a control strategy, in which case the underlying problem might be behavioural. Without this diagnostic knowledge it would be very difficult to devise remedial strategies that might begin to change the teacher's actions and *improve* performance.

### 'Fuzzy' Generalisations

As stated earlier, it was also hoped that the outcomes from this study would be used to improve IQC across the school. This meant that, by the end of the research, it was important to be able to make some type of generalisation or recommendation about what constitutes successful questioning practice; and having both quantitative and qualitative data made this possibility more tenable.

Bassey (2001, pp.5-6) highlights how, in the 1980s, he believed that there were no empirical generalisations which were of any use to teachers though, with

hindsight, he came to realise that he was talking specifically about *scientific* generalisations. For these types of generalisations, “provided that the few significant variables are defined, the statement that something happened through a juxtaposition of inanimate objects is generalizable and can be used to predict future happenings (p.5).” Other scientists, he explained, try to overcome the difficulty of ‘certainty’ by employing “massive data collection from which they can formulate probabilistic generalisations in the form of, there is a p% chance that particular events will lead to particular consequences (p.6).” However, as Bassey pointed out at the time, in educational research there are usually many more variables and very little data, making the possibility of quantitative-based generalisations more problematic.

Several decades later, however, Bassey conceded that, in quantitative studies, there are empirical generalisations other than just *scientific*. He discusses the concept of a ‘fuzzy’ generalisation, based on a ‘*best estimate of trustworthiness*’ (BET), which takes into account the researcher’s professional judgement and the context within which the research took place. In this way, fuzzy generalisations of a more tentative nature can be made along the lines of “if *x* happens in *y* circumstances, *z* may occur (p.10).” The important point here, however, is that for the statement to have meaning, the *specific circumstances* need to be acknowledged, although this can often be difficult to establish and convey.

Larsson (2009, p.28) discusses the different ways of arriving at generalisations during *qualitative* research. He concludes that three lines of reasoning are particularly useful:

- Generalisation through context similarity
- Enhancing generalisation potential through variation
- Generalisation through recognition of patterns

These three concepts were particularly relevant to this research study though, I have to admit, this largely came about by good fortune rather than by design. With regard to Larsson’s first point, there was a large degree of *context similarity*, since both teachers were working within the *same* whole-school context in terms of policies, systems and over-all school vision. On the second point, however, there were also large *variations* within this wider context. Emily was an NQT in her first



year of teaching, whilst Rory was much more experienced, having taught for nearly eight years. They also taught subjects which were inherently different; whilst the teaching of History is heavily influenced by divergent thinking, the subject of French is characterised by convergent outcomes. Therefore, the fact that both teachers were operating within the same whole-school context, yet had large variations within their own teaching domains, meant that where common *patterns* emerged, the case for generating fuzzy generalisations was optimised with the additional use of qualitative data.

To summarise, therefore, I believe that due to the many logistical problems associated with classroom-based research, a 'multi-method' position was the most appropriate to adopt. Both quantitative and qualitative data were critical to the success of the research study for two main reasons:

- 1) *The quantitative data was able to tell us what was happening, how often and whether it was having an impact on other variables.*
- 2) *The qualitative data was used to reveal why these events were occurring, allowing us to strategize about how to change and improve practice.*

Adopting an isolated position, specific to either paradigm, would have produced, in my opinion, a one-dimensional and polarised representation of the situation, thereby encouraging "inappropriate certainty" (Robson 2002, p.370).

#### **4.4.2 Choosing an Action Research Approach**

Cohen et al (2002) assert that there is no single blueprint for planning research but, rather, the research design should be 'fit for purpose' and the purpose of the research should determine the methodology. Bassey (2002, p.39) suggests that the over-riding aim of action research is to "improve the quality of action." He concludes that:

"The topics of enquiry, methods of data collection, analytic techniques, and styles of presenting findings reflect the pragmatic needs of the teachers; the intended audience may be no one other than the teacher researcher him/herself but is more likely to be fellow teachers engaged in similar teaching."

These sentiments fitted my own research circumstances almost perfectly. When deciding on my research design, it became obvious that the notion of 'closing gaps' in performance had to be the heart of it. The over-riding aim was to improve the IQC of teachers across the school and this was intrinsically linked to the aims

and aspirations of the shared school vision. This philosophy also naturally aligns itself with the description of action research by Hopkins (2002, p.42), who reflects that:

“Action research combines a substantive act with a research procedure; it is action disciplined by enquiry, a personal attempt at understanding while engaged in a process of improvement and reform.”

Kemmis and McTaggart (1992, p.21) point out, however, that the process is much more systematic and collaborative than the usual ‘thinking’ processes that teachers embark on in order to improve their practice; it involves “collecting evidence on which to base rigorous group reflection.” Cohen et al (2000, p.228) cite Hult and Lennung (1980) and McKernan (1991) when highlighting the characteristics of action research and its powers to reform. Action research, they suggest:

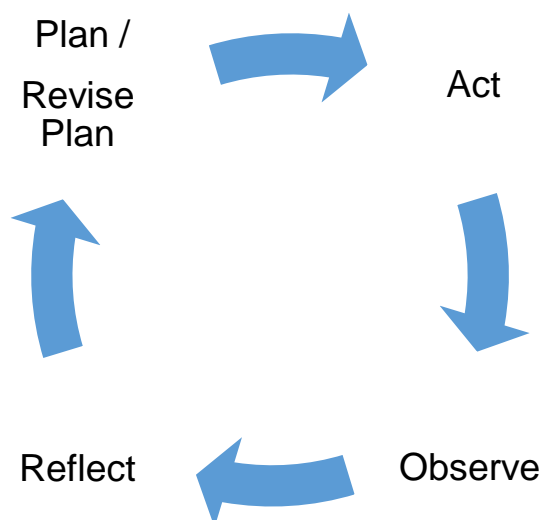
- Enhances the competencies of its participants and strives to render the research usable and shareable by its participants
- Is undertaken directly *in situ* and focuses on problems that are of immediate concern to practitioners
- Seeks to understand particular complex social situations and the process of change within these social system.
- Is undertaken within an agreed framework of ethics
- Frequently uses case study and is methodologically eclectic
- Uses the feedback from data in an ongoing cyclical process and seeks to improve the quality of human actions

A particularly salient point here is that action research is very much specific to the context within which it is being carried out. For example, during discussions with teachers, McNamara (2002, p.25) reports the feeling that findings from research reports, journal articles and conferences should not necessarily be universally accepted and transferred automatically from one socio-cultural context to another. Rather, in order for teachers to engage with research “the findings need to be actively interpreted, adapted, implemented, monitored and evaluated in relation to the school context and the teacher’s classroom practices.”

Most action research models are cyclical in nature and are geared towards improving performance of some type. During the course of this study, Kemmis and McTaggart’s (1988, p.14) ‘Action Research Spiral’ (see Figure 4.1) was used

as a basic model for improving the teachers' IQC over the course of three performance cycles.

Figure 4.1: The Action Research Spiral (based on Kemmis and McTaggart, 1988)



The data collected had two fundamental purposes:

- To drive the cycle of improvement by informing teachers about their strengths and areas for improvement
- To evaluate the effectiveness and impact of the changes that had taken place, relative to an established set of standards

In section 4.5, I will describe the IQC framework in more detail and explain how it was used throughout the study as a means of improving teachers' IQC.

#### **4.4.3 Data Collection**

##### **Triangulation**

In line with my multi-method approach, I used a range of both qualitative and quantitative data during the study. As stated earlier, 'triangulation' is commonly associated with multi-method procedures and is a widely used to corroborate qualitative data against quantitative data or vice-versa. There are known to be different types of triangulation, though most researchers associate the term with the 'methodological' or 'data' type. As Robson (2002, p.370) points out, "even when the over-all research strategy has been decided, a research question can, in almost all cases, be attacked by more than one method."

Cohen (2000, p.115) suggests that 'triangulation' is appropriate when a more 'holistic' view of educational outcomes is sought. He adds that it is particularly relevant "where a complex phenomenon requires elucidation," as with a 'case study'. Yin (2009, pp.2-3) suggests that case studies are particularly relevant when the focus is on a contemporary phenomenon within a real-life context, where 'how' or 'why' questions are being posed and where the investigator has little control over events. He concludes that 'case study' research includes procedures which are relevant to *all* types of research by:

- Protecting against threats to validity
- Maintaining a "chain of evidence"
- Investigating and testing "rival explanations"

Technically speaking this was not a case study. As the researcher and specialist coach, I had adopted a pro-active and pivotal position in the research in an attempt to 'close gaps' in performance. Thus, there was clearly an element of 'control' exerted throughout the study. However, I would argue that from a data collection perspective, there were some obvious similarities with a case study position. In my opinion, whole-class I-R-F is a complex and multifarious process and like a case study, needs to be viewed in a holistic way. I believe that many research studies on questioning have had too narrow a focus and have tended to investigate particular questioning skills in isolation. In addition to this, the research findings often report on 'what' events have taken place, but not 'why'?

Let us consider a hypothetical scenario to illustrate the point. A teacher asks a question and waits 3 seconds before selecting a student for a response. Is this a 'good' think-time or a 'bad' one? Well, of course, that very much depends on the question. If the question was "What is the capital city of France?", then one might consider a think-time of 3 seconds to be wholly appropriate. On the other hand, if the question was "How did the Treaty of Versailles contribute towards the start of World War Two?", then clearly a think-time of 3 seconds is unlikely to be sufficient for most students. Let us suppose that a student responds with a short, limited answer. Do we put that down to a lack of think-time or could there be other explanations? For example, did the teacher interrupt the student (latching), cutting short the answer? Was the student working independently (as opposed to collaboratively with other students)? Did the student feel pressurised either by the

teacher or the class into giving a prompt response? Conceivably, all of these factors could have contributed towards the student's ephemeral response.

So let us assume that the main cause was indeed a lack of 'think-time'. The question we now have to consider is, *why* did the teacher provide such a short think-time? Is it because there is an incongruence between the teacher's perception of time and reality? Maybe the teacher is aware of the short 'think-time' but finds it difficult to extend it to longer periods. Or perhaps it is caused by perceived time constraints and the teacher feels under pressure to cover a certain amount of work by the end of the lesson. Either way, we would then need to consider some strategies which could be used to alleviate the underlying problem. Crucially, it is only by understanding the '*why*' element, that we would be in a position to intervene effectively in this situation.

To summarise, it is clear from this scenario that a whole-class I-R-F routine is multi-dimensional and unpredictable by nature. Its features are inexorably linked and changing any singular feature can have a contagion effect on other elements of the routine. Thus, using only a single set of data could entice us into making uninformed and hasty decisions and invalidate both the processes and the outcomes.

### **Quantitative Data**

#### **Quantitative Analysis of IQC from Audio-recordings**

The IQC framework (Appendix A) highlights the essential features which underpin high-quality IQC. Teachers were given a glossary of terms (Appendix B) defining each feature on the framework; this ensured consistency and clarity of language. Both the teacher and specialist coach used the framework to assess the effectiveness of each routine (this is discussed in more detail in section 4.5).

Possible threats to validity and limitations include:

- The framework can identify how often events occur but not *why*
- Interpretations may vary
- The process is time consuming, making inconsistencies more likely
- There is possible conflict with individual teachers' epistemologies

### Pre / Post Study Student Questionnaires

Questionnaires “provide a relatively simple and straightforward approach to the study of attitudes, values, beliefs and motives” (Robson 2002, p.233). Although questionnaire data often lacks depth, its strength lies in the fact that it can be administered quickly to a large number of respondents. The aim of a ‘Likert scale’ is to measure the strength of feeling regarding multiple items with a particular theme and this system was used in the study. The ‘items’ should relate to the same entity and be varied so that some imply a positive view of the phenomenon of interest, and some a negative one. The positive and negative items should be set out alternately and there should be an equal number of each.

A Likert-style questionnaire was administered to the class at the start and end of the study (Appendices D and E) and this had two main purposes. The pre-questionnaire was used to compile a base-line evaluation of each teacher’s IQC from the students’ perspective. This information was then used diagnostically to support teachers in improving their subsequent practice. The post-questionnaire results were compared to those of the pre-questionnaire in order to establish the degree to which the students’ views had changed, thereby highlighting possible changes in teachers’ IQC. Although the information from the post-questionnaire was of no diagnostic value in relation to the study, the results were still communicated to the teachers in order to support future development beyond the scope of the study.

Robertson (2014, p.6) reports that researchers frequently use inappropriate statistical techniques to analyse attitudinal surveys such as Likert questionnaires. She asserts that *non-parametric* tests should be used for ordinal data yet, despite this, many researchers wrongly interpret the scales as if they produced *interval* data. This is statistically problematic since the ‘distances’ between the categories cannot be said to be equivalent. For example, Kaptein et al (2010, cited Robertson, 2014, p.7) suggest that people tend to perceive that there is a bigger difference between the items at the extremes of the scales than at the middle. Robertson concludes that, with ordinal data, the mode should be used and not the mean.

For the pre-questionnaire, it was not possible to use a sophisticated statistical package such as SPSS due to having only one data set, and this meant that I had to carry out the analysis in a more simplistic fashion. Using the mean in

this situation is a common pitfall and this is wholly inappropriate, since a combination of one 'strongly disagree' response and one 'strongly agree' one would produce the same outcome as two of 'neither agree nor disagree'. In this way, the overall results would be nonsensical and the information produced of no statistical or strategic value. In order to analyse the students' outcomes more effectively, the results from the five categories were reduced to three; the 'strongly agree' and 'agree' frequencies were combined as were the 'strongly disagree' and 'disagree'. This resulted in three categories of 'agree', 'neutral' and 'disagree'. This was done so that the modal value would have more meaning or significance in relation to the research goals. What was important here was that the students could identify which features of the questioning routine were generally strong as well as those that were problematic; in this way the data could be used formatively in order to engender an improvement in the teachers' IQC.

With the post-questionnaire, however, having two sets of data meant that it was possible to use SPSS to investigate any changes in the students' attitudes in a more statistically rigorous manner. It was not possible to match up the pre and post scores for each individual student due to the need for anonymity and so a comparison of the two data sets as a whole was made. This was carried out using the Mann-Whitney U test, a non-parametric test which compares ranks in the data. Coolican (2006, p.167) states that the advantage of this test is that it is easy to calculate and does not need to satisfy parametric assumptions. The main disadvantage is that "it is less sensitive to data than unrelated *t* and therefore may not always give significance when a *t*-test does." The limitations or possible validity threats for questionnaires in general are that:

- They can be affected by the characteristics of the respondents (Robson, 2002)
- They are subject to 'social desirability response' and 'researcher bias' (Robson, 2002)
- There may be ambiguities in the questions, not detected by the researcher
- With closed questions, respondents are unable to qualify their responses
- There may be worries about anonymity

### Pre-test, Post-test Single Group Design

A short test, based on the questioning routine, was administered immediately after the first and last questioning sessions. The tests were constructed by the teacher and tested different topics but were designed to be equivalent. Robson (2000) concludes that the 'gold standard' design is the *randomised control trial*. Here, a control group is used as a basis for comparison with the experimental group and both groups are constructed by a process of randomisation; the fact that the groups are randomly selected offers a greater likelihood that the groups will be equivalent. This approach is completely unrealistic in a school environment and so the option was quickly dismissed. Instead a 'pre-test, post-test single group design' was used and although this was less reliable, it was a more realistic and feasible alternative.

The pre and post tests were compared to determine the impact of the intervention. In theory, improved IQC should produce better test results after the final questioning routine. Coe (2000) describes 'effect-size' as a standardised, scale free measure which quantifies the effectiveness of a particular intervention, relative to some comparison. He argues that it is easy to calculate and understand and can be applied to any measured outcome in education or social science.

Using a confidence interval gives the same information as a test of statistical significance, where the emphasis is on the significance of the effect, not the sample size; this was calculated for each teacher using the pre and post-test results. The threats to validity and possible limitations are:

- The pre and post tests may not have been equivalent
- With 'effect size', restricted ranges, non-normal distributions and small samples can give spurious results (Coe, 2000)
- The design is subject to problems with history, maturation and statistical regression (Robson, 2002)

### Qualitative Data

#### Semi-structured Teacher Interviews

Teachers were interviewed at the start of the study to establish their opinions, attitudes and experiences in relation to whole-class I-R-F (the semi-structured interview schedule can be seen in Appendix C). In this way, it was possible to gauge teachers' views on a range of pertinent issues before the interventions



could have any impact on their opinions or beliefs. It also served as a basis for investigating whether pre-study perceptions later matched their actual teaching behaviours during the study. Post-study interviews were also conducted to explore some of the issues arising throughout the research process and to allow teachers the opportunity to articulate their own conclusions. All the interviews were transcribed as evidence.

Interviews allow researchers to explore complex issues and to probe, prompt and provide clarification (Brown and Dowling 1998, p.72). The richness of the data meant that it was possible to understand not only how a teacher functioned but also *why* they act in the way they do; critical when seeking to change practice and improve performance. The semi-structured approach meant that the research goals were still on the agenda but with some flexibility built in.

Possible threats to validity and limitations are:

- Interviewing and transcribing can be very time-consuming
- Semi-structured interviews require respondents to limit their views to pre-determined categories or themes
- Respondents may be less candid due to confidentiality issues
- Success relies on a specific level of skill from the interviewer
- It is prone to researcher bias

### Focus Group Interviews (Teachers and Students)

After the first recording, a focus group interview was set up with the researcher and the four (at the time) teachers. At the end of the study, a focus group interview was also conducted with a group of four 'articulate' Year 11 students to explore a range of questioning issues. All interviews were recorded and transcribed as evidence.

The rationale for using focus group interviews is discussed in more detail in Section 4.5. With the teacher focus group, the main aim was to allow teachers the opportunity to discuss common issues which may have arisen and to learn new strategies from each other. The student focus group interview was arranged to investigate their experiences and perspectives of whole-class I-R-F within the context of Haverton High School. An attempt had been made to interview groups of students that had specifically taken part in the study, but the resultant data were of little value in terms of the research goals. This was probably because the

students were too young to articulate their thoughts effectively. Possible threats to validity and limitations are:

- Respondents may feel intimidated
- Limited moderator skills
- Group dynamics may affect the outcomes
- Generalisation is problematic (Robson, 2002)
- The moderator may have undue influence on the group
- Students may find it difficult to express their thoughts (Hopkins, 2002)

#### Qualitative Analysis of IQC from Audio-recordings

Audio-recordings were analysed as a means of comparing the *quality* of interactions. A 'best example' I-R-F exchange was transcribed for Routines 1 and 3 as a means of identifying any improvements that might have been made in terms of student responses and the quality of interactions. Although using quantifiable measures to compare performance was invaluable in relation to the research goals, it was also important to analyse the *quality* of discourse (e.g. detail of response, level of difficulty etc.). Threats to validity and limitations include:

- Transcription can be problematic where student responses are inaudible
- Judgements are to some degree subjective and can therefore be potentially contentious

#### **4.5 Using the IQC Framework of Best Practice**

The IQC framework can be used in a variety of different ways, from a simple observation tool to a more rigorous evaluation device. For each of the three cycles, teachers audio-recorded a whole-class I-R-F routine (for a duration of approximately 10 minutes) and the framework was used to comprehensively evaluate the teacher's IQC during that performance. The steps and data collection procedures in each cycle can be seen in Table 4.1 below.

In terms of recording the questioning routines over the three cycles, two issues surfaced early on which needed to be resolved. The first problem was how to make sure that the three questioning sessions were of sufficient magnitude and duration so that they could be properly evaluated. After-all, not every lesson would necessarily incorporate a planned questioning routine and much would depend on what point the teacher was at in the teaching cycle of a particular topic. It was

essential that each routine was substantial enough to allow teachers the opportunity to elicit the *full range* of skills covered in the IQC framework. The second concern was that of consistency; it would be very difficult to compare and assess the progress of a teacher’s performance, if the routines were discernibly different from each other.

As a solution to both issues, I decided that each questioning routine in the three cycles would be based on a *revision* session involving a recently taught topic. I asked the teachers to identify three topics of a similar level and nature which the class had been taught approximately 3 or 4 weeks previously. Thus, although each recorded routine would not be fully *standardised*, there would at least be a high degree of consistency between them. The fact that there was a time lapse of at least 3 to 4 weeks from when the topic was taught, meant that it was unlikely that the students would be able to instantly recall the content of each topic. Although the routine would be technically less authentic than a typical I-R-F sequence, the advantages far outweighed the disadvantages. In any case, in between cycles, teachers would be continuing to practise daily their questioning skills in a more realistic environment, albeit in an informal and unscrutinised way.

Table 4.1: Time-line for a Single Performance Cycle

<b>Event (in chronological order)</b>	<b>Description</b>
<b>Audio-recording</b>	Teacher records questioning routine in class and sends copy to researcher
<b>Teacher Evaluation</b>	Teacher evaluates routine using IQC framework, identifying strengths and areas for improvement. Pro-forma evaluation sheet completed and sent to researcher
<b>Specialist Coach Evaluation</b>	Specialist coach comprehensively evaluates the questioning routine using IQC framework and compiles detailed feedback using pro-forma feedback sheet
<b>Coaching Session</b>	Meeting arranged between specialist coach and teacher. Pertinent issues discussed and targets for improvement agreed for next cycle

There is no doubt that the use of an audio-recording was a critical part of the whole research process. McNamara (2002, p.37) confirms that “video recordings

of practice can promote critical reflection and can be instrumental in bringing about changes to practice.” In my opinion, audio-recordings possess the same inherent advantages and there were untold benefits to be gained from recording the questioning routines in this way:

- The *factual* elements of the recordings could not be disputed by teachers; it was important that teachers could accurately analyse their performance without needing to rely on memory, since the resultant data would form the basis of future discussions in the coaching sessions.
- It allowed both the teacher and specialist coach to analyse performance retrospectively and without the need to be in the classroom at the same time; it would not have been possible for the specialist coach to observe all lessons ‘live’ due to time constraints and timetabling issues.
- The recordings could take place without the ‘intrusion’ of another teacher in the classroom, meaning that the interactions would be more natural and authentic: having another teacher (or specialist coach) in the class would inevitably affect the dynamics of the classroom situation.
- It allowed teachers to self-evaluate and reflect on their own performance; one of the major aims of the study was to determine the degree to which teachers can evaluate their own practice and improve.
- It would not be possible to calculate a variety of measures such as average ‘think-time’ or ‘student utterance’ without the opportunity to listen to and continually replay the recording; these were critical measures in determining the degree to which teachers had improved their IQC.
- It allowed the opportunity to challenge the notion that a teacher’s self-perception might be different to reality: for example, one of the anticipated outcomes of the study was that teachers would over-estimate the amount of think-time they allow.

After each audio-recording, the teacher used the framework to self-evaluate the effectiveness of each routine (Appendix K). The specialist coach produced a more detailed analysis which involved calculating the *frequency* of each feature on the framework. The resultant data were used to identify the strengths and weaknesses from each audio-recording and improvement targets agreed during the subsequent coaching session.

From a practical perspective, it was recommended that no more than three categories should be analysed at any given time, otherwise the evaluation process would have become unnecessarily complicated and challenging; the 'down-side' of this, however, is that repeated analyses can be very time-consuming. Three other important indicators were established by the specialist coach to investigate whether there were any trends in these measures across the three performance cycles:

- **Average think-time;** this gives a general indication of how much time the teacher is allocating to students in order to formulate responses.
- **Average student utterance;** this measure illustrates the average length of the students' responses and is expressed in number of words per utterance.
- **Activity profile;** this illustrates the proportion of time spent during the routine on three possible activities, teacher-talk, student-talk and think-time. It is a useful tool in highlighting the degree to which any one element might be dominating the routines; according to research, this has historically been the teacher-talk component. One of the aims of the research was to reduce this over the course of the study and increase the other two elements.

On its own, it is questionable whether the use of the IQC framework would have had a tangible impact on teachers' IQC. Thus, working in tandem with the framework itself, three different catalytic devices were used to facilitate improvement over the course of the study, each with its own unique strengths:

- **Self-evaluation**

Turner-Bisset (2001, p.112) asserts that "knowledge of self" is an essential component of the process of 'reflection' and 'meta-cognition'. She concludes that, "being consciously critical of one's performance implies that one can 'stand back' from one's performance and assess it without rationalisation." Teachers who indulge in the process of 'rationalisation', she suggests, tend to view negative classroom experiences as being caused by external factors over which they have little control or influence. The highest level of reflection, she concludes, is that in which the teacher is able to re-conceptualise "knowledge of self and models of teaching and learning in the light of political, social and ethical considerations."

Thus, a major part of this study was to investigate the degree to which each teacher was able to use the recordings and the framework to improve their IQC through a process of self-evaluation.

- ***Focus group interviews***

Cohen et al (2000, p.288) describe a 'focus group' as being a form of group interview where the focus is on the interaction within the group whilst they discuss a theme supplied by the researcher. It is the interaction within the group that generates the primary data rather than that between the group and the interviewer. Taber (2007, p.57) concludes that, although focus groups are unlikely to generate individual viewpoints to any great depth of understanding, they are a useful way of increasing the number of informants without significantly increasing the time available for the interviews; a notable point within the context of a demanding school environment.

However, this strategy offers significant benefits to the researcher, other than those of a purely logistical nature. Robson (2002, p.284) points out that the group dynamics can help to direct the group towards the more pertinent issues, thus making it easier to assess the degree to which "there is a consistent and shared view." He highlights the fact that groups can be either *homogeneous* or *heterogeneous*. The former is one where a common background, position or experience exists, whilst the latter is one in which these elements differ. The strength of a homogeneous group, he concludes, lies in the fact that the commonality within the group facilitates communication and promotes the sharing of ideas and experiences; this, he suggests, may even lead to a "groupthink (unquestioning similarity of position or views)." Conversely, the differences apparent in a heterogeneous group "can stimulate and enrich the discussion" and "may inspire other group members to look at the topic in a different light."

I would argue that in this study, the group was neither homogeneous nor heterogeneous but, rather, elicited characteristics of *both* types of groups. The fact that they worked within the same school context, were subject to the same whole-school vision and would have participated in a collective CPD programme, meant that there was bound to have been a large amount of commonality amongst the group. However, even within that setting, it was inconceivable that there would not have been perceptible differences in experiences and outlooks; they all taught different subjects, possessed differing amounts of experience and had undertaken different teacher training programmes. Moreover, their own unique

childhood experiences of teaching and learning are likely to have influenced individual teacher constructs.

It was hoped that the process would enable the group to experience the 'best of both worlds' and allow teachers the opportunity to observe a range of perspectives. Working collaboratively would enable them to share ideas and learn from each other, thus providing a vehicle for enhancing their own IQC. Furthermore, as Bryman (2004, p.348) points out, it "offers the researcher the opportunity to study the ways in which individuals collectively make sense of a phenomenon and construct meanings around it."

- **Specialist coaching**

Lofthouse et al (2010, p.7) identify three specific roles which provide personalised professional support for teachers in a school environment; *mentoring*, *specialist coaching* and *collaborative coaching*. All three roles are aimed at providing a structured, sustained approach to professional development but differ in approach and purpose. Mentoring aims to support "professional learners" through significant career transitions, whilst specialist coaching endeavours to develop a *specific aspect* of practice. Collaborative coaching is a process involving two or more professional learners which attempts to "enable them to embed new knowledge and skills from specialist sources in day-to-day practice."

Lofthouse et al (2010, p.10) confirm that a major strength of coaching is that it can provide teachers with detailed feedback on the "intellectual and practical challenges" thrown up by teaching on a daily basis; typically, teachers focus more on "the burdensome nature of the job" and broader, more 'macro-driven' performance indicators. They explain that teachers:

"Tend to adopt set teaching routines and often wait for examination results, performance management and Ofsted inspections to indicate how well they are doing. The burdens of the role, and the relatively blunt instruments available for feedback, can lead teachers to overlook some of the fine detail of practice."

Furthermore, they add, coaching also advances a school's "social capital", by encouraging open and trusting relationships to flourish, there-by increasing the resources available to successfully carry out its "core business."

A comparison by CUREE (2005, p.3), highlights the fact that there is much in common with all three aforementioned roles, in both approach and intent. As well as being the researcher, I made the decision that I would also assume the role of specialist coach. There were two main reasons for this. Firstly, because I was conducting the research, this position gave me a valuable and instantaneous

insight into the different issues that were emerging throughout the study. Secondly, I had developed a great deal of knowledge and expertise in this specialised area over the years, partly through the research itself, but also through my whole-school teaching and learning role. Thus, within the school environment, I felt that I was best placed to successfully fulfil the requirements of this role. Clearly, this also raised some ethical considerations and this is elaborated on in Section 4.6 (see 'Incentives').

The role that I assumed aligned itself with many of the aims and objectives of both mentoring and specialist coaching, including:

- Identifying learning goals
- Providing support to clarify and refine goals
- Providing guidance, feedback and direction
- Encouraging experimentation
- Reflecting on and debriefing shared experiences
- Asking good questions
- Highlighting evidence from research and others' practice

As CUREE (2005, p.3) points out, the role of a *specialist coach* involves “having knowledge and expertise relevant to the goals of the professional learner” and the fact that the study was also aimed at improving a specific aspect of professional practice (IQC) meant that on balance, my role tended towards this domain.

#### **4.6 Ethical Considerations**

The British Educational Research Association (BERA) provides clear and comprehensive ethical guidelines for conducting any type of educational research. BERA (2011, pp.4-7) promotes the belief that research should always be conducted within “an ethic of respect for The Person, Knowledge, Democratic Values, The Quality of Educational Research and Academic Freedom” and this certainly represents a sound moral and philosophical basis from which to operate. I will now discuss its principle recommendations below and how they relate to the design and implementation of my research:

- ***Voluntary informed consent***

Parents, students and teachers were given an information sheet outlining the aims of the study and the ways in which data would be collected. Teachers and students signed individual consent forms but it was entirely impractical to seek the



written consent of each individual parent, therefore, 'presumed consent' was accepted. There was no single instance of consent being refused during the study. The student information sheet and consent form can be seen in Appendix F. Similar forms were also used for both parents and teachers and all were cleared by the ethical committee at Newcastle University.

When compiling and conducting the questionnaire, all teachers were consulted and agreement for each question was secured. They were also given the option of altering or withdrawing any of the questions that they might not have been comfortable with. The questions had to be compiled in a sensitive and non-judgemental manner and although this made it more difficult to explore contentious issues, it was important not to undermine each teacher's status within the class. Students were guaranteed anonymity and were asked not to put their names on the questionnaire sheet (Appendix D). Of course, where taped interviews are conducted, complete anonymity is not possible. However, participants were reassured that, apart from those involved in the interviews, only the researcher would have access to the subsequent information and anonymity would be guaranteed in the published thesis.

- ***Openness and disclosure***

The use of non-disclosure or subterfuge in research should be the subject of "full deliberation" and fully disclosed when reporting. Furthermore, if this course of action is followed, approval should be sought from a "local or institutional ethics committee". The main consideration, in terms of non-disclosure, was whether to inform the students about the research. The disadvantage of informing the students was that it brought into play a major threat to validity, the 'Hawthorne effect'. This is a phenomenon where participants may change their behaviour when they become aware of their participation in a research project. However, it was critical to secure parental and student consent for participation in the research, so this issue could not be avoided and would be taken into account when evaluating the final results. In conclusion, therefore, no form of deception was used at any point in the study; all participants were fully aware of the aims of the research, the intended actions and how the process would impact on them.

- ***Right to withdraw***

Participants should be made aware that they have a right to withdraw at any time without the need for explanation. Furthermore, researchers should not use coercion to secure participation, either at the beginning, or to make subjects re-

engage with the research. All participants were aware of their right to withdraw at any stage but there were no conflicting issues in this respect. Originally, five teachers were selected to take part, but one withdrew after the first cycle, another after the second and a third near the end. The reasons for withdrawal were due to personal and medical circumstances and were unconnected with the research study. Although these three teachers did not complete the study, they had no objection to me using any data generated up to their points of withdrawal in the final analysis.

- ***Children, vulnerable young people and vulnerable adults***

Researchers should comply with Articles 3 and 12 of the United Nations Convention on the Rights of the Child. Article 3 requires that the best interests of the child must be a primary consideration, whilst Article 12 dictates that children who are capable of forming their own views “should be granted the right to express their views freely in all matters affecting them, commensurate with their age and maturity.” They conclude that children should be “facilitated to give fully informed consent.” These stipulations also apply to young people and vulnerable adults. All students taking part in the study were of secondary age (11-16) and were considered to be relatively high achievers, academically. As stated earlier, fully informed consent was secured from the students. No vulnerable adults took part in the research.

- ***Incentives***

Researchers’ use of incentives to encourage participation in the research “must be commensurate with good sense” and avoid any choices which might have “undesirable effects.” They must also acknowledge that incentives could create a problem in terms of the design and reporting of the research; for example, there may be a potential to produce a bias in sampling or participant responses. The teachers who took part in the study did so on a voluntary basis; none of them were coerced in any way and their primary aim was to improve their own questioning skills.

The fact that I was taking a dual role in the research as a researcher and specialist coach did present an ethical issue that needed to be resolved; it was further complicated by the fact that I was a member of the SLT. Taber (2007, p.139) suggests that where a ‘teacher-researcher dilemma’ exists, ethical issues can potentially arise from an abuse of power due to the privileged position that the teacher holds. He discusses the notion of having a “gatekeeper” who can provide

an independent perspective and ensure that the research is not disruptive or detrimental in any way to the participants and to teaching and learning in general. To avoid this situation, I asked the assistant head with responsibility for CPD to act as the 'gatekeeper' throughout the research; the only information he did not have access to were the individual results from each teacher, since these were clearly confidential.

Each teacher identified one class that they would use as a target group throughout the research. In each case, teachers chose a 'more able' class on the premise that it would provide them with a better platform for developing their questioning skills. It must be acknowledged, however, that the teachers who took part in the study were clearly highly motivated individuals who were prepared to increase their already demanding workload in order to improve their classroom practice. Furthermore, the fact that the students were all from more able classes meant that, in the main, they were likely to have been more positive, compliant and motivated than some other classes. Thus, to avoid allegations of bias, it is important to view the final judgements and conclusions within the context of these two factors.

- ***Detriment arising from participation in the research***

It is recommended that researchers should make clear to participants (including parents or guardians) any likely detriment arising before and during the research process. All participants were clear about the aims of the research and what this would involve over the course of the study. BERA (2011, p.7) also stipulate that researchers must:

“Recognise concerns relating to the 'bureaucratic burden' of much research, especially survey research, and must seek to minimise the impact of their research on the normal working and workloads of participants.”

This is a particularly significant point in the context of the study. The duration of the study was relatively long and I was mindful of the fact that teachers were already working in a demanding and pressurised environment. I had to accept that there was a limitation on the amount of data that I could collect and, as much as possible, tried to minimise the demands on teachers so that they could focus on improving their IQC.

From the students' perspective, the demands resulting from participation were minimal. However, BERA (2011, p.7) assert that researchers “must take steps to minimise the effects of designs that advantage or are perceived to

advantage one group of participants over others.” The fact that both teachers were also using any newly discovered skills with classes not taking part in the study meant that none of their students were being disadvantaged.

- ***Privacy***

It is normal and expected practice that participants’ data is treated confidentially and anonymously, unless participants specifically and willingly waive that right. The parent, student and teacher information and consent forms explicitly highlighted the fact that any information collected from the research would be confidential and anonymous. Where recordings or interviews were conducted, it was guaranteed that this information would remain confidential other than to those individuals who were party to it. The teacher consent form also stated categorically that the information collected would not be used in any way at Haverton High School, other than for the purposes of a personal doctoral study. However, at the outset, all teachers in the study indicated that they were keen to use this experience as a platform for improving their own IQC and disseminate it to other teachers around the school, possibly as specialist coaches in this area. I assured them that the data that I collected would remain confidential and that it was for them to decide whether they would wish to discuss their own individual and personalised experiences with the rest of the staff.

Researchers must also comply with the legal requirements of the Data Protection Act (1998) with regard to the storage and use of personal data. The data must be kept securely and the form of any publication should not “directly or indirectly lead to a breach of agreed confidentiality and anonymity.” I have conformed to these regulations and will continue to do so in future.

- ***Disclosure***

Where the effects of the agreements made with participants on confidentiality and anonymity allows the continuation of illegal behaviour, the researcher must consider making disclosure to the appropriate authorities. No illegal behaviour was witnessed throughout the course of the study. BERA also considers it to be good practice to ‘de-brief’ participants once the research has been concluded. Teachers were kept fully informed throughout the course of the research and de-briefed at the end. Each teacher also gave some general feedback to the class they were targeting, in terms of the outcomes of the study.

In conclusion, therefore, ethical considerations must not be underestimated when conducting research. I agree wholeheartedly with Hopkins

(2002, p.195) who states that a researcher's actions are usually "deeply embedded in an existing social organisation and the failure to work within the general procedures of that organisation may not only jeopardise the process of improvement but existing valuable work."

## **CHAPTER 5: RESULTS AND ANALYSIS**

In this chapter, I will be presenting the results obtained from the various data collection tools for each individual teacher. For the first teacher, Emily, I will present more detail in terms of how the data was collected as well as some of the rationale underpinning it; obviously this will not be replicated when presenting the results and findings for Rory. Each section will also include an 'analysis and discussion' section specific to each teacher. Where relevant, this will be expanded to address some of the wider issues relating to IQC and the main research question. The main discussion chapter will follow this chapter.

### **5.1 EMILY'S RESULTS**

#### **5.1.1 Student Questionnaire Results**

##### Pre-Questionnaire Results

As discussed earlier, the pre-questionnaire results were used as a diagnostic tool to improve teachers' IQC. I made a decision that to be considered a 'strength', the modal category would have to be 'positive' and represent 50% or more of the total responses; that is, equal to or more than the sum of the other responses. Conversely, any 'negative' outcomes of 50% or more were deemed to be a 'target for improvement'. That is not to say that the other features should not be improved, simply that these elements were identified by the students as being significant. In the questionnaire, *agreeing* with a *positive* statement or *disagreeing* with a *negative* statement represents a *positive* viewpoint over-all. Conversely, *disagreeing* with a *positive* statement or *agreeing* with a *negative* statement indicates a *negative* perspective. The same sample of 29 students was used in each questionnaire. The pre-questionnaire results can be seen in Table 5.1 below. The traffic light indicator reflects whether the over-all outcome is positive, negative or neutral.

Table 5.1: Results of Student Pre-Questionnaire

Statement/ Status	Number of 'Agree' Responses	Number of 'Neutral' Responses	Number of 'Disagree' Responses	Modal Category/ % of Sample	Traffic Light Indicator
<b>1</b> (Positive)	19	10	0	Agree (66%)	Positive
<b>2</b> (Negative)	19	9	1	Agree (66%)	Negative
<b>3</b> (Positive)	12	16	1	Neutral (55%)	Neutral
<b>4</b> (Negative)	27	1	1	Agree (93%)	Negative
<b>5</b> (Positive)	16	11	2	Agree (55%)	Positive
<b>6</b> (Negative)	11	10	8	Agree (38%)	Neutral
<b>7</b> (Positive)	16	7	6	Agree (55%)	Positive
<b>8</b> (Negative)	10	6	13	Disagree (45%)	Neutral
<b>9</b> (Positive)	24	4	1	Agree (83%)	Positive
<b>10</b> (Negative)	11	17	1	Agree (59%)	Neutral

Conclusions for Student Pre-Questionnaire Results

Identified Strengths

- ✓ Students generally value the questioning routines - they “learn a lot” (S1)
- ✓ Students generally feel that they can only answer a question if chosen by the teacher (S5)
- ✓ The students indicate that they are often allowed to work collaboratively when answering questions (S7)
- ✓ Students receive appropriate support where they give an incorrect or incomplete answer (S9)

Main Targets for Improvement

- Try to ensure that questions are distributed around the class more evenly (S2)

- Allow students more time to prepare and formulate an answer ; increase 'think-time' (S4)

### Post-Questionnaire Results

Table 5.2: Results of Student Post-Questionnaire

Statement/ Status	Number of 'Agree' Responses	Number of 'Neutral' Responses	Number of 'Disagree' Responses	Modal Category/ % of Sample	Traffic Light Indicator
<b>1</b> (Positive)	26	3	0	Agree (90%)	Positive
<b>2</b> (Negative)	9	16	4	Neutral (55%)	Neutral
<b>3</b> (Positive)	15	9	5	Agree (52%)	Positive
<b>4</b> (Negative)	13	5	11	Agree (45%)	Neutral
<b>5</b> (Positive)	12	13	4	Neutral (45%)	Neutral
<b>6</b> (Negative)	8	13	8	Neutral (45%)	Neutral
<b>7</b> (Positive)	18	11	0	Agree (62%)	Positive
<b>8</b> (Negative)	5	6	18	Disagree (62%)	Positive
<b>9</b> (Positive)	26	3	0	Agree (90%)	Positive
<b>10</b> (Negative)	10	14	5	Neutral (48%)	Neutral

### Comparison of Pre and Post Student Questionnaire Results

In order to identify if any significant changes had taken place in students' attitudes, a comparison was made using the Mann-Whitney U test with SPSS. Each item was given a Likert score from 1 to 5 (related to the five categories). For positive statements, 1 was negative and 5 positive; for negative statements, this was reversed. A significance value of 0.05 was used ( $P \leq 0.05$ ). This means that where the p value is 0.05 or less, there is only a 5% chance that the result can be



'spurious'. The 'Null Hypothesis' states that there are no significant differences between the pre and post results for each item.

Table 5.3: Comparison of Pre and Post Questionnaire results (Mann-Whitney)

Item	1	2	3	4	5	6	7	8	9	10
P-value	0.012	0.026	0.607	0.000	0.570	0.793	0.384	0.071	0.336	0.579

The results show that the Null Hypothesis is rejected for items 1, 2 and 4. This means that there are significant differences in the pre and post questionnaire results for these particular items at the 0.05 significance level. However, where the result indicates that there are significant differences between the two sets of data, it does not contextualise what these differences represent. The graphical comparisons below highlight the types of changes that are likely to have taken place for these items. The data from Tables 5.1 and 5.2 were used to construct them.

Figure 5.1

*"I usually learn a lot when the teacher asks the whole class questions"*

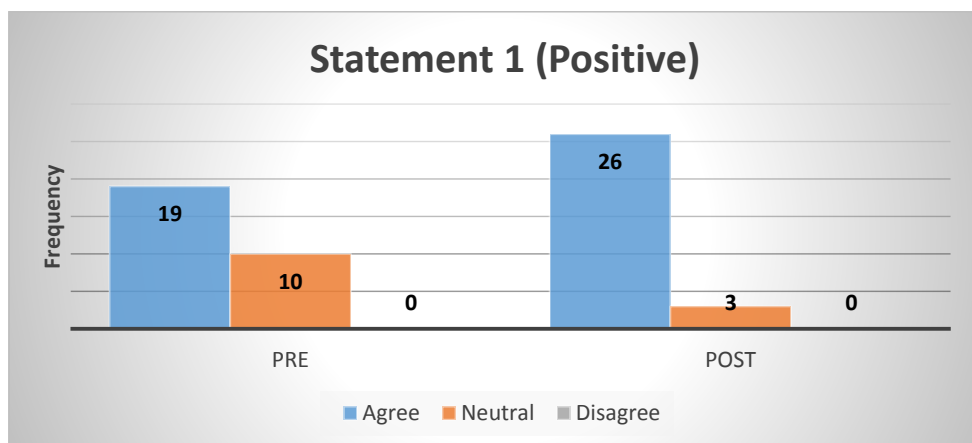


Figure 5.2

*“Certain students in the class answer more questions than others”*

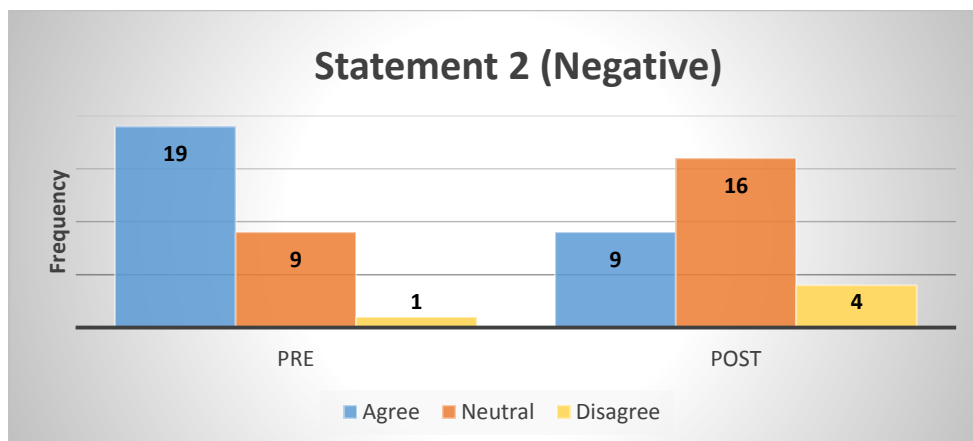
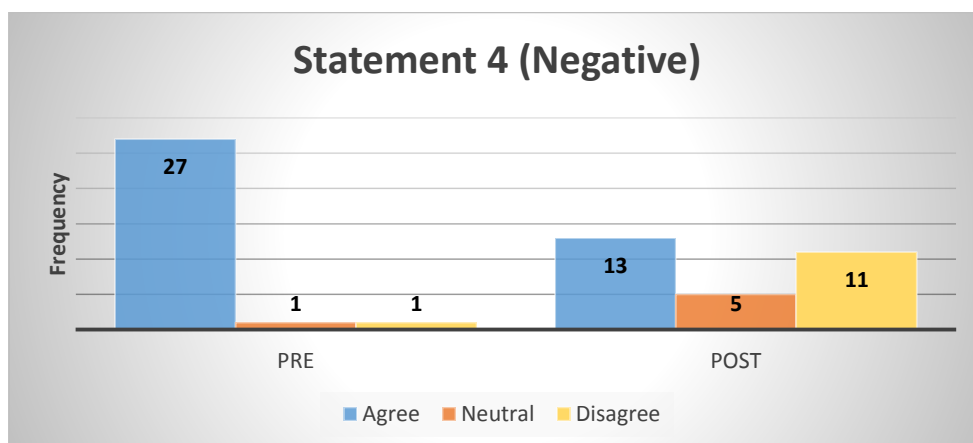


Figure 5.3

*“Students should generally be given more time to think about answers to the teacher’s questions”*



From the results above, we can conclude that there were significant changes in the students’ opinions in the following ways:

- By the end of the study students felt that they learned more during whole-class I-R-F (S1)
- It was less likely that certain students in the class would answer more than others (S2)
- More students felt that the think-time employed by Emily was adequate (S4)

This does not necessarily mean that other changes in practice had not taken place simply that, through the questionnaires, the students had identified the areas where the changes were *statistically significant*.

### **5.1.2 IQC Framework Data**

Over the course of the research, three questioning routines were audio-recorded and analysed by the teacher and specialist coach using the IQC Framework. The topics chosen were intended to be topics of a similar nature and difficulty, thereby making the tests as standardised as possible:

Table 5.4: Topics Used in the Three Audio-recordings:

<b>Routine</b>	<b>Topic</b>	<b>Duration of audio-recording</b>
<b>1</b>	The Battle of Hastings	12 minutes 56 seconds
<b>2</b>	The Black Death	9 minutes 13 seconds
<b>3</b>	Treaty of Versailles, Appeasement, World War 2	12 minutes 45 seconds

## Analysis of Questioning Routines

The specialist coach's analysis of the three questioning routines using the IQC framework can be seen in Table 5.5.

Table 5.5: Specialist Coach Analysis Using IQC Framework

<b>Interactive Feature</b>		<b>Routine 1 (12.56)</b>	<b>Routine 2 (09.13)</b>	<b>Routine 3 (12.45)</b>
<b>Initiation Move- Questions Asked</b>	Display	15	10	10
	Referential	8	8	14
	Low Cognitive Status	10	7	6
	Medium Cognitive Status	8	8	9
	High Cognitive Status	5	3	9
<b>Questioning Mode</b>	Independent	23	18	22
	Collaborative	0	0	2
<b>Student Interruption</b>	Student Shouts Out	11	3	3
<b>Question Think-time</b>	Short (< 3 Seconds)	16	13	15
	Medium (3-5 Seconds)	4	3	6
	Extended (> 5 Seconds)	3	2	3
<b>Differentiation</b>	Successful Match	22	17	23
	Mismatch	1	1	1
<b>Response Move- Student Utterances</b>	Short (< 10 Words)	17	10	8
	Medium (10-20 Words)	10	9	9
	Extended (> 20 Words)	4	4	7
<b>Latching</b>	Interrupt or 'Fill the Gap'	16	3	1
<b>Follow-up Moves</b>	Re-iterate	10	10	18
	Probe	16	12	20
	Scaffold	4	1	2
	Recycle (Bounce)	11	6	16
<b>Praise</b>	Effort	0	0	0
	Quality	29	21	3

## Analysis of Key Features

When comparing different questioning routines over the course of the study it is important to acknowledge that the lengths of the recordings varied. Whilst, 'raw' frequencies were used in some cases (for example, with latching), it was more appropriate to use proportion, averages or relative frequency with other features as a basis for drawing comparisons. The results for each feature can be seen below, firstly as a graphical representation, followed by a commentary summarising the outcomes:

Figure 5.4

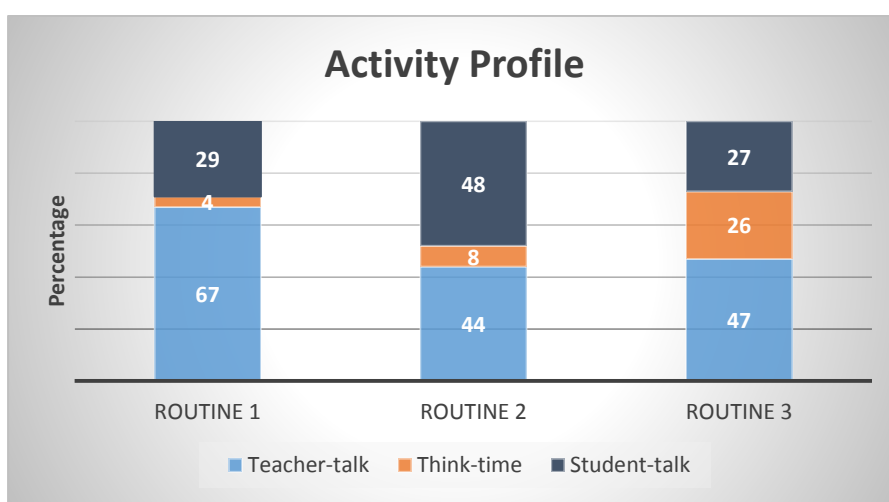


Figure 5.5

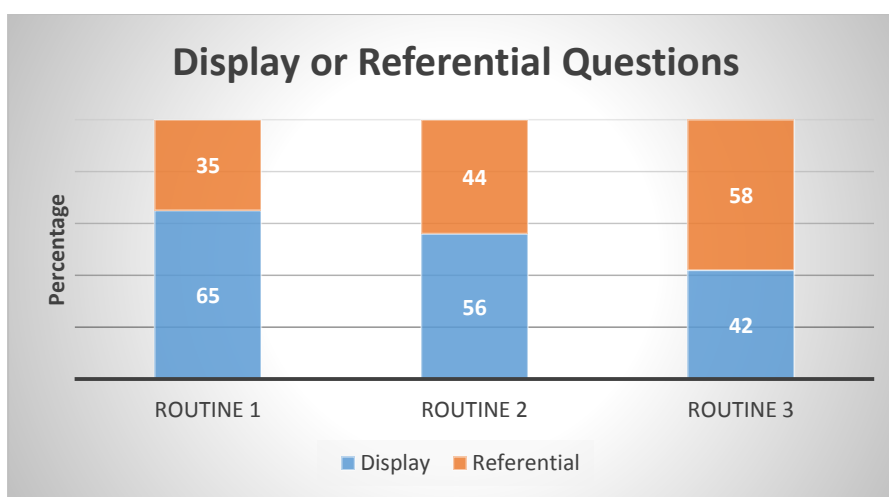


Figure 5.6

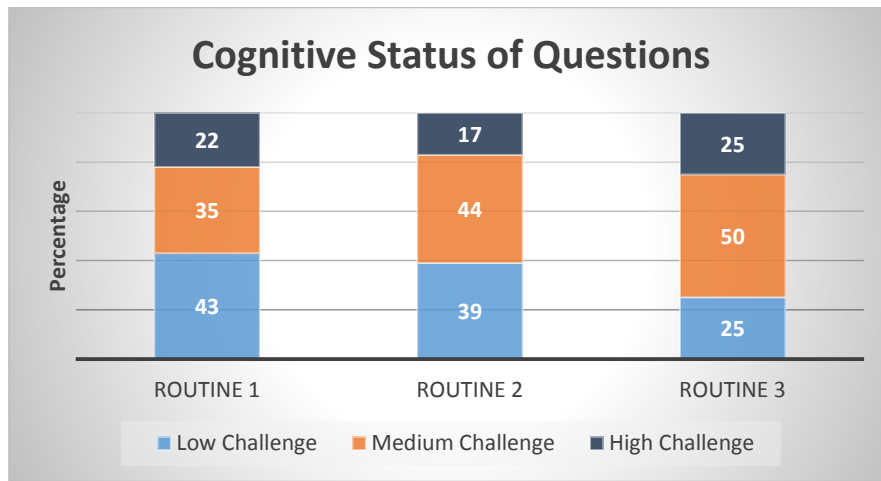


Figure 5.7

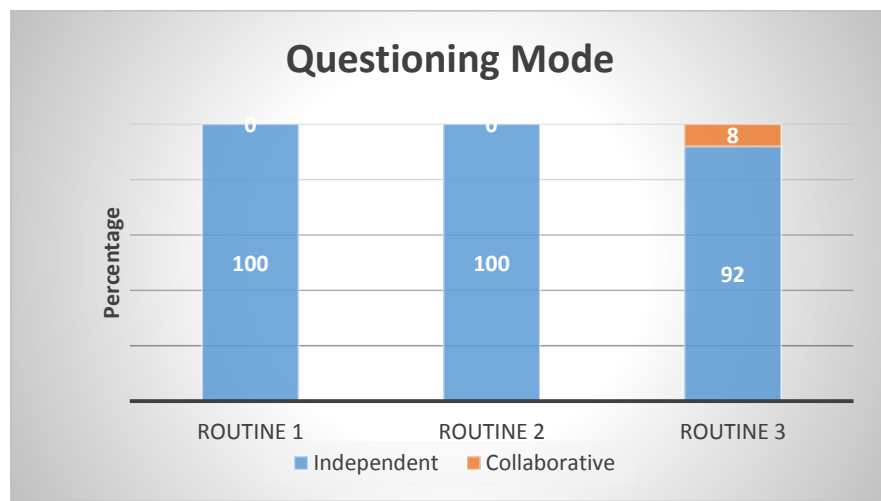


Figure 5.8

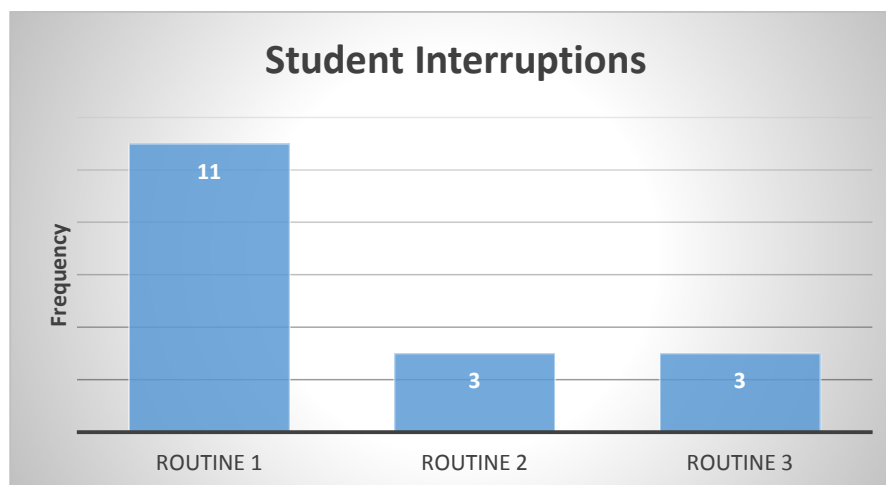


Figure 5.9

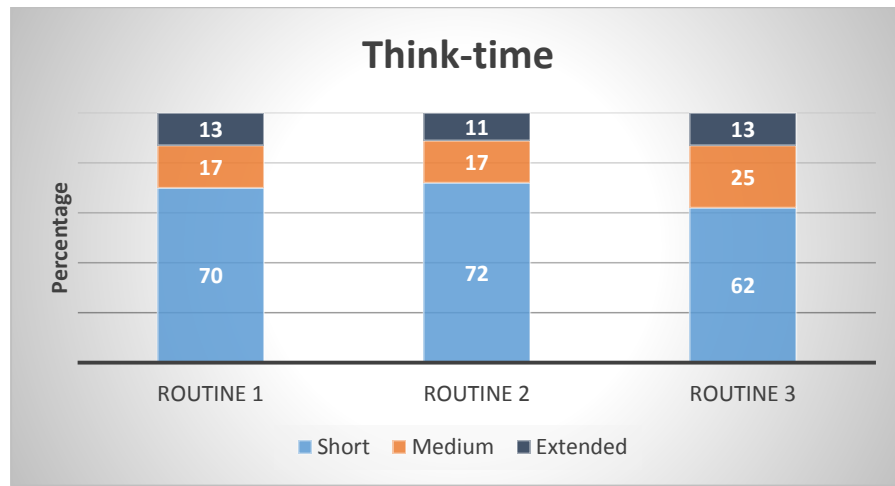


Figure 5.10

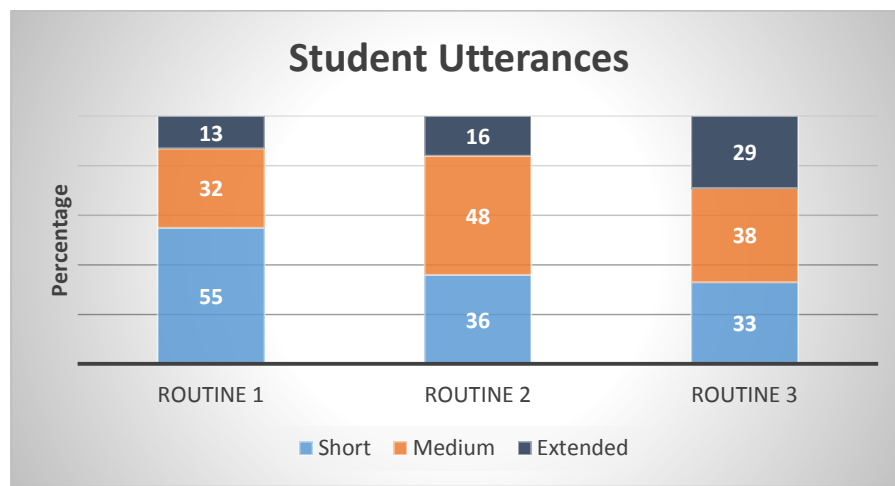


Figure 5.11

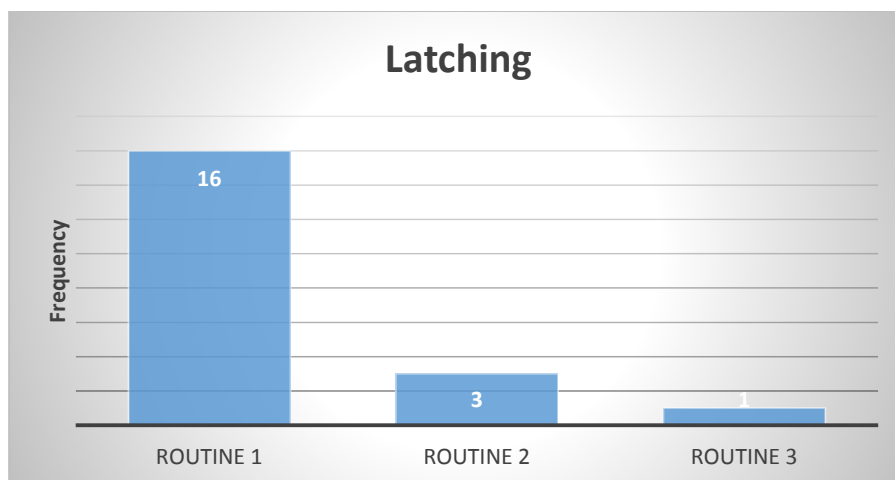


Figure 5.12

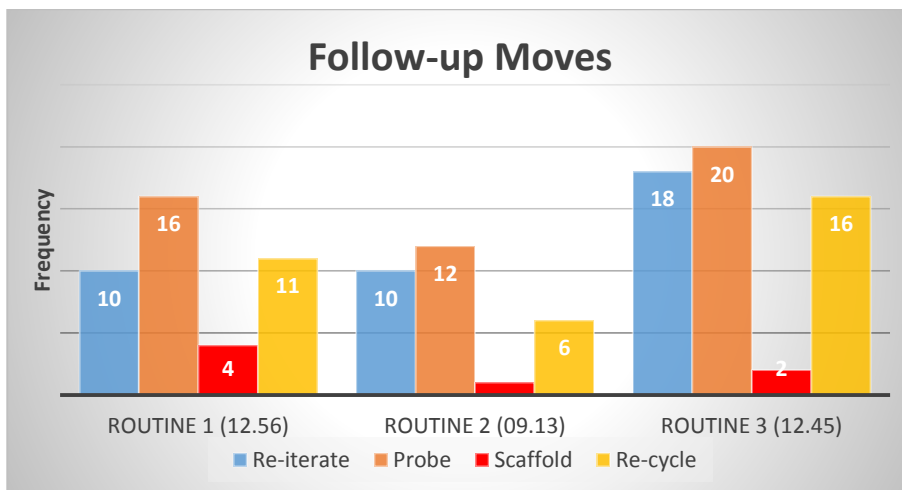
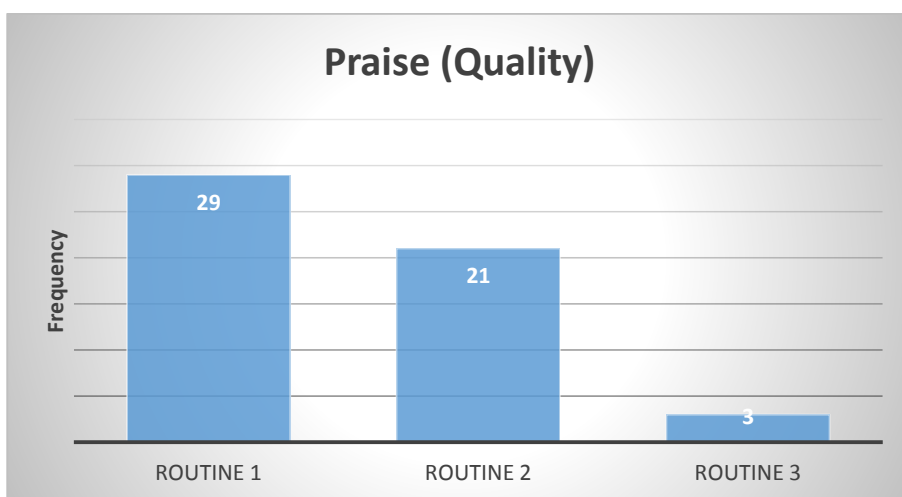


Figure 5.13



Average Think-time and Student Utterance Measures

The average think-time and average student utterance measures were also calculated:

Table 5.6: Average Think-time and Student Utterance:

Measure	Routine 1	Routine 2	Routine 3
Average 'Think-time' in Seconds	2.92	2.61	8.91
Average 'Student-utterance' in Words	10.81	13.79	15.76



Figure 5.14

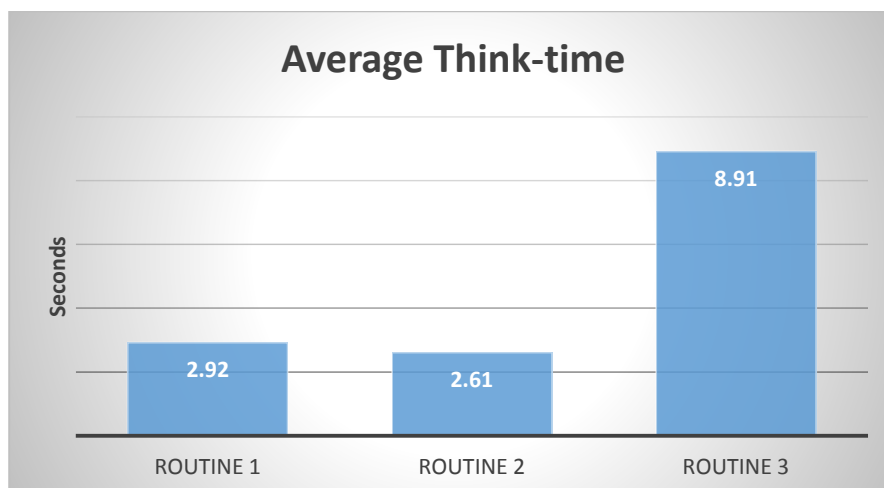
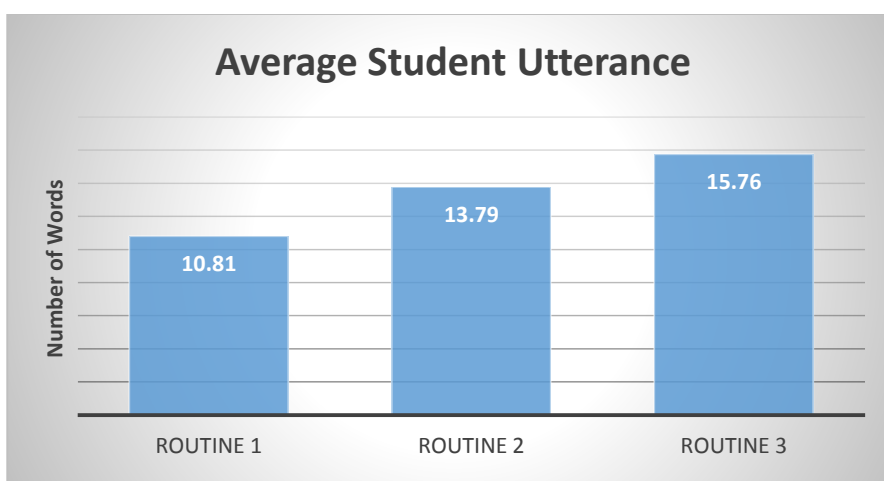


Figure 5.15



### Commentary on Key Features

#### Activity Profile (Figure 5.4)

This analysis is intended to compare the three main elements in a questioning routine; teacher-talk, think-time and student-talk. In this way we can compare the degree to which teachers and students contribute to the questioning process. In terms of the research goals, it was intended that there would be a greater degree of student autonomy over the course of the research; this would be indicated by an increase in the student-talk and think-time components of the routine.

In the first routine, the majority of the routine was taken up with teacher-talk (67%); after this there was a significant reduction (to 44% and 47%). The

proportion of think-time was very low in the first two routines (4% and 8%) but this increased significantly in the last routine (to 26%) mainly due to the use of Talking Partners. In the main, there was a shift in balance from teacher-talk towards think-time over the three routines.

#### Types of Questions Asked (Figures 5.5 and 5.6)

In Routine 1, a higher proportion of the questions asked were display (65%) compared to referential (35%). Over the course of the three routines there was a shift from display questions towards referential ones so that in the last routine, only 42% were display (58% referential). The proportion of medium and high challenge questions asked steadily increased; the proportion of low challenge questions asked decreased from 43% in the first routine to 25% in the last.

#### Questioning Mode (Figure 5.7)

Both of the first two routines were conducted entirely in the independent mode. In the third routine, 'Talking Partners' was used twice, resulting in this figure reducing to 92%.

#### Student Interruptions (Figure 5.8)

In the first routine it was common for students to shout out during the questioning process (11 times). However, in the second and third routines, this had reduced substantially to three times in each.

#### Think-time (Figures 5.9 and 5.14)

Think-time was analysed in two ways. The average think-time was calculated for the whole routine which gave a general indication of the amount of time students were given to think about their responses. However, averages can sometimes mask underlying trends and so it was also important to categorise the think-time in three ways; short, medium and extended. The average think-time measure for Emily was very low in the first two routines (see Figure 5.14). This was reflected by the frequent use of a short think-time (See Figure 5.9) in the first and second routines (70% in the first and 72% in the second). In the third routine, the average think-time increased significantly, mainly due to the use of Talking Partners on two occasions. The slight reduction in the use of a short think-time (to 62%) also contributed to this figure.

### Student Utterances (Figure 5.10 and 5.15)

As with think-time, the average student-utterance was calculated as a general indicator but the utterances were also categorised into three groups for the same reason; short, medium and extended. Over the course of the study, the proportion of short utterances decreased (from 55% to 33%) and the proportion of extended ones increased (from 13% to 29%) This is reflected by the average 'student utterance' which started relatively high (10.81 words) and continued to increase steadily over the three routines (13.79 in the second routine and 15.76 in the third).

### Latching (Figure 5.11)

Latching is a negative teacher action and reduces student autonomy. The incidence of latching in Routine 1 was very high (16). However, this figure reduced substantially in Routines 2 and 3 (3 times and once).

### Follow-up Moves (Figure 5.12)

A comparison of the four main post-utterance strategies can be seen below. When interpreting the data it is important to note that the length of each routine (this can be seen in brackets in minutes and seconds) is slightly different. It was not appropriate to use relative frequency or proportion in this instance since follow-up moves are not mutually exclusive; that is, more than one follow-up move can be used for one single question. There was very little change over the three cycles in terms of the balance of the four possible strategies in each routine. Re-iteration, probing and re-cycling were used regularly unlike scaffolding, which was used infrequently in all three routines. Over-all, Emily's most common follow-up move was to *probe*.

### Praise (Figure 5.13)

All incidences of praising related to *quality* of response as opposed to *effort*. The strategy of praising was used frequently in the first two routines (29 and 21 times). However, in the last routine, this reduced substantially and occurred on only three occasions.

### **5.1.3 Teacher Evaluations**

For each performance, the teachers completed a teacher evaluation form highlighting their own assessment of the routine. This was done before any feedback was given by the specialist coach (see Appendix K).

### **5.1.4 Specialist Coach Feedback**

Each audio recording was analysed by the specialist coach using the IQC framework. The results were used as a basis for providing feedback to the teacher during subsequent coaching sessions. An example of the detailed feedback given after each routine can be seen in Appendix G. In addition, a summary of the specialist coach feedback given for all three routines for Emily can be seen in Appendix H.

### **5.1.5 Pre/Post Test Results**

A pre-test, post-test single group design was used in an attempt to test the effectiveness of the first and last routines. A short test on the contents of each routine was administered immediately after the completion of the routines. The topics and the tests constructed for each routine were intended to be equivalent to each other. The two tests provided a quantifiable measure of the impact of the anticipated improvement in IQC. The effect-size was calculated along with the 95% confidence interval:

$$\text{Effect Size} = \frac{(\text{Mean of post-test} - \text{Mean of pre-test})}{\text{Standard Deviation}}$$

The standard deviations of the pre and post tests were slightly different so the 'pooled' standard deviation - essentially an average of the two - was used. The same sample of 29 students was used in each test (one student was not used because she missed the pre-test). The results can be seen in table 5.7 below.

As can be seen from the table, the effect-size was calculated as 0.68. The 95% confidence interval indicates that the 'true' value of the effect-size is likely to range from 0.15 to 1.21. Coe suggests that where the value of zero is outside the 95% confidence interval, then the result is "statistically significant at the 5% level."

Table 5.7: Results of the Pre and Post-test Analysis

<b>Pre-test Mean</b>	<b>Pre-test Standard Deviation</b>	<b>Post-test Mean</b>	<b>Post-test Standard Deviation</b>	<b>Pooled Standard Deviation</b>	<b>Effect Size</b>	<b>95% Confidence Interval</b>
9.62	2.19	11.14	2.24	2.22	0.68	0.15 to 1.21

To contextualise this finding, Rosenthal and Rubin (1982) conclude that an effect-size of 0.7 would indicate that 76% (as opposed to 50% for an effect-size of zero) of the scores in the pre-test would be below the median score in the post-test. Cohen (1969) describes an effect-size of 0.5 as 'medium' and suggests that it corresponds to the differences in heights between 14 year old and 18 year old girls, whilst Coe (2000) concludes that introducing a change in practice which produces an effect-size of 0.6 would result in an improvement of approximately one whole GCSE grade for each student in each subject.

Thus, on the surface, it is tempting to conclude that the performance of the students in the post-test was significantly better than in the pre-test due to an improvement in Emily's IQC. However, this judgement should be tempered with caution due to several possible validity threats:

- The pre and post-tests may not have been equivalent even though they were designed to be
- There may be an issue of 'maturity'; the post-test was conducted approximately six months after the pre-test, so the students may simply have become more adept at History
- The sample of 29, whilst large for a class-size, was relatively small statistically
- As Coe (2000) points out, interpretations of effect-size can be more problematic where the sample does not have a normal distribution or has a restricted range

Whilst it would be unwise to use this data in isolation, in conjunction with other triangulated data, it is possible to make some informed and valid judgements in line with Bassey's 'fuzzy' generalisation concept (Chapter 4, p.59).

## **5.1.6 Analysis and Discussion**

### **How Much Did Emily's IQC Improve in General Terms?**

Over-all, Emily appeared to make significant progress in developing her IQC due to improvements in key areas and this judgement is supported by multiple sources of data and several important performance indicators:

#### **Specialist Coach's Perspective**

As the specialist coach, I found working with Emily a richly rewarding and enlightening experience. She showed herself to be a very committed, energetic and reflective practitioner, with a strong affinity for her students. When I listened to the audio-recording of Routine 1, I immediately identified some major strengths as well as some areas that needed to be improved (these will be discussed shortly). What was striking was the fact that, whilst she taught with great energy and enthusiasm, she tended to lack a sense of composure and surety; as a result, the proceedings were somewhat hurried and a touch disjointed.

By the final routine there is no doubt that she displayed a much greater sense of confidence and equanimity and this is very obvious from the transcripts highlighted in the next section. The degree to which she improved her over-all IQC is very apparent in the specialist coach feedback (Appendix H); many of the targets set became identified strengths in the next cycle so that, by the end, there was only one significant target for improvement. One final change worth noting can be seen when analysing the 'activities profile' over the three routines (see Figure 5.4). Whilst in Routine 1, teacher-talk accounted for 67% of the activities, by Routine 3 this had reduced substantially to 47%. This is significant in the context of the research goals since one of the aims of the study was to engender a shift away from teacher dominance towards a more student-focussed environment for whole-class I-R-F.

#### **Emily's Perspective**

Emily, herself, felt that over the course of the study, she had made tangible improvements and perhaps more significantly, her subject leader agreed with this judgment; this was clearly evident in her post-study interview:

### Extract 5.1

**Researcher:** In general terms, do you feel that you improved over the course of the three recordings?

**Emily:** Definitely. I feel I was looking for it and doing the recordings I was more like, "Yeah. I've done that there, I've paused." Or, "I haven't given them enough time." Actually, in my appraisal observation, Leanne (subject leader) commented and said, "Your questioning has got a lot better." I said, "Well I've been doing the questioning with Dave so it must have worked." So it has definitely made me more aware of it and before, I hadn't thought about it, I would have been, "I've only let them have two seconds." When I did it and I was recording myself and you are listening to yourself you think, "Yeah, I actually do that." I would definitely say I'm much better.

### Student Questionnaires

The Mann-Whitney U test indicated that, by the end of the study, there was a significant difference (P value = 0.012) in the number of students who felt that they "usually learn a lot when the teacher asks the whole class questions" (Statement 1). Other data sources confirm that this represented an improvement.

### Student Utterances

The analysis of 'student utterances' was a critical issue in terms of the aims of the study. The intention was that both the length and quality of student responses would improve over the course of the research. The average student utterance increased from 10.81 words in the first routine to 15.76 in the third one, illustrating that on average, the student responses for each question were longer by the end of the study. This improvement is also corroborated by comparing the *quality* of the 'best example' interactions in both the first and last routines; these can be seen in the extracts below:

### Extract 5.2: Routine 1 (Battle of Hastings)

**Teacher:** Right, what about the wind changing direction, what do we remember on that, go on Jack, what do you remember about that?

**(Think-time- 1 second)**

**Jack:** When...em....William tried to get over to England, the wind... he couldn't get over, 'cos the wind was blowing one way.....(*Latching*)

**Teacher:** Excellent....

**Jack:** An' then the wind changed and..... (*Latching*)

**Teacher:** Fantastic, so because he came over what did that mean? Josh, what did that mean because William of Normandy came over, 'cos the wind changed direction?

**(Think-time- 1 second)**

**Josh:** Em....Harold had to go down and fight him....(*Latching*)

**Teacher:** Excellent, so Harold then had to march south to fight him. How were Harold Godwinson and his men feeling? Olivia?

**(Think-time- 1 second)**

**Olivia:** Like.... tired.

**Teacher:** Why were they tired? Mia?

**(Think-time- 1 second)**

**Mia:** 'Cos they'd just marched up to the top of the hill and they had to go all the way back down.....

**Teacher:** Excellent, so they were exhausted, they had to march up to the top of the hill and back down again at Hastings. Chloe can you add anything to that?

**(Think-time- 1 second)**

**Chloe:** Miss, they were probably as.....well...like...upset that there was another...like....they had to fight another war, 'cos didn't you say that some of the men had gone back to do the harvest or something... (*Latching*)

**Teacher:** Excellent.

**Chloe:** So they had half the men that he had left anyway..... (*Latching*)

**Teacher:** Excellent, really well remembered.

### Extract 5.3: Routine 3 (Treaty of Versailles, Appeasement and World War Two)

**Teacher:** Leaving the Treaty of Versailles behind, how can we then link the Treaty of Versailles and fast forward to World War Two and the cause of it? So how can we link it to World War 2? One minute, talk to the person next to you 'cos that's a bit of a tougher question. How are we linking it to World War 2, one minute off you go.....

**(Think-time - 69 seconds)**

**Teacher:** So.....how does this Treaty of Versailles, this really, really harsh treaty actually then cause World War Two.....how is it doing that? Chloe?

**Chloe:** Because...em....Appeasement was...like...a treaty, so then, rather than giving Hitler everything back, they bribed him with little things so that eventually, he just kept getting stronger by...like...saying he was gonna do things, so that they would give him things that he wanted, so he ended up re-arming and he really...like ...got stronger.



**Teacher:** I really like the way you've linked it to Appeasement and how he did that, but think again.....how does the Treaty of Versailles then link into Appeasement maybe or link into Hitler coming to power in 1933 and suddenly starting a war in 6 years? Why is the treaty of Versailles a cause of World War Two? Jacob?

**Jacob:** Because the Treaty of Versailles only...like... let him have a little amount of things that he needed....but then he went and re-armed and had more than what was allowed...and like Britain and France....was...didn't... wasn't expecting him to re-arm, so they obviously weren't happy about it.

**Teacher:** Excellent, yeah...pretty much, he's kinda gone from not having anything to totally re-arming. Right, let's link to Appeasement then. Appeasement was this kind of tool to negotiate, to give in to Hitler. Did *this* cause World War Two *or* was it the invasion of the czar, re-arming, the Rhineland.....all of these things? Was it the hatred of the treaty of Versailles or was it actually Appeasement? One minute again, talk to your partner.....

**(Think-time – 72 seconds)**

**Teacher:** Ok.....Ellen....go on then... lead us off.....

**Ellen:** I think.... like....none of them definitely caused war, all of them put together, that slowly led them up to war.

**Teacher:** Right, so you're saying, it's kinda every single thing kinda served its own purpose.....is that right?

**Ellen:** Eh....uh huh.

**Teacher:** Right, okay.....Max?

**Max:** I thought... that...it was..... appeasement.....was the cause of the war....

**Teacher:** Why?

**Max:** Obviously England weren't ready 'cos of financial problems at the moment.....and Hitler kept on going by re-arming....em...over countries invading them.....and what England done.....is they asked them nicely to....eh....stop....but he obviously ignored that because of his ego....he obviously ignored us. Then he kept on going getting more stronger and intimidating to other countries....like...puttin' on panic round the other countries.... round Germany.

**Teacher:** Exactly, and what did it then lead to Max?

**Max:** It lead them to invading....em... Poland.

**Teacher:** Which then?

**Max:** Started World War Two.

Several differences are readily apparent when comparing the quality of interactions in the two transcripts. Firstly, in Routine 3, the responses are generally longer and more detailed; in fact, the three longest uninterrupted student responses in the entire study can be seen in this passage of discourse; Max (60 words), Chloe (51 words) and Jacob (45 words). By contrast, the single longest uninterrupted response in Routine 1 was Chloe (32 words).

Secondly, there is a much greater degree of student autonomy in Routine 3. The discourse in Routine 1 is continually interrupted and the exchanges are short, disjointed and fragmented due to the high incidence of *latching* by the teacher (5 times). Conversely, there are no incidences of latching in the extract from Routine 3, ensuring that the discourse is more 'free-flowing' and the responses more extensive. Also note the excessive deployment of praise in Routine 1 with use of the word "*excellent*" when clearly some of the responses are not worthy of that accolade.

Thirdly, the main question (and sub-question) in Routine 3 which stimulated the subsequent interactions, was both referential and wide-ranging as well as being cognitively very challenging ("*that's a bit of a tougher question*"). Furthermore, the fact that Emily used the *collaborative* mode (for the first time) and a think-time of 72 seconds, meant that the students were able to work in pairs (collaborative mode) and had ample time to co-construct and rehearse purposeful and meaningful responses. In the context of I-R-F, these three conditions – a challenging referential question, appropriate think-time and use of the collaborative mode - collectively produced the best quality response in the entire study, as well as being the most extensive.

### Pre/Post-test Results

An effect-size of 0.68 from the pre/post-test analysis also supports the over-all judgement. Whilst this result in isolation has several possible threats to validity (as stated earlier), the findings are consistent with the results from the other data. In this respect, we can feel justified in constructing a *fuzzy generalisation* (Bassey, 2000) which affirms that the improvement in Emily's IQC is likely to have had a positive impact on attainment within the context of the questioning routines.

## **In Which Specific Areas Did Emily Improve Her IQC?**

In order to assess the improvement in Emily's IQC in more detail, it is important to firstly establish her starting point. Emily's base-line audio-recording revealed two significant strengths as well as some key areas that needed to be improved.

- ***Types of questions asked***

The first major strength identified at the outset of the study was Emily's capacity for asking a range of purposeful and productive questions. Although she asked a high number of low-level display questions, this was balanced to some degree by the number of higher-order, referential questions. Indicative of this was the fact that six of the questions asked either started with, or included the word, "*why*" (see Appendix J). In terms of stimulating meaningful and sustained discourse, the importance of these types of questions cannot be over-stated (see Wintergest, 1993: Chapter 2, p.19) As the specialist coach and researcher, I was somewhat surprised (and impressed) that an NQT would be able to show such questioning acumen at this early stage in her teaching career, particularly when discovering in the pre-study interview that she does not formally plan questions:

### **Extract 5.4**

<b>Researcher:</b>	Moving on now to planning. So, you're going to be questioning the class, do you formally plan questions that you want to ask?
<b>Emily:</b>	Not really, not any more. When I was in my PGCE, I used to plan questions, but then it got to the point where I was planning questions too much, I was like focussing too much. So I was like, sort of, too narrow. So when someone did slightly ask a different question, I panicked and thought, "I haven't planned for that." So now I'm trying to open it a little bit more and have more open questioning. But when I plan, I suppose I do think about, "Well, what might I ask?" So I do try and plan for that, but not so much as in, like, a targeted question, and in my head it's kind of when I'm there, at the time, I think, "Right I need to check he's got it, she's got it." Things like that more.

At this elementary stage in a teacher's development, most NQT mentors would be keen to impress upon their mentees the importance of effective planning in delivering a successful lesson and so this admission would normally be a serious cause for concern. However, during the pre-study interview, Emily goes on to divulge a probable explanation for her advanced questioning cognisance:

### Extract 5.5

**Researcher:** You mentioned something about the '5Ws' technique for questions. Can you explain that?

**Emily:** Yes. So the 5Ws, we use it in History a lot. It would be What-when? What-where? When? Why? How? Basically we use it quite a lot with images. For example, you might have a picture of an African being taken away from the plantation or being whipped or punished on a plantation. You don't have anything whatsoever, any knowledge, but the Five Ws is their way of saying, "What do you think is happening?" The 'What' W is obviously a basic skill and closed, whereas the Why, Where, and How is this happening? How does it make you feel? That's the higher ability students.

Thus, paradoxically for Emily, too much formal and prescriptive planning seems to induce internal conflict and panic when students do not always adhere to her carefully planned script; this is probably symptomatic of her lack of experience and versatility in these situations. Despite the lack of formal planning, her awareness of the 5Ws strategy means that, even at this early stage in her teaching career, Emily is already acutely aware of the need to ask a range of questions, including referential and higher-order types.

Although she does not formally plan questions in the way one would with say, a lesson plan, it is obvious that she still thinks informally about the main learning objectives and what issues she needs to address; and the 5W questioning technique provides her with a *scaffolding* tool, constantly acting as a background prompt. For Emily this works particularly well because it helps retain a degree of flexibility in her approach, which appears to be a critical factor at this stage in her pedagogical development. In the event, even though the types of questions asked were not a serious problem at the outset, Emily improved this feature of IQC even further so that by the last recording she had asked proportionately more referential questions than in the first routine (58% compared to 35%). She was quick to acknowledge the impact of that change herself in the post-study interview:

### Extract 5.6

**Researcher:** Okay, you started to ask a higher proportion of referential questions, with increasingly positive outcomes throughout the course of the study. What are your thoughts on that?

**Emily:** Yes I did. Before I felt that I was asking more closed questions. With being in my first year I was so eager just to get an answer I would maybe accept a closed question. I wasn't aware that I didn't know how to get more out

of them whereas by doing this study, I felt that the more open-ended questions came more naturally.

**Researcher:** So what impact did that have on the students' responses?

**Emily:** Much longer responses I would probably say. I think, because I was starting to ask better questions, their answers became better. I definitely think it kind of pushed me. Especially when they didn't quite give a long response and I knew their target was Level 7. For example, in that top set, I knew that wasn't a good enough response to it, it pushed me to push them further because I knew I could get a better answer out of them.

- ***Follow-up moves***

The second major strength apparent at the start was Emily's propensity for using a range of follow-up strategies, though there appeared to be a reluctance to use scaffolding (this will be discussed later). Nevertheless, she regularly used re-iteration (10 times), probing (16 times) and re-cycling (11 times) as follow-up moves and in my experience as an NQT mentor, this highlights an unusual pedagogical maturity at this point in a teacher's development. Emily offers an interesting explanation during the pre-study interview for arriving at this position so early in her career, although she believes that she should use these strategies even more:

#### Extract 5.7

**Researcher:** Okay, so, you've asked a question and a student answers. How much do you probe the response or ask for clarification?

**Emily:** Not enough. I might worry a little bit and think, "Oh, we're getting short on time", so I might take the first answer. That is always something I've tried to work on through my PGCE, one of the targets is, like, probe. Trying to get them to delve a bit deeper, maybe, or try the bounce-bounce technique. That one is quite good, so I try and maybe use somebody's answers saying, "Do you agree? Do you disagree? Could you give me another example?" So I do need to try and do that a bit more. I don't do that enough.

Both of the aforementioned strengths contributed significantly to a relatively high average student utterance measure of 10.81 words. However, it was my contention that both this measure and her IQC as a whole could be substantially improved with the appropriate strategies. When analysing the first audio-recording as specialist coach, three essential areas for development immediately became apparent:

- ***Latching and praise***

Emily displayed an incessant habit of *latching* whilst students were in the process of articulating their responses (16 times) and this represented a serious obstruction to developing better quality exchanges. When listening to the audio-recording as specialist coach, there was an overwhelming feeling that the discourse was continually being interrupted and the proceedings were being overly 'stage-managed'. Although the transcript from Routine 1 (Extract 5.2) does not fully convey that sentiment, it is clear from the extract below (also from Routine 1) the degree to which Emily's latching is affecting the discourse. Indeed, the student involved in the discourse, Jacob, eventually loses patience and confronts the teacher about the continued interruptions:

Extract 5.8

- Teacher:** He wins, he does, excellent, so Harold Godwinson beats Harald Hardrada, so Jacob, what happens next?
- Jacob:** Erm.....(*Latching*)
- Teacher:** Come on, Harold has just beat Harald Hardrada at Stamford Bridge, what happens next?
- Jacob:** Harold... Godwinson travels down 'cos...(*Latching*)
- Teacher:** Where to?
- Jacob:** To Hastings and.....(*Latching*)
- Teacher:** To Hastings excellent, then.....(*Jacob Interrupts!*)
- Jacob:** Do you not want me to go on?
- Teacher:** No go on, go on, I want you to say.....
- Jacob:** Right, em what does he see, em.....William of Normandy
- Emily:** Spot on.

Even before the study began, Emily openly acknowledged her unwelcome latching habit (though at this stage she did not call it that) and mainly put it down to it being an inherent personality trait, coupled with over-exuberance:

Extract 5.9

- Researcher:** Okay. When you ask questions, and I would like you to be honest here, do you think you ever interrupt them before they finish answering?
- Emily:** Yes. Yes. It's really bad. I do it and I think it comes back to me being a bit excitable and thinking, "Oh, that's great" Oh, yes, I really do and before I know it, I've said, "That's a really good answer" too early and they've still got four or five words left. I think I do it in everyday life. Obviously I'm a chatty person and I always have been. I don't know what it is but as I'm

still quite young maybe when I talk to professionals I'm so eager to put my point across and be involved in the conversation. My own family have commented on it. It's more of a personal trait. I've done it with adults. I do it with people, with my friends and in my head I think, "I haven't actually let them finish that sentence there." I'm aware I've done it but I do struggle to zip my mouth sometimes.

However, to Emily's credit, she very quickly rectified the latching issue so that by the second and third routines she had dramatically reduced its frequency to just three times and once respectively; the impact on the quality of the discourse can be clearly seen in Extract 5.3.

Early on, this latching tendency was exacerbated by another of Emily's unwelcome habits, the persistent use of lavish praise (she praised 29 times altogether in the first routine), often whilst the students were in the process of verbalising their responses. The rationale behind this type of questioning behaviour became apparent when she revealed her views about 'praise' in the pre-study interview:

#### Extract 5.10

**Researcher:** Okay. Moving on now, do you like to give praise when you are questioning?

**Emily:** Yes. I always like to give praise, but I was always told that I need to give more, and be like, over the top. But I struggled in my PGCE year to be over the top. Like, some people say, "Oh, that's fantastic! Well done." But then I just felt I was a bit patronising, and especially with older kids, they might think, "I know the answer's right but that's a bit over the top." So I do like to give praise and go, "Oh, that's brilliant. Yes. Really good answer. Thank you for that contribution". You know, things like that, but I probably should give more.

There appears to be elements of contradiction and conflict in her response here however. It was obvious from the start that Emily was a reflective practitioner and, in this instance, she is clearly eager to follow what she assumes to be valuable advice from more experienced professionals. Yet intuitively, she recognises that this type of praise can come across as "*patronising*" to some students. Although it is not clear who advised her, one has to question the advice given to her here, as clearly her over-use of praise was denying the opportunity for a more free-flowing discourse. In another pre-study interview, Becky, a textiles teacher, offered a different perspective when explaining the folly of using gratuitous praise during questioning routines (Becky withdrew from the study early on for personal reasons):

### Extract 5.11

**Researcher:** Do you like praising pupils?

**Becky:** A lot.

**Researcher:** Can you tell me why?

**Becky:** I think I should be a bit tougher with my praising. When I got observed off Ofsted there was an SEN girl, but the Ofsted inspector had got her mixed up with a MAT kid and he was going to her asking her questions. She'd managed to sew, totally independently on the sewing machine all by herself. Now, because she was SEN and she did it all by herself and I was like, "That's fantastic, that's brilliant," and I was really, really praising her, which was great for her and then the inspector said, "Think of the word 'fantastic'. Was it really 'fantastic'? Should you not be saying, "How could you improve this more?" Like, be more specific as to the praise, instead of, "You're wonderful, you're fantastic, you're amazing.""

On a broader level, one may be forgiven for thinking that the use of praise is not a major consideration in the grand scheme of I-R-F, but adopting this philosophy grossly underestimates its impact on the learning process. The way that a teacher responds to students' answers is absolutely critical in terms of the expectations that are being transmitted, as well as the learning climate which is being cultivated. By exaggerating the worthiness of students' responses, Emily was in danger of inadvertently creating a climate of low expectation (see Borich and Tombari, 1995: Chapter 2, p.31).

To many teachers this notion seems somewhat paradoxical, yet telling a student that an answer is 'excellent' when it is clearly not, is analogous to saying "*For you I think that answer is excellent because you are not capable of anything better.*" Rather, the message that we should be conveying to students is "*you need to work harder to produce answers that I know you are capable of and which fully justify a judgement of excellent.*" Furthermore, as Becky stresses, it is also critical that students know *why* an answer is being assigned such distinguished status and critically, how to improve it further (see Dweck, 1999: Chapter 2, p.32).

Although Emily dramatically reduced the frequency with which she praised students, she struggled to add the formative dimension to the process. In truth, this is one area that I regret not targeting throughout the research. Although this issue was raised in the focus group interview, the framework did not take account of the constructive element of praise and so it was not targeted comprehensively; thus, in future, I would adapt the framework to take account of this. From this



perspective, therefore, we should not be too critical of teachers not developing their practice in this way.

Interestingly, during the post-study interview, she explained that, whilst too late for the study, she was beginning to make better use of praise in her daily practice. However, it appears that part of the motivation for this was down to the fact that she was being observed by her subject leader and she is honest enough to admit that she would be less likely to do this when not under scrutiny:

### Extract 5.12

**Researcher:** There is a feeling that when you do say something is good or excellent then you should tell them why it's good or excellent. Do you feel maybe you have still got work to do in that area?

**Emily:** Oh yes, I agree. For example when I had my observation last week I did do that; I think I was much more aware of doing that in terms of, "What you've done there is really good because you have inferred, which is what we need to do for the higher order." And I said that to them, but on a day to day basis I probably don't. I agree. It would be good to do that.

**Researcher:** So if we were continuing this study further that would be a new target for you? (Laughter).

**Emily:** Yes, it would be a target to do that next time

- ***Think-time***

The second substantial problem that needed to be resolved was the issue of student *think-time*. In line with research literature, the average think-time deployed by Emily in the first two routines was relatively low (Figure 5.14). Indeed, out of 23 questions asked, only three had a think-time of more than 5 seconds (Figure 5.9). This view was reflected by the student pre-questionnaire where 93% of students either agreed or strongly agreed that they should be "*given more time to think about answers to the teacher's questions*" (Table 5.1).

In the case of display questions, or where the question is factual or involves re-call, a think-time of around 3 seconds will often suffice and may not be problematic. However, with higher-order or referential questions, students invariably need longer to process and prepare a cohesive response. Thus, whilst asking a number of higher order or referential questions was undoubtedly a strength of Emily's, she was not maximising the opportunities presented by these questions, due to insufficient think-time.

There appeared to be three main factors underpinning Emily's problem with think-time, and these became apparent during the post-study interview:

#### Extract 5.13

**Researcher:** One of the things that came out was the fact that your think-time was quite low when you asked the questions directly; often it was below three seconds. Can you explain why?

**Emily:** I think in my head, if I pose a question and get this instant, "Oh my goodness me, they don't have a clue." I quickly change the question or quickly answer it for them. Three seconds to me, felt so much longer but it was only when you started saying, "This is how long your think time was. It needs to be longer," and even at the end, it still wasn't as long as it could be. When you're there in the moment, you feel in your head that you've so much to get through and if you don't get through it, it's it a waste of a lesson. It's changing that mind set more than anything, but I'm aware of it now and I'm working on it. Even now with not doing the study and without your coaching and the audio-recordings, I still in my head think, "Could I have given her more time to get a better answer?"

Firstly, Emily's *perception* of time during whole-class I-R-F, seems to be out of line with reality and this appears to be a common problem amongst many teachers. For example, in the pre-study interview, teachers were asked to estimate their average-think time and Emily's response can be seen below:

#### Extract 5.14

**Emily:** How long do I wait? Oh, probably nearly 30 seconds. Probably not very long.

**Researcher:** If I told you that the average think-time, according to research, is one second or less, would that surprise you?

**Emily:** Yes. I definitely don't wait one second. It might not be 30 seconds, maybe it is less. (Laughter). It's definitely not one second. I give them more time than that. (Laughter).

Emily's average think-time measure of 2.92 seconds in Routine 1, highlights the discrepancy between her perception and what actually happens. Worse still, we can see from the transcript from Routine 1 (Extract 5.2), that there were indeed numerous times when her think-time was only 1 second! To give her credit, however, it was clear by the end of the study that she had developed a much greater awareness of how much think-time she was actually deploying for each question.

Secondly, Emily is clearly focussed on possible time constraints and how these may affect the progress of the lesson; the next passage in the pre-study interview clearly reveals why:

#### Extract 5.15

**Researcher:** Is there ever a point where you worry that you might be deviating too much from the learning objectives?

**Emily:** Yes, if it was going on for a few minutes or even longer, then I might sort of think “Oh, we are getting a bit off-task”. But this actually happened in my PGCE, where a student had asked a question and it was actually commented on that I didn’t let them continue. I actually stopped her because I was worrying, because I was thinking everything’s timed when you’re getting observed. So, if anything, they said, “Actually, let them run with it”, because it was more interesting. They were more engaged than they were two minutes before. So I think you’ve just got to maybe judge it for what the class are doing at the time.

In some ways this touches on Emily’s epistemological position with regard to what constitutes effective learning. Her approach appears to be largely underpinned by behaviourist ideology where learning is teacher driven and immutable (see Morgan and Saxton, 1994: Chapter 2, p.14). For Emily, satisfying a list of pre-determined learning objectives is a top priority when it comes to judging how successful her lesson has been and this becomes even clearer in the pre-study interview:

#### Extract 5.16

**Researcher:** In general, how do you know when you’ve had a good lesson?

**Emily:** If I feel like the students have gone out and actually got something from it, sort of, gained knowledge or a skill. So, normally, it’s through me really checking what they are actually learning and comparing it to the learning objectives. If they have met them, then, to me, that’s a good lesson.

**Researcher:** So it’s really quite important that you meet the learning objectives in the lesson?

**Emily:** Yes, because if I didn’t, then there was no point in setting them in the first place, because the learning objectives are what I need them to know for that topic. So if they haven’t met them, then I know they haven’t met them, so I know, like, maybe that wasn’t a good lesson. So I need to change it for next time.

Comparing Extracts 5.15 and 5.16 above also raises another important and interesting point. In the first transcript, Emily has been encouraged by her PGCE mentor to be more pro-active in deviating from the learning objectives where

opportunities for purposeful learning arise, on the basis that this would be more useful for the students. However, in the second transcript (Extract 5.16), with Emily now working as an NQT, the pedagogical goals are very different, probably due to the pressures of meeting the professional standards and the expectations of the school. Even though Emily has learned about how to respond to 'critical learning moments' in her teacher training, her pedagogical goals appear to have become heavily influenced by institutional motive.

Thirdly, there is an implication in the transcripts that Emily has an inherent fear of losing the class's attention and this became even more apparent when discussing the merits of whole-class I-R-F in the pre-study interview:

#### Extract 5.17

**Researcher:** Okay, so you stand in front of the whole class and fire questions at them. Do you think asking questions in this way is important?

**Emily:** I do, because it gives you a bit of a whole class overview, but at the same time, you can't get 30 questions with 30 kids because that would take too long. So you might get an overview, but you won't have a personal understanding of it. But I think, if you've got an inkling that somebody hasn't got it, that's more the one-on-one basis, like, when I move around and ask them. Because then you can get a bit more of a discussion than the whole class, because some people might start talking or get fed up of the whole-class discussion, because it can only last for a certain amount of time before people get bored.

Emily is clearly worried that by focussing on one specific individual for too long, the rest of the class may become bored and venture off task. In addition, she makes a very perceptive observation about the possible limitations of whole-class I-R-F as a pedagogical learning model. In her eyes, only one student can be involved in the process at any given time, thereby risking alienating the rest of the class. In a sense, this highlights the rationale behind my own research; one of the over-riding aims of the study was to adapt the I-R-F cycle so that the class as a whole was more active and had a much higher stake in the questioning process.

Ultimately, as Emily concedes in the above transcripts, this issue was a very difficult problem to fully overcome, as is evident in the specialist coach's feedback (see Appendix H). We can see that the target of "*Ensure that the think-time is at least 3 seconds, and longer for more complex questions*" was set after the first two routines. In the third routine, the use of Talking Partners increased the average think-time over-all, but questioning in the independent mode

remained problematic; thus, after the third routine, the target was adapted to reflect this.

To conclude, although Emily made some progress in this area, there was still room for improvement. Interestingly, the results from the Mann-Whitney analysis of student questionnaires (Table 5.3) indicated that the students felt that she had made significant progress with the think-time issue. This could be due to the impact of Talking Partners towards the end of the study, rather than when questioning students directly in the independent mode.

- ***Questioning mode***

In the pre-study interview I was initially very impressed with Emily's pedagogical awareness of this particular feature of IQC. When asked about how she would respond if the class was clearly struggling with a particular question, she gave a very perceptive response:

#### Extract 5.18

- Emily:** If I find that a few people have struggled, I would stop everybody and say, "Right. Speak to the person next to you for 30 seconds and be prepared to give an answer." So it just gives them a bit more confidence in case they are stuck.
- Researcher:** It's quite interesting what you say there about the 30 seconds thing. When do you use that technique, then?
- Emily:** Well, I've found if maybe I've asked one person and they haven't quite got it, and then if I've said, like, phone a friend, and they say, "I don't know either", or they are not getting the point.
- Researcher:** So what is the benefit of that? Why would you do that?
- Emily:** To give them more confidence because they have managed to share the answer with a partner, or the partner has said an answer. So now they have got something from their partner to help in their answer.
- Researcher:** Where did you get that idea from?
- Emily:** It was my PGCE mentor that recommended it and said that. Because, sometimes, if that does happen, it will be an opportunity to give them a bit more time.

After analysing the first audio-recording I was somewhat surprised and perplexed that, given her responses in the pre-study interview, she elected to work in the independent mode for the whole routine. Furthermore, despite identifying this as a target for the next cycle, this was replicated in Routine 2. Thus, for the third routine, this target was identified as a top priority and to her credit, she used

Talking Partners to good effect. Indeed, the impact of this strategy can be seen by the quality of the exchanges in Routine 3 (Extract 5.3) earlier. When I raised this issue in the post-study interview, her response was very honest and illuminating:

#### Extract 5.19

**Researcher:** When I interviewed you before this study, you did mention about Talking Partners but then during the study you didn't use it until the end.

**Emily:** I never did it. And that's the thing. I was aware of it, I knew it was a good idea having As and Bs talking. I saw it in Broomside Academy, but it's weird when you actively come to do it, you forget and it wasn't until my final, final recording that I went back and thought, "I'm going to deliberately show this and do this" and I felt that I did it then. Yes it's weird, it doesn't pop in to your head. It's bizarre.

**Researcher:** In the coaching session I discussed with you all the data and the transcript, did you feel that when you did use Talking Partners with the right question, that you got some better responses?

**Emily:** Definitely, because it gave them more time to think of an answer and it stopped me from jumping in after three seconds. So instead I thought, "I'll give you a minute." And then I felt I was more willing to wait longer. So yes, I think the answers were much better. They were more detailed and longer.

**Researcher:** Do you think they liked it?

**Emily:** Yes because I think it gives them the confidence especially the students who might not be as comfortable talking out loud. They've had that minute to share with someone else and they've gained the knowledge and experience without actually having to verbally say it, maybe to the class.

In a sense, this exchange highlights the difficulty of engendering change within a deep-rooted and embedded paradigm. It is not the fault of the teacher training agencies; Emily has been given sound advice during her PGCE mentoring. She has been encouraged to embrace peer collaboration as part of her teaching repertoire, both through the specialist coach feedback and whole-school CPD. Moreover, Emily herself acknowledges the overwhelming benefits of using Talking Partners as a questioning strategy. Yet, she also acknowledges, with incredulity, that when in the thick of the questioning action, the option of using this strategy rarely comes to mind.

Whilst the problems associated with this particular feature of IQC were difficult to overcome, there is no doubt that by the end, Emily had made tangible progress in this area and the evidence from the data fully supports this judgement.

However, as Emily herself implies, this strategy is yet to be fully embedded in her questioning practice and there are certainly doubts about whether the progress made will be sustained in the longer term (this will be discussed later).

## **5.2 RORY'S RESULTS**

### **5.2.1 Student Questionnaire Results**

The same sample of 15 students (from a class of 17) was used for both the pre and post questionnaire results.

#### **Pre-Questionnaire Results**

**Table 5.8**

<b>Statement/ Status</b>	<b>Number of 'Agree' Responses</b>	<b>Number of 'Neutral' Responses</b>	<b>Number of 'Disagree' Responses</b>	<b>Modal Category/ % of Sample</b>	<b>Traffic Light Indicator</b>
<b>1</b> (Positive)	8	5	2	Agree (53%)	Positive
<b>2</b> (Negative)	9	6	0	Agree (60%)	Negative
<b>3</b> (Positive)	4	10	1	Neutral (67%)	Neutral
<b>4</b> (Negative)	8	5	2	Agree (53%)	Negative
<b>5</b> (Positive)	9	6	0	Agree (60%)	Positive
<b>6</b> (Negative)	5	3	7	Disagree (47%)	Neutral
<b>7</b> (Positive)	4	8	3	Neutral (53%)	Neutral
<b>8</b> (Negative)	1	2	12	Disagree (80%)	Positive
<b>9</b> (Positive)	9	3	3	Agree (60%)	Positive
<b>10</b> (Negative)	8	6	1	Agree (53%)	Negative

## Conclusions for Student Pre-Questionnaire Results

### Identified Strengths

- ✓ Students generally value the questioning routines - they “learn a lot” (S1)
- ✓ Students feel that they must be chosen by the teacher to answer (S5)
- ✓ The students indicated that, generally, you do not interrupt them or ‘latch’ when they answer a question (S8)
- ✓ Students receive appropriate support where they give an incorrect or incomplete answer (S9)

### Main Targets for Improvement

- Try to ensure that questions are distributed around the class more evenly (S2)
- Allow students more time to prepare and formulate an answer; increase ‘think-time’ (S4)
- The students indicated that most of the responses they give are quite short. Try to think of ways of encouraging more extended answers; for example, use more referential questions and ‘Talking Partners’, to allow them to work together to rehearse a response (S10)



## Post-Questionnaire Results

Table 5.9: Results of Student Post-Questionnaire

Statement/ Status	Number of 'Agree' Responses	Number of 'Neutral' Responses	Number of 'Disagree' Responses	Modal Category/ % of Sample	Traffic Light Indicator
<b>1</b> (Positive)	6	7	2	Neutral (47%)	Neutral
<b>2</b> (Negative)	10	3	2	Agree (67%)	Negative
<b>3</b> (Positive)	2	12	1	Neutral (80%)	Neutral
<b>4</b> (Negative)	6	5	4	Agree (40%)	Neutral
<b>5</b> (Positive)	9	5	1	Agree (60%)	Positive
<b>6</b> (Negative)	5	2	8	Disagree (53%)	Positive
<b>7</b> (Positive)	11	4	0	Agree (73%)	Positive
<b>8</b> (Negative)	1	4	10	Disagree (67%)	Positive
<b>9</b> (Positive)	14	1	0	Agree (93%)	Positive
<b>10</b> (Negative)	8	5	2	Agree (53%)	Negative

## Comparison of Pre and Post Student Questionnaire Results

The results from the Mann-Whitney U test can be seen below:

Table 5.10: Comparison of Pre and Post Questionnaire Results (Mann-Whitney)

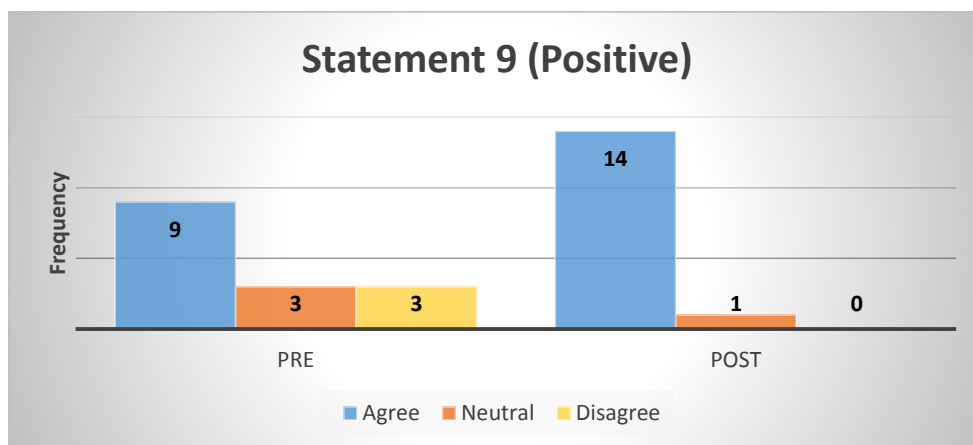
Item	1	2	3	4	5	6	7	8	9	10
<b>P-value</b>	0.624	0.325	0.595	0.567	0.624	0.775	0.116	0.595	0.010	0.870

The results show that the Null Hypothesis is rejected for Item 9, meaning that there is a significant difference in the pre and post questionnaire results for this item at the 5% significance level. To determine the type of change that has taken

place we can analyse the graph below (Figure 5.16), constructed from Tables 5.8 and 5.9.

**Figure 5.16**

*“If I give a wrong answer, the teacher usually helps me understand where I have gone wrong”*



The results suggest that where student gave incorrect answers, by the end of the study, Rory was more adept at developing student understanding; this could have been achieved through any of the follow-up moves.

**5.2.2 IQC Framework Data**

The three topics used over the three cycles can be seen in Table 5.11 below:

**Table 5.11: Topics Used in the Three Audio-recordings:**

<b>Routine</b>	<b>Topic</b>	<b>Duration of audio-recording</b>
<b>1</b>	Adjectives and Opinion Phrases Using “Parce que”	15 minutes 2 seconds
<b>2</b>	Verbs Ending in ‘ER’	8 minutes 43 seconds
<b>3</b>	Opinions 2	12 minutes 40 seconds

## Analysis of Questioning Routines

Table 5.12: Specialist Coach Analysis Using IQC Framework

<b>Interactive Feature</b>		<b>Routine 1 (15.02)</b>	<b>Routine 2 (08.43)</b>	<b>Routine 3 (12.40)</b>
<b>Initiation Move- Questions Asked</b>	Display	14	7	17
	Referential	6	3	6
	Low Cognitive Status	9	5	6
	Medium Cognitive Status	11	3	13
	High Cognitive Status	0	2	4
<b>Questioning Mode</b>	Independent	20	8	23
	Collaborative	0	2	*0
<b>Student Interruption</b>	Student Shouts Out	6	2	2
<b>Question Think-time</b>	Short (< 3 Seconds)	2	4	7
	Medium (3-5 Seconds)	5	1	5
	Extended (> 5 Seconds)	13	5	11
<b>Differentiation</b>	Successful Match	19	10	22
	Mismatch	1	0	1
<b>Response Move- Student Utterances</b>	Short (< 10 Words)	21	13	23
	Medium (10-20 Words)	1	3	4
	Extended (> 20 Words)	0	0	0
<b>Latching</b>	Interrupt or 'Fill the Gap'	2	1	0
<b>Follow-up Moves</b>	Re-iterate	16	9	15
	Probe	2	3	7
	Scaffold	0	1	2
	Re-cycle (Bounce)	2	4	6
<b>Praise</b>	Effort	0	0	1
	Quality	6	4	5

\*Not formally, but appeared to be infused

## Analysis of Key Features

Figure 5.17

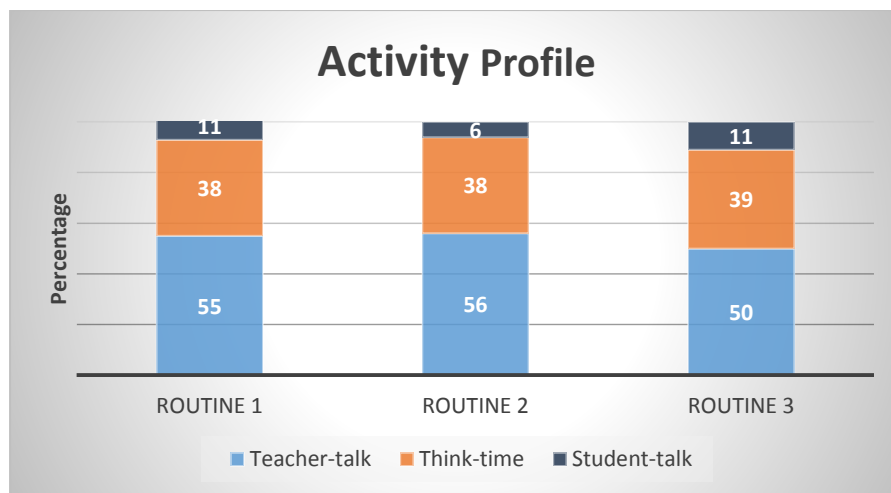


Figure 5.18

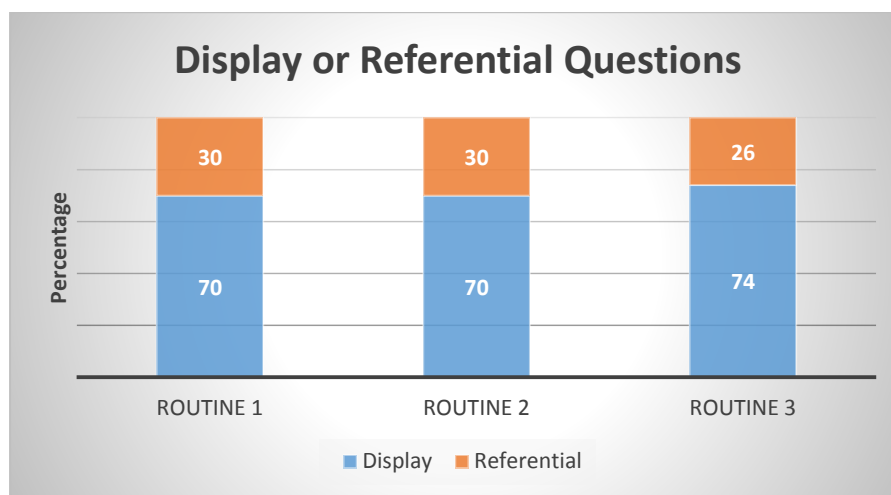


Figure 5.19

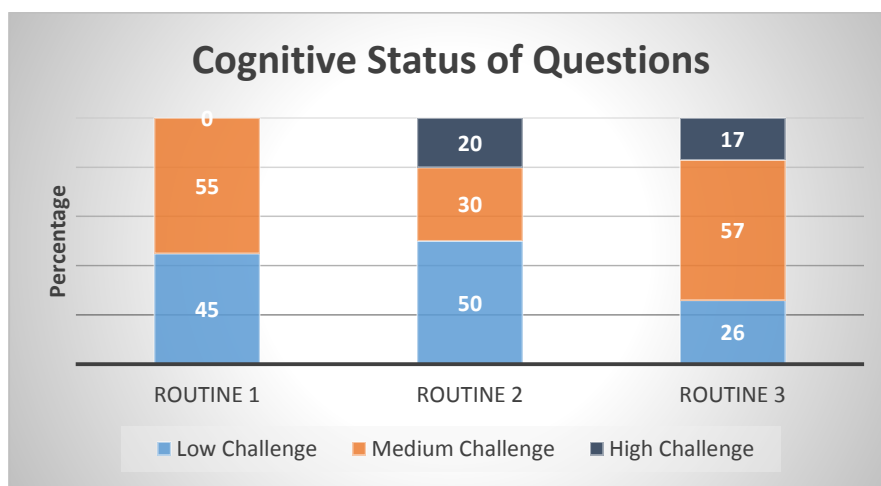


Figure 5.20

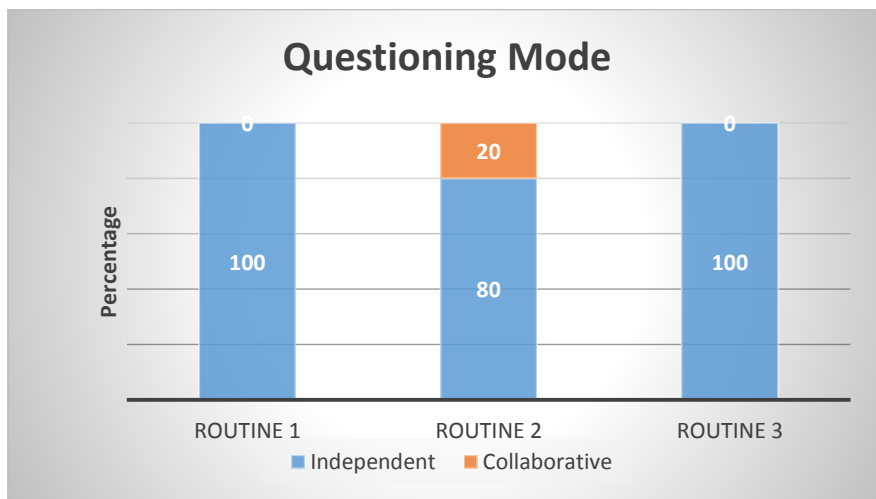


Figure 5.21

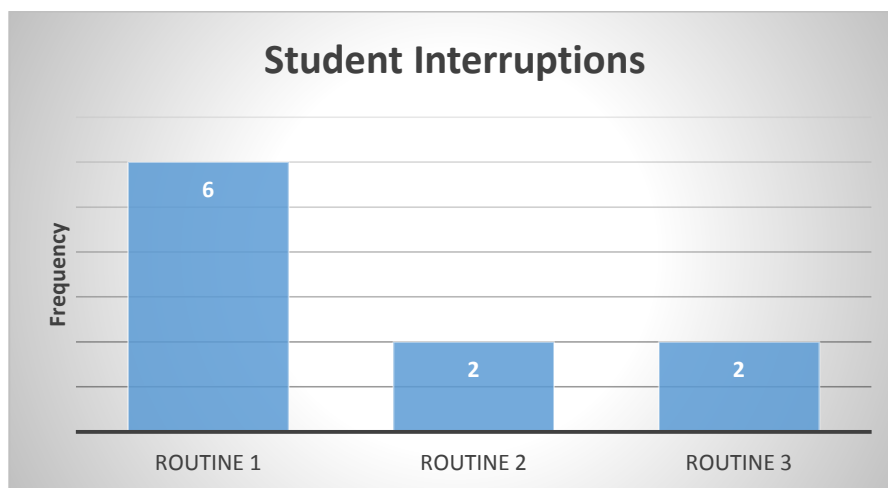


Figure 5.22

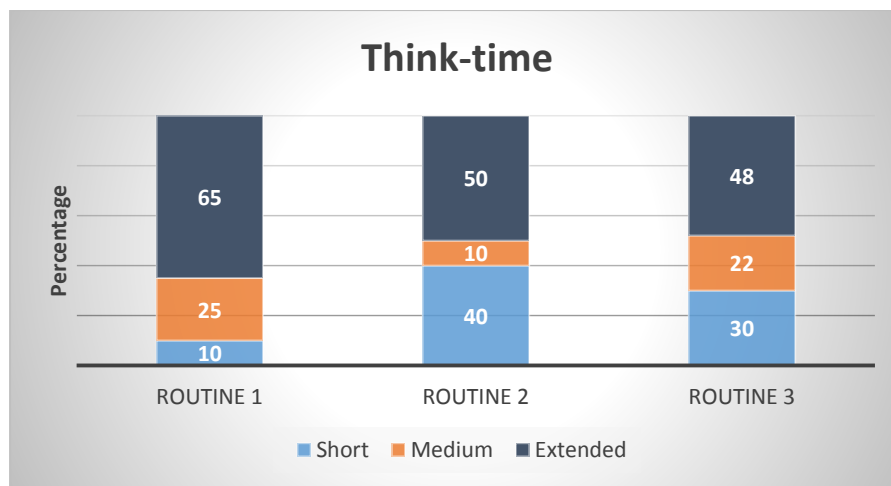


Figure 5.23

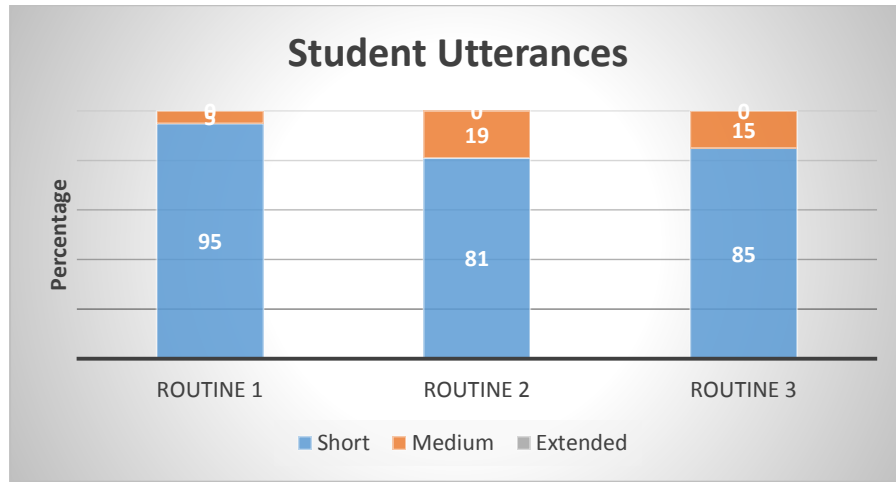


Figure 5.24

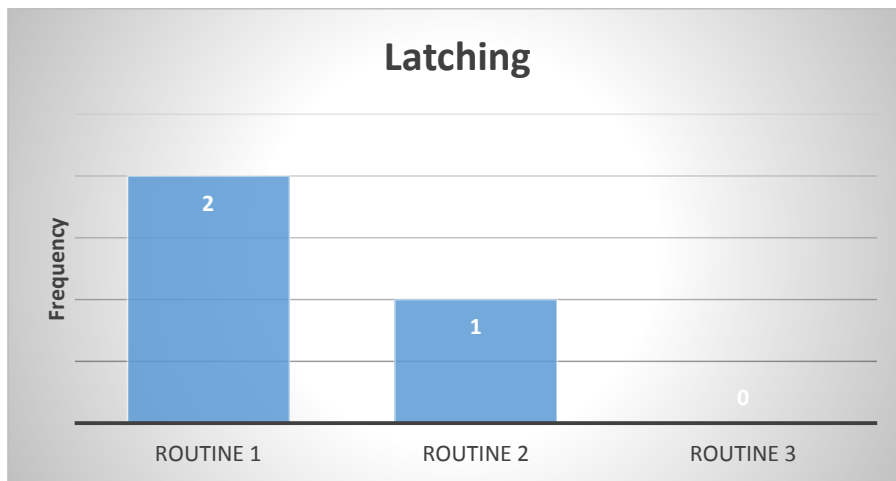


Figure 5.25

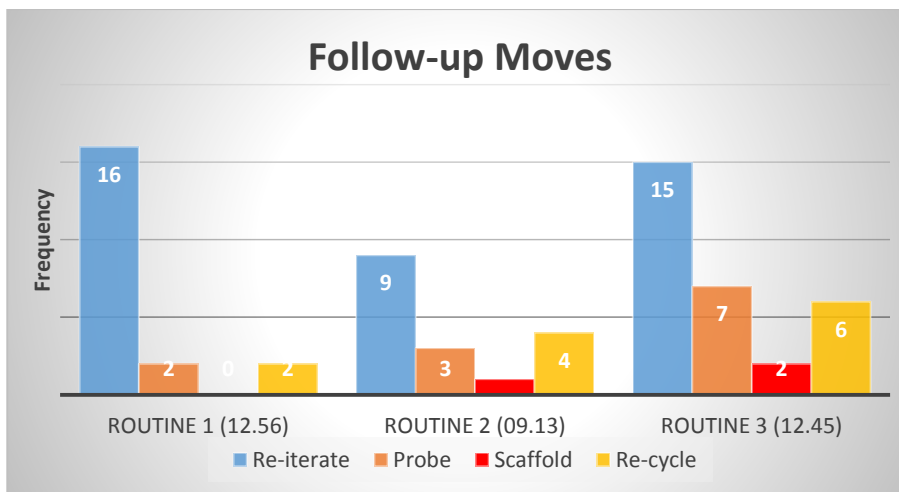


Figure 5.26

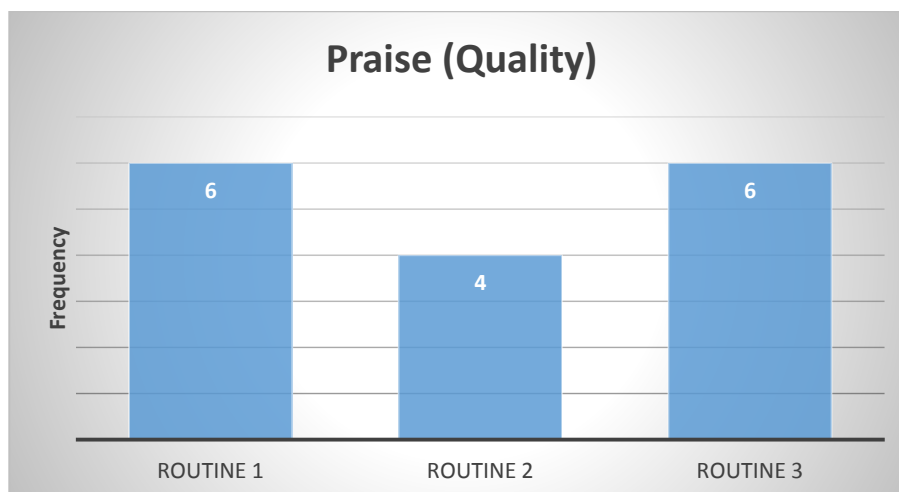
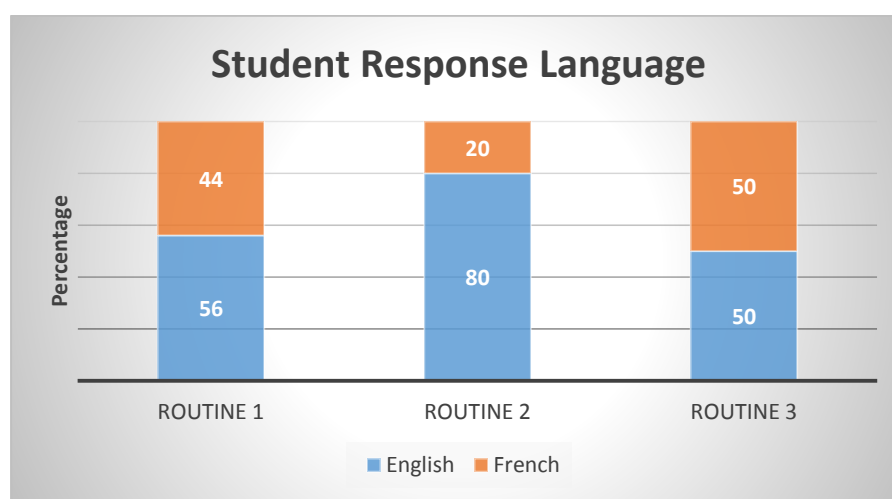


Figure 5.27



Average Think-time and Student Utterance

Table 5.13: Average Think-time and Student Utterance Measures

Measure	Routine 1	Routine 2	Routine 3
Average 'Think-time' in Seconds	17.25	19.13	14.05
Average 'Student Utterance' in Words	4.35	5.31	4.33

Figure 5.28

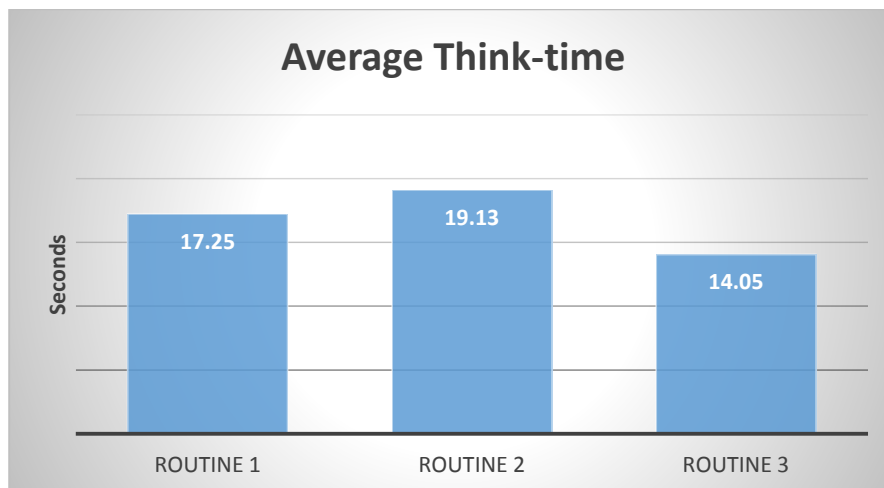
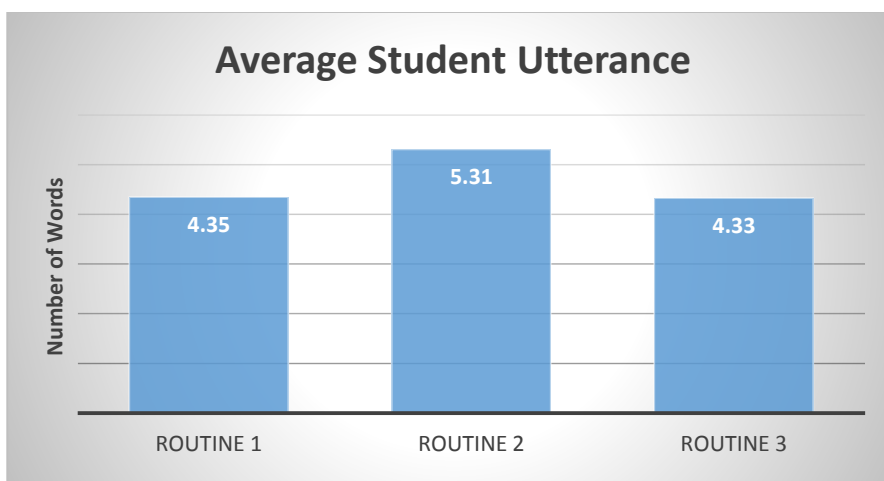


Figure 5.29



Commentary on Key Features

Activity Profile (Figure 5.17)

There was no significant change in the proportions of each of the three elements over the course of the routines. In each case, the vast majority of the routine was taken up by teacher-talk and think-time, with the former being the most dominant feature. Whilst student-talk played a minor role in each of the routines, there was a slight increase in the occurrence of this feature in the last routine at the expense of teacher-talk.



### Types of Questions Asked (Figures 5.18 and 5.19)

Generally, there was no significant change in the balance of display and referential questions over the three routines. However, in the last routine in particular, a much greater proportion of the questions asked were either medium or high challenge; the proportion of low challenge questions was only 26%, compared to 45% and 50% in the first two routines.

### Questioning Mode (Figure 5.20)

The first and third routines were conducted entirely in the independent mode. In the second routine, the collaborative mode was used for 20% of the time. However, it is worth noting that in the third routine, although the teacher did not formally use the collaborative mode, some of the students could be heard on the audio-recording quietly collaborating for large parts of the routine.

### Student Interruptions (5.21)

There was an issue in the first routine where students were heard to shout out answers without permission on 6 occasions. However, this became less of an issue in the second and third routines where this occurred only twice in each routine.

### Think-time (Figures 5.22 and 5.28)

In general, the amount of think-time given to the students over the course of the three routines was very high, the average think-time measures being approximately 17, 19 and 14 seconds (Figure 5.28); these figures are likely to be very high, relative to most other teachers. This is also reflected in Figure 5.22 where there was a high proportion of extended think-times used in all three routines (65%, 50% and 48%). However, despite this, there were still occasions where the think-time given was less than 3 seconds (short) and this was particularly noticeable in Routine 2 where 40% were of the shorter type. These instances occurred exclusively in the independent mode with *direct* questioning.

### Student Utterances (Figures 5.23 and 5.29)

Over the course of the study, the proportion of short utterances was very high in all three routines. This was particularly the case in Routine 1 (95%), though there were small reductions in Routines 2 and 3 (81% and 85%). There were no

extended responses (over 20 words) at any point in the study (Figure 5.23). These results are also in line with the average student utterance measures for the three routines; 4.35, 5.31 and 4.33 words (Figure 5.29).

#### Latching (Figure 5.24)

There were very few instances of latching over the course of the three routines; only twice in the first routine and once in the second.

#### Follow-up Moves (Figure 5.25)

Re-iteration was by far the most common follow-up move used, particularly in the first routine where it accounted for 80% of the post-utterance teacher responses. However, as the study progressed, Rory began to use probing and re-cycling much more frequently, particularly in the last routine. Scaffolding was rarely used.

#### Praise (Figure 5.26)

As can be seen in Figure 5.26, praise was used in each lesson but not excessively. It was given almost exclusively for the quality of the responses although on one occasion it was given for effort.

#### Analysis of Student Response Language (Figure 5.27)

One of the issues that arose during the study was that the length of student utterance appeared to depend on whether the students were asked to answer the question in English or French. In both of the first two routines, 44% and 20% of the student utterances were given in French. However, this figure increased to 50% in the last routine. It is also worth noting that in Routine 3, the more cognitively challenging questions were expected to be answered in French, which was not the case in the first two routines.

### **5.2.3 Teacher Evaluations**

Rory's evaluation of each routine can be seen in Appendix K.

### **5.2.4 Specialist Coach Feedback**

A summary of the specialist coach feedback given for all three routines for Rory can be seen in Appendix I.

### **5.2.5 Pre/Post-test Results**

Table 5.14: Results of the Pre and Post-test Analysis

The pre and post tests were conducted with the same 16 students. One student was absent on the pre-test so this result was not included in the final analysis.

<b>Pre-test Mean (out of 20)</b>	<b>Pre-test Standard Deviation</b>	<b>Post-test Mean (out of 20)</b>	<b>Post-test Standard Deviation</b>	<b>Pooled Standard Deviation</b>	<b>Effect Size</b>	<b>95% Confidence Interval</b>
13.06	3.17	16.06	3.25	3.21	0.93	0.20 to 1.66

As can be seen from the table, the effect-size was calculated as 0.93. The 95% confidence interval indicates that the 'true' value of the effect-size is likely to range from 0.20 to 1.66. However, although the results would appear to be significant at the 5% level, the same threats to validity exist as was the case with Emily's results, particularly the possibility of 'maturity'.

### **5.2.6 Analysis and Discussion**

#### **How Much Did Rory's IQC Improve in General Terms?**

##### **Specialist Coach's Perspective**

As with Emily, working with Rory over the course of the study was an incredibly satisfying and illuminating experience. Whereas Emily was an NQT, and therefore still used to being monitored and scrutinised on a regular basis, Rory was already an established, respected and relatively experienced teacher. It says much about his character that, given his status within the school, he was still fully committed to the process of improvement and this was evident in the post-study interview:

##### **Extract 5.20**

- Researcher:** Do you think action research is a powerful mechanism for school development then?
- Rory:** Yes, absolutely. I think it is. I think everybody should be encouraged to do it. I've spoken to senior staff here about coaching, about action research, about how that really should be at the core of what teaching and learning is about in school and it's not, but the message back is that you need the staff to want to do it. You can't force them to do it, which I totally understand.

This passage of discourse reveals Rory's primary motivation for taking part in the study and one senses a hint of frustration that an action research model has not been implemented at whole-school level. However, for the purposes of this study, his commitment to the action research philosophy provided a solid platform for improving a number of features of his IQC.

It became very obvious in the first audio-recording that Rory was a knowledgeable, assured and accomplished performer in the classroom. Having taught for 7 years, Rory was already operating from a relatively high base in terms of improving his IQC. However, despite this, I felt that there were some key areas that could be improved further or refined. In the main, Rory made tangible progress in a number of these areas though, by the end of the study, there were still some issues that needed further attention. These will be discussed below.

### Rory's Perspective

Rory, himself, felt that the action research process had been a very worthwhile process and that he had made notable progress by the end:

#### Extract 5.21

**Researcher:** In general terms, without going into detail, do you feel that having that time during the study to work on your questioning practice, did it help improve things?

**Rory:** Yes, it did. Absolutely. Even just getting me to think about different types of questions, which I was doing naturally, I was doing different questioning all the time but I wasn't actually thinking, "That would lead to this sort of outcome or that would lead to that." Think-time is something that I would have done a lot of research on at university and then it's just become a habit but it was just taking that time to look back and see, "Yes, I'm still doing that" or, "No, I've let that slip a bit and I need to go back and focus on that a bit more."

Rory suggests in this extract that he had previously learned about many of the features of IQC in the past but had either forgotten about them or let them "slip a bit" and I would tend to agree with this viewpoint. Given his experience and knowledge, much of the coaching process was about *refinement* of skills rather than necessarily learning new skills from conception.

This passage of discourse raises several very important issues. Rory implies that reflecting on his practice not only allows him to assess where he needs to improve but it is also a way of confirming what he is doing well. In the context of this study, this is important for two reasons. Firstly, it allows him to focus

more on the features which specifically need improving knowing that other skills are still secure. Secondly, it gives him the confidence to consider sharing his knowledge and ideas with other teachers in the knowledge that he 'practises what he preaches'; this was particularly important in terms of his input during the focus group interviews, as I felt that he could make a significant contribution to the group collaboration process.

Rory also makes the point that, although he was fully aware of features such as think-time or using different types of questions, the action research and coaching processes had made him think more about the bigger picture and how the various strategies inter-connect with each other and affect the outcomes. As mentioned in Chapter 3, one of the biggest criticisms of previous research on questioning is that studies have tended to focus on specific skills or strategies in isolation. One of the big challenges of developing IQC as a teacher is to be able to select the right strategy at the right time and understand how it will impact on other features in the routine or the outcomes in general. Thus, the study appears to have encouraged Rory to think more in these terms.

### Student Questionnaires

The results from the Mann-Whitney analysis of the student questionnaires were inconclusive in terms of whether the students felt that Rory's IQC had generally improved. However, this is not to say that improvements had not taken place, simply that with this data, it was not statistically significant. As Coolican (2006, p.167) points out, the main disadvantage of the Mann-Whitney U test is that "it is less sensitive to data than unrelated  $t$  and therefore may not always give significance when a t-test does."

### Student Utterances

There was no significant change in the 'average student utterance' measure which remained at approximately 4-5 words per utterance for all three routines. When analysing the 'best example' interactions in the first and third routines, we can see clearly that both routines are 'evaluative' (Cullen, 2002: Chapter 2, p.27) in nature and focus primarily on individual students. However, there were still some discernible differences worth noting:

## Extract 5.22: Routine 1 (Opinions)

**Teacher:** Louis, how would you say “I love basketball?”

**(Think-time 3 seconds)**

**Louis:** J’adore le basket.

**Teacher:** J’adore le basket, très bien. Ellen, how would you say “I really don’t like cards?”

**(Think-time 8 seconds)**

**Ellen:** Erm.....awe.....erm.....Je n’aime pas du tous les carte.

**Teacher:** Je n’aime pas du tu les carte, très bien. Daniel, what if I said to you, “J’aime beaucoup le vélo?”

**(Think-time 2 seconds)**

**Daniel:** I really like cycling.

**Teacher:** I really like cycling, fantastique. Liam, Je deteste le foot?

**(Think-time- 2 seconds)**

**Liam:** I hate football.

**Teacher:** Okay, right, using your whiteboards everyone, I want you to look at the first phrase and I’ll give you 10 seconds, what does that phrase mean in English.....”Je deteste le dessin”? Once you’ve done it hold up your answer.

**(Think-time 8 seconds)**

**Teacher:** Okay, James, what was it?

**James:** I hate Art?

**Teacher:** I hate Art. Right, this time, I want you do the fourth one.....”Je n’aime pas le pain”, and when you’ve done that stick your whiteboards up in the air, please.

**(Think-time 43 seconds)**

**Teacher:** Well done Tom.....Tom what was the answer?

**Tom:** I don’t like bread.

**Teacher:** I don’t.....like.....bread, okay try and write down number two, “J’aime beaucoup les tomates”.

**(Think-time 10 seconds)**

**Teacher:** So....Grace, what was it?

**Grace:** I really like tomatoes.

**Teacher:** I really like tomatoes, very good. Right this time, I want you to right down, number four, how do you right down “I hate cheese”?

**(Think-time 31 seconds)**

**Teacher:** Tyler, careful with your spelling, Je deteste.

**Teacher:** Right, okay.....it should have been, for cheese.....”Je deteste le fromage”. And lastly, I don't want you to hold your boards up straight away, I want you to keep them hidden until I ask to see them. So this time.....write down number one.....”I love salad.”

**(Think-time 20 seconds)**

**Teacher:** Okay let's hold up all the answers.....J'adore la salad... J'adore la salad.... J'adore la salad..... J'adore... J'adore..... J'adore...excellent.

Extract 5.23: Routine 3 (Opinions 2)

**Teacher:** We're going to try and use connectives now to make an even longer phrase. So the phrase I'm going to ask you to say is “I love football but I don't like basketball”. I'll give you 7 seconds this time...

**(Think-time 9 seconds)**

**Teacher:** Any volunteers.....Jack?

**Jack:** J'adore le foot, mais le basket.

**Teacher:** You've left out something. So you've got “mais”, you have to put the opinion in as well...

**Jack:** J'adore le foot, mais je n'aime pas le basket.

**Teacher:** Perfect. This time I want you to write on your whiteboards, okay? So this time I want you to say.....”I really like basketball but I hate cards.” Go.....

**(Think-time 29 seconds)**

**Teacher:** And.....boards up.....

**Teacher:** Okay, I'm going to ask Amy. Could you read out your answer Amy, I want everyone else to check what you've put in this carefully, nice and loud.

**Amy:** J'aime beaucoup le basket....but....mais....je deteste les cartes.

**Teacher:** J'aime beaucoup le basket, mais je deteste les cartes...okay...now, we're going to come back to that in a second.....I want you to look at this slide..... what type of words are those?..... C'est super, c'est génial, c'est intéressant...what types of words do you think those are?

**(Think-time 9 seconds)**

**Teacher:** Ethan?

**Ethan:** Opinions?

**Teacher:** They are linked to opinions.....what do you think this means.... c'est super.....It is.....?

**Ethan:** Super.

**Teacher:** Super, yes, what sort of word in English is super? It is an.....

**(Think-time 1 second)**

**Megan** (shouts out): Adjective...

**Teacher:** Adjective, Megan, thank you.....Génial means “fantastic” so in this column these are all positive adjectives, so c’est super, c’est génial, c’est intéressant..... Mia, what does intéressant mean?

**(Think-time 1 second)**

**Mia:** Interesting.

**Teacher:** Interesting, très bien....and then if you go to this column, “c’est nul”...it is?

**(Think-time 1 second)**

**Student** (shouts out): Boring....

**Teacher:** Boring, erm, rubbish, c’est nul.....”c’est ennuyeux”, Molly?

**(Think-time 1 second)**

**Molly:** Boring.

**Teacher:** Boring. C’est moche....that’s another way of saying it’s rubbish. So this time with your whiteboards, I want you to say “I like football because it is super.”

**(Think-time 32 seconds)**

**Teacher:** Okay, Olivia....nice and loud....

**Olivia:** J’aime le foot parce que c’est super.

**Teacher:** J’aime le foot parce que c’est super, so you can see already that we are extending our answers, yes? Okay let’s have another quick one. “I hate golf because it is rubbish”. So “I hate golf because it is rubbish.”

**(Think-time 26 seconds)**

**Teacher:** Okay, Lily let’s have yours nice and loud.

**Lily:** Je deteste le golf carr ces’t nul.

**Teacher:** Je deteste le golf carr ces’t nul, excellent. Right we’re going to do one last one everybody. This one’s going to be really long. I’m going to give you about 25 seconds to write your answer. I want you to say.....”I like basketball because it is super, but I hate football because it is boring”.

**(Think-time 58 seconds)**

**Teacher:** You just left out your second opinion, don’t forget to put “I hate.”

**Teacher:** Okay Oliver, let’s have your answer, nice and loud.

**Oliver:** J’aime le Basket carr c’est super, mais je deteste le Foot carr c’est moche.

**Teacher:** Perfect, so .....J’aime le basket carr c’est super, mais Je deteste le foot carr c’est moche, or you could also have said, “c’est ennuyeux”. Okay and now I would like you to make up your own sentence.



Firstly, we can see that in Routine 3, Rory begins to use connectives, making the questions immediately more cognitively challenging and extensive, which in turn encourages longer responses from the students. For example, the longest response in Routine 1 is 7 words compared to 14 words in Routine 3. Secondly, more responses from the students are required using the target language, again making the situation cognitively more challenging for the students. It is tempting to conclude that these two points represent tangible progress in the development of Rory's IQC, but there are several factors that need to be taken into account before reaching a final conclusion; these are discussed below in more detail (see 'types of questions').

### Pre / Post Test Results

The pre-post test results show an effect-size of 0.93 with the 95% confidence interval ranging from 0.20 to 1.66. Again it is important to be cautious with this evaluation since it is based on the assumption that the two tests are equivalent. When analysing other data it is clear that a process of 'maturation' is likely to have taken place since the tasks that the students were undertaking in the third routine were clearly more complex than in the first routine. Whilst the tests may have been of equal difficulty, relative to the students' ability at that stage in their development, ultimately they may have been measuring different skills. However, in conjunction with the other performance indicators already discussed, it is likely that Rory's improved IQC has had a positive effect on student attainment, within the context of the questioning routines.

### **In Which Specific Areas Did Rory Improve His IQC?**

The base-line audio-recording from Routine 1 revealed a number of existing strengths and few significant or serious weaknesses, partly because Rory was already a relatively experienced and adept practitioner. With Rory, as stated earlier, it was more a case of improving or refining existing skills and from this perspective, the study was relatively successful.

- ***Follow-up moves***

In the first audio-recording, like Emily, Rory pre-dominantly used re-iteration as his primary follow-up move (this was used 16 times) with probing (2 times) and re-cycling (2 times) being used occasionally. This scenario was very much in line

with Askew and Lodge's (see Chapter 2, p.17) learning style of '*construction*' where the interaction is described as being analogous to a game of '*ping-pong*'. Here the exchanges are limited to the teacher and an individual student at any given time. There are two major problems with this particular course of action. Firstly, the rest of the class would essentially become bystanders in the questioning process and would not be given the opportunity to contribute to the interaction or verbalise alternative modes of thinking.

Secondly, the students very quickly learn that the teacher is unlikely to seek additional contributions from the rest of the class and are therefore much more likely to lose concentration and wander off task. In many ways, this approach was typical of the culture that I was seeking to change through the research process; that is, that the exchanges would not involve just the teacher and individual students but would encourage wider participation from the whole class.

The frequent use of re-iteration as a follow-up move is not in itself problematic. Indeed, it is important that teachers re-iterate and clarify what students have said, since not all student responses are audible or comprehensible to the rest of the class. Rather, the problem was that Rory was not using the other follow-up moves in addition to re-iteration. Rory was quick to acknowledge this issue in the post-study interview:

#### Extract 5.24

**Researcher:** Another thing that seemed to change, you tended to recycle a lot more. In other words, you got an answer from a student and then you would use that to ask somebody else for their opinion or maybe an example from them. Whereas in the early tapes, you tended to just reiterate, in other words, repeat or clarify what they'd said. Was that a conscious effort or was it the questions that allowed you to do that?

**Rory:** I think it was a bit of a conscious effort there. I think, obviously, it's important to reiterate things if it's pronunciation. Sometimes it is to make sure that students all understand the basics but, once there's a deeper knowledge, if the opportunity is there to develop it and turn it into another question for another student then I think it's important to take that.

**Researcher:** In general, I'm guessing that it's very important to reiterate so that they can hear the language spoken correctly?

**Rory:** Yes, without a doubt.

Rory has raised another point here about the significance of re-iteration when teaching MFL. It is crucial that students can hear exemplary pronunciations and this is best achieved during a questioning routine by the teacher re-iterating

student responses and modelling good practice. Over-all, Rory made tangible progress by using a greater range of follow-up moves and this is acknowledged by Rory in the above transcript and is clear in Figure 5.25. However, in the final audio-recording, there was still a reluctance to use *scaffolding* (2 times) - this will be discussed later - and whilst there was an increase in the use of probing (7 times) and re-cycling (6 times) they were not as frequently deployed as re-iteration (15 times). The limited use of probing and re-cycling may again be linked to the nature of the subject, as Rory explains in the pre-study interview:

#### Extract 5.25

- Researcher:** When a student answers a question, to what degree would you probe or seek clarification?
- Rory:** Again, it depends on the question. If it's, "How do you say this in French?" there's not really anywhere to go with it. If it's, with year 9s particularly, there's quite a lot of grammar work, if it's a grammar point, you know, so "How do you form the past tense?" then I would say, "Can you give me an example of it? Can you use a connective to extend that example a bit further?" So there's a lot more opportunity there to dig deeper.

Thus, as Rory points out, the opportunity to probe or re-cycle seems to depend very much on the question itself and whether it has the potential to be developed further; the fact that many questions in a subject like MFL will be of the *display* type, is bound to limit the use of these particular follow-up moves. On this basis, the fact that Rory used probing 7 times and re-cycling 6 times in the last routine (as opposed to twice each in Routine 1), represents relative success with these particular features.

- ***Latching and praise***

When listening to the first audio-recording, it became clear that Rory rarely indulged in latching (see figure 5.24) and indeed, this occurred only three times in the entire study; compare this to Emily who latched 16 times in the first routine alone! Rory had explained in the pre-study interview that this was an issue that he wanted to improve, even before the base-line recording had been done:

#### Extract 5.26

- Researcher:** Okay, when a student is giving an answer do you ever interrupt them a little bit and finish it for them?
- Rory:** Sometimes, yes. I think so. Or if I hear them say the first couple letters of a word, I would finish it for them sometimes. Yes, I think that's... I said I

was trying to get better at the think-time, I'm also trying to get better at not interrupting them and letting them get there.

**Researcher:** Why do you think that happens?

**Rory:** Because probably in my lesson plan or in my head, it's like, we've got five minutes for this activity and if you keep thinking like this, then it's going to take us ten.

**Researcher:** So would you say that although you like people to have think time, you've also got one eye on your learning objectives?

**Rory:** Yes, that's a fair point to say, yes.

It is tempting to speculate that Rory might have eliminated his latching behaviour for the purposes of the audio-recordings, however, this is unlikely. The pre-study interviews were conducted several months before the first recording so it is likely that Rory had indeed embedded a change in questioning behaviour in the intervening period. This is supported by the student pre-study questionnaire results, where 80% of students disagreed that "*the teacher interrupts me before I finish.*"

It was also notable from the first audio-recording that Rory did not praise that often and when he did, it was generally given in French; this appeared to be motivated by the drive to re-inforce French vocabulary, rather than the need to praise students excessively (see Figure 5.26). However, like Emily, he rarely explained *why* an answer was praise-worthy, occasionally commenting that a student was using "*good pronunciation.*" However, the two strengths highlighted above combined to create a calm, non-threatening learning environment and this was very obvious when listening to the audio-recordings. Indeed, I made a point of using Rory's perspective on praise to tackle this general issue during the focus group interviews.

- ***Think-time***

In the pre-study interview, Rory estimated that his average think-time would be "*probably 6 or 7 seconds*" and in contrast with many other teachers, this was a grossly understated approximation. In reality, his actual measures over the three questioning routines were 17.25, 19.13 and 14.05 seconds respectively. In the context of the study, one of Rory's endearing strengths was that, in the main, he was clearly committed to making sure that his students had ample time to think about and prepare responses during questioning. This is a very important point in terms of the research goals, since one of the over-riding aims was to engender a

shift away from teacher governance and allow students the opportunity and space to think more independently. After the first audio-recording, whilst the average think-time was a healthy 17.25 seconds, there were still two areas that I felt could be improved regarding this particular feature of IQC.

One of the issues which arose early on was the fact that the amount of think-time deployed by Rory was not always *appropriate* to the question he had asked. For example, at one point he had asked the class “*What is an adjective?*” and subsequently allocated 40 seconds for the class to arrive at an answer. In the end, a student shouted out the correct answer after only a couple of seconds but Rory continued to wait the pre-determined time of 40 seconds. When raising this point in the subsequent coaching session, Rory explained that it was a new strategy (called 40-20-20) that he had learned when visiting another school as part of his CPD. The school had been rated as ‘outstanding’ by Ofsted and was a designated ‘National Teaching School’, one of only 56 in the country at the time; the aim of such schools is to deliver high quality support for teachers and leaders at all stages in their career. This strategy involved asking three inter-related questions on a theme and allocating think-times of 40, 20 and 20 seconds respectively.

However, over the course of the study, Rory became more flexible in his approach with think-time. Although he still sometimes informed the students of the intended think-time at the start, he was quick to adapt this if he felt the pre-determined time interval was not appropriate to the students’ needs. For example, in Extract 5.23 he initially tells the students they will have 25 seconds to come up with a response but actually extends it to 58 seconds when realising, from the students’ actions, that they needed longer.

Bearing in mind that think-time was a huge issue in the context of the study, I felt Rory’s experience offered a good opportunity to stimulate purposeful discussion in the focus group interview and prompted him (without prior arrangement) to lead the discourse, based on his experiences of 40-20-20 and how it could be adapted:

#### Extract 5.27

**Researcher:** Right, moving on to think-time. Tell me about some of the strategies that you use to make sure that you have a good think-time. I'll bring Rory in at this point because I know that you use this 40-20-20 routine.

- Rory:** Yes, I was on this course at Denholm Academy. They made us actually do it. It did put you under pressure and there was a very strict think time that you were allowed. So it was 40 seconds, then 20 seconds, then 20 seconds. For example, they would say to us, "Okay, you've got 40 seconds, write down a definition of differentiation." You were thinking, "Right, okay, 40 seconds, how do I word that?" Then, they asked some examples from people and said, "Okay, right, you've got 20 seconds; give me an example of differentiation." You had 20 seconds and you'd do that. Then, the final 20 seconds would have been, "Give me an example in your subject" or something more specific.
- Lois:** Is that a closed question that you ask or could it be an open question like, "Why did something happen?"
- Rory:** Yes, definitely.
- Lizzy:** So you could have three or four reasons. So the 40 seconds, then, it's kind of they're giving an example from the three or four reasons that they've had 40 seconds to think of. So it's making sure that in those next 20 seconds, they've had the 40, you get an answer.
- Rory:** You could change it whatever way you wanted, you could tweak it. The thing that they kept emphasising to us was it was about think-time. It was about being strict with it, about putting a countdown timer on, putting them under pressure but, again, not telling them who was going to be asked to feed back their answer. So they were all working, they were all using the think-time and it could be anybody who fed back.
- Researcher:** I think one of the big advantages of that is that it does enforce a think-time. I think the downside, and I'd be curious to know what you all think about this, is matching up the time with the question. So if you say, "I'm giving you 40 seconds, when was the Battle of Hastings?" then, clearly, that's not appropriate. Do you sometimes find it difficult to find the right question for the right length of time?
- Rory:** Yes, definitely. It was introduced to us as a 40/20/20 but for that class I could have done it as a 10/6/5.
- Emily:** So you could change the times then?
- Rory:** I think you could change it, yes, to whatever was appropriate for the answer that you're expecting from the classes.
- Lois:** Good idea, that.
- Rory:** So if I'm saying, "Give me a definition of an adjective," there's not many students that would need 40 seconds. They either know the answer or they don't.
- Researcher:** Would you agree then – and I'm just generalising now – that the amount of think time you give them is really dependent on the question you ask? It's that appropriateness of the think time, that, "Okay, that's a display question, it's a short question; I'll give you five seconds. That's a referential one, it's a bit more in-depth; I'll give you 20."
- Various:** Yes.

A very important point arises from this passage of discourse. From Rory's perspective, it is impressive that he has already taken on board the need to adapt his recently discovered strategy of 40-20-20; in the coaching session after the first audio-recording, we discussed the need to ensure that the amount of think-time given should be related to the type of question that is asked and how long it takes for students to form a coherent response. It is particularly interesting that he used the same example ("*What is an adjective?*") that I had previously used, to illustrate this very point in our coaching discussions and in my specialist coach feedback; I had not prompted him to do this! Thus, although over-all Rory had given students considerable think-time, I felt that he had to become more adept at ensuring that the think-time deployed was appropriate to the needs of the situation. Considerable progress was made in this respect over the course of the study, something Rory himself acknowledged in the post-study interview:

#### Extract 5.28

**Researcher:** In the first lesson that you recorded, you used that strategy 40-20-20 but you appeared to adapt it as you moved through the study, can you explain that?

**Rory:** Yes. I was trying to give them the 40 seconds to think of a question and then sharing the answers but I think what I saw was that in some of the questions, I was allowing too much thinking time for the students. They were getting bored, becoming restless because I was maybe asking a question with a one word answer that they had the answer to in three seconds and I was giving them 37 more seconds. It was about adapting it depending on the topic.

**Researcher:** Do you feel as if you achieved that quite well?

**Rory:** Yes, I think so, the way it was introduced to me was 40-20-20 but if it's 10-5-5 then it's 10-5-5.

**Researcher:** Do you think you became better at it?

**Rory:** Yes, without a doubt.

Whilst clearly the specialist coaching and participation in the study have encouraged Rory to think more about his practice, a large part of the credit has to go to Rory himself. His capacity for self-reflection and willingness to act on his deductions have enabled him to swiftly adapt his 40-20-20 approach to meet the demands of the situation.

Another issue that Rory needed to resolve was his tendency to deploy a short think-time (less than three seconds) when working in the independent mode; usually when asking short display questions. In the pre-study interview Rory

explained that his average think-time was probably 6 or 7 seconds but “*where I want pace, so if there’s 10 words of vocab to get through, I would give them three or four seconds.*” On the surface, Rory’s rationale here is certainly valid and 3 or 4 seconds would be plentiful time for these types of questions. However, in reality, his think-time was often well below this and it seems that, like Emily, he was over-estimating the amount of time he was allowing. Even though I had flagged up this issue in the specialist coach feedback, this issue was not entirely resolved by the end of the study. We can see in Extract 5.23 how at one point he was attempting to inject some pace into the proceedings when asking a sequence of short display questions. This episode is characterised by a succession of think-times of 1 second and in the post-study interview, Rory acknowledged that there was work still to be done on this issue. However, he explained that he was making good progress:

#### Extract 5.29

- Researcher:** Your average think-time was actually very high across the three recordings, except when you would just fire a question at a student. That was sometimes below three seconds. Were you aware of that?
- Rory:** It wasn’t until the recordings. I’ve tried to reflect on why. I don’t know if it was because there were other kids with hands up. I think quite a lot of the time I try to add pace to the lesson when I’m teaching and try to get the interest, the engagement and give it a nice flow. I find that, to keep the kids interested, short, sharp activities, here we go. I don’t know if that was my natural reaction, “That’s too long, move on”. I would say, since then, I would now give longer time to students.
- Researcher:** If you think of a minimum of three seconds, which is basically what the framework was recommending, is it because it felt like three seconds to you or were you aware that it wasn’t three seconds but wanted to keep the pace of the lesson going with all the hands going up and all that?
- Rory:** I don’t think I thought of it as three seconds. I think I just felt, “That’s enough, we need to move on.” It was more related to the pace of the lesson.

Thus, rather than focussing on the time element, Rory seems to be observing the dynamics of the situation as a cue for gauging when the class has had sufficient think-time. Furthermore, there is an implication that when a specific number of hands go up, this is the point when he feels he should select a student to respond in order to sustain the pace of the lesson. Taking up my earlier point about how having a high degree of IQC involves adapting the think-time according to the needs of the situation (as opposed to a rigid 40-20-20 approach), there is much



credit and logic in Rory's methodology. However, Rory's judgement about when it is time to "move on" in this situation is questionable. For example, what proportion of the class would have formulated a valid response within say 1 or 2 seconds, even with the most simplistic question? How many hands are required to go up before a teacher should intervene, confident in the knowledge that all of the students have had a chance to actively participate in the questioning process?

Of course there are no definitive answers to these questions, except to say that, because students process information at different rates, it is highly unlikely that the majority of the class would have had the opportunity to formulate a rational response after such a limited think-time.

It is to Rory's utmost credit that, by the end of the study, he was on the way to resolving his 'pace versus think-time' dilemma, highlighting the fact that he is clearly a very reflective individual with a great capacity for instigating change in his own practice. Although this change was not apparent at the time of the audio-recordings, it is clear from the transcript above that he now attempts to give students more time, even when he is trying to induce an element of pace to the proceedings.

- ***Questioning mode***

In the base-line recording (Routine 1), all of Rory's questions were asked in the independent mode. This was surprising when reflecting on Rory's response during the pre-study interview:

#### Extract 5.30

- Researcher:** Okay, have you ever considered using pair or group work during whole-class questioning routines?
- Rory:** Yes, I actually try to get pairs working, as they go and, yes so even at the start of the lesson. Talk to your partner 10 seconds, what did we do last week?
- Researcher:** Can I just explore that a little bit further? What benefits do you think that has, that approach?
- Rory:** I suppose the pupils, they seem to quite enjoy it, working as a pair. I don't know if there's too much peer assessment goes on whenever they're doing that. I suppose just the chance to bounce ideas off each other, decide if what they thought of themselves is a good idea before they offer it to the class. And I think linking back to the pupils who don't have any confidence, if there's somebody who doesn't have an answer, they avoid that embarrassment really.

Whilst Rory offers compelling reasons for using peer collaboration during questioning routines, at this early stage in the action research process, there seems to be a reluctance apparent in his rhetoric. Rory may have previously used this feature on occasions but it did not appear to be an embedded facet of his questioning repertoire. This is supported by the results of the pre-student questionnaire where only 27% agreed or strongly agreed that “*students are often allowed to work in pairs or groups before giving an answer.*”

However, over the course of the study, there appeared to some progress made in this area and in the second routine the collaborative mode was deployed 20% of the time. Furthermore, in the third routine, although all of the questions were asked in the independent mode, the students could often be heard on the audio-recording collaborating, even though Rory had not formally invited them to do so. The post-student questionnaire also suggested a change in practice, where 73% of students indicated that Rory used pair work during questioning routines. One point which did surface during the research process, however, was the issue of *consistency* which was raised during the coaching sessions (see Appendix I) and in the post-study interview:

### Extract 5.31

- Researcher:** Sometimes you used Talking Partners formally, in other words, you would say to your students, “talk to your partner”. At other times, you didn’t tell them that but they still talked a little bit. I don’t know if you’ve got any views on that?
- Rory:** Generally, I don’t mind them talking to each other if they’re doing a bit of written work. If it is oral work then it should be whenever I tell them, “Speak to your learning partners or your talking partners now.” Quite often that would be whenever we’re using the whiteboards. It might be one whiteboard in a pair and they get to confer and then put their answers up. Written work, I don’t do book buddy type things. If they need to ask somebody for help, I don’t mind that. If I’m using a ball or want to question individuals then they wouldn’t, they shouldn’t.
- Researcher:** Would you say then that you’re very picky about when you let them do Talking Partners and when you don’t?
- Rory:** Yes, maybe.
- Researcher:** It seemed they were a bit unsure at times because they were saying things like, “Can we talk, sir?” You said, “Of course you can talk.” I just wondered if you had any thoughts about whether you needed to be more consistent about when you do it formally.
- Rory:** I would agree. Yes, absolutely. I think with everything you have to be consistent so making it clear at the start of an activity or when a question

is answered, "I expect you to do it like this" and whether you can talk or can't talk.

Rory appears to be very clear in his own mind about when students can and cannot talk, yet there are clearly inconsistencies in terms of how Rory conveys these expectations to his students. There is no doubt that when listening to the audio-recordings, students were often unsure about when they could collaborate with peers or when they had to work independently. This may be because there are simply too many rules or situations to remember, or it may be that Rory is not enforcing them consistently enough. This inconsistency in Rory's practice was evident in the pre-study interview when asked about students shouting out answers:

### Extract 5.32

**Researcher:** Do you allow students to shout out answers?

**Rory:** They do sometimes shout out. And I had a lesson this week when I was explaining to them, "I don't want anyone to shout out and I don't want anybody to put their hands up." It took at least five or six goes before people weren't putting their hands up or weren't shouting out. I do, if somebody shouts out, and they give the correct answer, I do say, "Well done Jordan, you got the answer right, but you didn't do what I expected." So I might have a smiley face on the board and whoever gets a right answer gets their name under that. And I say, "Jordan, you would have your name up under that, but because you shouted out, you can't."

This passage highlights the difficulty in developing consistent routines with students and why it is important for teachers to be consistent with their rules and expectations. Bear in mind that, at Haverton High School, students will be taught by up to ten different teachers each week. Even though there may be whole-school guidance about classroom routines, each teacher will have their own unique set of classroom expectations and regulations. If all of these teachers apply their own protocols with utmost uniformity, this still represents an enormous challenge to the students in terms of adhering to them consistently.

In Rory's case, when students were unsure about whether to talk or not, they often 'compromised' by whispering instead. However, this had a constricting effect on the interactions for two reasons. Firstly, because Rory had not formally instructed the class to work in pairs, it was obvious from the audio-recording that a number of students were reticent about doing so, possibly due to fear of being reprimanded. Secondly, as a consequence of the relatively quiet atmosphere, students immediately became conscious of other students in the class being able

hear their verbal interactions. In the pre-study interview, Rory explains how students in MFL often lack self-assurance when articulating responses in front of the class:

### Extract 5.33

**Researcher:** So you say that they often lack confidence. How does that show in the classroom?

**Rory:** Just a reluctance to answer, to offer answers or even whenever they're pinpointed, "Can you give an answer?" and they shrug their shoulders, "I don't know. I don't know." And you can just tell the student is eager for you to move on.

**Researcher:** Is there any reason why you think that students might lack confidence in that way?

**Rory:** Well, I suppose peer pressure or embarrassment in front of their friends. In languages, apart from Year 7, if I'm asking them to speak in French, they become so much more aware of themselves and they hate doing it.

Certainly this self-consciousness and lack of confidence were apparent in the recordings, especially when the linguistic responses were in French. Ironically, against many teachers' natural instincts, promoting a greater (but controlled) noise level during Talking Partners offers students more anonymity when interacting, making them more likely to commit to purposeful discussion with their peers. This was an area that I felt Rory still had to develop further.

Thus, over-all there is no doubt that Rory made progress with this particular feature of IQC but it seems that it will need further attention in order to embed it consistently within his routine questioning practice.

- ***Types of questions***

One of the most challenging aspects of the coaching process was supporting Rory in asking less display questions and more referential ones and in this respect, limited progress was made. This was partly due to the nature of the subject where genuinely 'open' questions are difficult to utilise and display questions often dominate proceedings in an attempt to build up necessary vocabulary and grammar skills. This picture was very much in line with Ho's (2005) three-level categorisation of teacher's questions (see Chapter 2, p.21) which particularly applies to language based-subjects. Rory used a high number of Level 1 questions (closed/display) as well as some Level 2 ones (neither open nor closed) but no level 3 (open/referential), which "stimulate complex and lengthy language

output from students” (see Appendix J for ‘questions asked’). This scenario is probably typical in an MFL classroom and I asked Rory about this issue in the post-study interview:

#### Extract 5.34

**Researcher:** There was quite a high proportion of display questions, in other words, closed questions. When we had a discussion about that, you mentioned about the subject MFL, do you want to elaborate on that a little bit?

**Rory:** A lot of the work that we do with MFL, certainly at this school, is based around single word answers, it does build up. Year 7s, for example, they do build up to offering opinions. Whenever you’re doing a topic and the topic is basically, “Learn these 15 words” and I did find it very difficult to ask any more stretching questions or give them opportunities to elaborate. I would say, getting in to Year 8, you can have some topics where you can very much have longer questions, but then you move on to a brand new topic and the first two or three lessons of that topic, it is back to learning simple words again then you bring in the prior knowledge and build it up to opinions, extending the phrases and you can get to more extended answers.

**Researcher:** Is that an age thing or is it an ability thing or is it both? Do you ever get to a point where they start to have conversations, for example?

**Rory:** Yes, they do. I would say certainly at the end of Year 8, the start of Year 9, the top groups. I’ve had other schools where they’d be at the end of Year 7 and you’d have conversations going on.

**Researcher:** Do you think that’s important, to speak in the target language?

**Rory:** Yes. A lot of the research shows that it is. I think they should listen to as much target language as they can, from the teacher, but also they should be trying to use as much as they can. To be fair, we do, here, have classroom commands in French but we just find quite a lot of the time that it turns students off. As soon as they hear something that they can’t understand, they sit back, “I can’t do that, I’m not doing that.” We did see by the final recording that they had offered some more extended answers but if you were to sit down with a Year 10 group, for example, Mr Benson’s lessons are entirely in French with kids questioning and answering in French.

This extract highlights both Rory and the school’s philosophy about how French should be taught and reveals some of the problems inherent in the process. It seems that each topic starts with learning basic vocabulary, eventually building up to more elaborate sentence structures and phrases. This cycle is then repeated for new topics until, by GCSE level, the students are beginning to construct extended responses by piecing together the skills learned from the individual topics. As a student’s skill-base progresses, this eventually leads to a readiness for conducting authentic conversations with both teacher and peers.

There is a hint of frustration in Rory's response when explaining that, in the early stages of linguistic development, students seem to be de-motivated easily or lack resilience when faced with even moderately challenging linguistic tasks; and the implication is that this may not be the case in some other schools. Either way, it is important to evaluate Rory's progress over the course of the study within this context and the fact that Rory used a Year 7 group meant that the students involved were at a more rudimentary level in their language development. This was bound to reduce the opportunity for referential questions and explains the relatively low cognitive status of the questions in the base-line recording.

On the surface, Rory did appear to make progress in two ways over the course of the study. Firstly there were significantly more questions asked in the third routine which were of 'medium' or 'high' cognitive status (see Figure 5.19). Secondly, although the average student utterance measure did not increase, more responses were given in the target language (see Figure 5.27) and this was particularly the case with the more complex questions. In this situation, the *quality* of the utterance becomes more relevant than the *length* since it is clearly more challenging for students to construct their responses in a foreign language.

However, one has to add a note of caution here, since the improvement may simply be down to the fact that the students were more proficient in French at this point in their development (maturity); the fact is that the last recording was carried out approximately 6 months after the first one. As Rory explains, students will naturally begin to use more target language and offer more complex responses as they progress through the school.

- ***Student whiteboards***

An interesting aspect of Rory's classroom practice was his use of student whiteboards during the questioning process. Although the use of whiteboards is not unheard of at Haverton High School, their deployment is not generally the norm. Rory explains his perspective on this issue in the post-study interview:

Extract 5.35

**Researcher:** You used whiteboards quite a bit, can you explain your rationale?

**Rory:** I quite like using them for assessment. Students quite enjoy it. It gives me a broad overview of whether a topic's been learnt or whether we can move on and it also allows some of the less willing students to volunteer answers.

- Researcher:** Are you saying it's a good assessment tool in that you can actually see in one swoop, if you like, their answers?
- Rory:** One swoop and we use it quite a lot in competition and the kids do quite enjoy it.
- Researcher:** When do you decide to use it though? I noticed that you did use it sometimes and then other times you didn't.
- Rory:** Sometimes it's for variety in the lesson, but also, whenever I feel that they know a topic or if I want to assess whether they know it or not.
- Researcher:** I suppose, correct me if I'm wrong, when you're teaching a foreign language, you've got the oral element, so you want to hear them say it, but you've also got the written element, you want to see that they're spelling it properly and stuff like that. Is that part of the reason do you think?
- Rory:** It is and, with the white boards, you can test their listening and their writing. If I say it in English and they've got to write down the word in French or Spanish, there you go, you can assess their writing. If I say it in French or Spanish, then you're assessing their listening skills as well.

Thus, there are a number of benefits inherent in using student whiteboards and Rory has alluded to some of these above:

- They can be used as a powerful assessment mechanism; the teacher can instantly check the degree to which students have understood a particular issue or concept
- It ensures that all students are actively involved in the questioning process since all are required to formulate a response
- They are particularly useful in L2 classrooms where both writing and listening skills can be assessed
- As Rory points out, they appear to engage students and provide variety within the lesson
- The fact that the students need time to write their responses down automatically guarantees a reasonable think-time

However, it is important to recognise that there are also a number of limitations. Firstly, they are more effective with short answers since there is a limited amount of writing space, particularly when the teacher would want the writing to be legible from a distance. Secondly, they are more suited to display questions since, for referential questions, it would take the teacher much longer to scan all of the responses, thereby slowing down proceedings considerably. Thirdly, the fact that the students are writing their answers down, changes the dynamics of the routine

from a verbal based activity towards a written one, thereby denying students the opportunity to develop their oral literacy (except where Talking Partners is used).

At the start of the study, I made a decision not to specifically target Rory's use of student whiteboards but, rather, try to improve their effectiveness through the wider questioning domain. Indeed, the issues with the whiteboards reflected some of the wider issues within his questioning in general. Although the questions that Rory asked became progressively more challenging over the course of the study, there were several areas that still needed to be developed. Even when examining the 'best example' interaction from Routine 3 (Extract 5.23) it is clear that, during this passage, all of the questions asked are display ones. Even the most extended and complex response – "*J'aime le basket carr c'est super, mais je deteste le foot carr c'est moche*" - is either right or wrong and as Rory himself pointed out earlier, "*there's not really anywhere to go with it.*" Thus, if the response given by the student is correct (as it was), there is no way of involving the rest of the class, except to ask if they agree with the answer.

Yet, from Rory's perspective, this situation could have been easily rectified. Instead of asking the students to say "*I love basketball because it is super, but I hate football because it is boring*", the question could have become referential by asking the students to work out their own examples. In this way there would have been a variety of different answers which Rory could have explored with the whole class. In fairness to Rory, he did attempt this during the routine, but only with the final question.



## **CHAPTER 6: MAIN DISCUSSION**

In this chapter, I will be presenting my conclusions with regard to the research questions and, where appropriate, highlighting links with the literature review chapter. I will also be debating some of the wider issues that arose during the course of the study; this will include recommendations for future practice and policy.

### **6.1 To What Degree can Teachers Improve their IQC within the Context of the Whole-class I-R-F Questioning Structure?**

At the start of this study, the questioning behaviour of both teachers was largely aligned with the picture described by Morgan and Saxton, 1994 (Chapter 2, p.14) who claim that teachers use questions as a control mechanism, view learning as having a right answer and do not fully embrace the importance of peer collaboration in the learning process. On the evidence of this study, it seems that these issues are still at the heart of the whole-class I-R-F process.

That said, there is no doubt that over the course of the study, both teachers made significant progress with a number of aspects of their IQC. However, it is also the case that there were some areas where limited progress was made and this sometimes varied with each individual. These conclusions are supported by a range of data and some of the issues specific to each teacher have already been discussed in depth. I will now look at some of the broader issues which arose in relation to the research question above and elaborate on these further.

- ***Types of questions***

The citations in the Literature Review suggest that teachers have a predilection for asking display questions of a low-cognitive nature (Chapter 2: Kerry 1983, and Tan 2007, cited Jiang 2014, p.18) and despite the passage of time, the evidence collected at the start of the study suggests that this is generally still the case. However, in her first routine, Emily did ask a greater percentage of higher-order questions (21.7%) than suggested by Kerry, who found that only 3.5% of questions asked were of that type. This contrasts notably with Rory who did not ask any higher-order questions at all in his first routine, though this discrepancy in approach between Emily and Rory may be partly explained by the subject-specific issues discussed earlier (see 'Types of Questions, p.143).

The long-standing dominance of display questions in whole-class I-R-F sequences is not surprising since these types of questions have always played an important role in a student's academic progress. Teachers and students appear to value them because the knowledge associated with such questions is a critical pre-requisite of examination success. Over the years, teachers have also enjoyed the prescriptive nature of these questions because they perceive that it allows them to exert a greater degree of class control. However, in the current educational climate, the influence of institutional and political motives (this will be discussed in greater depth in Section 6.3), also ensures that teachers value them for another reason. The fact that teachers can predict what the students' responses will be, makes it easier to keep the lesson on track and ensure that pre-determined targets and deadlines are met. Both teachers at the outset appeared to regard fulfilment of the learning objectives as being the single most important goal and were mindful of any time restraints which might prevent them from achieving this.

However, intellectually, display questions are self-limiting and do little to encourage purposeful discussion or cognitive development. Referential questions on the other hand, help to 'wrestle' power away from the teacher and give students a much greater degree of learning autonomy, since it encourages them to construct their own unique opinions or responses. In terms of improving whole-class I-R-F routines, referential questions are vital since they provide an opportunity to involve the class more in the questioning process; here the teacher can draw on a variety of student responses in order to construct an informative and meaningful conclusion when analysing a particular issue or concept. These types of questions are also critical in developing oral literacy and it is no coincidence that the most extensive and detailed student responses all emanated from questions that were both referential and of high cognitive status. This finding is entirely consistent with the evidence found in the literature (Chapter 2: Wintergest 1993, p.19 and Ho 2005, p.20).

Emily made much progress in this area and, as a result, the quality of the interactions were greatly improved by the third routine. Whilst the quality of student responses also improved with Rory, this was solely because the questions were more cognitively demanding rather than being referential. It was not unexpected that the degree to which whole-class I-R-F can be adapted, is likely

to depend partly on the topic being taught, due to variations in individual subjects (see 'fuzzy' generalisations: Chapter 4, p.58). There is no doubt that the subject of History offers much greater scope for using referential questions due to the potential for developing divergent thinking and this was apparent from the research outcomes. On the other hand, a subject like MFL is underpinned greatly by convergent thinking, hence the over-reliance on display questions, particularly in the earlier stages of development within that subject. Later on when the students are linguistically more adept and can begin to instigate purposeful conversations, there is likely to be a much greater capacity for introducing referential questions into the I-R-F exchanges.

- ***Think-time***

When exploring related literature and research at the outset of this study, it became clear that this particular facet of IQC was notoriously problematic in many classrooms with regard to whole-class I-R-F. It has been well documented over the years that the average wait-time (think-time) is thought to be one second or less (Rowe 1986, Morgan and Saxton 1991 and Black et al 2003) and on the evidence of this study, little appears to have changed. Although some progress was made, this issue remained largely problematic right to the end of the study. With both teachers, the average think-time over the three routines increased significantly, but only due to the use of explicit think-time strategies such as 'Talking Partners' or '40-20-20'. Where teachers questioned students directly and spontaneously, the think-time was often below three seconds. There appeared to be five factors driving this teacher disposition:

- Perceived time constraints and a preoccupation with meeting pre-determined learning objectives
- A fear that during spells of silence, students are more likely to misbehave
- The belief that 'pace' is crucial in keeping students interested
- Teachers often perceive time intervals to be longer than they actually are in reality
- Teachers are overly influenced by students raising their hands to answer questions and react impulsively to the first 'responders'

Another unexpected issue that arose early in the study was the fact that both teachers had a propensity for identifying the chosen student *before* asking the question and this had a significant impact on think-time. I raised this issue at the

focus group interview and in subsequent coaching sessions, albeit with limited success. The major problem with this action is that it hands control of the think-time over to the named student; if the chosen student knows the answer to the question they will respond immediately, thereby minimising the think-time for the rest of the class.

When I thought about this retrospectively, I concluded that these students are probably chosen in advance for two reasons. Firstly, naming them before the question is asked ensures that the student will become immediately focussed and will be more likely to give the sought-after answer. Secondly, the student will be given time to formulate a response as the question is being asked, thereby reducing the uncomfortable time-interval when the student is grappling with a response and the class is passively observing. In the teacher's eyes, both of these factors ensure that the discourse will advance more quickly, thus saving time in an already pressurised itinerary as well as minimising the potential for disruption.

Perhaps in recognition of these problems, several strategies have surfaced in recent years to counteract the negative impact of inadequate think-time. Indeed, one such strategy, '40-20-20', was trialled by Rory at the beginning of the study, which he later adapted with some success. Whilst one can see the rationale behind this type of strategy, it is also troubling to a large degree. From a positive angle, this strategy virtually compels teachers to give a set amount of think-time, almost to the second. However, on the negative side, it is very prescriptive and inflexible and not all questions require exactly 40 or 20 seconds to be answered successfully; as was the case with Rory's question about adjectives. It seems that the question has to be fitted to the pre-designated time, rather than the other way round. In reality, there should be a range of questions asked during a questioning routine and these will require a variety of think-times, depending on the nature of the question.

A teacher with a high level of IQC would be able to allocate the appropriate amount of time according to the needs of the situation by observing the students' behaviour and responses. So 20 seconds might be given to begin with, but extended further with the realisation that the students need longer at the end of this period; a cue for this would be if the students are still engaged in purposeful discussion. Conversely, if the teacher initially allocates 10 seconds but finds that

the majority of students have their hands up after 5 seconds, this would signal the need for the teacher to intervene prematurely. Too little time and students will not be able to process their thoughts sufficiently well and too much time will encourage them to lose interest and go off task (something that Rory alludes to).

The 40-20-20 strategy, or any adapted version, requires teachers to be able to skilfully predict in advance how much time the students will actually need. Crucially, by publicising the think-time to the students at the start, this may reduce the teacher's flexibility and prevent them from responding to the needs of an unpredictable and ever-changing situation. It may be that an adaptable 40-20-20 approach may be a useful *scaffolding* device for some teachers until they reach a point where they can respond to changes in circumstances in a more extemporary fashion. However, all scaffolding devices are only temporary measures and in the longer-term, teachers need to take more responsibility and learn to control their own emotions and actions more effectively.

Another strategy which has gathered momentum in recent years is the 'no hands' approach during questioning routines. In normal everyday life, if one counts out three seconds it does not seem particularly long, yet to a teacher in a pressurised situation, it seems like an eternity and the sight of a succession of hands swiftly being raised seems to induce a sense of panic and impulse. This strategy was borne out of the tendency for teachers to continually select the same students to answer questions, presumably because they spontaneously react to the first students to put their hands up. Additionally, the think-time deployed is often inadequate for many in the class, since these students tend to be the most able and, therefore, the fastest 'processors'.

Many believe that the solution to this problem is to prevent students from putting their hands up in the first place, thereby negating the teacher's impulsive response to students' reactions. However, like the 40-20-20 strategy, it is very much a case of the 'tail wagging the dog' and there are three important reasons as to why this approach is problematic. Firstly, it is unreasonable and unrealistic to expect students not to respond physically when asked a question, particularly if it is not consistently embedded across the school or if they have experienced completely different protocols throughout most of their school lives. Secondly, it deprives the teacher of invaluable information about how cognitively challenged

the class are with the question and whether they are struggling to comprehend it. Thirdly, a show of hands can act like a 'barometer' for think-time, allowing the teacher to make better judgements about when the time is right for intervention. Thus, where only a few hands do up, it is clear that the students need longer to process the question. Conversely, when the majority of hands have been raised, the teacher can begin consider that the class might have had sufficient time to formulate a response; imposing a 'no hands' policy denies the teacher this vital information.

Ultimately in both of the above cases, the solution lies with teachers themselves. Teachers need to learn to be more self-disciplined and circumspect in the way they are influenced by classroom stimuli; it should not be that difficult to count to at least three seconds in one's head, or avoid being unduly influenced by a few hands shooting up. Indeed, part of being both a professional and an effective practitioner is having the capacity to over-ride any personal fallacies or dispositions which might threaten to undermine the success of the learning process.

- **Questioning mode**

Research informs us that the vast majority of I-R-F questioning sequences are conducted in the independent mode. That is, when the teacher asks a question, students are required to formulate an answer on their own, without support from other students. As already stated, one of the major research goals was to engender a shift away from the notion of *instruction* (the gift) or *construction* (ping-pong) (Askew and Lodge, 2000: Chapter 2, p.17) towards that of *co-construction* (loops). Both teachers indicated in the pre-study interview that they would often use Talking Partners during questioning routines, yet there were no occasions when this occurred in either teacher's first routine. This issue was highlighted in the first coaching session with each teacher and though Rory made some progress with this in Routine 2, it was only in Routine 3 that Emily finally incorporated this facet of into her questioning practice. Yet the most effective exchanges always came after the use of Talking Partners and on the evidence of this study, this particular strategy has many strengths:

- It is particularly useful with complex or referential questions, where students can co-construct responses with the support of a peer and rehearse their final answer
- It is of great benefit when the class are clearly struggling with a particular question or concept
- It encourages the teacher to deploy a greater amount of think-time
- It ensures that the students are actively involved in the questioning process and encourages them to develop oral literacy, even if they do not feed back to the whole class at the end
- It produces longer student responses with greater clarity and detail
- It is particularly valued by the students because it offers them the opportunity to rehearse their answers, thereby reducing the likelihood of 'losing face' in front of the class

In terms of the research goals, this issue was bound to provide a major challenge and though some progress was made, this issue highlights the paradigmatic nature of I-R-F above all others. It seems that many of the factors undermining think-time also apply to the use of Talking Partners, particularly the issue of time constraints. However, in the current educational climate, it would be naive and irresponsible for a teacher not to take account of the limited amount of time available to teach the curriculum and so in many ways, a compromise may be necessary.

In this respect, it becomes important to be more selective about the use of this strategy and only use it when it is appropriate. For example, when display questions are asked, there is usually little opportunity to create meaningful dialogue between students and, in this situation, using the independent mode may be more appropriate. The fact is that Talking Partners inevitably requires more time to deploy and so it should be reserved for the more challenging questions where support and rehearsal are essential if students are to produce higher quality answers. It is also important to retain a sense of variety so that students do not lose interest and wander off task during these routines.

- ***Differentiation***

The practice of differentiation is a well-documented strategy that is used in classrooms around the country and it is difficult to disagree with its rationale.

Clearly it is important to match the cognitive demands of any given task to the ability of the students in question. In whole-class I-R-F terms, the accepted convention has generally been that the cognitive level of the question should match the ability of the student chosen to respond. Most teachers are adept at doing this and over the course of the study, this was certainly the case; students were able to give a reasonably coherent response to virtually all of the questions.

On the surface, this approach may appear logical, since it would seem irrational to knowingly ask a student a question in front of the class that cannot be answered. However, the validity of this approach depends very much on the pedagogical goals of the routine. If, for example, the routine is being used as an assessment tool, pursuing students that are likely to answer the questions successfully will not produce an accurate representation of the class's capability at that point. If, on the other hand, the purpose of the routine is to extend student thinking, then the level of difficulty of the question and the student's ability become critical considerations in achieving this objective.

At the outset of the study, I supported the recommendations of Stopper (2000: Chapter 2, p.22) who advocates the use of Kerry's (1990) hierarchy of question types as a means of differentiating during questioning routines. Whilst I still agree that it is important to ask a variety of types of questions over the course of an I-R-F routine, it is naive to assume that this is an effective method of differentiation in a whole-class setting.

Like many teachers, I considered that differentiation in whole-class I-R-F rather simplistically meant matching up the cognitive level of the question with the ability of the student. Yet as the study progressed, I came to adopt a completely different stance. Indeed, over the course of the research, this issue was singularly responsible for the most significant change in my own thinking. The notion that we can ask a single question that meets the intellectual needs of up to 30 students in one instance is, in most cases, fallacious and this succinctly highlights the limitations of whole-class I-R-F. This approach might represent appropriate differentiation for that individual student, but it does not necessarily serve the needs of the rest of the class. This is particularly the case with display questions where, invariably, there is only one correct response and therefore one specific



level of challenge. For example, a question like “What is a cavalry?” essentially has only one valid response and students will either know it or they will not.

A different display question like “What are the five stages of the Black Death?” could potentially elicit different answers since the number of stages known by individual students will vary. However, this does not represent differentiation on a conceptual level since each of the five stages is based on factual information and re-call. It would be folly, for example, to suggest (as I have seen teachers do) that the more able should recall all five stages and the less able one or two; in reality we would hope that all of the class could successfully recall all of the stages because of the low cognitive nature of the question.

However, that is not to say that genuine differentiation is not possible during whole-class I-R-F and I would suggest that for this to take place successfully, two conditions are necessary:

- ***The question should be referential***

The fact that the question is ‘open-ended’ means that a variety of responses are possible, ranging from basic to more complex. In this way each student can be challenged to the appropriate level according to their ability. Thus, a question such as “Why were the German people angry after the Treaty of Versailles?” could potentially elicit a range of responses in both length and quality, allowing students the opportunity to ‘showcase’ their individual level of thinking. If the sole purpose of the I-R-F sequence is to assess what knowledge and skills students have accumulated, then asking referential questions in this way would be sufficient to achieve that aim. However, this alone will not *extend* student thinking.

- ***There needs to be appropriate support available to individual students***

Questioning routines are more than just assessment mechanisms and should also seek to instigate cognitive *change*. That is, the process should encourage students to extend their thinking beyond their existing position. As Kerry (1983, p.81) points out, ‘differentiation by outcome’, - where students interpret the task according to their ability – is, in fact, not differentiation at all. It does produce differentiated outcomes but as Kerry concludes, “that is not precisely the same thing.” Thus, asking questions in isolation will not extend student thinking, since students will simply produce what they are capable of at that point.

To progress beyond this position it is necessary to expose them to cognitive *conflict*, but crucially they must be given additional support to help them deal with the increased cognitive demands. This principle is very much in line with Vygotsky's *zone of proximal development (ZPD)* and represents a shift from behaviourist dogma towards social constructivism, a major goal of this research. Adey and Shayer (1994, p.119) define Vygotsky's ZPD as "the extra intellectual power that is available to a child through social interaction with adults or peers." They explain that:

"On Vygotsky's account it would be a mistake to think of the ZPD as wholly internal to the adolescent in the form of nascent or part-achieved strategies. It exists just as much in the social space which the child shares with his age peers. The extra half-skill the child may need to knit to his own to create a completed skill may just as well come from what another child says and does as from her own behaviour."

In theory, this "intellectual power" can come from any source and the "extra half-skill" could be obtained by passively listening to the teacher and other students during I-R-F exchanges. However, this is a rather chaotic and unreliable method for finding the necessary knowledge to 'cross the zone', since the outcomes in the routine cannot be controlled by the student and may not offer the provision that the student requires.

Furthermore, the student is unlikely to seek clarification or query any of the issues in front of the class. Rather, the most practical and effective way of providing customised support is through peer collaboration (Talking Partners). In this way, the activity can be personalised so that the specific needs of each student are taken into account. Additionally, where cognitive conflict occurs, students will feel more comfortable negotiating a higher degree of understanding with a peer, than with the teacher.

To illustrate this point, let us consider the question "What were the main causes of World War Two?" Of course there were a number of reasons, many of them inextricably linked. Two students working independently may be able to come up with reasonably coherent but incomplete responses. There will be common elements within each response, but also points on which they differ. Collectively they can co-construct a common, more coherent response and so in this respect, both students will have supported each other in negotiating cognitive change beyond their original positions. The added bonus is that this process offers

students a degree of 'privacy' where they can take risks, ask questions and challenge other students' thinking; actions which are highly unlikely to occur when under whole-class scrutiny. I concede that, on an individual or small group basis, this personalised mediating role could be assumed successfully by the teacher. However, in the context of whole-class I-R-F, this proposition is logistically unrealistic, due to the number of students involved and the diversity of student needs.

- ***Follow-up moves***

Over the course of this study, Askew and Lodge's (2000) concept of *instruction* (the gift) was only problematic with Emily in Routine 1, where occasionally she indulged in the latching behaviour of 'filling the gaps in'. The follow-up moves of 'probing' and 'scaffolding' naturally align themselves with *construction* (ping-pong) since, characteristically, the dialogue is between the teacher and individual students. It is only 're-cycling' which begins to display features of *co-construction* (loops) because potentially, the rest of the class can become actively involved in the questioning process; for any given question, "purposeful and productive dialogue" can be used by the teacher to "build a thematically coherent stretch of discourse." (Abd-Kadir and Hardman, 2007: Chapter 2, p.37). Ultimately, re-iteration is a *generic* move since it can be deployed at any point in the exchange, including after Talking Partners.

Even at the start of the study, Emily was already using a range of follow-up moves, yet improved this position even further over the course of the research. In the early stages, Rory used re-iteration almost exclusively and rarely employed other follow-up moves. This situation did actually improve by using probing and re-cycling more regularly but not to the same level as re-iteration. This apparent difference in approaches between the two teachers can be partly explained by the variations within each subject; where-as the convergent nature of MFL naturally aligns itself to an *evaluative* mind-set, the open-ended nature of History is more in tune with a *discoursal* approach (Cullen, 2002: Chapter 2, p.27). As with other features of IQC, much of this discrepancy can be explained by the reliance on display rather than referential questions. As Rory himself pointed out, asking display questions is self-limiting since there is usually "*nowhere to go*" with the answer. For Rory, the dominance of display questions in each routine meant that, on many occasions, there was no opportunity to probe deeper or to involve the

rest of the class in the questioning process. Emily on the other hand asked a number of high quality referential questions and was able to 'probe' students regularly and incorporate a variety of student contributions into each I-R-F sequence.

The one follow-up move that both teachers continued to use sparingly was the process of *scaffolding*, where teachers support individual students in 'shaping' and 'fine-tuning' their responses when struggling to do this independently. For most of the study I was perplexed by the low incidence rate of this follow-up move and it was only towards the latter stages that I began to understand some of the reasons underpinning this proclivity. As a teacher, I had always instinctively felt that, where a student was having difficulty, it was important to support the student by providing appropriate scaffolding. Indeed, when I conducted the student focus group interview at the end, it seemed that this instinct was well founded:

#### Extract 6.1

- Researcher:** Okay, so you've been asked a question and you're struggling a little bit, tell me some of the things that teachers do to help you.
- Laura:** It depends how they do it, like sometimes when teachers ask you a question and they keep going on at you to answer and say for a couple of seconds you don't know what the answer is, it would be a bit embarrassing, because the whole class is looking at you and waiting for an answer.
- Luke:** Sometimes they just move on completely to another person, which makes you feel a little bit more awkward. But the good teachers, they help you along, when you've answered the wrong thing, they give you clues and gradually you get there, but some just move on to another person.
- Researcher:** Anything else they do?
- Sophia:** Yes, they might give you reminders and hints and stuff like that because it might be linked to something you've done previously.
- Researcher:** So just going back to what you said Luke, when they just go to somebody else, does that make you feel a little bit, not like a failure, but do you know what I mean?
- Luke:** Yes, I know what you mean, not like a complete failure, but it does make you feel a little bit more like that.
- Researcher:** So do you think they should stick with you and just support you and help you?
- Luke:** Yes, support you and help you, it doesn't make you want to go home and cry yourself to sleep or anything, but yes.
- Researcher:** But it's not positive.

- Luke:** It's not positive, no.
- Researcher:** Anything else that could make it better?
- Ravi:** It's like, if you don't know the answer yourself you can get other people around you to help you find out the answer, so like learning from your peers.
- Researcher:** Okay, so when you're stuck you can work in pairs and share ideas, is that what you're saying?
- Ravi:** Yes.
- Researcher:** Especially if you don't know the answer?
- Sophia:** Or if none of you know the answer, then you can just put together the knowledge you know and build an answer from that.

It is clear that, from a student's perspective, this is a very sensitive and delicate issue. Clearly, being selected to respond in front of the class can be a stressful experience, with potential for damaging both confidence and credibility. The students that took part in the interview are not necessarily representative of other students as all four held prominent student positions within the school (head boy/girl and deputy boy/girl). However, the fact that they are naturally confident and forthcoming individuals, yet can still feel intimidated in this way, is probably significant.

It appears from the transcript that when struggling with an answer, students prefer a 'scaffolded' approach, rather than the teacher immediately switching attention to other students in the class; though, clearly, the manner in which the teacher conducts this process is also a critical factor. Yet there seems to be a dichotomy here between what teachers perceive as good practice and what students actually prefer. This became apparent in the pre-study interview with Rory (Extract 6.2) and the post-study one with Emily (Extract 6.3).

### Extract 6.2

- Researcher:** Okay. How do you respond if a student gives a wrong or incomplete answer and is clearly struggling with the answer?
- Rory:** I would try... well, I would say, "Not quite right," or if they're completely wrong I would just say no. I would then go back to somebody else in the class. If they get it right, I would then return to the student who was incorrect at the start and see if they can then get it right.
- Researcher:** So you would say that, in some form, you try to scaffold the answer for them and support them in giving an answer.
- Rory:** Yes, definitely.

### Extract 6.3

**Researcher:** When a student was giving an answer and they were struggling a little bit, you would tend to move to another student. Is there any reason for this?

**Emily:** If I've given them a question and they've said something and I've thought, "That could be a bit better", in my head I think, is it better to move to someone else and see what they think and maybe come back to them when they've heard their answer.

**Researcher:** Would you say then, you're sort of doing it so that they don't feel under scrutiny too much.

**Emily:** Yes I would, I worry that it's a confidence thing for them and if they've produced this answer, maybe it's because it's actually the only answer they are capable of. I've tried in the past to push them further and they've come back with, "Oh I don't know." And I think, "Should I have pushed them? Have I embarrassed them?" So I just think this way it gives them a chance to hear someone else's response and it might give them something else to think about based on what another student has said.

The transcripts raise some interesting points. Where students are struggling, there appears to be a reluctance from both teachers to scaffold the response, or as Sophia describes it, "*give you reminders and hints and stuff.*" Instead, both Emily and Rory exhibited a tendency to immediately transfer the exchange to other students in the class as a means of securing a correct response; or as Luke describes it, "*just move on completely to another person which makes you feel a little bit more awkward.*"

Though this course of action is preferable to the teacher simply 'feeding lines' to the student (Walsh 2002: Chapter 2, p.28), the approach is clearly out of line with the philosophy of the students; it is somewhat paradoxical that Emily, in particular, often uses this strategy as a 'face-saving' tactic. When thinking about this inconsistency at the end of the study, I began to understand some of the likely rationale underpinning this reluctance to scaffold:

- Spending too much time on one student means that the class are not actively contributing to the discourse.
- The sometimes prolonged nature of the scaffolding process creates an apprehension that too much time will be used up in an already pressurised itinerary. Avoiding it means that the discourse can proceed more swiftly.
- There is a perceived risk that the other students in the class will become restless and possibly go off task as they passively observe the one-to-one interaction.

- Teachers worry (ironically) that the process of scaffolding may make students uncomfortable in front of the class and so, with good intention, divert the focus to other students.

Teachers, for their part, are very adept at negotiating their way around difficult scaffolding scenarios. Over the course of the study the number of incidences where scaffolding was required was actually relatively low. Teachers appear to pre-empt the possibility of potential conflict by actively pursuing students that are likely to offer sought-after responses, hence negating the need for scaffolding in the first place. This position is supported by the student pre-questionnaire results where 66% (Emily) and 60% (Rory) of the students agreed that “*Certain students in the class answer more questions than others.*” It seems that teachers are very proficient at identifying students that will deliver the required responses and there was little change in the students’ views at the end of the study.

With the benefit of hindsight, my own thinking has changed somewhat on the appropriateness of the scaffolding move and I have come to realise that this issue is more complex than first appears. I now believe that scaffolding is more suited to situations where the teacher is working with individuals or small groups and whilst there is still a place for this strategy within a whole-class context, a balance has to be struck between the needs of the individual and those of the class. In a whole-class setting, the decision of whether or not to scaffold, largely depends on the nature of the question and the degree to which the teacher can avoid a ‘loss of face’ for the student. Not for the first time, the type of question being asked has a large bearing on the decision-making process. Let us consider four different questions (all asked during the study) to illustrate this point, three display and one referential:

### **1) *What does “Jouer” mean in French?***

In this situation, the student either knows the answer or does not; it is very difficult to scaffold this without giving the answer away. The only option for the teacher here is to either tell the student the answer (latching) or to seek it elsewhere; either way there is a responsibility for the teacher to correct any misconceptions or errors. Will the student lose face in this situation? It is difficult to know, since much will depend on the character of the student involved. One way of preventing this situation from developing is to use student whiteboards so that, even if a student’s

response is incorrect, there is reduced public scrutiny and it is likely that there will be other students in the same situation. In this way students will feel less threatened and worried about how the teacher will respond to an incorrect response. Rory used this approach well when asking these types of display questions.

**2) *How would you say “I really don’t like Basketball?”***

Imagine the scenario where the student is *partially* correct with his or her response. This means that part of the answer is also incorrect and how the teacher deals with this is critical. Asking another student to correct the faulty elements could be perceived by the original student in a negative way and induce a sense of failure. Thus, in this situation, there is a strong argument for scaffolding the original response through to completion, particularly as it is unlikely to take long to correct.

**3) *Who are the different dictators that we have learned about in History?***

Let us assume that there are five dictators altogether and a student responds with three. This can be perceived as a relative success for the student as the teacher has not asked him or her to name all of them. In this situation, therefore, there is little threat of losing face since the student has already made a significant contribution to the over-all solution without actually making a mistake. Thus, it would be prudent for the teacher to transfer the focus to other members of the class for the remaining contributions.

**4) *Let’s have a look at William the Conqueror’s advantages, why did his army win the Battle of Hastings?***

Of course there are many reasons as to why William’s army actually won the Battle of Hastings and there is no reason why one student should necessarily recount all of the relevant points. Furthermore, the fact that the question is wide-ranging and referential, means that there are likely to be a number of responses, varying in both content and quality. Unless a student makes a factually incorrect statement there is no need to scaffold any responses. All students can potentially contribute to the over-all argument, ensuring a positive experience for all members of the class. In the longer term however, we need to change teachers’ and students’ perceptions about the fear of ‘losing face’ in such learning



situations. Ultimately the objective should be to create a non-threatening learning environment where students feel comfortable asking their *own* questions without fear of reproach; giving an incorrect answer should be seen as a learning opportunity rather than a measure of failure. In the current educational climate it seems that we are a long way off from achieving this goal.

A final point worth making is expounded by Sophia in Extract 6.1, when cogently arguing the case for *co-construction* in moments of intellectual discord; the fact that the students will have time and support to rehearse and construct a meaningful response means that any required scaffolding will take place within the confined privacy of peer collaboration, rather than under whole-class examination.

- **Praise**

There is no doubt that most teachers are well-intentioned when administering praise to their students. It has been well documented in the scholarly literature that lavish and unwarranted praise can engender a climate of low-expectation (Chapter 2, Page 32) and this predisposition was certainly a pertinent issue over the course of this study. Even though Rory was less fulsome with his praise than Emily, it was clear from his interviews that he regarded this facet of practice as critical to building students' confidence, particularly in the subject of MFL.

Whilst most teachers perceive praising as an intrinsically positive action, there appears to be complete lack of awareness of the *affective* element of student thinking and behaviour. There is an implicit belief that praising students will develop self-belief and this viewpoint represents one of the great paradoxes in education. Over the years, I have argued (albeit with limited success) that by attaching a specific level of praise to a student's response, teachers are unintentionally *grading* that student's answer.

In this respect, there is a real danger that students become more focussed on the degree of praise they are receiving, rather than the learning itself. There is a parallel here with the 'comment only' approach to written feedback, where students are thought to perform better when their work is given constructive feedback but not graded (Butler, 1988). Using emotive terms such as 'good', 'very good', 'excellent' and 'fantastic' during a questioning routine is no different to grading a piece of writing from A to D. Worse still, where there is a complete

absence of praise, students will automatically perceive this as the ultimate failure, even though the teacher has not actually verbalised it. In the student focus group interview, Laura a Year 11 student, exemplifies this point when discussing the issue of praise during questioning routines:

### Extract 6.2

**Researcher:** So would you say it creates a positive environment when you receive praise?

**Laura:** I think if you're like, if you have that awkward moment when you think you know the answer but you don't actually know the answer, you kind of spend a bit of time afterwards thinking about how awkward it was and you're like, damn I can't believe I did that, and then I think your focus goes off for the lesson.

**Researcher:** So really, what you're saying there Laura, I think, is that there is a danger that you're too focussed on whether you gave a good answer and got praised or didn't get praised and then because you feel awkward, you then stop focussing on some of the learning that takes place after that, is that a fair comment?

**Laura:** Yes, definitely.

Thus, I would suggest that many teachers need to be much more circumspect and insightful when giving students praise, since the impact on learning may be much more deep-rooted and damaging than might appear superficially. There is a real danger that "a culture of excess praise can produce a classroom of praise junkies" (Clarke, 2001, p.127), where praise becomes more of an issue in the learner's thinking than learning itself; indeed, this is the exact type of teacher behaviour which perpetuates the 'losing face' mentality discussed earlier.

### **6.2 What Are the Relative Merits of Self-evaluation, Focus Group Interviews and Specialist Coaching as Facilitators of Professional Development?**

The main objective of action research is to facilitate improvement or bridge the 'gaps' in performance, although how one defines these terms depends on the angle from which one wishes to view this issue. The use of an IQC framework of 'best practice' was central to achieving the research goals of this study by providing teachers with a vision of effective practice with a constructivist slant; in this way they would be able to compare their actual performance to the desired one. However, as researcher, I was mindful of the fact that facilitation of this type was unlikely to take place on its own and so three strategies were used to help engender improvement. Each of these 'agents of change' was known to have

considerable strengths but also some limiting aspects and this was evident both during and after the research. The success of each also depended on the personal philosophy and characteristics of each individual teacher and how they responded in different situations:

- ***Self-evaluation***

The process of self-evaluation is a critical pre-requisite of teacher effectiveness and many consider it to be the most important of all appraisal mechanisms. It is a fact that teachers spend the vast majority of their time working in isolation from colleagues, acting as sole adjudicators (apart from students) of their own day to day performance. In this respect, a teacher's capacity for self-reflection is a vital indicator in determining the degree to which improvement and change can be instigated. Both teachers showed an '*internal orientation*' towards teaching throughout the research and as specialist coach, I would place them somewhere between the 'practical and 'critical' levels of reflective capability (Turner-Bissett, 2001: Chapter 2, p.35).

Whilst many see the terms 'self-reflection' and 'self-evaluation' as being inter-changeable, for the purposes of this study, it is important to draw a distinction between the two. Whereas the former describes an orientation or a willingness to critique one's own performance, the *assessment* element of the latter characterises a teacher's ability to evaluate their own performance against a recognised set of norms or criteria. Thus, a teacher may be entirely willing to reflect on where their performance needs to improve but may not possess the insight or appropriate assessment tools to achieve this.

I intentionally withheld the IQC framework from teachers for the first audio-recording as I wanted to investigate the degree to which both teachers were able to assess their own questioning skills and whether they could identify their strengths and weaknesses. As it turned out, there were large discrepancies between the teacher evaluations of Routine 1 and those of the specialist coach (see Appendices H, I and K). With both teachers, much of the detail is focussed on content and organisation rather than specific features of IQC. Indeed, it is only Emily's apparent reference to 'probing' and 're-cycling' and Rory's hint at the need to ask more challenging questions, that loosely touch on issues linked to their IQC.

Over the course of the study both teachers indicated that their capacity for self-evaluating their own questioning performance had improved. This is apparent in the teacher evaluations for the last routine, where there is greater detail and more explicit references to features of IQC. For example, Rory discusses the issues related to think-time and re-cycling as well as the need to ask more referential and challenging (cognitive status) questions. Similarly, Emily discusses issues related to praise, Talking Partners (collaborative mode), re-cycling, latching, probing, scaffolding, re-iteration and referential questions. More importantly, for both teachers, the final conclusions from the self-evaluation process were more aligned to the specialist coach's feedback, highlighting a higher degree of precision in their self-evaluative skills.

Rory revealed his thoughts on both the self-evaluation process and the IQC framework in the post-study interview:

### Extract 6.3

**Researcher:** We basically used three strategies to help you improve, the first being self-evaluation. You record your lesson, you listen to the tape, you use the framework and then you evaluate your own performance based on that. How effective do you think that process was?

**Rory:** I think, like I said at the start, it was very useful actually taking the time out to sit for 15 minutes or whatever and listen to yourself teach. It's very powerful because I'd be my harshest critic a lot of the time but also, like I said, rarely stopping now to think and just teach, teach, teach and then get on with whatever else is coming. It was really useful.

**Researcher:** Do you think it would have been harder without the framework to help you focus?

**Rory:** Yes, it would have been. I could've picked out positives and negatives and things but, I think, in terms of setting very clear targets then it would have been more difficult.

This extract raises a critical point in terms of the research goals. Rory is clear that the framework brings a clarity of thought to the self-evaluation process, helping him in "*setting clear targets*" more effectively. This view is in line with the thoughts of Baumfield et al (2009, p.423) who describe the value of 'catalytic tools' in changing "the composition of other agents in the environment or organisation whilst maintaining stability by not being changed itself." They conclude that, although such tools frame the way in which teachers work, the "individual agency" comes from the teacher deciding which aspects of the feedback generated by it should be prioritised and acted upon. This was one of the aims of the framework

and it appears to have been very successful in this respect by providing a frame of reference so that teachers could analyse their performances and use this information to negotiate targets for improvement during the coaching sessions.

Additionally, the framework helped create a common language which teachers could use to express their judgements and evaluations more concisely. This was very apparent when comparing the linguistic content of the first and last teacher evaluations (see Appendix K). For example, by the end of the study, *“listening to an answer and then using that to form a new question”*, was later re-branded by Emily as *“re-cycling”* and *“expand on what students say, not just ending it there”* would later be defined as *“probing.”* This clarity of language is essential for two reasons. Firstly, when teachers are performing in the ‘hustle and bustle’ of a questioning routine, it is much easier for teachers to crystallise their thoughts and to identify the most appropriate course of action or strategy at any given point. Secondly, when teachers are collaborating with either colleagues or with a specialist coach, having a common language makes the communication process more refined and sophisticated.

Interestingly, Rory claims that, although the framework was useful for bringing a sharper focus to the proceedings, he would still be able to identify “positives and negatives” independently. This statement appears to be at odds with his first teacher evaluation where much of the response focusses on content and classroom organisation rather than his IQC. However, there is no reason to doubt Rory’s authenticity here since he had earlier admitted that he had “let things slip” and this study had given him the opportunity to put this right. Thus, for Rory, it was not so much a case of learning new techniques but more about reviving previously mastered skills. Similarly, Emily found the self-evaluation phase to be useful but also highlighted some limitations:

#### Extract 6.4

**Emily:** I think it was good for me because I think I’m quite a reflective person and I’m always wanting to do better. As I said before, as I haven’t been teaching as long, I’m always wanting that feedback and it’s good but I think it depends on the person. If that person isn’t a reflective person and isn’t really willing to change or is scared of picking out the negatives, we’ve seen it in this school, people are less likely to change, you know, “We never did that 20 years ago when I trained.”

**Researcher:** So really what you are saying is that if you’re not reflective then it would be a waste of time?

- Emily:** Yes, I think people would struggle to look at what was bad. I can take criticism at work because I know it's going to make me better. I think I like to do it myself first though, pick out my own faults before someone does it for me. I'm just like that.
- Researcher:** So if something goes wrong in your lesson, are you the sort of teacher that would look at yourself first?
- Emily:** Yes, totally. I'd be the first to say, "That didn't work." It's like when we go back through feedback after my observation with Leanne she said, "How do you think it went?" I said, "I think this, this and this." She gave me her ideas and I said, "Oh right yeah. I hadn't thought about that." I was more than happy to take that from someone who has 13 years of teaching and who gets outstanding observations and I'm willing to do that.

Some interesting issues are raised in this extract. Whilst Emily professes to being reflective - something I would agree with - she concludes that not all teachers possess this mind-set. There is also an implication that some of her more experienced colleagues are bereft of this quality and, as a result, have not 'moved with the times'. Perhaps she is referring to teachers with an "external orientation" (Turner-Bissett, 2001: Chapter 2, p.35) or maybe in her experience, older teachers appear to be more reluctant to change. Either way she is clear that being reflective is essential in order to improve practice. For her, the key is being able "*pick out the negatives*" and this is a very insightful point, highlighting a high degree of 'internal orientation'.

Teachers with 'external orientation' invariably blame factors outside their control when things go wrong in the classroom. Reasons for failure could range from the students being badly behaved around the school to time-tabling problems, for example, last period on a Friday afternoon. In my experience, this 'rationalisation' is not necessarily related to age or experience but is more likely to be driven by a teacher's natural disposition. Whilst some older teachers admittedly exhibit this mode of thinking, there are many others who do not and the same polarisation exists with recently qualified teachers.

Ultimately it is a matter of *intra-personal* intelligence which Corrie (2003, p.5) defines as the ability "to recognise one's own feelings and the patterns of behaviour that have built up around them (and) to understand cause and effect within oneself." Fundamental to this is the need for teachers to take responsibility for their own actions and avoid blaming others for their own short-comings, something Emily was adept at. For her it is also important to evaluate her own performance and "*pick out my own faults before someone does it for me.*" This is

both admirable and essential, bearing in mind that for the majority of her teaching time, she will be performing without the support and scrutiny of others. However, in terms of improvement, self-evaluation is ultimately self-limiting and can only take a teacher so far. Emily appears to recognise this point when explaining that she values feedback from her subject leader Leanne, though there appears to be a caveat in that Leanne is an experienced teacher of 13 years who delivers “*outstanding*” lessons.

Teachers can only improve if they know what standards they are aiming for and what exemplary practice looks like. There is a parallel here with Vygotsky’s ZPD, where cognitive development comes about due to the mediation of a more proficient individual. In the self-evaluation phase of each cycle, the IQC framework was acting as a ‘scaffolding’ device, as a means of closing gaps in performance. In this way teachers were able to compare their existing position to the aspirational goals set out in the framework and through a process of self-evaluation, attempt to instigate improvement.

- ***Focus group interviews***

Over the course of the research, three focus group interviews were planned so that teachers could reflect on their experiences at each point in the process and share opinions and ideas about how to improve in the future. However, in the end, it became logistically challenging to arrange meetings that all teachers could attend due to other school commitments. Ultimately, only one genuine session actually took place; between the first and second cycle. In a sense, this highlights one of the major weaknesses of this particular strategy in an institutional setting. Self-evaluation can be carried out by a teacher independently and at any time or location. Similarly, specialist coaching only requires the mutual co-operation of two teachers and, as a result, the process is comparatively easy to arrange and complete. Focus group interviews however, require a high degree of logistical co-ordination and are usually limited to specific times and venues.

As a facilitator of professional development, the focus group interview produced mixed results. It became readily apparent that there were contrasting views in terms of how Rory and Emily perceived this particular strategy and its usefulness in supporting professional development. Firstly, let us consider Rory’s perspective:

### Extract 6.5

**Researcher:** We used the focus group situation where we had four teachers, at the time, and we had a group debate or conversation, if you like. How useful did you find that and what do you think of that process in general?

**Rory:** I thought it was good. I really enjoy working with other teachers who want to improve and who want to share good practice. I hate it whenever, which it happens at school, we're, at times, forced into groups and it's a waste of time because people don't buy into it and they contribute nothing and they're very negative, in which case I don't want to be involved in that.

**Researcher:** Do you think collaborative work is very important in teaching?

**Rory:** Yes, I think it is. Across departments you can get some really good ideas but it has to be with people who want to do it. I know you can't force people to do it but, for example, at school we've got the teaching and learning communities where we're together in groups of seven or eight teachers. I spoke to the head teacher last week and said that if we need to get rid of anything next year it's that, because they're a waste of time.

Rory clearly enjoys and values the opportunity to collaborate with other teachers, particularly from other curricular areas where “*you can get some really good ideas.*” This is a very important point as curricular areas possess different strengths and it is vital that teachers are given the opportunity to experience a variety of pedagogical approaches and strategies. Rory's frustration is also apparent when discussing the ‘teaching and learning communities’ across the school and is highly critical of the negative attitudes shown by many of his colleagues. For Rory, teacher collaboration is a powerful school improvement mechanism, but only if teachers are committed to the process, otherwise it is “*a waste of time.*” The fact that those taking part in this study did so voluntarily and were committed to the improvement process is probably the main reason why Rory found the focus group interview to be particularly valuable.

Whilst Emily also found the focus group interview to be useful, she was not as effusive as Rory in her approval of this approach to personal and professional development:

### Extract 6.6

**Emily:** I do think it works but I think it depends on who you're in there with. I'm quite a vocal person and I don't mind picking out things but it depends on who is in there. I know I was in with Lizzy, Rory and Lois who have got years on me and I think sometimes it can be maybe intimidating a little bit to be in with people who have taught so long and you think, “I'm so new, of course I'm going to make all these mistakes.” But then it was quite good to then share our feedback and say, “Well actually I've latched this



amount of times and you've got 10 years on me and you still do it." It made me feel a bit better.

**Researcher:** So in terms of using that as a strategy, it very much depends on the dynamics of the group?

**Emily:** Yes, I think it depends. Like Lois, she's got a lot of experience and she's a very vocal person. She's not scared of saying- she's someone that I'm not very close to or pally with. With Lizzy and Rory, obviously I know them but they're not really my friends. Because of that I think it's a professional relationship but because I didn't feel as comfortable with them. Maybe I struggled a bit more to be open about things possibly.

There is clearly a tension apparent in Emily's response here. On one hand she is a reflective practitioner who recognises the value of learning from more experienced colleagues. However, it is obvious that being an NQT, she is somewhat lacking in confidence in this setting and clearly feels intimidated by her more experienced and vociferous colleagues. This limitation is well-documented in the relevant literature (Chapter 4, p.68) and represents a major disadvantage of focus group interviews. As Emily points out, the dynamics of the group are critical in terms of how successful the group approach will be.

Whereas Rory, an experienced teacher, revels in the opportunity to debate topical issues in a group setting, Emily, being a novice teacher, finds the whole experience to be rather threatening; and the fact that she does not know the other teachers on a more personal level exacerbates the situation further. Interestingly, as events progress in the group setting, Emily begins to realise that her more experienced teachers are not infallible and her confidence begins to grow. For her, this increase in self-confidence seems to be the single most important benefit resulting from the focus group process.

As researcher and specialist coach, it is difficult to assess the impact of the focus group interview since other strategies such as specialist coaching were being deployed simultaneously. Although I was heartened by the group's general response and it was tempting to conclude that tangible progress had been made, I was experienced enough to know that the real test was whether it would actually engender a modification in teachers' questioning behaviour. I have lost count of the number of times that teachers have been outwardly zealous about new ideas and strategies they have discovered in CPD sessions but have failed to convert their supportive words into concrete actions in the classroom. For example, Rory's explanation of the 40-20-20 strategy (see Extract 5.26) was well received by the

rest of the group, yet at no point in the subsequent recordings was there any evidence that this strategy had been implemented in any form. Though a few teachers like Rory might benefit from this type of improvement mechanism, without further support and reinforcement, it is all too easy for teachers to return to their classrooms, close the door, and continue to do what they have always done.

- ***Specialist coaching***

As specialist coach there is no doubt in my mind that, whilst the other previous two strategies had their undoubted merits, the specialist coaching process was easily the most powerful facilitator of change and improvement. This conclusion is fully corroborated by both Rory and Emily, as can be seen in their post-study interviews:

#### Extract 6.7

**Researcher:** The third strategy was specialist coaching, so I would listen to your tapes and then we would discuss it and I would give you some feedback and stuff and try to support you in that way. You can be honest, how did you find that process?

**Rory:** I would say it was very useful again. I enjoyed it. I think having somebody who's got an expertise at listening and, at times, validating opinions that I've had myself but then also guiding you, going into a bit more detail with the feedback because if I had initially used the framework and had my own thoughts but then getting some more probing questions to dig a bit deeper was really helpful. It's not being challenged in a threatening way but in a way to help you develop yourself and thrive. It was very useful.

**Researcher:** You've really validated all three methods. Is there any one in particular that you think is really powerful or would you say they're all pretty important?

**Rory:** They're all very important. I think the coaching is probably the one that I found most powerful.

#### Extract 6.8

**Emily:** Oh really yes. I think probably that's my best way of doing it. I like to reflect myself but I love having it in front of me and the way you broke everything down was really good so I was able to see how long I had, how long I was waiting and how long I was pausing and then for you to say, "Why don't you try this or why don't you try that or why don't you try Talking Partners?" That was good having you there as an expert and someone who is brilliant at questioning is able to do that.

**Researcher:** So would you say then that that the coaching relationship is really powerful but it really depends on the two people who are working together?

**Emily:** Yes definitely. For example, someone who is a bit more headstrong might be, "Actually I don't agree with you because I've been teaching for 30 years." Do you know what I mean? I think that's when it would be difficult.

It is clear that both teachers appreciated and valued the specialist coaching cycles, indicating that this was their preferred mechanism for professional development. However, they also intimated that there were some critical factors involved in ensuring that the coaching process was a productive one:

- ***Self-evaluation as a pre-cursor for specialist coaching***

As Rory points out, specialist coaching is possibly at its most potent when the teacher has already attempted the process of self-evaluation. In this way the teacher is readily familiar with some of the issues involved and is in a position to respond to the specialist coach's "*probing questions to dig a bit deeper.*" Emily presents a similar view when discussing the role of a coach, concluding that "*I think I like to do it myself first, pick out my own faults before someone else does it for me.*" This disposition in both Rory and Emily is an admirable quality since it highlights a determination to take responsibility for their actions and assume 'ownership' of their own development. This allows the specialist coach to build on the platform created by the self-evaluation process, making it a more collaborative and productive experience. It is also crucial that the specialist coach does not 'fill the gaps in' and try to 'impose' the solutions, but as Rory explains, attempts to "*guide*" the teacher towards the desired goals. Emily also implies that a coach who is too "*headstrong*" would be analogous to a teacher 'latching' in the questioning process.

- ***Specialist coach expertise***

It is essential that a specialist coach has the "knowledge and expertise relevant to the goals of the professional learner" and can "model expertise through practice or conversation" (Lofthouse et al 2010, p.7). Certainly, it seemed important to both Emily and Rory that the specialist coach possessed a high degree of credibility in terms of experience and knowledge. Without this inherent respect it seems unlikely that both teachers would have responded in the way that they did to the feedback they were given. For example, Emily had perceived that the specialist

coach was “*brilliant at questioning*” and this seemed to encourage her to accept advice about her practice more readily. Rory also makes the point that it is important that the coach is an “*expert at listening*” and I would certainly agree with this statement. In specialist coaching there is also a need for the coach to guide the interactions towards specific goals. Not for the first time, there is a parallel with Vygotsky’s ZPD in that the specialist coach is providing the mediation or scaffolding so that the teacher can progress beyond his or her current position. However, even though in this situation the coach is assuming the role of ‘expert’, this should be conducted in a conciliatory and respectful manner.

- ***Teacher/coach relationship***

Not surprisingly, the relationship between the teacher and the specialist coach is critical and both Emily and Rory were very clear about this. For Emily it was important that the specialist coach was not too “*headstrong*” and preferred a more conciliatory approach; “*why don’t you try this or why don’t you try that.*” Rory, enjoyed “*not being challenged in a threatening way but in a way to help you develop yourself and thrive.*” Being a successful specialist coach requires a high degree of skill and it is important to build trust and confidence, listen actively and ask open questions so that teachers can develop their own strategies to succeed (Lofthouse et al, 2010, p.7). As specialist coach I tried to approach my role in this way and feel that this contributed largely to establishing successful coaching partnerships with both Emily and Rory over the course of the study.

- ***Personalisation***

One of the major strengths of specialist coaching is that the process can be customised to meet the needs of the individual teacher. For Emily, this attention to detail was particularly powerful, concluding that “*the way you broke everything down was really good*”. Furthermore, the fact that specific targets were set after each coaching session also encouraged teachers to focus on where they needed to improve. This was one of the main reasons why coaching appeared to be more effective than focus group interviews as a facilitator of change since, with the former, the responsibility and impetus for change lies solely with the teacher.

We can also see a difference in how Emily and Rory perceive the expected dynamics of a coaching relationship, highlighting slightly different needs. Emily,

being an NQT, is still in the process of developing new skills and so is more receptive to *direct* advice as a means of improving. On the other hand Rory, being more experienced, has already established his teaching repertoire and is looking for the specialist coach to “*validate opinions I had myself*” as well as challenge him with “*probing questions to dig a bit deeper.*” As stated earlier, it was more a case of re-establishing previously learned skills or refining existing ones. This discrepancy in expectations is a critical point for the specialist coach and highlights the importance of remaining adaptable and responding to individual teacher expectations and goals when establishing a coaching program.

In conclusion, the specialist coaching approach proved to be a very powerful mechanism for professional development. However, in the context of this study, the self-evaluation phase was a critical pre-cursor for allowing the coaching process to maximise its effectiveness.

### **6.3 To What Degree can Teachers Negotiate a Process of Change in Order to Improve their IQC?**

There are many factors which impact on a teacher’s capacity to improve their own practice. Both Emily and Rory volunteered to take part in the research and as such were highly motivated and committed to improvement. Indeed, in the main, they showed themselves to be very reflective teachers with a high degree of ‘internal orientation’ (Turner-Bissett, 2011: Chapter 2, p.35). However, it would be a mistake to assume that the two teachers involved are wholly representative of the teaching profession, or even the teachers within Haverton High School.

Thus, where change has been difficult to facilitate within the context of this study, it is likely that teachers who are less reflective and motivated would be likely to find such a transition even more challenging. I will now examine the degree to which the two teachers involved in the study were able to change their questioning practice in line with the research goals and debate some of the major issues and barriers associated with this process.

There is no doubt that in the shorter-term, both Emily and Rory were both able to engender significant changes to specific features of their IQC. However, this does not necessarily mean that these changes will be sustained in the longer-term. The areas where Emily made the biggest changes in practice involved the

dramatic reduction in latching and the use of Talking Partners; both of these changes appeared to have a significantly positive effect on the quality of the exchanges. Yet in the post-study interview she was honest enough to hint that these changes would not necessarily be sustained in the longer-term:

#### Extract 6.9

- Researcher:** The \$64,000 question. Do you still use Talking Partners?
- Emily:** Do I still use it? I think I've used it once. To be honest I've used it where I've said, "Talk to your..." but I don't think I've used it with that class, I think it was another class that I've done it with but again, I don't know why I haven't. I know it works. I know it's successful but I think it's the case of, as the class progresses I just forget all the key things that are useful. Now it's something that we've talked about so I could go away and be like first thing tomorrow morning, "You've got a talking partner." (Laughter).
- Researcher:** \$64,000 question again then. Do you still latch? (Laughter).
- Emily:** Do I still do it? Not as much. I don't latch as much. That is something I am a lot more aware of. I still do it, I think that's me but I don't do it as much.

Thus for Emily, although she was able to make significant improvements in her practice during the study, already the scale of that change is beginning to diminish; only time will tell whether she will eventually revert back to her original practice and if so, in which areas.

Conversely, although the degree of short-term change in Rory's practice was less dramatic than Emily's, there appeared to be a determination that those changes would be sustained in the longer-term:

#### Extract 6.10

- Researcher:** With all the processes that you've gone through and the targets that were set and so forth and the views that you've articulated to me, do you think your practice has actually changed and if so, will it last, do you think?
- Rory:** I think it has, definitely in terms of questioning. I've had more of a focus now with the answers in the target language and extending answers as long as I can. I definitely think more about the think time. I hope that it lasts. I hope, as I said at the start, that a pastoral job having an effect on my teaching, won't mean that this time next year I've forgotten about it. I would hope certainly that it would have a lasting impact.

It is interesting to note the apparent differences in the two teachers' appetite and capacity for engendering long-term change. Although being reflective is an important starting point in the process, there would appear to be a number of factors which potentially influence how teachers come to construct and implement

their teaching models and these play a critical role in determining the degree to which these models can be adapted for improvement:

### **6.3.1 Personal Characteristics**

The fact is that no two teachers are the same and during the course of the study it became clear that, in some instances, the process of change was hindered simply because of personal traits or dispositions. For example, Emily's propensity for latching was partly down to her natural inclination to interrupt not just students, but people in general. As she pointed out in her own words:

#### **Extract 6.11**

**Emily:** My own family have commented on it. It's more of a personal trait. I've done it with adults. I do it with people, with my friends and in my head I think, "I haven't actually let them finish that sentence there." I'm aware I've done it but I do struggle to zip my mouth sometimes.

What is interesting in this extract is that Emily is fully aware of this limitation in her inter-personal skills but reveals that she still finds it difficult to modify her behaviour and eliminate this feature from her social interactions. Whilst Emily did make a dramatic improvement in this area over the course of the study, as mentioned earlier, there is a question mark over whether this improvement will be sustained in the longer-term. Ultimately a large part of a teacher's role is to build successful relationships with both students and colleagues and so clearly, effective inter-personal skills are a critical part of this process. It is inevitable that some inherent characteristics in a teacher may not always be amenable to change.

### **6.3.2 Teacher Training Programmes**

Bramald et al (1995, p. 23) assert that even as the teacher training process begins, prospective teachers have already developed belief systems about teaching and learning from their own experiences of education, which then shape their own views about developing future practice. Indeed, as Calderwood and Robson (1991, p.1) point out:

"Student teachers have spent thousands of hours in an "apprenticeship of observation" (Lortie, 1975), which leads to the development of a body of values, commitments, orientations and practices."

In terms of I-R-F, this process is likely to have started in pre-school days since the incidence of these exchanges is known to be very high in parent-child communications (Seedhouse, 1996: Chapter 2, p.15).

Thus, due to their early childhood recollections, followed by their school-based experiences, trainee teachers may have already developed firmly entrenched views about the rudiments of whole-class I-R-F. It is very likely, therefore, that those trainees will adopt practices familiar to them that simply reinforce the status quo. (Korthagen, 1988 and McIntyre, 1992). Even at this early stage in a teacher's development, it seems that the 'wheels' of the I-R-F paradigm have already begun to turn.

Barnes (1989, cited Bramald et al, 1995, p.24) suggests that teacher training programmes need to look at how incoming trainees can be supported in replacing "simplistic notions about teaching and learning with a more sophisticated understanding of how pupils learn." It is difficult to know whether things have changed in the ensuing years, though I did explore this issue with both teachers at the start of the study:

#### Extract 6.12: Rory

**Researcher:** Okay, thinking now about your teacher training course, can you tell me about the questioning element?

**Rory:** It was something we talked about at university during the PGCE, but maybe had a two hour session and then it was briefly referred to throughout the year. And then I suppose it was up to the students themselves where they took that. So it would have been very easy to file it away and forget about it completely, or if you wanted to, you could take it and, the ideas that you got from group discussions, see if you could change.

**Researcher:** Can you be a bit more specific about the sort of things that you might have been taught at university? I mean, you may not remember.

**Rory:** Yes, it was a few years ago, but I remember they had lists of questions and you had to discuss in groups of three or four, was this a good question? You know, like open-ended questions, and why was it a good question? Why was it not a good question? What could you use? It was quite a general session like that. And then, looking at a bit of research about questioning. We did talk about think-time, but I don't think we mentioned the one second thing.

**Researcher:** When you went into school as a trainee to observe other teachers, did you learn anything about questioning from that process?

**Rory:** Each teacher was very different in terms of the questions that they asked. And I think it was very evident that some teachers knew quite a bit about



questioning and they had thought about the questions they were going to ask. Whereas with others it was, you know, answer this question. You got it wrong, right that's because you're not working. You're going to get punished, that type of thing.

### Extract 6.13: Emily

**Researcher:** So thinking of teacher training and CPD, if you were summing it up, where did you get all your questioning skills from?

**Emily:** I'd say my PGCE year and my mentor and picking up on things that I've said. For example, "Could you have done that in a different way?" I mean, myself as well. As I am questioning and talking, I do think, "Right. How could I have maybe asked him a better question? Have I phrased that right?" But definitely more from, I would say, my PGCE year.

**Researcher:** Do you think that you received good training on your PGCE for questioning?

**Emily:** Definitely, in my second practice I did. They were really big on questioning. It was something they were really good at, because of a couple of the members of the department.

**Researcher:** So was that the school, or was that your department?

**Emily:** Well, I don't know about the rest of the school, but in my department, definitely, they were very good at questioning and probing students for answers.

**Researcher:** What about the university? Did they give you much training on it?

**Emily:** Maybe a session or two, but it wasn't really big. It was more, we'd have somebody come in from a school and deliver a session. So it was external still. So at the university they might mention ideas, but it wasn't really something they had put in practice for a long time.

**Researcher:** So would you say the biggest impact was from working with other teachers?

**Emily:** Yes, definitely on my second practice.

Of course it would not be valid to suggest that the experiences and views of only two teachers are necessarily representative of the wider teaching profession but the transcripts yield some interesting questions about teacher training in recent years. Firstly, both teachers recall undertaking some university-based training on questioning but it appears that it was not done in a comprehensive and concerted manner. Rory explains that there was "*a two hour session on it and then it was briefly referred to throughout the year,*" whilst Emily concludes that it involved "*maybe a session or two, but it wasn't really big.*"

As Bramald et al (1995, p.24) report, research suggests that there is "a need for developing a more powerful teacher education programme that will influence student teachers' thinking." Whilst this may now be the case regarding

other pedagogical skills, it is difficult to see how the teacher training programmes undertaken by Rory and Emily have rigorously challenged their belief systems in relation to whole-class I-R-F routines. If we consider the characteristics of a 'constructivist' teacher (Chapter 3: Clarke, 2005, p.46), there is little evidence in the above transcripts to suggest that either Rory or Emily has been rigorously challenged by their respective universities to reflect on their epistemological position on I-R-F. Whilst Rory discusses the need to ask 'open' questions and Emily highlights the importance of 'probing', this in no way reflects the standpoint of a social constructivist. If this is a common experience amongst other trainees, then we can begin to acknowledge why the traditionally behaviourist approach to whole-class I-R-F has endured such durability.

It may be that the introduction of a 'standards' agenda in teaching has done little to encourage teacher training agencies to develop skills in this specific area. For example, when analysing the Professional Standards for Teachers and Trainers in Education and Training (2014) we can see that, in terms of specific classroom skills, the descriptors are very general and open to interpretation. So for example, the skill descriptor "*Enable learners to share responsibility for their own learning and assessment, setting goals that stretch and challenge*" can be viewed from different perspectives and could be achieved in a variety of ways in the classroom. Of course, it could be achieved through whole-class I-R-F by using challenging referential questions, Talking Partners and peer assessment. However, there is no incentive for teachers to meet the standard in this way and so the 'status quo' for I-R-F is likely to prevail and the standard met in a different way.

On one hand, this can be viewed as a positive point since this allows a degree in flexibility when trainee teachers are being assessed and local contexts can be taken into account. However, this flexibility can also be deemed to be problematic since there is a danger that teacher training programmes can be organised to reflect the constructs and epistemologies of the programme designers. For example, Bramald et al (1995, p.30) found that, it was on courses where curriculum tutors had the strongest affinity for student-centred learning, that reflective practice was most openly promoted through "classroom data collection, reflective/evaluative assignments, flexible forms of learning and sharing of experience." Thus, at this stage in a teacher's development, it seems that it would

require many more teacher training curriculum planners and tutors to display a natural alignment with constructivist principles if we are to see a change in teachers' constructs.

The second point relates to the contrasting experiences of Rory and Emily in their PGCE placement schools. Emily is glowing in her praise of the department that she was assigned to on her second placement and identifies this experience as being critical in developing her questioning skills. Rory however is less complimentary about the practice that he witnessed, explaining that he had observed a range of questioning, in terms of both quality and purpose.

Based on the experiences of both teachers, it is worrying that when trainees are assigned to placement schools to develop and hone their teaching skills, the process appears to be rather hap-hazard and random. Where trainees do encounter outstanding questioning practice, it appears to be through good fortune rather than by design. This is not to necessarily lay the blame with the teacher training agencies, since in my experience, PGCE tutors acknowledge that there are a limited number of reputable departments available for placements and beyond this, the options become more limited. Thus, if the quality of whole-class I-R-F sequences is to be improved through teacher training, it is critical that programme designers are given more license and opportunity to ensure that all trainees can be exposed to high quality IQC training in a more systematic and sustained fashion.

### **6.3.3 Institutional Goals and Educational Policy**

That said, any shift in teachers' beliefs and practices emanating from the teacher training process, will soon be fiercely challenged by political and institutional authority when entering the teaching profession as an NQT. For example, when interviewed at the start of the study, both Emily and Rory revealed that their primary criterion for evaluating the success of a lesson is the degree to which progress has been made against the learning objectives. Yet the notion of 'progress' is itself debateable, since the concept is socially and politically constructed; it can only be measured against a set of pre-determined ideals and objectives and it is the individuals or groups who propagate these so-called 'standards' that govern our understanding of what progress actually represents.

For example, Au and Gourd (2013, p.17) discuss how 'high-stakes' testing in the USA has influenced how subjects are taught, concluding that because of the pressures of the tests, teachers have moved towards more teacher-centred pedagogies that encourage rote learning. As an example, they report on some of the comments made by several English Language Arts teachers when explaining how these tests are controlling the types of writing they teach. One teacher reflects, "*I find in my class that I'm teaching to the test right now. I'm drilling on five paragraph essays,*" whilst another comments, "*You know, we're not really teaching them to write, we're teaching them to follow a format.*" In the UK in recent years, the 'standards' agenda has been driven by existing government dogma which is then disseminated downwards, until eventually, it reaches the classroom.

As Ball et al (2012, p.514) point out, "the discourse of standards works to articulate a particular version and vision of what schooling is and should be - more, higher, better!" At a political level, successful educational strategy means being seen to improve performance in relation to established 'progress' indicators such as PISA results and other school improvement measures; in this way respective governments can use quantifiable data to substantiate claims about improving educational 'standards' without stipulating, on a more definitive level, what this actually means.

So in terms of meeting these standards, how does government policy in England ensure that the chain of accountability finally reaches and influences the classroom teacher? Ball et al (2012, p.514) discuss the notion of 'deliverology' and conclude that:

"The policy technology creates a set of pressures which work 'downwards' through the education system from the Secretary of State to the classroom and home to create expectations of performance 'delivery'. That is, the delivery of improved systemic and institutional performances and the achievement of examination benchmarks by individual school- all of which are part of a broader 'audit culture' embedded in the public sector."

In this way, secondary schools are very clear about what standards they are expected to achieve through the content of 'high-stake' tests, namely GCSE examinations (and until recently Key Stage 3 SATs). To ensure that schools adhere to the government's vision of school effectiveness, two major accountability mechanisms have surfaced; RAISEonline and Ofsted. The data from the former can be used to create 'league tables' and to set targets for school

improvement; Ofsted inspections can then challenge school institutions about whether the strategies and systems they have in place are appropriate for achieving these targets.

This uncompromising educational climate begins to deprive schools of any semblance of academic autonomy and inevitably, the institutional goals become enmeshed with the political objectives of the higher authority. Not surprisingly, for school institutions to survive this degree of scrutiny and accountability, the annual GCSE examination results become a major whole-school priority, since it is the outcomes from this process that ultimately dictates the school's performance profile in RAISEonline. Of course schools may react in different ways to the increased pressure and accountability and much depends on the epistemological beliefs of the head teacher and SLT, as well as the learning culture that exists within the school.

There may also be differences in judgment about how the institutional goals are best met. Whatever the culture, it is inevitable that teachers' pedagogical goals will be heavily influenced by institutional motive since, without this, their own career prospects will be under threat. Teachers themselves are under constant scrutiny through lesson observation cycles and performance management targets. For example, at Haverton High School, one of the non-negotiable targets for all teachers was directly related to student achievement, one of the reasons why both Emily and Rory regarded 'progress' as the single most important indicator of a successful lesson.

However, even though teachers may have increasingly less autonomy in how they construct and deliver their lessons, there is still scope for incorporating some of their own beliefs, whilst continuing to recognise wider institutional goals. Teachers react in different ways to external reform initiatives and how they proceed depends greatly on the way that they construct their own 'enactment zones' (Spillane, 2010: Chapter 2, p.36).

In the post-study interview I asked both Emily and Rory about whether they were committed to following whole-school strategy and what would happen if they disagreed with specific policies or reforms:

### Extract 6.14

**Emily:** Definitely yes. I mean there are some things I might disagree with, if they still insist on them wearing blazers in 25 degree heat, I may be a bit, "Take your blazers off." I do, I buy into the school policy.

**Researcher:** Imagine the school says, "In teaching and learning, in your lesson, this is what we want," but it's something that you feel it won't necessarily benefit your students. There's a bit of conflict there. What do you do in that situation?

**Emily:** I think I would be willing to try it, to give it a go because I don't have the experience of 10 to 15 years teaching. I've only been teaching for a year so I'm still very much willing to take on a lot of feedback and I still value and encourage that. I think I would definitely try it. If I felt it was something that wasn't benefitting them, I wouldn't be afraid to say to someone, "I don't think this is working." As a school I do find them quite reflective so they are able to get feedback from different kind of people.

### Extract 6.15

**Rory:** I would say yes as long as it's a policy that I agree with and I can see the benefit. So sharing objectives and things with classes then, yes, absolutely because I think that's very important to add structure to the lesson so that students can see what they're working towards. There are ways that maybe I do that myself that don't quite fit in with school policy but I would still argue that they're being done in my own way.

**Researcher:** Where that conflict arises, do you generally go with what you think is right for the students?

**Rory:** Yes, I would. I wouldn't have a problem talking to a senior member of staff and explaining the way I'm doing something. That has happened a couple of times where I've gone, not necessarily to seek approval, but just to say, "This is how I'm doing it and I think it covers the same bases."

**Researcher:** To what degree generally are your thoughts aligned to the school's philosophy?

**Rory:** I would say probably quite closely. There are things that I disagree with, for example, recently there's been the new lesson pro-forma that has to be shown at the start of every single lesson. I already have ways of showing objectives and showing progress and things so I've tried arguing that if I put this official slide up every two lessons or every three lessons, is that good enough? It's still being debated. It still has to be every single lesson and the pupil voice survey is being done to make sure that that is happening with every teacher.

In general, both appear very much committed to the whole-school vision but there are some subtle differences in the way that they appear to view and respond to whole-school initiatives or reform. Emily, being an NQT, almost slavishly follows whole-school guidance. She is happy to speak her mind if "*I don't think this is working,*" but this is only because she feels that senior leaders are receptive to this type of feedback. Emily's 'enactment zone' is clearly skewed towards the

objectives of the school institution, probably because, as she points out, “I *don’t have the experience of 10 or 15 years teaching.*” At this stage in her career, therefore, a lack of confidence means that Emily’s own beliefs about teaching and learning may not yet have been fully incorporated into her practice.

Whilst Rory reveals that his thoughts are “*quite closely*” aligned to the school’s philosophy, he is clearly grappling with the validity of the new lesson proforma, which has to be shown to students at the start of each lesson. Rory has been teaching for almost 8 years and many of his own beliefs about teaching and learning have become established over this period. This appears to have given him the confidence to contest the merits of this particular strategy with the SLT, informing them that “*this is how I’m doing it and it covers the same bases.*” Thus, in Rory’s ‘enactment zone’, there is a much greater attempt to develop his own identity in terms of how he sets his pedagogical goals within the classroom.

In conclusion, even when operating within the context of restrictive institutional control, it is possible for teachers to negotiate a shift in emphasis or strategy which is more in tune with their own pedagogical beliefs. In the context of this research, whilst Emily appeared to engender a greater change in practice during the study, it appeared that Rory was more likely to sustain any strategic modifications in the longer term, largely because he constructs his ‘enactment zone’ in a way that enables him to retain a greater degree of professional autonomy.

## **CHAPTER 7: CONCLUSION**

As I stated at the outset, the over-riding principle underpinning this research was the fact that “*the philosophical roots of traditional I-R-F are firmly embedded within both societal and institutional paradigms and whole-sale change of this fundamental position is not realistic.*” Thus, the primary research goal was to accept the fact that the structural element of whole-class I-R-F routines was unlikely to change but to work within its parameters to encourage a change in emphasis, from teacher dominance to a more student-oriented approach. Many of the recommendations from the research and literature on whole-class I-R-F sequences implicitly promote constructivist ideology and this philosophical dimension very much underpins the principles of the IQC framework of best practice. The intention of the research was to use the framework to engender an epistemological transition from an essentially behaviourist standpoint towards a position more aligned with social constructivism.

With reference to the literature review, this represented a shift from *instruction* to *co-construction* (Askew and Lodge, 2000: Chapter 2, p.17), from *direct instruction* to *dialogic teaching* (Alexander, 2005: Chapter 2, p.26) and where the teacher’s role becomes that of *conductor* rather than a *controller* (Black and Wiliam, 2009: Chapter 2, p.16). In Chapter One, I noted that, in simplistic terms, this would involve “*a less teacher-oriented approach where students would be given a much greater degree of autonomy and allowed to think more, collaborate more and talk more*” and in the short-term, the two teachers involved in this study were able to make significant strides towards making this transition.

Although a number of features of IQC were improved with both teachers, perhaps the most powerful indicator of success was that, by the end, students were generally giving longer and more detailed responses; in simple terms, the students were talking more (and with greater cohesion) and the teachers were talking less. I will now highlight some of the critical factors underpinning this progression and offer some recommendations for future practice. I will also be debating some of the contentious issues which surfaced along the way. It is important to note that these conclusions are specific to the context of this research and Haverton High School, though it is likely that these findings will apply to the wider teaching profession to some degree.



## **7.1 Shifting the Epistemological Roots: Three Critical Factors**

Although the IQC framework highlights a number of different features, my conclusion is that there are three specific strategies or teacher actions that are critical to engendering the epistemological transition described above.

- ***Asking the right question***

The initiation move (asking the question), is a critical stage in the I-R-F sequence. At this point the teacher is, in essence, choosing one of two possible roles; *evaluative* or *discoursal* (Cullen, 2002: Chapter 2, p.27). The use of display questions invariably means that the focus is on the individual student and there is little opportunity to involve the rest of the class, particularly in dialogic activity. On the other hand, using referential questions aligns itself to the discoursal role and creates the opportunity to develop a “thematically coherent stretch of discourse” (see Abd-Kadir and Hardman, 2007: Chapter 2, p.37) with the class, as well as creating the potential for co-construction through peer collaboration (Talking Partners). In addition, using referential questions also allows the opportunity for the teacher to *authentically* differentiate (see Chapter 6, p.153) so that each student can be challenged in a way that is appropriate to their ability.

Although there were other contributory factors, the most extensive and detailed student response in the entire study occurred when Emily asked a wide-ranging referential question (*How can we link the Treaty of Versailles to World War Two and the cause of it?*). The degree of cognitive challenge and wide scope of this question provided the students with the opportunity to construct a range of responses (from Level 4 to Level 6), specific to the ability of each student.

This is not to say that teachers should only ask challenging referential questions for, as Carlsen (1991, p.165) points out, “a series of impossibly difficult synthesis questions, although of high-level, would probably be of dubious educational worth.” As stated earlier, display questions, whilst of limited cognitive value, are important in terms of schools achieving their own institutional goals, or more specifically, ensuring success in public examinations, a critical measure of school effectiveness. However, it is about getting the balance right and if we want students to develop higher-order and transferable skills which will be of greater use in the longer-term, there needs to be a much greater emphasis on these types of questions. According to Tan, 2007 (cited Jiang 2014: Chapter 2, p.18) little has

changed in recent years in terms of teachers' "emphasis on re-call questions"; thus, if this is the case, it would appear that there is still a long way to go in achieving this objective.

- ***Appropriate think-time***

A teacher with a high degree of IQC will vary the think-time according to the needs of the situation. Whilst display questions invariably require less time to process and respond to, it follows that if teachers are to ask more challenging referential questions they have to be prepared to allow sufficient think-time so that students can subsequently produce high quality responses. Giving students more think-time is an important epistemological adjustment because by doing this, teachers are beginning to offer students more autonomy in the learning process.

There is no doubt that the use of 'pace' can be an important strategy at appropriate points in the lesson. Yet in terms of developing higher-order thinking it can often be counter-productive, since time is essential in constructing deeper, more meaningful ideas. For many, this may seem a rather obvious conclusion, yet over the years this issue has been problematic in many classrooms. Evidence from this study suggests that three main issues may be responsible for perpetuating this situation. Firstly, in a highly pressurised and target-driven environment, teachers view fulfilling the learning objectives as the top priority for the lesson. Secondly, there is an inherent fear that if teachers wait too long, the class will become restless. Thirdly, teachers' perception of time seems to become distorted in such a highly pressurised situation; that is, they often think they are waiting longer than they actually are.

Let us deal with these three issues one by one. Firstly, teachers need to take a broader and more holistic view of learning and exhibit a greater understanding of how students develop knowledge and skills in the longer term. Investing time early on in a topic's development is likely to save time further down the line. Failing to do this will probably result in the teacher having to revisit the topic more frequently in the future because it was not properly embedded in the first instance. Furthermore, developing a solid foundation and deeper understanding at the outset will mean that related skills will be mastered more easily in the future. As a result, students will almost certainly perform better in public examinations in the future, even if this is the sole aim of the teacher. On

the second issue, the fear of the class losing focus is in many ways irrational. Admittedly, students can become restless and bored but usually because they have not been intellectually engaged or challenged. During the study, when both teachers asked cognitively challenging questions, there was no evidence on the audio-recordings of any students straying off task. Whilst 'pace' may be a useful device when using display questions, engaging and challenging questions can tap into a human being's inexorable desire to learn and may be a more powerful behaviour management tool in these situations.

The final issue of perceived think-time 'distortion' is perhaps more easily addressed. In Chapter 4 (Page 71), I noted that one of the major strengths of using an audio-recording to record each routine was that "*the factual elements of the recordings could not be disputed by teachers*" and this indeed proved to be the case when reviewing the think-time issues in the coaching sessions with both teachers. Initially, neither teacher proved to be very effective at estimating their think-time (unusually, Rory *under*-estimated it) but once they had listened to the recordings, they became much more adept at evaluating this particular feature. Thus, the indisputable nature of the audio-recordings brought about an instant solution to the problem over-estimating (or under-estimating in Rory's case) the think-time.

It may be that initially, teachers require scaffolding strategies to support them in over-riding some of the natural inclinations cited above. For Emily, it was only in the last routine when she used 'Talking Partners' that the think-time allocation was beginning to reflect the type of question being asked. Although, strictly speaking, Talking Partners, is not a designated 'think-time' strategy, inevitably, it encourages the teacher to wait much longer, particularly where students are engaged in purposeful discussion. Whilst Rory, too, used Talking Partners, his use of the 40-20-20 strategy was also very effective, particularly as he very quickly adapted the time intervals to suit the circumstances. In the end, both strategies contributed significantly towards creating a more student-focussed questioning environment by allowing students the time and opportunity to construct longer and more complete responses.

- **Peer collaboration**

Adopting the Talking Partners strategy as part of the I-R-F process singularly represents the most significant epistemological shift towards a constructivist position. It is the point when the teacher *genuinely* begins to relinquish control of the questioning process in a bid to facilitate a much greater degree of student autonomy and thinking. It is also the only situation where student dialogue and discussion is actively encouraged by the teacher, a central component of social constructivism. In a whole-class setting, it is arguably the most powerful pedagogical instrument for extending student thinking for two main reasons.

Firstly, it allows the teacher to challenge students in a way that is appropriate to their ability through *authentic* differentiation. The fact that students can receive additional support from their peers means that they are in a better position to successfully negotiate any cognitive conflict which may arise from the teacher's questions. This point is eloquently made by one of the students in this study, Sophia, (Extract 6.1) who explains that "*if none of you know the answer then you can just put together the knowledge you know and build an answer from that.*" Thus, in terms of the ZPD issue, "the extra half-skill the child may need to knit to his own to create a completed skill" (Adey and Shayer, 1994: Chapter 6, p.156) can come from active dialogue with other students rather than from passively listening to teacher/student exchanges and occasionally answering a teacher's question.

Secondly, as Graesser and Olde (2003, p.525) point out, students' own questions may be triggered by inconsistencies between their knowledge and new information, which then provoke 'cognitive disequilibrium'. This is a critical point because in a typical whole-class setting, it is highly unlikely that students will actively query or ask questions about any concepts or ideas that they may not fully comprehend. A study by Graesser and Person (1994, p.105) found that 96% of the questions asked in a classroom environment were teacher questions; where students did ask questions, they were usually unsophisticated and "shallow, short-answer questions that address the content and interpretation of explicit material." Years later, this view is confirmed by Almeida (2011, p.634) who concludes that:

"In spite of the educational significance of student questioning, it is well known that students ask surprisingly few questions, and even fewer in a real search for knowledge. Actually only a small number of students spontaneously ask high-level questions or open questions."

Thus, the use of peer collaboration during I-R-F partially circumvents this problem by providing a forum where students can ask, discuss and search for meaning and understanding in a non-threatening environment.

Yet, despite the apparent benefits of using peer collaboration during whole-class I-R-F, there appears to be an inherent resistance within the teaching profession to adopt this particular strategy during the questioning process. This was certainly the case over the course of this study and it appears that there may be several reasons underpinning this position.

- ***The paradigmic nature of I-R-F***

Historically, there is no established association or link between peer collaboration and whole-class I-R-F sequences. This is not surprising since, when parents conduct I-R-F exchanges with their children, the option of co-construction is not usually a consideration. This picture is likely to prevail throughout a child's formative schooling years due to the "apprenticeship of observation" process discussed earlier (Calderwood and Robson, 1991: Chapter 6, p.177). It is only when teachers begin the teacher training process that they may inadvertently discover the notion of using peer collaboration in an I-R-F setting. However, even where teachers become aware of this possibility, the strategy is not established as part of the 'status quo' described earlier. For example when Emily was asked whether she still used Talking Partners she explained, "*I don't know why I haven't. I know it works. I know it's successful but I think it's the case of, as the class progresses I just forget all the key things that are useful.*" Thus, although she recognises its usefulness, it is not sufficiently embedded in her thinking so that it becomes second nature to her during the I-R-F process.

It is tempting to consider whether this is an epistemological issue since some teachers with behaviourist tendencies are unlikely to embrace an approach more aligned to social constructivism. However, although this may well be the case with many other teachers, in this instance this is highly unlikely since both teachers in the study are known to value the use of 'pair' and 'group' work in other phases of their lessons. Ultimately, breaking this cycle will require current practice to redefine the 'apprenticeships' of young children about to enter the formal education system so that in the longer term, the use of peer collaboration becomes a central feature of the new 'status quo'.

- ***Perceived time constraints***

Not for the first time, it appears that an objective-driven mind-set and perceived time constraints appear to have a significant bearing on teachers' pedagogical thinking and decision-making. It is possible that many teachers feel that they do not have enough time to include peer collaboration as a regular feature of their I-R-F practice and that they can still meet their pedagogical goals without committing to this approach. It is true that the use of peer collaboration does require a greater commitment of time than would otherwise be required if approaching I-R-F in the traditional way. However, two important points are worth making with regard to the 'time' issue. Firstly (once again) teachers need to take a more holistic view of student learning and realise that reducing time in this way is, in fact, a 'false economy' in the longer term; investing time earlier in the learning process will 'pay dividends' further down the line.

Secondly, there needs to be a significant shift in the educational culture within this country and in the way that we view the role of 'oral literacy' in teaching and learning. As stated earlier, Alexander, 2005 (Chapter 2, p.25) alludes to the fact that, compared to our international counterparts, there appears to be an irrational fixation with written work in this country where oral contributions are not considered to be 'real work'. Taking aside the comparative merits of written and oral work on an intellectual level, even from a practical standpoint, written work takes much longer to complete. Thus, by introducing more oral activities into lessons, more time will be available to the teacher to explore a wider range of issues and to develop thinking on a deeper level. The fact that students are not always writing down their responses does not mean that authentic learning is not taking place; otherwise we would all be required to carry a huge 'exercise book' through life!

To summarise, it was ultimately when all three of the conditions mentioned above were in operation that students made the biggest contribution to the I-R-F exchanges and produced the highest quality and longest verbal responses.

## **7.2 Sustaining Improvement in the Longer-term**

Over the course of the study, both teachers were able to make tangible improvements in their IQC and, in doing so, began to place a greater emphasis on strategies and behaviours aligned to social constructivism, a major goal of the

research. However, as Biesta (2015, p.636) points out, “teachers are driven by goals in their work, but such goals often seem to be short-term in nature, focussing on process rather than longer-term significance and impact.” Thus, it has to be accepted that these improvements may only apply to the short-term and there are several factors which may influence whether, ultimately, these changes in practice will be sustained in the longer term.

- ***Teacher epistemology***

As stated earlier, the principles underpinning this research were largely driven by previous research, the scholarly literature and the epistemological beliefs of the researcher. Whilst there was clearly a change in practice in the short-term, it is by no means certain that the teachers’ individual beliefs have necessarily shifted in the same way. The fact is that the researcher and specialist coach was also a member of the SLT and so it is possible that the teachers’ change in behaviour was driven by perceived institutional expectations rather than by a change in epistemological beliefs. If this is the case, it is perfectly feasible that teachers’ questioning behaviour could revert back to its original form once the study is completed and the perceived pressure to conform is withdrawn.

- ***Environmental cues***

We saw how Emily acknowledged the effectiveness of Talking Partners yet confessed that in the high-pressure atmosphere of whole-class I-R-F, “*I just forget all the key things that are useful.*” One of the reasons for this may be that the improvements made have not had sufficient time to be embedded in her everyday practice, due to the abrupt withdrawal of the *scaffolding* that was supporting her. Thus, creating an environment where teachers are surrounded with ‘cues’ or ‘prompts’ is useful in reminding teachers about specific strategies or actions, until the changes become more firmly rooted. An example of this would be where the desired changes are discussed with the class; comments from the students themselves can serve as a timely reminder when the teacher’s practice deviates from the shared goals.

Creating a sustained ‘coaching culture’ within the school can also support teachers in making transitions in practice in the longer-term. Rory himself was clear about the power of coaching in a school environment, when explaining (Extract 5.20), “*I think everybody should be encouraged to do it. I’ve spoken to*

*senior staff here about coaching, about action research, about how that really should be at the core of what teaching and learning is about in school.”* Thus, by implementing a coaching programme over a sustained period of time, teachers can receive the appropriate scaffolding to support them in changing their practice in the longer-term.

- ***Teacher agency***

Even where teachers are committed to making sustained changes in their practice, much depends on the degree of ‘teacher agency’ in a school as to whether changes will necessarily follow. When reporting on research, Biesta et al (2015, p.624) suggest that there is:

“An apparent mismatch between teachers’ individual beliefs and values and wider institutional discourses and cultures, and a relative lack of a clear and robust professional vision of the purposes of education indicate that the promotion of teacher agency does not just rely on the beliefs that individual teachers bring to their practice, but also requires collective development and consideration.”

On this point, it is difficult to contemplate that in England over the last decade there has been much encouragement at a political level for the development of teacher agency. When the ‘Assessment for Learning’ initiative was launched to popular acclaim around 2004, the advice given regarding whole-class I-R-F was very much in line with constructivist thinking. For example, amongst the chief recommendations from the DfES (2004b, pp.8-9) were that teachers should invite pupils to elaborate on their answers, build in a wait-time of at least 3 seconds and allow students to collaborate before answering; central features of the IQC framework in this study.

Yet, very quickly, the DfES subsequently subverted its own memorandum (along with local authorities) due to the relentless focus on targets and levels of progress thereafter. It would appear that little has changed in the ensuing years and indeed, schools are under more scrutiny and pressure than ever before with the pervasiveness of the ‘school effectiveness’ agenda, buttressed by OFSTED and RAISEonline. This position is reflected by the conclusions of Coe et al (2014, p.2), when recently reviewing the underpinning research about what represents ‘effective teaching’:

“The research keeps coming back to this critical point: student progress is the yardstick by which teacher quality should be assessed. Ultimately, for a judgement about whether teaching is effective, to be seen as trustworthy, it must be checked against the progress being made by students.”



With this constricted view of education, it is not difficult to see why schools and teachers predominantly focus on meeting demanding targets and find the proposition of genuine 'teacher agency' difficult to embrace. In the context of this study, as stated earlier, it was clear that both Emily and Rory's priorities were to meet the learning objectives in each lesson and to ensure that the students had made appropriate progress.

We can see a lack of teacher agency in Rory's comments in Extract 6.15 where there is clearly a tension between the views of the SLT and Rory's own beliefs about the merits of the new lesson pro-forma and its impact on the students he teaches. It is also possible that Emily's apparent reluctance to use peer collaboration (Talking Partners) is down to a deficiency in teacher agency. She clearly acknowledges the over-all benefits of using this approach but because her main focus is on student progress, it may be that she inherently believes that she can still meet her institutionally-driven pedagogical goals without the use of this particular strategy.

This is an important consideration because it highlights the impact that teacher agency (or lack of it) can have on teacher behaviour, as well as drawing a distinction between *progress* and *learning*. I will use an example from my own domain, mathematics, to highlight this last point. Let us imagine that the topic being taught is '*Finding the equation of a straight-line graph using the general equation  $y = mx + c$ , where  $m$  is the gradient and  $c$  is the  $y$ -intercept*'. To achieve full marks on a GCSE question, it is possible for a teacher to approach this in a procedural fashion and teach students how to calculate the gradient and  $y$ -intercept and substitute these values into the general equation. In a different classroom, a mathematics teacher with teacher agency might teach the students about the relationships between all straight line graphs and *why* the gradient and  $y$ -intercepts are calculated then substituted into the general equation in in this way. To be successful in the GCSE examination, the teacher does not necessarily have to develop thinking to this level but recognises that it will be of greater benefit to the students in the longer term, both mathematically and in terms of higher-order thinking and transferable skills.

On the surface, both sets of students will have made the same *progress* because they will be able to successfully meet the pre-determined target of

answering a question correctly on a GCSE paper. Yet, because the latter teacher is equipped with a greater degree of teacher agency, it has been possible to exercise his or her own beliefs about what is educationally beneficial to the students in the longer term; thus in this way, the students have *learned* more, even though this may not be apparent in GCSE data. Of course this is a simplistic example but it highlights the impact that teacher agency can have on a teacher's thinking and actions.

In this study, it is possible that, whilst Emily and Rory recognised the potential of peer collaboration for developing deeper *learning*, their focus was on achieving the more tightly focussed *progress* targets which require a lesser time commitment than when using Talking Partners. This discrepancy in intentions is highlighted by Leat (2012, p.1) who advocates a curriculum which “encourages students to ask and pursue questions which are meaningful to them and arise through experience, thinking, talk and study.” This, he concludes, is a “divergent approach to curriculum which stands in contrast to the dominant convergent model of pre-specified learning outcomes.”

In a similar vein, a study by Watanabe (2007, cited Au and Gourd, 2013, p.17) in the USA, reports on the impact of high-stakes testing on English Language Arts teaching. She explains that ‘writing’ has:

“Become less ‘like a real writer writes’ in that the focus of writing has shifted to form over content and product over process. In addition, teachers emphasise that they teach students to submerge their voices as they write to inauthentic audiences. They further provide fewer opportunities to integrate reading and writing assignments and to write a variety of genres with the demands of testing looming over them.”

In this citation we can see the tension between how teachers would like to teach writing and how they feel compelled to in order to meet the demands of the test. There is a distinct lack of teacher agency apparent here since it is clear that they have had to compromise their own inherent beliefs due to the pressure of the system.

It is somewhat ironic that, despite a comprehensive CPD programme, both Emily and Rory allude to a general resistance to change amongst teachers at Haverton High School. For example, when discussing the merits of the ‘teaching and learning communities’ (Extract 6.5), Rory explains that “*it has to be with people who want to do it*” and concludes that “*if we need to get rid of anything*

*next year, it's that, because they're a waste of time.*" This apparent reluctance to commit to the CPD programme may be underpinned by two possible factors. Firstly, it may be that staff are willing to change but do not value the CPD that is on offer due to its institutional intention; in this way, teachers are exercising a degree of autonomy within their 'zones of enactment' (Spillane, 2010: Chapter 2, p.36). The second possibility may highlight yet another dichotomy. Despite the SLT's well-intentioned aspiration of improving pedagogy through CPD, teachers may feel under such pressure to meet 'progress targets' that this has become their sole pre-occupation.

On balance, it seems that genuine teacher agency is not actively promoted at Haverton High School and this is likely to have an influence on teachers' capacity to change in the longer-term. However, we should not be too critical of the leadership at the school. The school, itself, is under severe scrutiny as a result of an Ofsted judgement of 'requires improvement' several years ago as well as being under constant pressure (like many other schools) to improve its RAISEonline data. Thus, it is understandable that meeting 'school effectiveness' targets has become a priority which drives over-all school policy and strategy. I am in agreement with Leat (2012, p.1) who points out that:

"There is a dominant curriculum discourse, epitomized by targets, objectives and teaching to the test, which is so powerful because of Ofsted inspections and the threats they carry. Therefore, it is very hard for schools to make radical changes to teaching and curriculum because of the risk implied. Furthermore, it is notoriously difficult to change teachers' practice, so even where committed pioneers make some progress, it is altogether more challenging to sustain whole school curriculum change."

In conclusion, it may be that amidst the relentless and 'data driven' educational climate discussed earlier, teachers need to stand up more for what they believe in. At the start of the study, Emily and Rory were asked why they wanted to become teachers and their replies were rather refreshing:

#### Extract 7.1

**Rory:** I enjoy working with young people. I get a buzz out of seeing them do well watching them develop and I enjoy being in a school environment, working with other staff.

**Emily:** I like being a teacher most when you've managed to get them to that place where they've managed to understand something that they didn't really understand before. I also like the relationships that you build with them and it's nice to get to know different kids and the life they've come from and being a teacher allows me to do that.

In this extract, we can see how committed both teachers are to the social, moral and intellectual development of the students that they teach. Yet, somewhere along the line, the weight of political and institutional expectation has already left an indelible imprint on how they have come to view 'learning'. Yet, as Biesta et al (2015, p.638) point out:

“Teachers have to utilise their beliefs in achieving agency within contexts that are to a significant degree - albeit not entirely - constructed by systems of accountability, which seem to prioritise and value certain modes of action over others.”

If this is indeed the case nationally, it appears that there will have to be a significant shift in educational policy if whole-class I-R-F is to make the epistemological transformation discussed throughout this study. However, in the context of this study, both Emily and Rory can be considered as examples of 'committed pioneers' at Haverton High School, illustrating that, even in such a subjugated educational climate, it is still possible to make significant strides within a teacher's 'zone of enactment', albeit in the shorter-term. Both teachers in this study felt they had made considerable progress in developing their IQC and this transition is summed up succinctly by Rory:

“Somebody came in to do CPD about questioning on Monday this week. I didn't go to the session but a lot of the feedback was, “that was pretty common sense stuff”. I was thinking, “We've got people in school who have more knowledge than that and we could have done it ourselves.””

It appears that this advice eventually reached the higher echelons of SLT thinking and planning since, months later, despite being in only her second year of teaching, Emily was invited by the SLT to deliver a CPD session to the whole school on whole-class questioning. Perhaps the epistemological re-location of whole-class I-R-F is finally under way!

## **CHAPTER 8: BIBLIOGRAPHY**

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## CHAPTER 9: APPENDICES

### Appendix A: IQC Framework of Best Practice

Interactive Feature	Frequency	Examples From Recording
<b>Initiation Move- Questions Asked</b>	Display	
	Referential	
	Low Cognitive Status	
	Medium Cognitive Status	
	High Cognitive Status	
<b>Questioning Mode</b>	Independent	
	Collaborative	
<b>Student Interruption</b>	Student Shouts Out	
<b>Question Think-time</b>	Short (< 3 Seconds)	
	Medium (3-5 Seconds)	
	Extended (> 5 Seconds)	
<b>Differentiation</b>	Successful Match	
	Mismatch	
<b>Response Move- Student Utterances</b>	Short (< 10 Words)	
	Medium (10-20 Words)	
	Extended (> 20 Words)	
<b>Latching</b>	Interrupt or 'Fill the Gap'	
<b>Follow-up Moves</b>	Re-iterate	
	Probe	
	Scaffold	
	Re-cycle (Bounce)	
<b>Praise</b>	Quality	
	Effort	

## Appendix B: Glossary of Terms

### Questions Asked

- **Display**  
Questions which are designed to allow students the opportunity to *display* what they know. These are characteristically closed, knowledge-based questions and often of low cognitive standing.
- **Referential**  
Questions where the response from the student is unpredictable. These are essentially open in nature and allow students to give a range of responses appropriate to ability.
- **Low Cognitive Status**  
Questions which are in line with the ability of the bottom third of the class. All students in the class can respond to these relatively quickly and usually find it easy to formulate a coherent answer. These will tend to be display or re-call questions.
- **Medium Cognitive Status**  
Questions which are in line with the ability of the middle third of the class. The top two-thirds of the class should be able to formulate a coherent response, though the lower-ability students in the class may find it challenging.
- **High Cognitive Status**  
Questions which are in line with the ability of the top third of the class. Students will generally need much longer to process them and only the more able students will be able to give a fully coherent response.
- **Rationale**  
*It is important to ask a range of questions so that all students in the class are appropriately challenged. Teachers are thought to ask mainly closed or display questions in order to advance the discourse. Yet these questions usually produce short, limited answers from students. A well-known study by Kerry (1983) found that only 3.5% of questions asked involved higher-order thinking; most questions were managerial or directed towards facts or recall. Research suggests that little has changed in schools in recent years.*

### Questioning Mode

- **Independent**  
After the questions is asked, students work on their own whilst trying to formulate a response.
- **Collaborative**  
After the question is asked, students are allowed the opportunity to collaborate with at least one other student before finalising a response.
- **Rationale**  
*'Think-pair-share' or 'talking partners' strategies, allow students the opportunity to share ideas, co-construct and rehearse their responses, often leading to longer and higher quality answers.*

### **Student Interruption**

- **Student Shouts Out**  
The interaction between teacher and student is interrupted or terminated usually due to other student(s) shouting out a response prematurely.
- **Rationale**  
*Students need think-time in order to work out a response for themselves without interruption or the answer being revealed prematurely.*

### **Question Think-time**

- **Short**  
The time between when the question is asked and when the student answers is less than 3 seconds.
- **Medium**  
The time between when the question is asked and when the student answers is between 3 and 5 seconds.
- **Extended**  
The time between when the question is asked and when the student answers is more than 5 seconds.
- **Rationale**  
*Teachers are known to deploy a notoriously short wait or think-time when asking a question; research shows that the average think-time is one second or less. The optimum think-time is thought to be between 3 and 5 seconds though this will vary depending on the type of question and the questioning mode.*

### **Differentiation**

- **Successful match**  
The level of challenge or level of difficulty of the question matches the ability of the student and so challenges the student appropriately.
- **Mismatch**  
The level of challenge or level of difficulty of the question does not match the ability of the student; this results in students finding it hard to contribute or not being 'stretched'.
- **Rationale**  
*Teachers should try to match the cognitive level of the question to the ability of the students. They should not be put in a position where they find it difficult to give a reasonable response.*

### **Student Utterances**

- **Short**  
The number of consecutive words uttered by a student in response to a question is relatively low- less than 10 words without interruption.
- **Medium**  
The number of consecutive words uttered by a student in response to a question is medium- between 10 and 20 words without interruption.



- **Extended**  
The number of consecutive words uttered by a student in response to a question is relatively high- more than 20 words without interruption.
- **Rationale**  
*Use of display or closed questions inevitably leads to short answers from students. Black et al (2003) conclude that teachers need to ask questions that explore issues that are critical to developing understanding. These should, in turn, encourage longer responses.*

### **Latching**

- **Interrupt or 'Fill the Gap'**  
Where a teacher interrupts the continuity of a student response, 'fills in the gaps' or 'finishes off' a student's response; this includes 'teacher echo' *during* the response, but not at the end.
- **Rationale**  
*Walsh (2008) suggests that teachers notoriously dominate classroom communications and often engage in 'latching' where, despite well-founded intentions, they consistently interrupt students and "feed lines" in order to advance proceedings more quickly.*

### **Follow-up Moves**

- **Re-iterate**  
Where a teacher reinforces the main thrust of a student's response by summarising the main points or repeating what the student has said. This is similar to 'reformulation' but with a greater emphasis on the student completing the response. This includes 'teacher echo' at the *end* of the response, but not *during*, as this would be classified as 'latching'.
- **Probe**  
When a student gives the answer to a question the teacher seeks clarification, probes deeper or explores another line of thought.
- **Scaffold**  
If a student gives an incorrect or incomplete answer, the teacher provides appropriate support so that the student can give a complete response; this could take the form of rephrasing the question, or using cues or prompts.
- **Re-cycle/Bounce**  
The teacher uses a student's answer to stimulate further responses from other students in the class or attempts to "progressively build a thematically coherent stretch of discourse" with the whole class (Abd-Kadir and Hardman, 2007, p.2.).
- **Rationale**  
*Strategies such as re-iteration, probing, scaffolding or re-cycling take the emphasis away from the teacher's input and allow students more 'interactional space' to develop their own ideas and negotiate a more profound level of understanding. They also allow teachers the opportunity to assess student understanding more effectively.*

## Praise

- **Quality**  
Praise is given to a student for effort or participation.
- **Effort**  
Praise is given to a student for the quality of response to a question.
- **Rationale**  
*Research suggests that praise should focus on effort rather than quality of response. It is also thought that excessive, unwarranted praise can convey a message of low expectation, particularly amongst lower-ability students. Where praise is given, the teacher should be honest and focus on **why** a particular answer might be praiseworthy or encourage students to reflect on how an answer could be improved (Dweck, 1999).*

## Appendix C: Teacher Interview Schedule (Pre-study)

Theme	Main Question/Focus	Prompts/Sub-questions
<b>General</b>	Pedagogical approach to learning	<ul style="list-style-type: none"> <li>• In general, how do you know when you have had a good lesson?</li> </ul>
<b>Philosophy</b>	I would like to talk to you about how you interact with the class during whole-class questioning routines	<ul style="list-style-type: none"> <li>• Do you think asking questions is important? Why?</li> <li>• What do you hope to achieve with questioning?</li> <li>• Do you think it is important that students can express their thoughts verbally?</li> <li>• What do you do if a student asks a valid question that is not related to your learning objectives?</li> <li>• How do you think students perceive whole-class questioning?</li> </ul>
<b>Planning</b>	I would like to talk to you about how you plan the questions that you ask in lessons	<ul style="list-style-type: none"> <li>• Do you formally plan questions?</li> <li>• Do you receive departmental guidance on this?</li> <li>• Do you differentiate the questions you ask the class? If so, how?</li> <li>• If you plan, do you take cognitive level into account or whether the questions are open /closed?</li> </ul>
<b>Questioning Techniques</b>	If we could now look at some of the questioning techniques that you use.....	<ul style="list-style-type: none"> <li>• Do you allow pupils to shout out responses?</li> <li>• How do you select which student will answer?</li> <li>• What would you say your average wait-time is?</li> <li>• Why do you think wait-time, in general, is very low? (explore)</li> <li>• Do you vary the wait-time, if so how/why?</li> <li>• When a student answers, to what degree do you probe or seek clarification?</li> <li>• How do you respond if a student gives a wrong or incomplete answer or is clearly struggling?</li> <li>• Do you think you ever interrupt a student before they finish giving their answer? (Latching)</li> <li>• Do you like to give praise? When? Why? (explore)</li> <li>• Have you ever considered using pair or group work during whole class questioning routines?</li> </ul>
<b>Training / CPD</b>	Finally, I would like to ask you some questions about your views on CPD	<ul style="list-style-type: none"> <li>• How do you feel about CPD in general? Is it useful? How does it affect your practice? (explore)</li> <li>• How did you come to use the questioning techniques that you now use?</li> <li>• Did you receive questioning training as a trainee? If so, please explain.</li> <li>• Have you received any training on questioning as a fully qualified teacher? If so, please explain</li> </ul>

## Appendix D: Pre and Post Student Questionnaire

Statement	Strongly Agree	Agree	50/50	Disagree	Strongly Disagree
1. I usually learn a lot when the teacher asks the whole class questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Certain students in the class answer more questions than others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In every lesson the teacher asks some questions that the whole class finds difficult to answer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Students should generally be given more time to think about answers to the teacher's questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Students in the class have to be chosen first by the teacher in order to answer a question	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I tend to feel silly if I give a wrong answer in front of the class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. When the teacher asks the class a question, students are often allowed to work in pairs or groups before giving an answer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Sometimes when I answer a question, the teacher interrupts me before I finish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. If I give a wrong answer, the teacher usually helps me understand where I have gone wrong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. When the teacher asks me a question, the answer I give is usually quite short	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix E: Student Questionnaire and Rationale

Statement	Rationale/ Links to Research Goals and Framework
1. I usually learn a lot when the teacher asks the whole class questions	This statement attempts to evaluate the <i>quality</i> of questioning routines from the students' perspective- that is, to what degree do they value the questioning process as a learning vehicle?
2. Certain students in the class answer more questions than others	Teachers notoriously select the same students to answer questions or fail to include non-participants in the process (Kerry, 1998)
3. In every lesson the teacher asks some questions that the whole class finds difficult to answer	Research suggests that teachers predominantly ask closed question of a low cognitive nature (Jiang, 2014)
4. Students should generally be given more time to think about answers to the teacher's questions	Teachers notoriously fail to give students enough wait or think-time time to process and formulate responses to questions (Black et al, 2003)
5. Students in the class have to be chosen first by the teacher in order to answer a question	Students shouting out answers could deprive other students in the class of the opportunity to formulate a response for themselves
6. I tend to feel silly if I give a wrong answer in front of the class	Many students suffer from 'audience anxiety', a fear of being laughed at or corrected in front of the class (Anderson, 2005)
7. When the teacher asks the class a question, students are often allowed to work in pairs or groups before giving an answer	Working collaboratively allows students the opportunity to share ideas and rehearse responses before verbalising them publicly. This allows student understanding to be challenged and extended (DfES, 2004)
8. Sometimes when I answer a question, the teacher interrupts me before I finish	Teachers notoriously interrupt students whilst they are responding, often 'feeding lines' to students or 'filling the gaps' in for them- this <i>latching</i> denies students interactional autonomy (Walsh, 2002)
9. If I give a wrong answer, the teacher usually helps me understand where I have gone wrong	Teachers should use strategies which support students in developing their own ideas and thinking; many learning opportunities are lost by teachers not providing appropriate <i>scaffolding</i> (Myhill and Warren, 2005)
10. When the teacher asks me a question, the answer I give is usually quite short	One of the main aims of this study is to support students in producing longer and better quality responses to questions; this is in line with the philosophy of student- focussed dialogic teaching (Alexander, 2006) and constructivist thinking

## Appendix F: Student Information Sheet and Consent Form



This research study will be conducted over the next 2 terms and is about your teacher trying to improve what happens when he/she asks questions to the whole class. Your teacher will be trying to ask better questions and the idea is that you will be given more opportunity to give better answers.

To help decide if things have improved over the study, your teacher will have to collect some information:

- Your teacher will record (audio) a small part of the lesson so that he/she can analyse what has happened. This will only be done 3 times
- You will be asked to complete 2 short tests
- You may be asked to fill in a short questionnaire giving your views about questioning
- You may be asked to write a small review at the end to give your views about whether things have improved or take part in a short interview (voluntary)

All the information from the study will be **anonymous**; this means that you will not be named at any point and only your teacher will listen to the tapes.

The results from the study are also **confidential**; this means that only those involved in the study will see or hear the information; at the end of the study the audio-recordings will be deleted.

If you agree to take part in the study, please complete the consent form attached.

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If you have any queries about this research programme you may contact the Research Supervisor;

Professor David Leat  
Newcastle University  
E-mail: david.lead@newcastle.ac.uk  
Tel: 0191 208 6578

### CONSENT FORM

Please print name .....

- ✓ **I confirm that I have read (or had read and explained to me) the information sheet telling me about the research study and agree to take part**
- ✓ **I understand that taking part in the study is voluntary (up to me) and I can withdraw from the study at any time**
- ✓ **I understand that I can contact the research supervisor at any time and have been given his e-mail address and phone number**

Signed.....

Date.....

## Appendix G: Example of Detailed Specialist Coach Feedback

**Teacher:** Emily    **Routine:** 2    **Subject:** History    **Topic:** The Black Plague

### Targets from Recording 1:

- Try to avoid excessive praise, especially while the students are talking
- Avoid latching; allow the students time and 'interactional space' to give their thoughts and opinions
- Consider using Talking Partners (Collaborative Mode) to allow students the opportunity to share ideas and rehearse their responses; this will increase both 'think-time' and 'average utterance'
- Ensure that the 'think-time' is at least 3 seconds, and longer for more complex questions

### Commentary (based on your agreed targets):

You asked slightly less questions than before (18 compared to 23) but significantly, more were 'referential' (44% compared to 35%). This had the effect of increasing the 'average student utterance' from 10.81 to 13.79 words. You also indulged much less in 'latching' than before (3 compared to 16 times previously). This was also a contributory factor in increasing the average student utterance measure, as students felt less pressurised when articulating their answers. There was a slight decrease in your 'average think-time' measure (2.61 seconds compared to 2.92 seconds previously). This was either because you simply did not wait long enough before selecting a student who had put their hand up or (as previously) you often selected a student to answer *before* the question was asked. This latter practice meant that the amount of 'think-time' was totally dependent on how long that particular student took to formulate a response. The fact that you asked a number of challenging, referential questions makes it even more important to allow **all** students time to formulate a response- not just the able, quick-responding ones!! Another way of increasing the 'think-time' is to use 'talking partners' (you operated entirely in the 'independent mode') more often, particularly for the more challenging, open-ended questions. This gives students time to share ideas with each other and to rehearse their answers, thereby increasing the 'average student utterance' further. It also means that **all** students in the class are able to actively articulate their ideas and opinions not just the student you have asked. You continued to praise students excessively (21 times compared to 29 times previously) though unlike previously, you avoided this while they were articulating their responses (latching) which is an improvement. As discussed in the focus group interview, excessive praise can very quickly become de-valued in the eyes of the students. Indeed, current research suggests that being "lavish" with praise in this way can "convey a message of low expectation", particularly amongst lower-ability students. For example you regularly told students (even though well-intentioned) that their response was "excellent" even when the question was clearly cognitively undemanding!

### Main Improvements:

- ✓ An increased 'average student utterance' of 13.79 words
- ✓ There was a greater proportion of 'referential' questions asked which elicited more detailed and comprehensive responses from students
- ✓ A significant reduction in the amount of 'latching' meant that students were not interrupted; this made them more relaxed and forthcoming when answering

### Further Targets for Improvement:

- Try to avoid excessive praise, particularly where it is not warranted
- Ensure that the 'think-time' is at least 3 seconds and longer for more complex questions
- Consider using Talking Partners (collaborative mode) to allow students the opportunity to share ideas and rehearse their responses; this will increase both 'think-time' and 'average student utterance' even further

## Appendix H: Summary of Specialist Coach Feedback for Emily

Routine	Identified Strengths	Targets for Improvement
<b>1</b>	<ul style="list-style-type: none"> <li>✓ A relatively high 'average student utterance' of 10.81 words</li> <li>✓ You used a wide range of follow-up strategies (re-iteration, probing, scaffolding and re-cycling)</li> <li>✓ Although you asked a lot of display questions, the referential questions that you asked elicited some excellent responses from the students (hence the relatively high 'average utterance' measure of 10.81 words)</li> <li>✓ The assessment that you planned provided the platform to ask a range of searching questions</li> </ul>	<ul style="list-style-type: none"> <li>• Try to avoid excessive praise, especially while the students are talking</li> <li>• Avoid latching; allow the students time and 'interactional space' to give their thoughts and opinions</li> <li>• Consider using Talking Partners (collaborative mode) to allow students the opportunity to share ideas and rehearse their responses; this will increase both 'think-time' and 'average student utterance'</li> <li>• Ensure that the 'think-time' is at least 3 seconds and longer for more complex questions</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>✓ An increased 'average student utterance' of 13.79 words</li> <li>✓ There was a greater proportion of 'referential' questions asked which elicited more detailed and comprehensive responses from students</li> <li>✓ A significant reduction in the amount of 'latching' meant that students were not interrupted, making them more relaxed and forthcoming when answering</li> </ul>	<ul style="list-style-type: none"> <li>• Try to avoid excessive praise where it is not warranted</li> <li>• Ensure that the 'think-time' is at least 3 seconds, and longer for more complex questions</li> <li>• Consider using Talking Partners (collaborative mode) to allow students the opportunity to share ideas and rehearse their responses; this will increase both 'think-time' and 'average student utterance' further</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>✓ You avoided using excessive praise and latching, creating a more relaxed learning environment</li> <li>✓ You used 'Talking Partners' for the complex questions; this elicited some high quality, extended responses from the students</li> <li>✓ The 'average think-time' increased dramatically, mainly through using Talking Partners</li> </ul>	<ul style="list-style-type: none"> <li>• For <i>direct</i> questioning, try to extend the 'think-time' to at least 3 seconds</li> </ul>



## Appendix I: Summary of Specialist Coach Feedback for Rory

Routine	Identified Strengths	Targets for Improvement
1	<ul style="list-style-type: none"> <li>✓ In the main, you avoided 'latching' giving the students 'interactional space' to respond to your questions</li> <li>✓ The 'think-time' was generally exceptional due to the use of 40-20-20. This meant that all students were given the opportunity to consider the issues raised</li> <li>✓ You distributed the questions well around the class; no student dominated the questioning process</li> <li>✓ You used 're-iteration' to reinforce the main points to the class</li> <li>✓ You attempted to build up student confidence without using excessive praise</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that more questions are 'referential' and of 'high cognitive status' (higher-order)</li> <li>• Be more consistent in not allowing students to shout out answers</li> <li>• Use Talking Partners more to allow students time to rehearse their responses and share ideas</li> <li>• Try to use a wider range of follow-up moves; more 'scaffolding', 'probing' and 'bouncing', rather than primarily re-iteration</li> </ul>
2	<ul style="list-style-type: none"> <li>✓ The students shouted out much less than previously</li> <li>✓ The average 'think-time' measure was high mainly because of the use of talking partners (collaborate mode) and student whiteboards</li> <li>✓ You are beginning to use a variety of follow-up moves rather than relying on just 're-iteration' ('probing' and 're-cycling')</li> </ul>	<ul style="list-style-type: none"> <li>• Where you question the students directly (without using Talking Partners or whiteboards), try to ensure you use a 'think-time' of at least 3 seconds</li> <li>• Try to plan/devise some questions which are likely to elicit longer responses from the students</li> </ul>
3	<ul style="list-style-type: none"> <li>✓ There was a greater emphasis on the use of target language in relation to student responses</li> <li>✓ You planned more 'complex' questions which in turn elicited some quality extended responses from the students (using target language); some were the most noteworthy in the 3 routines</li> <li>✓ Your teacher profile. indicated that you kept 'teacher talk' to a minimum (50%), continued to give students a high proportion of 'think-time' (39%) and increased the 'student talk' component from 6% to 11%</li> </ul>	<ul style="list-style-type: none"> <li>• Be more consistent and proactive in encouraging students to work collaboratively and be clearer about when you want them to do this</li> <li>• Where you question the students directly (without using Talking Partners or whiteboards) try to ensure you use a 'think-time' of at least 3 seconds</li> <li>• Continue to work towards increasing the 'student talk' element of your questioning routines and look to encourage students to give even more extended responses</li> </ul>

## **Appendix J: Questions Asked During the Study**

### **Emily**

#### **Routine 1- The Battle of Hastings**

- Who died?
- What happens after Edward the Confessor dies?
- Who can tell me about the fight that took place?
- Who was the fight between at Stamford Bridge?
- Where Harold Godwinson was originally based?
- Where did he have to go then for Stamford Bridge?
- Why did he have to travel north to Yorkshire?
- Harold Godwinson marches up to Stamford Bridge to fight Harald Hardrada- what happens next?
- So Harold Godwinson beats Harald Hardrada at Stamford Bridge, what happens next?
- So Harold Godwinson marches down to fight William of Normandy at Hastings- why?
- What reasons did he give for him having a right to Kingship after Edward died?
- Where was he when he was promised the throne?
- William of Normandy was promised the throne by Edward the Confessor; what were the circumstances?
- What do we remember about the wind changing direction?
- So because William came over because the wind changed direction, what did that mean?
- How were Harold Godwinson and his men feeling?
- Why were his men tired?
- Let's have a look at William's advantages, why did his army win?
- How was he able to be rested and fed?
- Why would you have an advantage if you were better trained?
- What is a cavalry?
- Is there an advantage of having horses?
- Explain why horses give you strength and power?

#### **Routine 2- The Black Death**

- What was the Black Death?
- What were the five different stages?
- What would happen if the boils burst?
- What might happen if they then get infected?
- What were dark blotches over the body caused by?
- Why were they actually coughing up blood?
- Where did they get the boils from?
- Did people believe that the Black Death was caused by just Rats or were there other reasons?
- Why did they believe that Cats and Dogs spread it?

- What does that say about people's thoughts at this time? (Responding to the fact that they banished them from the towns because they thought they were dirty animals).
- Why did they think God would be spreading this horrible Black Death?
- Do you think conditions were nice then?
- Did they have toilets with a flushing system that we have now?
- Why did they burn the bodies?
- What was the person called that used to go around the doors?
- They thought that carrying these flowers around would stop you getting diseases, what else was nice about them?
- What was the Witch Doctor's job or role?
- Why did they need to put crosses on doors?

### **Routine 3- The Treaty of Versailles, Appeasement, World War Two**

- Who are the different dictators that we have learned about?
- Take Hitler as an example, what were some of the things he did that made him a dictator?
- Why did Hitler want to stop Elections, how did that help him?
- What about Pol Pot in Cambodia, what were some of the things he did?
- Why would Pol Pot want to stop other people coming to his country (after a student said he stopped Asians coming)?
- What else did he do?
- Do we know how many people he killed?
- How does that make him a dictator then?
- Are the people he is killing innocent?
- What is the Treaty of Versailles?
- The Allies put lots of limits on Germany, how did that make the German people feel or how did it affect them?
- If they only have 100,000 men, what's going to happen to all these other men who were in the Army in World War One?
- How would these soldiers losing their jobs cause problems?
- **How can we link the Treaty of Versailles and the cause of World War Two? (Collaborative mode)**
- How many planes did Hitler get?
- How many men did Hitler increase his Army to?
- What did he bring back?
- Why are the German people angry after the Treaty of Versailles?
- **Appeasement was a tool to negotiate, to give in to Hitler. Did *this* cause World War Two or was it things like the invasion of the czar, re-arming or the Rhineland? Was it the hatred of the treaty of Versailles or was it actually Appeasement? (Collaborative mode)**
- How did Appeasement make us look?
- Why did it make us look weak?
- What evidence do you have to support the view that we 'gave in'?
- What events happened around this time?
- What did the Wall Street Crash do to Britain financially?

## Rory

### Routine 1- Adjectives and Opinion Phrases Using “Parce Que”

- What is an adjective?
- Give me an example of an adjective in English and in French
- For each, put it into a sentence, one in English and one in French
- Does anyone know how to say “big” or “small” in French?
- What is an ‘opinion phrase’; how and when do you use it?
- Give me an opinion phrase in French
- Can you put that example into a full sentence in French?
- How do you say “I don’t like” in French?
- What does “J’aime” mean in French?
- What does “Je n’aime pas du tout” mean?
- What does “J’aime beaucoup” mean?
- How would you say “I love basketball”?
- How would you say “I really don’t like cards”?
- What does “J’aime beaucoup le vélo” mean?
- What does “Je déteste le foot” mean?
- What does “Je déteste le dessin” mean?
- What does “Je n’aime pas le pain” mean?
- What does “J’aime beaucoup les tomates” mean?
- How do you say “I hate cheese”?
- How do you say “I love salad”?

### Routine 2- Verbs Ending in ‘ER’

- What is a verb?
- Can you give me an example of a ‘doing’ word in English?
- Why is it important that we know how to use verbs?
- If we can use lots of verbs accurately, how will that help our work?
- **Can you come up with some examples of verbs in French? (Collaborative mode)**
- What does “jouer” mean?
- How do you say “I watch you” in French?
- What do all these verbs on the board have in common?
- What does ‘conjugate’ mean?
- **What are the four steps when conjugating a verb? (Collaborative mode)**

### Routine 3- Opinions 2

- Why is the topic of ‘opinions’ important?
- If you can give an opinion how can this help your own work?
- I’m going to give you 10 seconds to give as many opinion phrases as you can (16 seconds given).
- How do you say “I don’t like”?
- What do you think is the next stage that we have to do?

- Is there anybody who is feeling confident can turn that into a phrase now for me? Just give your opinion about anything at all.
- What does “J’adore la Musique” mean?
- How would you say from that list “I love Football”?
- How would you say “I really don’t like Basketball”?
- How do you say “I hate cards”?
- If you were asked to say “I hate cards” what would you do to take this to a higher level?
- Does anyone know what “parce-que” means?
- What type of words are ‘parce que’, “carr” and “mais”?
- How do you say “I like football, but I don’t like Basketball”?
- Can you say “I really like basketball, but I hate cards”?
- C’est super, c’est genial, c’est intéressant.....what type of words are those?
- What does intéressant mean?
- What does “c’est ennuyeux” mean?
- What does “c’est nul” mean?
- What does “c’est moche” mean?
- How would you say “I like Football because it is super”?
- How would you say “I hate Golf because it is rubbish”?
- Can you say “I like Basketball because it is super, but I hate Football because it is boring”?

## **Appendix K: Teacher Evaluations of Routines**

### **Emily**

#### **Routine 1**

*I tried to target the majority of the students throughout the question and answer session. I wanted to ask the questions chronologically as it was important that students knew the sequence of events. I felt that I was able to ask a lot of questions at different people. Some of the time I picked people; some of the time I used hands-down. I felt every member contributed. To improve, I would like to develop my technique of listening to an answer and then using that to form a new question. I would also like to take opportunities to expand on what students say, not just ending it there.*

#### **Routine 2**

*I think I get excited too easily! I thought the students gave some really good answers and I tried to probe them and re-cycle so that the rest of the class could contribute their views as well. I wanted to use Talking Partners but I completely forgot to. I definitely latched much less because when I listened to the first tape again I couldn't believe how much I did this. I think it's a case of me getting too excited again! I need to try to work harder on my think-time and not just ask the first student that puts up their hand. Over-all I thought I asked some good questions and got some good answers.*

#### **Routine 3**

*I was really pleased with some of the answers to the questions, quite a few were extended. I think that using Talking Partners definitely helped as the students got time to think of the question and work together to prepare an answer. Also because I asked quite a number of referential questions this also challenged the students to think a bit more about their answers. I also thought I praised much less and again didn't latch much. I used probing, re-iteration and re-cycling a lot when the students answered but I need to sometimes stay with the student and learn to scaffold more if they are struggling.*

### **Rory**

#### **Routine 1**

*I tried to fit a lot of techniques into a short period of time but it may have been a bit frantic at times due to too many activities. I had varying degrees of success of each technique – some worked well, others lacked pace/pupils less engaged (40-20-20). Did my questions develop knowledge?*

#### **Main Strengths:**

- *Wide range of questioning activities*
- *Topic of opinions thoroughly revised*
- *Some activities worked well – use of ball to choose pupil to answer question is used every lesson and pupils respond well. Others (40-20-20) are less well known and pupils took longer to engage.*

#### **Areas for Improvement:**

- *Focus on different type of questions, rather than different ways of asking the same questions (e.g. higher order thinking)*

- *Need to think of how to approach this with such basic vocabulary – introduce more detailed grammar points?*
- *Focus on fewer techniques that are done in more detail? Make session slightly less frantic. Focus on what definitely works.*

## **Routine 2**

*The focus in this lesson was on more use of pair work. I chose a grammar topic in the hope of more extended answers from students. This worked to a certain extent, but definitely still room for improvement. I have spoken to class several times over last few months about not shouting out and believe that this has improved from previous recording.*

### **Main Strengths:**

- *Increased pair work.*
- *Think time.*
- *Less shouting out.*
- *Students focused*

### **Areas for Improvement:**

- *Same issue – how do we include higher order thinking in KS3 languages?*
- *Lots of single word answers*
- *Not as much praise as in previous recording – take advantage of all opportunities.*

## **Routine 3**

*The main focus of this routine was to try to encourage students to give more extended answers in the target language. In the main this objective was achieved as there were more answers given in French and the responses towards the end of the routine were both more challenging and more extensive.*

### **Main Strengths:**

- *Longer answers given in the target language*
- *More challenging questions asked*
- *Students motivated and on task*
- *More think-time where pair work not used*
- *Re-cycled many of the questions*

### **Areas for Improvement:**

- *Try to use more referential questions rather than display*
- *Try to develop conversations more*