Formative Assessment and Re...action

A theory-seeking case study crossing the bridge from theory to practice and back again

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I certify that the thesis entitled Formative Assessment and Re...action: A theory-seeking case study crossing the bridge from theory to practice and back again and submitted as part of the degree of Master of Education is the result of my own work, except where otherwise acknowledged, and that this research thesis (or any part of the same) has not been submitted for any other degree to any other university or institution.

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Date: 18/06/02

Abstract

Formative assessment is increasingly being recognised for its potential to enhance learning. Studies from the United Kingdom and New Zealand have revealed that frequently classroom teachers are engaged in formative assessment practices without being aware of it, or are inefficient users of formative assessment information.

This research used a theory-seeking case study approach in an attempt to establish how formative assessment was being used in three senior primary school teachers' classrooms. Through semi-structured interviews and in-depth classroom observations, five emergent themes were recognised. One of these themes, that formative assessment is on-going and a cyclical process, led to the development of a model of formative assessment in action. Key features of the model include the use of assessment information/indicators to decide appropriate actions, or more frequently re...actions, to create further learning opportunities.

Appraisal and verification of the model by participants and other teachers from both the research school and others in the area, suggest that it is an accurate representation of how teachers do assess children for the purpose of enhancing their learning.

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Chapter 1

INTRODUCTION

It may be a cliché but this thesis represents a journey, one that aimed to bridge the gap, for this researcher at least, between the theory and practice of formative assessment. For that reason the pseudonym chosen for the urban North Island Primary school was *Te Arawhiti*, a *Maori* word for 'bridge'. The 'bridge' that the researcher crossed with the help of three teachers and their classes, may, in global terms, be nothing more than a rickety footbridge, but the outcomes of this research indicate that a crossing has been made, *and* in both directions from the theory into the practice and back towards the theory. Maybe, if sufficient readers identify with the findings, with or without some adaptations of their own, then the bridge may be strengthened.

This research focuses on *what the teacher does*. It does not, though, ignore what the children do as a result of the teacher's formative assessment of their work. After all, what the children do in response to the teacher's formative assessment is the indicator as to whether the assessment is actually being used formatively to enhance learning. To this end, the participation of the children in this study consisted of them being observed as members of their class and, through occasional informal conversations, providing the researcher with useful evidence to support or challenge his observation of their teacher's formative assessment practices.

The research problem

Effective and appropriate formative assessment is increasingly being recognised as playing a crucial role in the enhancement of learning.

It has been argued that much of the research on formative assessment has relied heavily on teachers' reports about what they have been doing in the classroom rather than on observations of what teachers are actually doing (Carr, McGee, Jones, McKinley, Bell, Barr, & Simpson, 2000). Recent exceptions include a British and a New Zealand study (Torrance & Pryor, 1998; Bell & Cowie, 1997a). These, however, focus on junior primary and intermediate/secondary levels respectively. This study investigates formative assessment at the senior primary level.

Whilst teachers are reported to appreciate the value of formative assessment, some research, (for example, Hill, 2000a), suggests that they may not be fully conscious of the extent of their formative assessment practices. This researcher believes that the practice of formative assessment may be more complex than has been acknowledged to date.

The research questions

The overarching question to be researched therefore is:

> **What formative assessment techniques are the teachers actually using to enhance student learning at the senior primary level?**

Within this question are sub-questions regarding the teachers' and children's understanding of the purpose of formative assessment; the extent to which formative assessment is planned, the ways teachers use, or 'feedback' information gained from formative assessments, especially in regard to meeting the needs of individual children.

To answer these questions the researcher chose a theory-seeking case study approach. This methodology, identified by Bassey (1999), is a predominantly qualitative approach in which the researcher aims to develop a theoretical understanding of an issue through such techniques as observation, in-depth interviews, and document analysis. The case study aspect of the methodology is considered particularly appropriate when investigating *what actually is happening* in the classroom.

Te Arawhiti Primary School

The school was selected as one known to the researcher through occasional relief teaching. It is a decile 2 North Island urban school of 240 children of whom about 40% are *Maori*. There are three bilingual classes and six mainstream classes. The research, focused on three of the five senior classes with between 22 and 27 children in each.

Through negotiation with the Principal, Deputy Principal and participating teachers, it was agreed to conduct the observations within writing lessons. This does not mean that the study is about the formative assessment of writing, rather that the writing lessons served as a 'platform' for the study of formative assessment in action in the classrooms.

In total, the researcher conducted 27 classroom observations of between 45 minutes and one hour each, a preliminary and final in-depth interview with two of the three teachers, and a preliminary in-depth interview and a final questionnaire with the third teacher. In addition there were numerous informal chats with both the teachers and children. Documents were also collected, including samples of the children's work, copies of the teachers' records and the school's assessment policies.

Emergent themes

Analysis of the data was facilitated using the Table functions in Microsoft Word™ in a process developed, by the researcher, for this study. Data from each of the sources were aggregated into categories from which five themes emerged. In essence these relate to the:

- Context of assessment
- Purpose of formative assessment
- Intuitive nature of formative assessment
- Teachers' *re...actions* to formative assessment information
- On-going and cyclical nature of formative assessment.

On the basis of these emergent themes the researcher developed a model of Formative Assessment in Action to reflect, from a theoretical perspective, the reality of formative assessment as it was observed and revealed in the classrooms and through the teachers at *Te Arawhiti Primary School.*

Organisation of the thesis

Chapter two introduces the literature. The present definitions of formative assessment are located within the historical context of educational and assessment paradigms. Further, the contribution to current understanding of recent research from New Zealand and the United Kingdom is outlined.

Chapters three and four examine methodology. Chapter three discusses the theoretical basis for the researcher's choice of a theory-seeking case study as the most appropriate methodology. It also provides justification for the data collection and analysis techniques employed. Chapter four explains the practical aspects of chosen methodology and techniques.

Chapter five presents the main body of the findings as the emergent themes are 'given voice'. The individual themes are justified through the

triangulating of the data from various sources. Extracts are presented from the observations, interviews, chats and documents to support the researcher's claims. The chapter concludes with a '*case study within a case study*' which illustrates formative assessment in action. Through extracts from observations, examples of a child's writing and the researcher's analytical comments, it demonstrates how one child's learning of procedural writing was developed through her teacher's use of information from predominantly informal assessments.

Chapter six draws the study to a close, linking the findings and the literature in an attempt to summarise the complex process of formative assessment in action through the use of a theoretical model. An explanation, brief discussion and comments on the validation of the model are followed by the limitations of the study and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

Introduction

> *One thing that is abundantly clear is that it is impossible to separate good formative assessment from good teaching and learning.*
>
> (Watkins, 2000: 107)

The role of classroom assessment in learning is well documented. It has "powerful direct and indirect impacts" both positive and negative on students, teachers and the classroom environment, (Crooks, 1988a: 483; Sutton 1997; Torrance, 1993; Torrance & Pryor, 1998). Much assessment is summative, providing teachers with records of students' achievements for reporting, certification and selection purposes. However, recent studies indicate that formative, rather than summative assessment, has the greater potential to improve learning and raise standards (Black & Wiliam, 1998a, 1998b; Carr, McGee, Jones, McKinley, Bell, Barr, & Simpson, 2000; Hill, 2000a).

Defining formative assessment

Torrance (1993: 335) suggests that there is "no single 'theory' of formative assessment". It is a term that has often been loosely defined and frequently misunderstood (Black & Wiliam, 1998a; Harlen & Malcolm 1996) especially at the classroom level (Dixon, 1999; Hill, 2000a). It has been around in various guises, such as classroom assessment (Brookhart, 2001), instructional assessment (Airasian, 1996), teacher assessment (Torrance, 1993) or simply, according to those at the chalkface, as "good teaching" (Hill, 2001). Some definitions encompass the potential use of all

assessment activities carried out by teachers that provide feedback to the pupils and teachers about learning and teaching, (Black & Wiliam, 1998a; Crooks 1988a), whilst others are quite narrow, being "private and focused on the needs of the learner." (Brookhart, 2001: 157).

The interpretation and manifestation of formative assessment have also been influenced by the dominant discourses from education and assessment both at the 'global', (in the sense of beyond the schools), and at the individual school level (Dixon, 1999; Hill, 2000a). Consequently, some writers, and teachers, have seen formative assessment as essentially a behaviourist act (for example, Bloom, 1974 and Popham 1978, 1987, cited by Torrance 1993: 336) while others consider formative assessment to be fundamentally constructivist in nature (Black & Wiliam, 1998a; Conner, 1999; Dochy & Moerkerke, 1997; Torrance & Pryor, 1998).

Within the behaviourist paradigm, assessment focuses on the examination of observable behaviour as a means of providing evidence that some learning objective and/or criteria have been met. Thus, formative assessment, to a behaviourist, is a process by which the teacher is able to *monitor* and *control* children's learning. In contrast, formative assessment within the constructivist paradigm is predominantly used to *facilitate* learning. Information gained is used interactively between pupil, task and teacher, with the ultimate aim of helping children to become aware and in control of their own learning processes. One source of evidence that learning has taken place is, for the constructivist, a child's ability to *transfer* and *successfully use* knowledge and skills beyond the context in which they were learnt.

A result of such a variety of interpretations has been to create a barrier between the literature and the teacher, to the extent that both seem to have gone about their business talking about the same thing but in very different ways (Hill, 2000a). In effect, there exists the 'high-brow' *language* of the academic and the 'common' *dialect* of the classroom teacher. Despite many teachers considering the academic language to be 'jargon', Hill (1997,

2000a, 2000b) believes that teachers need to take on board, and use the appropriate terms in their professional life. This, she argues, would lead to better personal understanding, as well as more efficient communication between teachers and educators.

It is generally accepted that formative assessment is a complex act, taking place in dynamic environments (Black 2001; Carr *et al.,* 2000; Torrance & Pryor, 1998). However, current understanding about the nature and practice of formative assessment varies.

What is understood by formative assessment?

Cowie and Bell (1996, cited in Bell and Cowie 1997: 3; 1999: 198) define formative assessment as:

> the process used by teachers and students to recognise and respond to student learning in order to enhance learning, during learning.

The New Zealand Ministry of Education (1994: 8) considers it:

> an integral part of the teaching and learning process...used to provide the student with feedback to enhance learning and to help the teacher understand students' learning. It helps build a picture of a student's progress and informs decisions about the next steps in teaching and learning.

Black and Wiliam (1998b: 140) make the distinction between assessment in general and formative assessment, by emphasising the latter's proactive nature:

> *assessment* [refers to] those activities undertaken by teachers – and their students in assessing themselves – that provide information to be used as feedback to modify teaching and learning activities. Such assessment becomes *formative assessment* when the evidence is *actually used to adapt* the teaching to meet student needs. (original emphasis).

Thus, it is argued, providing feedback with the *intention* to influence teaching or enhance student learning is not formative unless that feedback results in real beneficial *change for the student.*

In many ways this is what Nelson (2000: 49) is referring to when she talks about "assessment *for* learning", the type of assessment she claims is common in primary schools, and what Sullivan (1997:1) refers to as "assessment for teaching" (as opposed to for evaluation/accountability).

Conner (1999) takes this further placing formative assessment firmly in a constructivist framework, where learning is seen as a self-regulatory activity that directly engages the learner in constructing new knowledge for themselves with reference to their own prior knowledge. He cites Gipps (1997), who contends that feedback should lead to children taking more control of their learning through the development of metacognitive strategies (Connor, 1999: 25).

Torrance and Pryor (1998: 10) take the position that formative assessment is:

> a construct, and name that is given to what should more accurately be characterized as a social interaction between teacher and pupil which is intended to have a positive impact on pupil learning.

However, they contend that the question as to the value of formative assessment and the extent to which it works, is one that requires formal investigation, especially because of the difficulty in distinguishing it from routine classroom assessment.

Locating formative assessment within shifting educational and assessment paradigms

As alluded to above, the way formative assessment is understood in today's classroom is dependent upon the dominant assessment and educational discourses of the time (Black, 1998b; Hill, 2000a). It is therefore pertinent, at this point, to consider some of the major historical determinants.

While it is frequently considered 'something new', formative assessment has, in fact, been around for over a century. For much of that time, formative assessment has been the 'under-dog' in assessment paradigms. Black (2001: 74) cites research by Henry Black (1986) suggesting attempts to develop formative assessment in the United Kingdom in the nineteenth century were unsuccessful. This, he claims, was due to the emphasis on standardised testing and formal examinations, as well as a culture of teacher accountability in the guise of 'payment by results' (Black, 1998b). Despite this early existence, little reference is made to formative assessment in the literature until the late 1960's when, according to Rochester (1982: 7,16), the term 'formative assessment' was coined by Scriven (1967).

Until fairly recently, assessment was considered to be quite separate from learning (Burke, 1994; Department of Education, 1986) and teaching (Harlen & Malcolm 1996). Today, though, assessment is increasingly recognised as being inextricably linked with teaching and learning (Bourke, 2000).

To begin to understand the current issues relating to formative assessment therefore, it is necessary to consider the changes that have occurred in both educational, (which is taken here to mean pertaining to learning), and assessment paradigms.

Mayer (1992) suggests three metaphors to describe the paradigms of learning over the last century. *Learning as response acquisition* was the metaphor adopted for the behaviourist concept of learning that was dominant during the first half of the 20th century. This gave way to *Learning as knowledge acquisition* which described the transmission models of information processing at the start of what became known as *The Cognitive Revolution.* The final phase, less of a paradigm shift and more of what Mayer sees as maturation, saw *Learning as knowledge construction* and the development of the constructivist school of thought.

At the turn of the 20th century, notable psychologists such as E.L. Thorndike, Dewey and Judd suggested that through practical application of pure scientific psychological theories and models, problems in education could be overcome (Mayer, 1992; Glaser, 1992) and that "laws of learning" could be discovered (Mulhern, 1959: 658; Sheull & Moran, 1994: 3340). According to these 'laws', children learnt by their "own responses to stimuli – by doing – under the guidance of a teacher who provided the stimuli" (Mulhern, 1959: 658). This view was sustained, especially in the USA, well into the middle of the century mainly as a result of laboratory-based studies such as those by Skinner.

By the 1960's, behavioural stimulus-response theories of learning were replaced by the cognitive theories influenced by the work of, for example, Piaget, Gestalt and later, (in fact posthumously), the Russian psychologist, Vygotsky.

During the early period of the *cognitive revolution* the learner was seen as an active processor of information (for example, Sheull & Moran, 1994; Mayer, 1992; Good & Brophy, 1995). Being analogous to computers, learning was perceived as a process of collecting knowledge, (information), which was cognitively organised, encoded and transformed for the purpose of subsequently being used to solve problems (Meadows, 1993).

From within the information-processing paradigm developed the transmission models of learning. These models viewed learning as a transaction between teacher and learner with the teacher as the sender and the student as the receiver of predetermined content (Mayer, 1992). As such, learning depended very much on the teacher.

In contrast, yet with their roots also in Piagetian cognitive theory, constructivist models of learning were learner-centred and, at their most radical, entirely learner directed. In short, learners were seen as constructors of their own knowledge. Despite the 'birth' of constructivism being some 30 years ago, its basic tenets are fundamental in many of

today's views about learning (Brown, 1994; Good & Brophy, 1995; Brooks & Brooks, 1993; Putnam & Borko, 2000) and as a consequence, central within assessment, particularly formative assessment.

In line with the changing theories of learning, paradigm shifts also took place within the understanding and practice of assessment. Norm-referenced psychometrics, dominant in the first half of the 20th century, was influenced by theories of intelligence and the notion that learning equated to intelligence which was fixed and therefore easily measurable. In contrast, criterion-referenced educational measurement, influential from the middle of the century, focused on identifying an individual's strengths and weakness (Gipps, 1994). In terms of formative assessment, Black (2001: 74-5) contends that teachers' "formative assessment work calls for criterion referencing focused on specific learning needs".

A further assessment paradigm shift mirrored the 'birth of constructivism' – educational *assessment*. Gipps (1994: 10) cites Glaser (1990) making "the case that assessment must be used in support of learning rather than just to indicate current or past learning. Spandel (2001: 128) explains that:

> the word *assessment* comes from a Latin word *assidere*, meaning roughly "to sit beside." The implication is that assessment should be a support piece.

Such support can, among other ways, take the form of feedback.

Feedback and feedforward as formative assessment

Black & Wiliam (1998a: 31) suggest there is a very strong overlap between formative assessment and feedback. In fact, for some, feedback is the *modus operandi* of effective formative assessment, having "as great an effect on performance as prior attainment" (Swaffield, 1998 cited by Conner, 1999: 23). This effectiveness of feedback is enhanced through:

- Relating feedback to the task as opposed to the individual child (Conner, 1999; Gipps, 1994; Swaffield, 1998 cited by Conner, 1999: 23).

- Identifying strengths and weaknesses. I.e. being *informative* (Crooks, 1988b; Sadler 1989, cited by Gipps, 1994: 125; Hargreaves, McCallum & Gipps, 2000)

- Emphasising progress rather than comparisons with external standards or other students (Crooks, 1996)

- Providing the feedback soon after the assessment as possible (Crooks, 1988a, 1988b)

- Linking the feedback to the development of metacognitive strategies for learning (Sadler, 1994, cited by Hill, 2000a: 86-7; Swaffield, 1998, cited by Connor, 2000: 223)

- Giving the feedback function of assessment priority over the summative/grading function (Crooks, 1988b).

Hattie (1999: 5) recognises the potential of feedback to improve learning calling it "the most powerful single moderator that enhances achievement". He recommends "dollops of feedback" as:

> the simplest prescription for improving education ... providing information how and why the child understands and misunderstands, and what directions the student must take to improve.

However, the effectiveness of formative assessment seems directly influenced by the style, quality, purpose and timing of feedback. As Sutton (1997) argues, whilst "immediate feedback is highly effective, [it is] rarely manageable in the reality of the amount of work produced...and the time at [the teacher's] disposal". This, of course, depends on exactly what one considers 'feedback' to be, who the provider is, or should be, and whether or not it always has to be directed to the individual child instead of a group or the class as a whole. In fact for some, the term 'feedback' does not

adequately describe everything teachers do with information they have gained from their formative assessments. For that they use 'feedforward' (Torrance, 1993).

When information that can help learning take place is 'fed-forward' rather than 'back', it is used to influence planning, while taking into account the current learning potential of the child (Torrance, 1993) in what is known as the Zone of Proximal Development. This is "the gap between what the child can achieve alone and what they can achieve through problem-solving under adult guidance or in collaboration with more able peers." (Vygotsky, 1978 cited by Leat & Nichols, 2000: 114).

The 'feedforward' into planning need not necessarily be planning which is formally acknowledged or written down. Teachers in their day-to-day interaction with the children make 'on-the-spot' assessments and, using their professional judgement, "act on what they [see] immediately." (Hill, 2000a: 338). These actions include, although are not limited to, "recognising and responding" (Bell & Cowie 1999: 208); adjusting teaching and learning (Black 1998b; Black & Wiliam 1998b); intervening (Carr *et al.,* 2000); and, repeating or reinforcing the original instruction (McGaw, 1988). As Conner (1999: 23) puts it:

> At the heart of assessment for learning is the way teachers respond to children – the feedback [and as acknowledged above, the feedforward] they provide.

Nevertheless, whilst feedback is one of the possible, and probably the most essential, actions a teacher can engage in as a result of an assessment, it is not an assessment in itself. Rather, it is what a teacher gives in response to information gained from an assessment. Feedback takes on a formative *function* when it influences student learning by, for example, causing the receiver to reflect on and engage in some form of self- assessment. On the other hand, when the student fails to take 'on board', and use it to positively influence learning, the feedback also fails to be formative. It is, therefore,

important to avoid labelling feedback as assessment, especially formative assessment.

Airasian (1997: 6) mistakenly does this when he says:

> The term used to describe feedback intended to alter and improve students' learning while instruction is taking place is called formative assessment.

In essence, Airasian is confusing 'feedback', a *response*, with formative assessment, a *process*. Feedback is *not* assessment. It is one of the outcomes of assessment.

The value of formative assessment

There have been many calls for formative assessment to be recognised, and its potential developed in our schools (for example, Black & Wiliam, 1998b, Hill, 2000a, Torrance & Pryor, 1998). Formative assessment is increasingly being referred to in policy documents at the national level. For instance, it is referred to in the seven New Zealand Curriculum policy documents (Ministry of Education, 1992, 1993, 1994, 1995, 1997, 1999 and 2000), and in the United Kingdom (Department of Education and Science, 1988, cited by Connor, 1999: 30). Despite this, there remains, as Black (1998b: 5) puts it:

> a very sharp contrast between these formal commitments, to the central importance of formative assessment, and the actual priority given to it.

To this extent it could be considered that policy makers are not giving sufficient recognition to formative assessment. By its inclusion they are acknowledging it as a potentially valuable contributor to the advancement of learning, but by emphasising the need for national testing and other accountability measures, they appear to be side-stepping their commitment.

However, it is acknowledge here that calls for the recognition of formative assessment are beginning to impact on the *attitudes*, if not the policies, of government agencies charged with monitoring schools. In the United Kingdom, for example, Her Majesty's Inspectors of Schools are encouraged to look for:

> clues to the effectiveness of formative assessment [through observing] how well the teachers listen and respond to pupils, encourage and, where appropriate, praise them, recognise and handle misconceptions, build on their responses and steer them towards clearer understanding. (OFSTED, 1999).

The New Zealand Education Review Office, (ERO), is less specific in its advice to school review officers. Despite recognition of the purpose and value of formative assessment in an earlier publication, *Student Assessment: Practices in Primary Schools* (ERO, 1999), the term 'formative assessment', in fact, does not appear in ERO's *Evaluation Criteria – July 2000* (ERO, 2000). Further, since less than 16% of Primary / Combined School review reports since July 1997[1] make any reference to formative assessment at all, it could be suggested that the absence of any explicit reference to formative assessment in the evaluation criteria may be influencing review officers' recognition of formative assessment. Where reference is made, (for example, the school is using formative assessment in this way or that), it is descriptive rather than evaluative. The potential impact of ERO in promoting formative assessment in the classroom is consequently small. Therefore, it is worth reiterating, at this point, why formative assessment is considered valuable.

The main value of formative assessment is that unlike the accountability-driven and predominantly summative assessments (Hill, 2000a), formative assessments, when used effectively, are believed to lead to meaningful

[1] Data derived from an analysis of the content of reports on ERO's website (http://www.ero.govt.nz/reports/Indexsearch.htm) using first the site's search facility then Microsoft Word's find and replace function. Of the 636 Primary and Combined Schools reviewed since July 1997, 100 make reference to formative assessment.

gains in learning and as such provide a greater potential to raise educational standards (Black & Wiliam, 1998b; Carr *et al.*, 2000; Hill, 2000a).

As an "integral part of the interactions between teacher, pupils and learning materials" (Hill, 1997: 87) formative assessment "can put teachers in touch with the state of their pupil's learning ideas," (Black, 2001: 76) and thus help teachers come to recognise themselves as learners also (Childers & Lowry, 1997). As teachers become more comfortable with themselves as learners within a *learning-classroom* environment they are more likely to "listen to the children's voices" (Bourke, 2000: 288) and accept these 'voices' as valuable in helping the teacher meet the real needs of their pupils.

Making formative assessment an integral part of the teaching/learning process, therefore, provides a "powerful catalyst" for energising learning and classrooms for both children and teachers alike (Hobson, 1997: 68).

Recent studies from the United Kingdom and New Zealand

Recent studies, as cited below, from both the United Kingdom and New Zealand help add weight to the argument that formative assessment has great potential to enhance learning. In addition, these studies also indicated how teachers use formative assessment. Further, supported by other recent literature, (such as Black, 1998a, 2000; Bourke, 2000; Brookhart, 2001; and Carr *et al.,* 2000), they also indicate probable barriers to the development of formative assessment in schools.

In the United Kingdom, studies by Torrance and Pryor (1998) and Tunstall & Gipps (1996) have shed light on the nature of formative assessment and feedback by teachers of young children, i.e. seven years and under. Torrance & Pryor's three-year study, 1993 –1996, focused on the formative nature of teacher assessment events/incidents, generally referred to as Teacher Assessment. Through 40 interviews with Key-Stage 1 (New Entrant – Yr 3) teachers from nine schools in two local authorities, five

interviews with advisors, interviews with children and in excess of 100 hours of video and audio taped classroom observation, Torrance & Pryor concluded that teaching, learning and assessment interrelate through social interaction between teacher and pupil. In addition, they found that:

- Teachers use both behaviouralist and social constructivist approaches but that formative assessment operates best within constructivism
- Observation, very common as an assessment technique, often leads to examining work, questioning, clarifying, correcting, moving forward, planning, judging or rewarding
- Assessment, (and feedback), can have negative as well as positive consequences on learning, and
- Feedback does not necessarily lead to positive learning gains – It needs to be appropriate, valid, reliable **and** pupil's response to it monitored.

Tunstall & Gipps, (1996) focused their study on feedback, and asking children about their understanding of it. Interviewing eight teachers and 49 Yr 1 and 2 children, as well as classroom observations, led them to conclude that there were two broad categories of teacher feedback – evaluative and descriptive. Evaluative feedback (judgmental) includes rewarding/punishing and approving/disapproving whereas descriptive feedback (competence related) includes the specifying of attainment/improvement (i.e. mastery related/behavioural) and the constructing of achievement, or the way forward, (constructivist). Children's comments/perceptions (or indicators/evidence) were 'mapped onto' the above categories to provide evidence of validity.

In New Zealand, Bell and Cowie (1997a) studied ten intermediate/ secondary school science classrooms between 1995 and 1996. They collected extensive data through 65 interviews with ten teachers, 73 interviews with students and a total of 128 classroom (participant) observations. As a result they developed a model for formative assessment.

This model identified two aspects to formative assessment, planned and interactive. The former is deliberate, somewhat diagnostic in nature, tending to be done with the whole class "at the beginning of a unit of work...or a lesson...to ascertain what that student had learnt from the previous lesson" (Bell & Cowie 1997b: 8). The latter, focuses predominantly on formative assessment with small groups or individuals. It involves "taking risks and uncertainties" *(p.8)* and tends to be more *ad hoc* in nature. Teachers respond to students' performance as it happens and thus it is not possible to plan or "predict exactly what they [the teachers] and the students would be doing" (p.8). In addition Bell and Cowie (1997b) also found that:

- Teachers informally assessed student's personal, social & science learning
- Formative assessment was undertaken to promote student learning (through feedback) and enhance teaching
- Formative assessment has nine characteristics which include responsiveness, source of evidence, unrecognised process, use of professional judgement/experience, integrated with teaching & learning, process is contextualised
- Teacher development helps awareness & improves use of formative assessment.

Mary Hill (2000a) focused on the effect that dominant educational and assessment discourses had on the assessment practices of 25 primary and intermediate school teachers in self-managing New Zealand schools. Three of the teachers were each intensively observed for one week. Hill concluded that current dominant discourses did exert considerable influence on teachers' assessment practices. She suggests that demands for accountability, both imposed through school and national policy and perceived, (teachers 'believed' ERO promoted summative rather than formative assessment), result in tensions between formative and summative assessment. Thus more summative than formative assessment was common in practice.

Hill also identified three categories of assessment practice - unit assessment, head note assessment, and, integrated systematic assessment. Unit assessment was predominantly summative. Teachers using this approach failed to recognise the formative nature of their other classroom assessments, generally seeing "teaching and assessing as separate activities" (Hill, 2000b: 22). Hill contends that this complicated the assessment process by teachers needing intuitive formative assessment to support learning during instruction. To some extent this may be an imprecise interpretation as it may be reasonable to assume that intuition plays a part in every teacher's assessment to some extent. Perhaps what teachers need, therefore, are more *efficient* intuitive strategies, or more *efficient means of recognising, recording and using* intuitive information.

'Headnote' teachers would occasionally jot notes down, but on the whole kept their assessment information in their heads. Dots, ticks and crosses were the most frequent form of permanent recording (Hill, 2000b).

Teachers taking the integrated systematic approach were methodical in their planning and implementation of assessment. They often recorded the assessment information during teaching, or soon afterwards. Although they specifically planned to use formative assessment during their lessons and activities they also responded to assessment information that they noticed arising during the course of a lesson.

Overall, Hill found that teachers were often unaware they were using formative assessment practices often seeing the 'formative' incidents/events as simply 'teaching', 'evaluation', 'professional judgement' or 'intuition'. In many ways, teachers could be considered to be simply *reacting,* sometimes unconsciously, to assessment information.

Concerns over validity and reliability of formative assessment

Crooks (2000) claims that "in the literature on the validity of educational assessment, little attention has been devoted to formative assessment". He does suggest, though, that recent work by Cronbach, Messick, Shepard and Kane provide opportunities to consider issues of validity from a formative assessment perspective.

Validity and reliability should always be central issues where assessment is concerned. Yet, if the teacher and students are both purposeful and metacognitively aware (Gipps, 1994) in their selection and use of assessment activities, the issues may not be a great as Crooks seems to be implying. Nuttall (1993: 239) recognises that:

> teacher assessment is bound to be richer, more varied and more comprehensive – in short, more valid – than any kind of externally set task or test...only assessment by teachers on a continuous basis can provide real support for learning, that is formative assessment, the type of assessment that really matters in the classroom.

Hill (1997) also supports this view claiming that information "collected during actual teaching and learning" gained through formative assessment has high validity.

Of course, the caveat here is that the teacher assessments, (and for that matter peer and self assessment), need to be of good quality. To this end, teachers need to become skilled in observation and constructive (not interrogative) questioning. Constructive questioning provides a scaffold for learning by encouraging children to think metacognitively, ultimately leading to them not only considering reasons for their difficulties but also possible solutions. Interrogative questioning, on the other hand, has the potential to impact more negatively on learning by searching only for reasons for the difficulties. Persistent use of this questioning technique could lead children to perceive teacher questioning as implying teacher dissatisfaction rather than providing an opportunity for learning.

Further, the quality of assessment is also determined by how accurately teachers interpret children's responses to questions. Torrance (1993: 338) citing Cicourel *et al.,* (1974) recognises that in order to do this well, teachers require high-order skills. Children can make 'simple' errors which teachers may misinterpret without taking into account the "role of context and language ...in children's perceptions of the task." Teachers would also benefit from being aware of the meaning children may attribute to such 'symbols' as teacher's body language and tone of voice.

All these factors contribute to the complex nature of formative assessment in *real life dynamic* classrooms.

Recommendations and limitations

The two New Zealand studies of Mary Hill (2000a) and Bell & Cowie (1997a) and the United Kingdom study of Torrance & Pryor (1998) have added considerably to the understanding of the function and potential of formative assessment in the classroom. However, some writers suggest, on the basis of extensive literature reviews, that "richer qualitative studies of process and interactions", *in authentic classroom situations*, are required "to inform our understanding" of how formative assessment interacts with teaching to influence learning (Carr *et al.,* 2000: 139, citing Black & Wiliam, 1998).

Hill (2000a), in describing formative assessment in primary classrooms and attributing assessment approaches to dominant discourses, does not go into detail about teachers' responses to information gained through formative assessment. Further, unlike Bell & Cowie (1997a), Hill does not attempt to formulate a theory or model of formative assessment in action.

Bell & Cowie's model (Bell & Cowie, 1997a) recognises both the planned and interactive nature of formative assessment but draws their conclusion from the intermediate and secondary sector. Torrance and Pryor's research (1998) whilst also focusing more on the processes of formative assessment examines occurrences in the lower primary school.

In contrast, the research contained in this study considers the interactive and responsive nature of formative assessment and teaching at the senior primary level (Years 4-6). In addition, this research uses the teaching and learning of writing skills as a 'platform' for the study of formative assessment at work in the classroom compared with an across the curriculum approach in the Hill (2000a) and Torrance & Pryor (1998) studies and science in the Bell & Cowie (1997a) study.

Summary

The review of the literature has suggested that a mismatch exists between theory and practice. Reasons for this mismatch include: competing educational and assessment discourses fuelled, for example, by the lack of a shared definition of formative assessment, (even among researchers), and demands for accountability. In addition there appears to be a degree of ignorance on the part of teachers regarding academic assessment terminology and the true function and benefits of formative assessment.

Formative assessment is acknowledged as a process that is inextricably linked to teaching and learning. It can be both planned and impromptu in nature. Further, appropriate, quality feedback and feedforward are both recognised as important elements of the formative assessment process.

Recent studies from both the United Kingdom and New Zealand have provided evidence that formative assessment, of varying quality, *is* taking place in the classroom. Nevertheless, these studies have not focussed on *how* teachers of Year 4 to 6, (8-11 year olds), are using information derived from formative assessments to enhance learning opportunities for their students.

Through the extensive observation of three teachers at *Te Arawhiti Primary School,* this study aims to contribute towards the theory and practice of the formative assessment process from that perspective.

CHAPTER 3

METHODOLOGY - A THEORETICAL BACKGROUND

Introduction

The purpose of this chapter is to illustrate how and why the researcher selected a theory-seeking case study as the preferred methodology. It also outlines and briefly discusses the methods of data collection relevant to such a methodology, and other issues including reliability, validity and ethical considerations

Quantitative or qualitative?

A researcher's own philosophical position may cause him or her to *lean* towards either the quantitative or qualitative paradigm of education research and, as a consequence, influence the choice of methods used. Quantitative approaches are usually used when one believes that there is one reality and that that reality is objective and can be measured, with the researcher remaining detached from the participants, (often referred to as 'subjects'). According to Creswell (1994) methods within the quantitative approach fall into two categories; (i) experiments including quasi-experiments and (ii) surveys which include the use of questionnaires and structured interviews or observations. Silverman (2000) also includes the use of official statistics and content analysis. All methods that treat data as numerical (Trochim, 1999), are therefore inherently statistical and allow findings to be reported using charts or graphs (Bouma, 1996).

Qualitative approaches, on the other hand, are favoured by those who believe that there is more than one way to view the world, (and the researcher holds only one of those views), which are essentially subjective. Frequently, the researcher is an active participant becoming "immersed in

[the] social situation" thus requiring "disciplined subjectivity" (McMillan and Schumacher, 1997: 17). Methods from the qualitative approach include unstructured observations, in-depth interviews, oral histories, document analysis and focus groups (Bouma, 1996). Each of these concentrates on words and their meanings (Miles & Huberman, 1984) rather than numbers as found in quantitative methods.

However, the quantitative/qualitative paradigms can be considered in terms of a continuum (McKereghan & Ferch, 1998; Ropp, 1999; and Swann, 2000) since, as Trochim (1999: 1, 3) reminds us, "all qualitative data can be coded quantitatively" and "all quantitative data is based on qualitative judgment (*sic*)".

This researcher's personal beliefs that multiple perceptions of reality exist and that knowledge is constructed lean him towards a predominantly qualitative approach. His own experience of living and working in different cultures has convinced him that there are different ways of looking at the same problem. As Bassey (1999: 43) puts it, "people perceive and so construe the world in different ways which are often *similar* but not necessarily the s*ame*." (original emphasis). Within this research all perspectives would be considered valid in themselves and would serve, among other things, to reinforce the complex nature of reality in educational research. Therefore, in philosophical terms, this researcher locates himself within an interpretivist/ constructivist paradigm (Bassey, 1999; Clark, 1997; Kincheloe, 1991; Merriam, 1998; Mertens, 1998).

The role of the research questions

Even though a philosophical stance has been declared there are some, (eg Bouma, 1996; Patton, 1990 (cited by Merriam, 1998: 10); Pring, 2000) who contend that it should be the *questions* being asked, what one really wants to find out, that should determine the choice of research paradigm. To find out 'how many?' or 'what proportion?' or 'is there are relationship?' one

would use quantitative methods, whereas asking *why* something is happening or *how* one thing affects another, for example, one would tend to utilise qualitative methods. It must be noted, though, that because of the dynamic human nature of education one can rarely, if ever, get the 'full picture' by asking one question and using one method. The answers found would inevitably lead to more questions. Even if methods from both traditions are employed, either within the same piece of research in what is termed the mixed method approach, or in consecutive studies, one can never really find the 'truth' but only move closer *towards* it.

The research questions

This research sets out to investigate the following questions:

- How are teachers formatively assessing the children in their classes?

AND

- What are the teachers doing in response to information gained through such assessment in relation to a) the class as a whole, b) groups of children and c) individual children?

These questions, the primary guides to the study, were supplemented by others:

- What do teachers/children consider is the purpose of formative assessment?
- To what extent are the teachers' formative assessment techniques planned or *ad hoc*?
- What forms do the teachers' feedback take (verbal, non-verbal)?
- Do teachers use the same formative assessment techniques with all children or are the techniques modified to meet the individual needs of the children?

The above questions are best answered using a predominately qualitative approach. This provides opportunities for the 'real-life' of the classroom to 'speak' to the researcher through observations. Along with data gained from interactions with the participants and documentary sources, themes can be constructed that can possibly "reveal how all the parts work together to form a whole" (Merriam, 1998: 6).

Having established the research paradigm, the next question is what type of qualitative methodology best serves the needs of the research. Merriam (1998) identifies five types most frequently associated with educational research, generic qualitative study, phenomenology, grounded theory, ethnography, and case study.

In brief, generic qualitative studies have their basis in the ideas relating to educational, developmental and cognitive psychology, and sociology. Phenomenology investigates "the essence or structure of an experience (phenomenon)" (Merriam, 1998: 15). Grounded Theory focuses on the development of "substantive" (*ibid.*: 18) theory emerging out of, or 'grounded in' the data. Investigations start without reference to theoretical prepositions (Mertens, 1998) the substantive theory being developed from the categorization and re-categorizing of the data in the seeking of patterns. As such it is considered more relevant and useful to everyday practice than theories produced through other research methods that aim to generalize into the wider field.

Unlike grounded theory, which begins without theoretic premise, ethnography is "guided by theory, either an explicit anthropological, psychological, or educational theory or by an implicit personal theory about the way things work" (Mertens, 1998: 165, citing Fetterman, 1989). In educational research, ethnography is the methodology of choice where the study aims to investigate the culture and/or values of an organization, institution or group of individuals, for example within a classroom. Woods (1986: 4) defines ethnography as being:

> concerned with what people are, how they behave, how they interact together. It aims to uncover their beliefs, values, perspectives, motivations, and how all these things develop or change over time or from situation to situation. It tries to do all this from *within* (original emphasis), the group, and from within the perspective of the group's members. It is *their,* (original emphasis), meanings and interpretations that count.

Hammesley & Atkinson (1983) describe ethnographic research as having "a characteristic 'funnel' structure, being progressively focused over its course." Over time the scope of the research is refined and details explored perhaps with outcomes "quite remote from the initial foreshadowed problems" (Hammesley & Atkinson, 1983, cited by Silverman 2000: 143).

According to Woods (1986: 4), ethnography "is particularly suited to helping to close the gulf between researcher and teacher, educational research and educational practice, theory and practice." This researcher's interest in understanding formative assessment as it occurs in the *real life* classroom in *real life* school and not some artificially constructed environment means this study has a strong ethnographic element to it. However, because the focus is not primarily on culture and/or values it cannot be considered an ethnography in the pure sense. Case study is, therefore, considered to be a more appropriate research methodology for this investigation.

Case study – a brief overview

Originally developed in the American social sciences as an approach used in the investigation of urban life (Gallagher, 2000), case study research has experienced a pendulous popularity over the last century (Tellis, 1997a). Only recently, predominantly through the work of such as Yin (Gallagher, 2000), has there been a re-emergence of case-study as "a comprehensive research strategy" (Yin 1994: 13) which is considered "a reliable methodology when exercised with due care" (Tellis, 1997b).

Yin defines Case-study as:

> *an empirical inquiry that*
> - investigates a contemporary phenomenon within its real-life context, especially when
> - the boundaries between the phenomenon and context are not clearly evident. (Yin, 1994: 13)

Implicit in the latter part of this definition is the belief that often one cannot separate the phenomenon under investigation from the context in which the phenomenon is found (Stake, 1981 cited by Merriam 1998, The U.S. General Accounting Office, 1990 cited by Mertens, 1998: 166).

One of the characteristics of case study research as Sturman (1994: 640) puts it, "is the belief that human systems develop a characteristic wholeness or integrity and are not simply a loose connection of traits".

Another of the characteristics of a case-study is that the unit of study is often considered to be a 'bounded system' (Burns, 1997: 364; Smith 1978, cited by Merriam 1998: 19; Stake, 1995) within which the researcher indicates, discovers or studies the issues aiming towards the fullest possible understanding of the case (Adelman, Jenkins, & Kemmis, 1976). This understanding frequently comes from "rich descriptive holistic" accounts, (Burns, 1997: 385), "strong in reality" (Adelman, *et al.,* 1976: 138), incorporating the points of views of the participants, (Tellis, 1997a) within "an in-depth investigation of the interdependencies of parts and of the patterns that emerge." (Sturman, 1994, 640; Goetz & LeCompte, 1984).

Data from such in-depth investigations will often come from a variety of sources (Mertens, 1998; Tellis, 1997b; Yin, 1994). Because of this comprehensive nature and the fact that case studies are conducted in "natural settings" (Bassey, 1999: 47), case studies will tend to be more accurate and representative than other research methods (Alderman *et al.*, 1976; Hopkins, 1993). Such a bold statement, though, has been the target of those who criticise case-study research methodology.

Atkinson & Delamont, (1985: 33) contend that case study, as a research methodology, is "seriously deficient" belonging to the realm of "anti-intellectual" workers considering that findings are based on "inadequate methods and a lack of methodological self-awareness". They, like others such as Campbell (1975 cited by Sturman, 1994: 642) argue that it is impossible to generalize from a single case and that there is frequently a "lack of rigour" where the conclusions have been influenced by ambiguous evidence and researcher bias (Yin, 1994: 9).

Bassey (1999) argues that there is a need for a reconstruction of educational case study research for two main reasons. The first is because of the eclectic nature of interpretations as to what constitutes a case study. Bassey briefly describes the work of Stenhouse (1985), Parlett and Hamilton (1977), Yin (1993), Stake (1995), Alderman *et al.,* (1980) and Tripp (1985) and concludes that he cannot "summarize the various positions and terminology... into one coherent framework" (Bassey 1995: 35). The second reason concerns the issues relating to case-study's perceived lack of rigour and generalisability which lead some to consider case-study research to be "seriously deficient" (Atkinson & Delemont, 1985: 33).

As a result, Bassey redefines case-study research into three categories; evaluative, story-telling/picture-drawing and theory-seeking/theory-testing.

Evaluative case studies are used to investigate the extent to which a particular educational phenomenon or practice is worthwhile. Whilst being underpinned by theory, the study does not aim to contribute further to theory development. The study of a particular 'case', a project, system or programme, may focus either tightly around, for example, the meeting of specific objectives, or be wider looking at, for instance, the overall value to the relevant stakeholders. Further, such studies may have formative or summative purposes.

Bassey likens his story-telling and picture-drawing case studies to Stake's 'intrinsic' and Yin's 'descriptive' case study. Both are analytical and aimed

at developing theory. They differ in that story-telling case studies are typically narratives with an emphasis on the chronological progression of events whereas picture-drawing is more descriptive in its analysis of the case.

Theory-seeking & testing case studies focus on general issues and select as their unit of study an entity which is considered "in some way typical of something more general" (Bassey, 1999: 62). Theory is implicitly linked with the notion of generalization which, as has been noted earlier, is the primary bone of contention with critics of case study research. Bassey deals with these issues of generalization through the concept of 'fuzzy generalizations'. In essence these are *tentative* extrapolations of theory towards universal application. Whereas generalizations are usually couched in definitive statements; 'If *x* happens *y will* follow' or '*z is* therefore universally applicable', Bassey's fuzzy generalizations are "general statements with built-in uncertainty" (Bassey, 1998: 52) integrating phrases such as 'likely to be', 'may be' or 'may'. For example, 'Children who do not have breakfast *are more likely to* become inattentive by mid morning'.

Theory-seeking case study as the methodology of choice

In Chapter 1, the researcher outlined the research problem and concluded that he felt "the practice of formative assessment may be more complex than has been acknowledged to date." In the literature review it was noted that some writers called for "richer qualitative studies of process and interactions within the classrooms to inform our understanding" (Carr *et al.*, 2000: 139, citing Black & Wiliam, 1998) and in this chapter, the researcher laid out his philosophical standpoint and reminded the reader of the research questions. In view of these points it is considered that a theory-seeking case-study is the appropriate methodology for this research.

Data collection methods

The ethnographic element of this research referred to earlier in this chapter is reflected in the choice of data collection methods or tools employed. Data were collected primarily through interviews, classroom observations and documents. An explanation and consideration of the pros and cons for each of these is mentioned below. The actual practice and problems of implementing the methods is covered in the next chapter.

Semi-structured interviews

Semi-structured interviews have a schedule of questions and question prompts to lead the researcher through the interview. Unlike a highly structured interview or questionnaire, the semi-structured interview allows the researcher to 'dig deeper' or pursue a particular point of interest raised by the interviewee whilst maintaining a focus. Thus semi-structured interviews, assuming they are of sufficient duration, can be truly 'in-depth' permitting "a more valid response... [that can encapsulate more of] ...the subtleties and personal interpretations" of the interviewee (Burns 1997: 330-331).

This study had preliminary interviews to gauge the teachers' understanding of formative assessment and to provide an indication of their practices as they perceived them. Final drawing-together interviews took place shortly after the period of observation. All interviews were tape recorded and transcribed verbatim.

Pros and cons of semi-structured interviews

There are a number of pros and cons of interviews (Drever, 1995; Woods, 1996).

Distinct advantages

- They yield 'high-quality' data. Opportunities exist to "explain any ambiguities and correct any misunderstanding of [the] question, and...probe for clarification" (Drever, 1995: 2-3). Thus they are especially appropriate for research within the interpretivist/ constructivist paradigm and are likely to produce more reliable data than would, for example, a questionnaire.

- They allow for awareness of the interviewee's body language and manner (and tone of voice) which may usefully add to the interpretation of their comments.

- They allow unexpected responses, (which may lead to a rethinking of the research question or a recognition of the study's limitations) to be probed in detail.

Disadvantages and difficulties

- They take time to complete. Drever (1995) recommends 45 minutes to one hour. Finding time to do this in a busy school may be difficult. It may be necessary to arrange time after school.

- They require the researcher to maintain sustained concentration, to listen *actively* and to keep focused. Further if notes only are being taken, keeping the flow going can also be difficult. Blaxter, Hughes & Tight (1996) caution that even the act of note taking can have a significant impact on interviewees. When notes are taken they may think they have said something important or relevant and when notes are not taken, that what they are saying is of little value. This, of course may not be the case. The researcher may be reflecting about how best to summarise what is being said.

- They take time to process and analyse. If notes are taken, these would need to be 'tidied up' (a neat copy can then be given to the participant for verification). Even if the interviews are recorded some notes should be taken recording non-verbal cues as well as in case of technical gremlins. Recordings take time to transcribe accurately and their analysis should not really be started until the participants have verified the transcripts, although in practice, especially within the qualitative paradigm, this is not easy to do.

Observations

Observations are the main source of data relating to 'what *actually happens* in a classroom'. Taking place in "the natural field setting" (Merriam, 1998: 95), no other method is able to contribute more to a holistic (Burns, 1997) picture of formative assessment *in* action in a *real life classroom.* The observations can be highly structured, with a checklist of predefined criteria or expected activities. On the other hand, the researcher may choose to note everything observed, (or at least as much as possible), without a predetermined focus. Such unstructured observations allow the researcher to develop categories as they emerge.

In addition, the status of the researcher within the classroom can range from non-participant to that of fully participant. Merriam (1998) suggests that at appropriate times the researcher's status may change as the focus of the observation changes, moving from the non-participant end of the continuum towards being a partial, if not full, participant.

Pros and cons of observations

In addition to what has been mentioned above, observations have the following advantages:

- Behaviour can be recorded as it happens (Burns, 1997)
- Observations do not rely on the participants willingness to report and is therefore "less demanding of active cooperation" (Burns, 1997: 316)
- The researcher may observe participants' behaviour that they themselves may not be aware of.

Disadvantages include:

- Possible observer bias as a result of being unable to see afresh

- Maintaining concentration and purpose over session that exceeds 20-30 minutes

- Thinking *too much* about what is being observed rather than recording it. By the time it is recorded the *real* behaviour may be lost in the *interpretation* or thinking

- The presence of an observer may cause participants to change their behaviour either consciously or unconsciously. Teachers may, for example, refrain from losing their tempers!

Documents

Documents can help provide some of the "necessary background of the situation and insights into the dynamics of everyday functioning" of the teachers and their classrooms (Mertens, 1998: 324). Such documents could include photocopies of children's work, teacher's plans and records, school policy statements and photographs of the children and teachers 'in action'. In addition, these materials can be used to support, or bring into question, what is observed in the classrooms or revealed through the interviews. That is to say, they can play an important role in the triangulation of data, as is explained later in this chapter.

The researcher as tool

Within the qualitative paradigm the researcher is considered to be the main instrument for data collection (Mertens 1998, 175). It is through the researcher that events in the observations are interpreted and noted, and in semi-structured interviews, questions phrased and answers probed. It is therefore important to consider the findings of qualitative studies in relation to the researchers' background, beliefs, values, assumptions and biases (Mertens 1998).

Other methodological issues

Validity and reliability in case study research

Reliability and validity are the two criteria against which the quality of any research can be measured (Merriam, 1998, Silverman, 2000). Despite this, there is much contention as to the extent to which these concepts hold true in case study research. Bassey (1999), for example, claims that they are not vital, primarily because a "case study is the study of a singularity" in which the case is not chosen for any characteristics considered representative of the wider universe. However, accepting that some measure of quality is necessary, he turns to the concept of trustworthiness first suggested by Lincoln & Guba (1985, cited by Bassey, 1999: 75).

In essence, trustworthiness can be 'tested' during the data collection, analysis, interpretation, and reporting stages by asking:

- Was the collection of data sufficiently long and focused enough to draw out and confirm emerging issues, and was there sufficient checking and verification with and at the sources?
- Are themes/issues and/or analytical statements derived through adequate triangulation of several data sources?
- Have the findings being critically appraised and/or tested beyond the research site?
- Does the case report provide sufficient details for the reader to trust the findings, and is the case record sufficiently organized and documented to provide for an effective audit trail?

The researcher in this study has made every effort to make sure the answer to each of the above is in the affirmative.

Triangulation

Triangulation is an essential component in establishing trustworthiness. It involves the cross-checking of data between sources in search of consistency, confirmation of emerging themes and issues, as well as evidence of contradictions and divergence (Mertens, 1998). Further the more dissimilar the sources of data are, the more valid any inference drawn from triangulation will be (Burns, 1997). For that reason, observations, interviews, examples of children's work, and school policy document have the potential to triangulate well. It is, though, possible to triangulate *within* data sources where this takes the form of participants verifying the data and data analysis, or where observations take place over an extended period of time (Haigh, 2001: 127, citing Hammersley & Gomm, 1997).

Ethics

Ethical issues relate to obtaining informed consent of all participants, privacy, confidentiality, the relationships between the researcher and participants, and the appropriateness and adequacy of the research procedures (Bouma, 1996). In terms of this study the researcher undertook to:

- Guarantee confidentiality with respect to all information given or acquired at any time, including that for which consent is subsequently withdrawn
- Encourage teachers to verify their comments from transcripts
- Show respect to *all* members of the school and for the school's cultural diversity
- Reduce potential (relief) teacher/researcher role conflict by not accepting any work in the school shortly before and during the data collection

- Refer any potential ethical issues not previously addressed to his supervisors for advice

- Negotiate ownership of the data, findings, reports and research documents, including future use for publication, with the participants before fieldwork began

- Provide the school with a summary of findings at the completion of the study.

Data analysis

Data analysis in qualitative research has been described as an iterative process (Burns, 1997; Merriam, 1998; Stake, 1995) where data, often in the form of transcripts, accounts of observations and other documents, are read and re-read several times in the search for common threads or themes. Identifying keywords and phrases facilitates the identification of the themes. To aid this further the data are coded and related data brought together.

Two forms of coding were selected for use in this research: axial and selective coding. In axial coding, categories are systematically developed and linked with subcategories. However, it is not until the major categories are finally integrated to form a larger theoretical scheme that the research findings take the form of *theory.* Selective coding is the process of integrating and refining categories. (Strauss & Corbin, 1998: 143, cited by Nichols, 1999: para. 3)

One method researchers have used in the past, and perhaps still use, to develop subcategories, is literally cutting up copies of their coded data and arranging and re-arranging them into themes on large sheets of coloured card or even into a set of labelled shoe boxes (Gummer, 2001)[1]. One problem with this cut and paste method is that it can be difficult to keep track of earlier permutations of data. Another problem can be with the time it takes to search for keywords, especially when the data are extensive, as

[1] Personal communication

well as the consistent assignment of meaning to each keyword. The longer it takes to search for keywords the greater the likelihood that the original meaning may migrate.

Specialist computer programs such as NUD*IST, ETHNOGRAPH, ATLAS and CAQDAS (Seale, 2000) are available to researchers to aid in qualitative data analysis. Nonetheless, they are not without their problems. Seale (2000) includes here the possibility of the programmes imposing "a narrowly exclusive approach to qualitative data analysis" (Seale, 2000: 173). Further, researchers may be lulled into a false sense of security by any program that 'analyses' data. Seale warns that computer programs are "no substitute for thinking hard about the meaning of data" (p.165). Cost and the time required to learn how to properly use such programs can also be a disadvantage to one engaged in small-scale research.

For this study, the researcher developed the use of the table function in Microsoft Word™ as a means of facilitating effective, efficient and reliable data analysis. The details of this method can be found in the following chapter.

Summary

This chapter has aimed to provide the reader with an understanding of why the researcher chose to undertake a theory-seeking case study. Data collection and analysis methods appropriate to such a methodology were outlined and critiqued, and the concepts of trustworthiness (a qualitative interpretation of reliability and validity), triangulation and ethical issues were briefly explored.

The following chapter looks at how the researcher put the methodology into practice.

CHAPTER 4

METHODOLOGY IN ACTION

Introduction

This chapter describes the practical aspects of the case study methodology. It starts by explaining how access to the participants was negotiated, their consent obtained and how issues of insider/outsider conflict were resolved with the aid of a 'magic waistcoat'. From there the writer describes how the data was collected, recorded, organised and analysed.

Negotiating access

Te Arawhiti Primary School was deliberately chosen as it is one where the researcher, through relief teaching, had developed a good working relationship. The decision to concentrate on the senior primary school was negotiated between the researcher and the Principal and Deputy who felt the research would complement the then current professional development in the teaching of writing skills at this level.

The researcher outlined the proposed study at a team meeting of senior-level teachers and three of the five members expressed interest in being involved. This was a satisfactory number as it allowed for a potentially more in-depth study in the time available. Triangulation of data at the 'teacher level' would also be possible.

Before the teachers were formally invited to take part in the study, the researcher sought permission from the school's Board of Trustees. The researcher accepted the Principal's invitation to make a short presentation to the Board, outlining the intended study and allowing Board members and

other interested parties to ask questions. The presentation was well received, (see letter from the Principal – Appendix A, p. 122) and a number of points were clarified.

Informed consent

Teachers, parents and children were each given Information Sheets before being invited to sign a consent form (Appendix B, pp. 123-128). Prior to giving her consent one parent phoned the researcher to ask if he were to interview her daughter, would that be done in private. The researcher assured the concerned parent that at no time would he interview the daughter, or any other child, individually and in private. Interviews, or brief chats as they would be, would be carried out either individually in the classroom during the lessons or elsewhere in a group.

The children in each class were guided through their information sheet by the researcher in their teacher's presence. This was carried out in a short session a few days before the preliminary observation. The children were then given their consent forms to complete and return to the researcher in sealed envelopes.

Dealing with non-consent

In each class a small number of children were not participants in the study. In most cases this was because their parents had refused consent or had not returned the consent form. In two of the classes one or two children had indicated that they did not wish to take part. In order to respect the wishes of those not giving consent the researcher used a fold-out crib sheet attached to his note book, (see example in Appendix C, p. 129). Each child, participant or not, was given a letter code based on a classroom seating plan. The letter code for non-participants was in bold type thus cueing the researcher to 'ignore' these children. The code in normal type was used in

the field-notes, write-ups and on photocopied documents to preserve the anonymity of the participating children.

Insider/outsider issues and the 'Magic Waistcoat'

Since the children already knew the researcher as a relief teacher it was necessary to develop strategies to help them make the distinction between his teaching role and the new role as researcher. The strategy adopted was to wear a 'magic waistcoat'.

As a teacher, the researcher had not previously worn a waistcoat and this was considered a useful visual reminder for the children. During the session where the researcher explained about the study he also emphasised that he would not be teaching the class and that it would be particularly helpful if the children did not initiate any interaction with him during the observations. To help the children remember when Mr Vickerman was "Mr Vickerman the Researcher" and not "Mr Vickerman the Teacher", he would wear a waistcoat that would "make him invisible".

On the whole, the idea seemed to work. It did, though, produce some amusing incidents early on as the following extract from the first observation in Room C illustrates.

> I entered the classroom before Bryony[1] (with her permission). Several of the children said 'hello' to me. Being in my 'researchers' mode I pointed to my waistcoat and reminded them that I was 'invisible'. As I moved a chair to where I was going to sit, one of the girls played on this saying things like; "Oh, look the chair's moving all by itself" and one of the boys added, "Oh, the briefcase is opening...the pencil's floating". I proceeded to get ready and ignored the comments. By the time Bryony had entered the classroom most of the children had settled down to read. Within a minute or so all but a couple of children were reading. A gentle reminder [from Bryony] got those two on task for most of the next 10 minutes.
>
> (*Ob/C.01/01*)[2]

[1] The names of all participants have been changed.
[2] The code Ob/C.01/01 represents "Observation/ in Rm C . first Observation/ data row 01

Instances like this were few and far between. If any of the children did made reference to the researcher or his waistcoat it tended to be to by one child reminding another who had just started or was about to talk to the researcher. These instances did not seem to be overtly distracting and were, if anything, useful peer prompting to return to task. Only one occasion was noted when a child failed to appreciate the purpose of the waistcoat. As the extract shows this was dealt with both quickly and tactfully.

> Jonas asks me a question, which I can't hear properly. I indicate to my waistcoat and mention that I'm 'invisible'. He seems not to accept the 'fact' and continues to ask me again. I suggest I can talk with him later.
>
> (Ob/B.06/31)

Into the field – the data collection

'Checking out the ground'

Data were collected through interviews, observations, chats with teachers and children, a questionnaire, examples of children's work and other documents, such as teachers' plans/assessment records and school policies.

Several weeks before the main period of data collection the researcher conducted a preliminary semi-structured interview with each teacher (see Appendix D, p.131) and a preliminary unstructured classroom observation in each class to "check out the ground" (Harker, no date). This served two purposes. Firstly, data from both allowed him to focus his thoughts further in order to develop a loose direction for the main observations.

Secondly, the observation helped indicate what to expect in terms of the classroom environment, (a plan of the room was sketched), teacher-pupil interactions and likely reactions to the researcher's presence. With this

knowledge he was able to try and minimise the influence of his presence, (for example, starting by sitting at the back and away from easily distracted children).

An additional benefit of the preliminary session was to provide practice with interview and observation methods in which the researcher was a relative novice. The development of research skills, in fact, was on going. This, according to Woods (1996) is a normal process where there are such techniques in the study.

Field-notes from the preliminary observations were not written up. The researcher, though, transcribed the interviews verbatim within 24 hours and gave the transcripts to the teachers for verification. Two teachers accepted their transcripts without modification, one asked for sections to be rephrased or removed. Verified transcripts were then printed and added to the case record.

Main data collection period

Observations were the main source of data relating to "what *actually happens* in the classroom" with regard to formative assessment. No other method could contribute more to a holistic (Burns, 1997) picture of formative assessment *in* action in a *real life classroom*.

Originally, the researcher had planned to observe each class during their writing lesson (up to 1½ hours) as often as could be arranged over a six week period during the second term. Due to the logistical limitations imposed by Karen & Sue's class having writing at the same time, and other school activities, observations were expected to be undertaken in each class two to three times per week. However, a few weeks before the observations were due to start the researcher was informed that one teacher, Karen, would have a student teacher in her room during the first three weeks. Consequently, it was decided to observe the writing lessons in Sue's and

Bryony's classrooms as much as possible for the first three weeks and then to do the same in Karen's room for the final three weeks.

The three teachers were reminded that they should not allow the research to change their plans and could ask the researcher not to come into the classroom when they felt it would not be appropriate. Although the teachers made every effort to accommodate the researcher, there were occasions when observations were not possible, such as when a class went on a school outing or one of the teachers was on day-release or feeling unwell. As a result, the researcher was able to observe in Sue and Bryony's classes on eleven and ten occasions respectively. Most of these observations were of consecutive lessons. This was particularly useful in that issues of continuity of assessment, such as checking up on the children's understanding of the previous lesson, were observed.

Unfortunately Karen became ill during the second week of observations in her class and in the final week the class was engaged in a number of school wide activities. Consequently it was only possible to undertake 6 observations in Karen's class. Virtually all of these observations were from the periphery of the classroom.

Participant or non-participant?

In Sue and Bryony's classes, and to a very limited extent in Karen's class, the researcher's physical position in the classroom changed over the period of the observations. At first the researcher sat at the back of the classroom, a non-participant. It is acknowledged, though, that the researcher's presence, no matter how inconspicuous he tried to make himself, would have had some impact on the classroom environment (Burns, 1997).

As the observations progressed the researcher moved closer to the groups and, with the reaffirmed consent of the teacher and children, eventually sat near individuals. Thus the researcher began moving slightly towards the participant end of the continuum, although at no point did he participate in

any activity. As such, the research could be considered a "passive" participant (Spradley, 1980 cited by Mertens, 1998: 317) in the life of the classroom.

This is not to say that there was no communication between the researcher and any of the participants. This took the form of occasional information gathering 'chats' with the teachers and several of the children, as illustrated in the following extract.

> I have a short chat with William and ask him why he thinks his teacher asks questions when the class is together on the mat. He replies, "to see if you understand."
>
> (*Ob/C.08/15 Chat w/child*)

Originally, when the observation schedule for each class was over a six-week period, the researcher had intended having a 'mid-observation' semi-structured interview with each teacher. However, once the schedule changed to a condensed three-week period this idea seemed no longer feasible. Instead the researcher had a number of *ad hoc* 'chats'.

Recording data from the observations

Data from observations were recorded using a spiral bound *Centreline Shorthand Notebook*. Writing in the left hand column the researcher attempted to record as much as possible that could be seen or heard. The right hand column was left for analytical memos, reflections or reminders. Notes from the first few observations were typed up in full the same afternoon or evening, (Appendix E, p.132). Occasionally the researcher's field notes were illegible or unintelligible. Such instances were recorded honestly in the typed notes.

> 9.39: Some children are becoming unsettled. [*notes illegible!!]*
>
> (*Ob/A.03/21 Ob/A.03/fn1/24*)[1]

To improve the trustworthiness of the field notes the researcher took to dictating and 'filling out' the notes into a tape recorder immediately after each session. The recordings were then transcribed the same afternoon or evening.

Chats

'Chats', or very short, informal, unstructured and often impromptu interviews with the teachers and some of the children, were a useful addition to the case record. The chats with the teachers were usually initiated by the researcher at the end of the lessons. As the observations progressed, though, the teachers began spontaneously offering comments themselves at anytime during the sessions. These were occasionally justifications for what they had just done or were about to do as the extract below illustrates.

> While the children are 'explaining' (?) to their neighbour, Sue comes over to me and explains what she is doing. Her aim is to show the children that instructions can be presented in picture form and to get them to think about the sequence of steps in procedural writing.
>
> (*Ob/A.09/12*)

Despite the focus of this study being what the teachers do, the views of the children were an extremely valuable source of information, especially regarding the likely effectiveness of their teacher's formative techniques. As Brown (1994, 9) suggests, recent (constructivist) views of learning stress that "effective learners operate best when they have insight into their own strengths and weaknesses and access to their own repertoires of strategies for learning." Therefore, responses from children to thoughtfully phrased

[1] Two codes are recorded here. The first refers to the written-up data, the second to the field notebook (book 1) and the page (p.24).

questions, based on what had recently been observed, can help verify or challenge the researcher's observations, thus leading to a more complete understanding, by the researcher, as to what was *actually* happening in the classroom.

Children with whom the researcher chatted were selected to meet the 'needs of the moment'. That is, as the observations progressed the researcher wanted to develop an understanding of the actions and reactions of individual children to something their teacher had done. As such the sampling of children was purposeful. The quick 'chats' took place as soon as it was convenient, with the researcher being conscious to minimise any disruption this could cause. Occasionally the researcher chose not to chat with certain children with whom he would have liked, as he felt the interruption at the time was not warranted. Although it would often have been possible to catch the children after the sessions it was felt that generally the moment had been lost and that information gained in that way would be less valid than would have been the case if the 'chat' had been closer to the event.

Notes from the chats were written immediately afterwards, even though this meant the researcher was not able to observe other things that were happening in the class at that time. Data gained through the 'chats' was used for triangulation purposes.

Group chats

In Sue and Bryony's classes the researcher chatted with children individually. The same stage in the observations had not been reached in Karen's class when the observations in Room B had to be curtailed. A few days before the end of the term Karen was working on running-records with individual children. The remaining children were tidying their desks and the classroom in general. The researcher approached Karen with a request to chat with some of the children after they had finished their tidying up. The

classroom environment, however, was very noisy and chatting with children under such conditions was not considered feasible. Since the researcher had previously undertaken not to chat with individual children out of the classroom it was agreed, with Karen's blessing, to take two groups of children to a vacant room for a group chat (Ch/ChB.1/01).

Before starting the group chat the researcher reminded the children that they did not have to take part or answer any questions (Ch/ChB.1/02). None of the children chose to return to their classroom. Nonetheless, the researcher remained sensitive to the children's body language. For example, when the non-verbal clues exhibited by some children in the second group indicated they would prefer to leave, the researcher drew that group chat to a close.

> I asked if Karen had helped in any way to help him get to the stage of writing longer sentences. He shrugged his shoulders. (*Ch/ChB.1/23*) ... Leon suggests that you teach by copying from the board and then try to remember it. I ask him to explain what he means. He shrugs his shoulders. (*Ch/ChB.1/24*) ... At this point the children are getting quite restless so we return to the classroom. (*Ch/ChB.1/25*)

Unlike the individual chats in Sue and Bryony's classes, brief notes were made during the group interview and expanded by dictation on to audio tape as soon as possible afterwards.

Final interview and questionnaire

Final interviews were held with Sue and Bryony, two and a half weeks after their final observations. Questions focused on issues raised from the preliminary interviews and the observations, (Appendix F, p.134). They also provided a more formal opportunity for the teachers to add any further information as they wished. As in the preliminary interviews, the transcripts were given for verification. Verified transcripts contained only minor adjustments.

Questionnaire

Due to her ill health, it was not possible to interview Karen as had been done with Sue and Bryony. However, despite being reminded that she had the right to withdraw from the study, Karen was concerned to complete her involvement. After some discussion it was agreed that the researcher would produce a questionnaire, (Appendix G, p.137), which was in effect a re-worded interview schedule, for Karen to complete in her own time. Whilst the data from this lacked the richness and depth that would have come from an interview it did allow Karen to provide some useful input that would aid triangulation of data.

Other documents

Teachers provided access to their planning books, notes, record keeping, pre and post procedural writing tests and the children's draft and written language books. The school also provided copies of assessment policy documents. Permission was also given for photographs to be taken during the latter observations. At all times the researcher undertook to maintain confidentiality and, where necessary, anonymity with regard to this material. Names and other identifying details on originals, including references to teachers and friends in the children's work, were masked before documents were photocopied. The original details were then replaced with the relevant codes on the photocopy. Photographs focused on 'the action' rather than the people. These were framed in such a way as to obscure the identity of the individuals.

Recording and organising the data

As has been indicated every effort was made to enhance the trustworthiness of the data by writing it up or transcribing it as soon as possible, usually within 24 hours.

Another important means of enhancing trustworthiness is through the systematic organisation of the case record (Bassey, 1999). The researcher used a system of alphanumeric coding for each data source, a consistent format using the table facility in Microsoft Word™ for all writing-up, and colour codes to differentiate between teachers/classes, data sources, as well as between verified and unverified transcripts. Initially data were organised by source, i.e. all observations together and all interviews together. However, prior to data analysis these were reorganised according to Teacher/Class. Two copies of the data were produced; one being filed as a master copy for safe keeping, the other spiral bound into three colour-coded volumes as working copies. Interviews, transcripts and observation data were also backed-up onto working disks, the original disks stored securely as master copies.

Data analysis

The table facility in Microsoft Word™ provided the tool for much of the data analysis. In essence, the process is a simple computerisation of the traditional cut and paste method. It allows the researcher to search for, sort and organise data along the principles of the traditional scissor and paste methods frequently utilised in qualitative data analysis but, considerably quicker and without the mess!

Using table functions in Microsoft Word™ to facilitate qualitative data analysis

Using the table functions in Microsoft Word™ the researcher is able to code, organise, and reorganise written data, undertake keyword searches, count frequencies of key words and phrases, locate specific text, and cut and paste into the draft document. Furthermore, once a standard format for the table has been decided, the researcher can combine data from several sources.

In this case, the table consisted of four columns; theme/keyword, source code, text and a blank one for comments and/or other use. To ensure that all data were recorded in a consistent format, the initial table comprising the header row and the first data row was saved as a Word™ template. Figures 4.1 & 4.2 illustrate how the same format was used for recording data from both observations and interviews.

The field notes recorded in spiral notebooks or the tape recordings of expanded oral notes or interviews, were transcribed directly into the data table. The researcher experimented with voice-recognition software to expedite the typing up of notes. However, it was soon determined that this was not accurate enough with the software mis-recognising words and phrases quite frequently. As a result the researcher reverted to typing up by hand. The task took longer, but was more precise.

Figure 4.1

Example of data recording of observations in Microsoft Word™ table

THEME	Ref – Typed notes/original field notes[1]	TEXT TIME		
	Ob/B.5/28 Ob/B.5/fn1/46		Karen moves to the board then says loud enough for everyone to hear, "the heading today is ...(thinks?)..." Someone calls out, "how to."" She then points to the words, 'how to...' on the class daily timetable on another board.	
	Ob/B.5/29 Ob/B.5/fn1/46	11.34:	In response to question Karen says, "no ...going to make a list." She then proceeds to walk quickly around the groups glancing at the children and [or?] their work.	
	Ob/B.5/30 Ob/B.5/fn1/46	11.35:	Karen now asks the class, "who's go their first ideas on their list already?" Edward puts his hand up. Karen walks over to him and, leaning across Gemma and Fiona, tries to look at his work. She asks Edward to read it. She then says to Edward, "well done," and to the class in general, "Edward has finished his first idea,"	
	Ob/B.5/31 Ob/B.5/fn1/46		Ursula has her hand up. Karen goes to her and Ursula asks her a question. Karen replies , [*Unable to hear either part of the conversation.*]	

[1] Type notes/original field notes ref: example:- Ob/A.1/1 – Ob/A.1/fn1/2 = Observation/room A 1st Observation/Typed notes row 1 - Observation/room A 1st Observation/field notebook 1/page 2

Figure 4.2

Example of data recording of interviews in Microsoft Word™ table

THEME	Approx tape# (from start of tape)[1]	TEXT	
	Ip/S/VT/058 Tc/247	S: Yeah so when I say it's not planned ... they all get... ... ...direction feedback ... umm a lot...	
	Ip/S/VT/059	R: Ok...? Ok..? When when you're formatively assessing the children [interruption] So when you're formatively assessing the children either individually or in a group, how do you use the information, we've covered it some extent but you may want to..<to>.	
	Ip/S/VT/060	S: <How> do I use <the information>....	
	Ip/S/VT/061	R: <How do you use> the information, yeah yeah...	
	Ip/S/VT/062 Tc/255	S: ...well I try make a little note of where they're at and [??? ???] where they're at what they're doing. Umm... ... sometimes it's a mental note but more often it's written.....and I had something else to say but I... ...how I use the information wasn't it....?	

[1] Code Ip/S/VT/58 = Interview(Preliminary)/Sue(teacher's name)/Verified transcript/row 58; Tc = Tape counter

Facilitating data analysis

All observations, interviews and the responses to the single questionnaire were recorded on individual tables and stored on floppy disks. Once all observations had been recorded in their own files, four further master files where produced. The first three were the combined observations for each classroom, and the final one combined all observations in one document. The same consolidation was also carried out with the interviews/ questionnaire.

Two paper copies were printed. One was kept in storage as a 'clean' copy and the other spiral bound in three books, one for each class/teacher. Also included in each volume were copies of additional documentary evidence; children's work and teacher's records and notes.

Analysis started by first reading through each volume of data. At the first reading no notes were made. During a subsequent reading the researcher began coding data in the left hand column and making occasional notes in the right. Originally, the researcher had intended to do all coding on the

paper copies. However, after transferring the codes and notes of the first few tables to 'working copies' of the computer files, he decided to continue coding directly onto the computer files. In general, the researcher found that he was using codes for the observations, such as *Int-T-P* (Teacher-pupil interaction) and *Ans-T* (teacher answers pupil's question), but was using predominantly keywords or phrases in the interviews, for example, "*Feel(ing)*" and "*How they are...*".

Following the second reading it was decided to use Word™'s *Find and Replace* facility to establish the frequency of the growing list of keywords. On the face of it this seemed like an effective way of determining the possible significance of certain words. It soon became apparent, though, that some words have different contextual meanings. The following three examples from Bryony's final interview illustrate this point:

> *Come to the conclusion*
> But when they bring me capital letters and full stops and in fact it's not a complete sentence that makes sense I **feel** they've missed the point (*Fi/B/VT/0136*)
>
> *Consider*
> So I always **feel** that there's room for improvement in all things that I do. (*Fi/B/VT/0152*)
>
> *Intuition*
> And then you've got the day-to-day interactions with the child and it's kind of from all of that you get a **feel** for where the kids are up to. (*Fi/B/VT/0152*)

Further, some keywords occurred more than once within close proximity to each other. This was especially true in verbatim interview transcripts. Where such words referred to the same incident a frequency count that included all occurrences would have been misleading. It was therefore necessary to consider each keyword within its context and to establish it's real, or at least most likely, meaning as well as it's actual count. Combining the *Find and*

Replace facility with the *Data Sort* function helped overcome these problems.

Whilst this was very useful, care had to be taken in assigning meaning as the context may have extended beyond a particular cell. In cases of uncertainty it was necessary to refer again to the original data to establish the actual context.

Once the data were coded, the *Find & Replace* function was used to establish the frequency of each keyword and code. For example, the results revealed that for one teacher, 22 instances of her looking at children's work, (Exam-look) but only 1 instance of her marking the work, (Exam-mark) were observed.

Other uses of table and Word™ functions

The researcher also used the table facilities and Word™ functions to combine and then sort interview transcripts by question to aid the comparison of answers. The *Find* function also helped to identify a trail of related interactions between a teacher and a given pupil over several observations.

The background, development and the *modus operandi* of this method of data analysis are detailed in Appendix H, (p.139).

Data aggregation

The process of aggregation took several steps. In order for themes to emerge it was necessary to group the codes and the extensive list of keywords into general categories.

Some words were easily assigned into groups while others required more consideration. Tables 4.1 & 4.2 show how the 45 keywords, having been

assigned to the Indicator (IND) group, were eventually condensed into seven sub-categories. In an earlier table, (see Appendix D for an extract), footnotes were assigned to such words to illuminate these various meanings.

Table 4.1

The initial 45 'Indicator' keywords and their frequencies by teacher (Bryony, Karen, Sue) and interview (Preliminary and Final)

		B p	B f	K p	K f	S p	S f	*f* (p)	*f* (f)	*f* (all)	COMMENTS
IND	Responses – unexpected	0	1	0	0	0	0	0	1	**1**	
	Apparent	0	1	0	0	1	0	1	1	**2**	
	Block	0	0	1	0	0	0	1	0	**1**	
	Cottoned on	0	0	0	0	1	0	1	0	**1**	
	Feel	0	2	0	0	0	0	0	2	**2**	
	Feel	0	2	0	0	0	0	0	2	**2**	
	How they are	0	0	0	0	4	1	4	1	**5**	
	How things are going	0	0	0	0	0	1	0	1	**1**	
	Informative	1	0	0	0	0	0	1	0	**1**	
	Interact(ing/tion	0	1	0	0	0	0	0	1	**1**	
	Intune	0	0	0	0	0	1	0	1	**1**	
	Measure	1	0	0	0	0	0	1	0	**1**	
	Measure	0	1	0	0	0	0	0	1	**1**	
	Measure	0	0	0	0	0	1	0	1	**1**	
	Muddle	1	1	0	0	0	0	1	1	**2**	
	Need help with	0	0	0	0	1	1	1	1	**2**	
	Noticeable	0	0	0	0	1	1	1	1	**2**	
	On task	0	1	0	1	0	1	0	3	**3**	
	On track	0	0	1	1	0	0	1	1	**2**	
	Pattern	5	0	0	0	0	0	5	0	**5**	
	Pick up	0	0	0	0	0	1	0	1	**1**	
	Picked up	4	0	0	0	0	1	4	1	**5**	
	Picking up	0	1	0	0	2	2	2	3	**5**	
	Problem	0	1	0	1	0	3	0	5	**5**	
	Processing	0	0	0	0	0	1	0	1	**1**	
	Progress	2	2	0	2	1	0	3	4	**7**	
	Progress	0	1	0	0	0	0	0	1	**1**	
	Repeating words	0	0	0	0	0	1	0	1	**1**	
	Sense	0	2	0	0	0	0	0	2	**2**	
	Spelling errors	0	0	0	0	0	1	0	1	**1**	
	Stood out	1	0	0	0	0	0	1	0	**1**	
	Struggle	2	1	0	0	1	4	3	5	**8**	
	Stuck	0	0	0	0	6	1	6	1	**7**	
	Unstuck	0	0	0	0	1	0	1	0	**1**	
	Talk	0	0	0	0	0	1	0	1	**1**	
	Information – a	3	1	0	0	3	5	6	6	**12**	
	Information – b	0	0	0	0	3	1	3	1	**4**	
	Behaviour	1	6	0	2	0	6	1	14	**15**	
	Intuition	0	1	0	1	0	0	0	2	**2**	
	Nvc[1]	0	6	0	2	0	4	0	12	**12**	
	Comment	0	1	0	0	0	0	0	1	**1**	
	Performance	8	9	3	0	9	7	20	16	**36**	
	p-t-fdbk[2]	1	3	0	0	0	5	1	8	**9**	
	Qu p-t[3]	0	1	0	0	0	3	0	4	**4**	
	TOTALS IND	**30**	**46**	**5**	**10**	**34**	**54**	**69**	**110**	**179**	

See Appendix I for examples of keyword analysis with multiple definitions.

[1] Non-verbal communication.
[2] Pupil gives feedback to teacher.
[3] Pupil asks teacher question.

Table 4.2

The seven 'indicator' (IND) sub-categories derived from the 45 'indicator' keywords (see table 4.1)

Main Cat.	Sub-Categories	B p	B f	K p	K f	S p	S f	*f* (p)	*f* (f)	*f* (all)	Keywords/Phrases
IND	Child Response (affective, behavioural)	1	12	-	4	-	10	1	26	**27**	Behaviour, Non verbal communication
	Child Response (Product, process, practice) +ve or -ve	15	17	3	-	15	22	33	39	**72**	How they are... (processing/working/ doing/succeeding); How they have ... (used/ applied/developed); How things are going; Informative, Measure [assmnt], Qu P-T, Comment, Interact(ing/tion/tion, Pattern, Performance, Processing, Progress (work in), P-T-feedback, Responses (unexpected), Talk
	Child Response (Product, process, practice) +ve	7	7	1	4	11	6	19	17	**36**	Measure (of understanding), On task, On track, Cottoned on, Pick(ed/ing) up, Progress, Transfer
	Child Response (Product, process, practice) -ve	3	3	1	1	10	12	14	16	**30**	Repeating words, Block, noticeable, Problem, Unstuck, Muddle, Spelling errors, Struggle, Stuck, Need help with
	"Where children are at" (WCAA)	15	4	6	-	26	9	47	13	**60**	Are at, Are up to, Is actually at, Is at, them're at, They're at, What can the children do, WCAA
	Teacher 's response (feeling)	1	8	-	1	2	1	3	10	**13**	Apparent, Feel, Intuition, In-tune, Sense, stood out
	Other	4	1	-	-	6	6	10	7	**17**	Information, Measure [stats]
	Total IND	**46**	**52**	**11**	**10**	**70**	**66**	**127**	**128**	**255**	

The reader will notice two apparent anomalies. Firstly, in Table 4.1 some words occur more than once. This is because, as explained above, some words can have different meanings. Secondly, the totals in the two tables do not agree. The final aggregation for the category IND, Table 4.2, includes two previous independent categories, "where the children are at" and "behaviour", as well as a number of previously unassigned keywords.

The full aggregated data for observations and interviews are presented in tables 4.3 and 4.4 following.

Table 4.3

Summary of data from observations

T/P	Main Theme	Code	definition	Room			f
				f(A)	f(B)	f(C)	ALL
P	TOOL	P-correct	Pupil initiated corrections (Self or peer)	0	0	8	**8**
T		Conf-	Conferencing	0	0	2	**2**
T		Exam-...	Teacher examines pupil's work	154	47	46	**247**
T		Formal-Ass	Formal Assessment	3	1	0	**4**
T		Int-T-P	Teacher- Pupil interaction	1	2	0	**3**
T		Obs-...	Teacher observers pupil's work	46	21	67	**134**
T		Qu-	Teacher questions pupil(s)	149	83	94	**326**
			Total TOOL	**353**	**154**	**217**	**724**
P	IND	Ans-	Answers from ch	132	94	94	**320**
P		Com-	Comments from Ch	2	14	2	**18**
P		Fdbk-	Feedback from Ch	5	1	13	**19**
P		Int-P-P	Pupil initiated interactions	1	13	1	**15**
P		NVC-C	Non-verbal communications	16	22	17	**55**
P		Qu-P-P	Pupil initiated Questions	17	20	11	**48**
P		SA-P	Pupil self assessment	4	3	3	**10**
P		Sugg-P	Suggestions to T from Pupil	1	17	5	**23**
P		Transfer	Evidence of transfer	2	0	0	**2**
T		WCAA	Where Children Are At	3	0	2	**5**
			Total IND	**183**	**184**	**148**	**515**
T	Prof Judg	PJ	Professional Judgement and Practice	1	2	5	**11**
T	NOTE	Rec-note	Teacher records notes	14	0	0	**14**
T	RE	Act-chng	Teacher changes activity	1	15	17	**33**
T		Ans-T	Teacher answers P's Questions	9	12	4	**25**
T		Fdbk-...	T-P feedback	170	156	139	**465**
T		Re...	Teacher reacts as a result of Indicator or evidence	55	35	67	**157**
T		Scaf	Teacher scaffolds learning	42	38	58	**138**
			Total RE	**277**	**256**	**285**	**818**
T	PLAN	Plan	Teacher planning	8	0	4	**12**
P	Other	various	Various from Pupil	11	5	4	**20**
T		various	Various from Teacher	1	0	3	**4**
			Total Other	12	5	7	**24**

KEY – IND – Indicator/Information/Evidence
Prof. Judg. – Professional Judgement
RE – Re... action

See Appendix J (p. 147) for definitions of codes and keywords.

Table 4.4
Summary of Data from All Interviews[1]

		B p	B f	K p	K f	S p	S f	f (p)	f (f)	f (all)	Keywords/Phrases
TOOL	Activity	6	1	-	-	1	-	7	1	8	Matching, Art work, Cloze, Oral presentation, Practical
	Conferencing	1	1	2	-	8	-	12	1	13	Conferencing, Discussion
	Exam ...	17	21	-	3	5	17	22	41	63	Listening, Checking, Listen, Look(ed/ing) at,/for, Mark, To see
	Formal Assessment	6	2	3	1	2	2	11	5	16	Measure, Post assessment, Pre & post test, Standardised test
	Intuition	3	4	4	1	1	1	8	7	15	Automatic, Feel, Instinct, Intuition, Realise, Sense
	Observation	1	14	5	3	7	13	13	30	43	Glanc(e/ed/ing), Listen, Look(ed/ing) at, Notic(e/ing), Observ(ing/ation/s), To see, Watch(/ing
	P-assessed	-	1	-	1	-	4	-	6	6	Peer/self Assessment
	P-T question	-	3	-	4	-	8	-	15	15	Question, ask
	T-P Interaction	1	4	-	-	-	-	1	4	5	Interact(ing/tion/tions)
	Other	1	2	-	-	-	1	1	3	4	Informal(ly), To see (T-understands)
	Total TOOL	36	53	14	13	24	46	75	113	188	
IND	Child Response (affective, behavioural)	1	12	-	4	-	10	1	26	27	Behaviour, Non verbal communication
	Child Response (Product, process, practice) +ve or -ve	15	17	3	-	15	22	33	39	72	How they are... (processing/working/ doing/succeeding); How they have ... (used/ applied/developed); How things are going; Informative, Measure (assmnt), Qu P-T, Comment, Interact(ing/tion/tion, Pattern, Performance, Processing, Progress (work in), P-T-feedback, Responses (unexpected), Talk
	Child Response (Product, process, practice) +ve	7	7	1	4	11	6	19	17	36	Measure (of understanding), On task, On track, Cottoned on, Pick(ed/ing) up, Progress, Transfer
	Child Response (Product, process, practice) -ve	3	3	1	1	10	12	14	16	30	Repeating words, Block, noticeable, Problem, Unstuck, Muddle, Spelling errors, Struggle, Stuck, Need help with
	"Where children are at" (WCAA)	15	4	6	-	26	9	47	13	60	Are at, Are up to, Is actually at, Is at, them're at, They're at, What can the children do, WCAA
	Teacher response (feeling)	1	8	-	1	2	1	3	10	13	Apparent, Feel, Intuition, In-tune, Sense, stood out
	Other	4	1	-	-	6	6	10	7	17	Information, Measure (stats)
	Total IND	46	52	11	10	70	66	127	128	255	

[1] Includes final questionnaire for Karen

		B p	B f	K p	K f	S p	S f	f (p)	f (f)	f (all)	Keywords/Phrases
Prof. Judg	Total Prof Judg	-	3	-	-	-	3	-	6	6	Evaluation, Consider
NOTE	Total NOTES	7	3	2	1	6	3	15	7	22	Comment; Mental Note; Mental note; Never write; Note(s/d); Running record
RE...	Change topic	-	1	-	-	-	1	-	2	2	Activity -change
	Influence -plan	2	1	-	-	-	1	2	2	4	Guides me; Influenc(e/es/ed/ing); Next step
	Re...act	8	8	2	5	13	11	23	24	47	Change direction; Conference; Continue; Act; Acting on; Address; Corrects; Cue back; Go back; Look at, Moving; Presence; Progress; Recap; Redirect; Redo; Re-explain; Refocus; Reinforce; Re-look; Remind; Repeat; Rephrase; Review; Take it back;
	Re...act plan	10	4	1	1	10	9	21	14	35	Adapt; Adapt; Alter/modify; Next lesson/day; Readjust; Rearrange; Reteach; Revisit(ed); Session
	Scaffold	-	10	2	1	3	13	5	24	29	Help(s/ed/ing); Model; More work; Provide opportunities; Provide; Show;
	T-P feedback	3	-	-	3	4	6	7	9	16	Another lesson; Comments; feedback; NVC;
	Other	-	1	-	1	-	1	-	3	3	Discuss, Let be, Moving
	TOTAL RE	23	25	5	11	30	42	58	78	136	
PLAN	TOTAL PLAN	10	5	4	1	6	3	20	9	29	Five week objectives; Next day; Next term; Plan;

KEY – IND – Indicator/Information/Evidence | B – Bryony | p – preliminary interview
Prof. Judg. – Professional Judgement | K – Karen | f – Final interview (Questionnaire- Karen)
RE – Re... action | S – Sue | *f – Frequency*

Note

Generally speaking, the Keywords/Phrases are the actual words used by the teacher and are considered of equal value. Exceptions include where the teacher has implied something and the meaning has been derived from the context. In such cases codes have been used instead of keywords. For example; *Qu-P-T* and *P-T-feedback* - The teacher has reported that the pupil asks the teacher a question or questions or has provided the teacher with unsolicited feedback. *NVC* is used for references to forms of non-verbal communication.

Other sources

Data were also collected from other sources, including chats with both teachers and children, photographs, teachers records, school documents and copies of children's work. Most of these provided evidence across two or more of the main categories of Tools, Indicators, Professional Judgement, Notes, *Re...actions* and Planning. These are summarised in the table below:

Table 4.5
Other sources of data

	TOOL	IND	Prof. Judg	NOTE	RE...	PLAN
Chats w/children	✓	✓				
Chats w/teacher	✓	✓	✓	✓	✓	✓
Photos	✓	✓		✓		
Teacher records	✓	✓	✓	✓	✓	✓
School documents						✓
Children's work		✓			✓	

Withdrawing from the field

At the outset of the research it was agreed that data would be collected during one term only. Whilst it was tempting to continue to dig deeper, the agreement was honoured. The researcher felt it necessary to formalise the closure of this aspect of the research and to express gratitude to the school, particularly to the three participating teachers and their classes for, more than anything else, their patience. The researcher expressed his thanks personally to each class and gave them a bag of lollies to share, flowers for each of the teachers and provided morning tea for the staff, both teaching and non-teaching, of *Te Arawhiti Primary School,* all of whom had been generous in their support.

Summary

This chapter has described the methodology of the research as it manifested itself in action. Issues, problems and solutions relating to negotiating access and the data collection have been discussed. The use of Microsoft Word™ to facilitate data analysis was explained and the process of data aggregation, required for the development of emergent themes, was illustrated.

CHAPTER 5

SEEKING THEORY – LETTING THE DATA SPEAK

Introduction

This research is a theory-seeking case study. Throughout the data analysis the search for theory has taken the researcher repeatedly backwards and forwards, into and out of the data. At times, ideas seemed to come together and analytical memos were recorded, whilst at other times the ideas seemed to be off-track and further memos were recorded. The process was a line-by-line, word-by-word "microscopic examination of data to generate initial concepts" (Nichols, 1999, para. 2.33) which, Nichols says, should "let the data speak!" (*ibid.*).

Although the axial and selective coding (see previous chapter), which aggregated the data into broad themes, helped provide the larger theoretical scheme that Strauss & Corbin (1998, cited by Nichols, 1999, para. 3) refer to, such practice has had, to some extent, the effect of diluting the "richness" the data. To give this "richness" voice again it is therefore necessary to bring back the context. This is what happens here as the researcher takes the reader through the emergent themes.

The following themes *are* emergent. That is to say they are *in the process of emerging* as far as the developing or seeking of theory is concerned. They lead ultimately to the development of a "Model of Formative Assessment Action" – a theoretical framework that is constructed to reflect *How the teachers are formatively assessing the children in their classes* and *What the teachers are doing in response to information gained through such assessment.*

Whilst it is impossible to take the reader through the complete cognitive/interpretive process experienced by the researcher, the following extracts have been selected firstly to illuminate the trends, and secondly to highlight the acts of triangulation. Data were triangulated across methods, (observations, interviews, chats and documents), as well as both within methods, (eg. interviews with different teachers), and within sources, (e.g. the same teacher but at different times).

EMERGENT THEMES

The preliminary interview established the foundation for the study providing a general understanding of 'where the teachers were coming from'. A number of significant factors were revealed against which the investigation into formative assessment, as it happens in the three classrooms of *Te Arawhiti Primary*, could be interpreted. These factors were the school-wide assessment culture and the individual teacher's attitudes towards it; the occasional 'conflict' between formal and informal assessment practices; the uncertainty about the meaning of some assessment terminology, and the belief that assessment has to be useful, feeds into planning and is sometimes an unconscious act.

The data from the observations, informal chats, and school documents 'interacted' with the above factors to reveal 5 emergent themes:

1. Formative assessment within a school-wide context.
2. Formative assessment and teachers' perception of its purpose.
3. Formative assessment is often intuitive.
4. Formative assessment leads to *re...action.*
5. Formative assessment is on-going and cyclical.

1. The context of assessment

Informal classroom assessment at *Te Arawhiti Primary School* takes place against a school-wide backdrop of formal, typically summative, accountability driven assessment in which teachers "are required to show progress." (*Preliminary interview –Bryony, Ip/B/VT/0038*[1]). This culture of formal assessment has its roots in the school's "*School Assessment & Evaluation Policy*" document. The tenor of the policy leans towards assessment as a formal activity, despite reference to data gathering methods such as informal observation, conferencing, listening, questioning, buddy and self assessments, and comments such as:

> Evaluation/assessment:
> - Is the spring board for planning or establishing a strategy
> - Determines the need for a particular learning experience...
>
> (*Te Arawhiti Primary School – Assessment/Evaluation Policy*, p. 2)

Data that the policy states are "currently gathered" include the ubiquitous P.A.T tests[2], running records[3], pre and post tests, skill/objective assessments, and various other evaluations and records of achievement. The emphasis towards the formal is strengthened with phrases such as:

> "Chn *(sic)* have a knowledge gap indicated by PAT tests..."
>
> "All running records will be kept in chn's *(sic)* files..."
>
> "Chn *(sic)* at the 12-13 plus level will be Burt tested."
>
> (*Te Arawhiti Primary School – Assessment/Evaluation Policy*, p. 3)

---

[1] Ip /B/VT/0038 = Preliminary Interview/Bryony/Verified transcript/Row 38

[2] Progressive Achievement Test - New-Zealand designed, norm referenced standardised tests for various language skills, mathematics and other study skills (Hill, J. 1998)

[3] "a standardised performance reading test used to determine a student's reading age" (Hill, J. 1998)

All three teachers implied the existence of a culture of formal assessment in the school. Bryony, for example, confirmed the pervading formal assessment culture referring to the collection of statistics and measurements from which teachers made statements about the children's ability as part of "the wider global requirement of assessment" (*Ip/B/VT/0069*). Whilst Sue accepted the need for "big, major ... assessments for school documentation" (*Ip/S/VT/0007*) both she and Karen indicated a degree of frustration with the school's assessment culture arguing against "assessment done for assessment's sake" (*Ip/K/VT/0002; Ip/S/VT/0006*). In addition, Karen expressed particular concern about the frequent statistical use of assessment information:

> but just to hand in numbers for people to put into pretty graphs or make pictures with I feel very strongly about that...when this happens... to me it's a pointless task...
>
> (Karen - preliminary interview - *Ip/K/VT/0002*)

Children were also not immune to the overall assessment culture as was revealed during an informal chat with a group from Room B, (Karen's class). They were asked to imagine that they were the teacher and to suggest what they would do to find out whether or not children had learnt something:

> Brian[1] suggests 'give a test,' ... ...
>
> "Ok," I say, "You've done that what would you do to find out if the children had been learning?" One child suggests, 'look at their books'. Another, Greg, suggests that in Maths 'you could do a test and if only got a few right later on do another test and see if they've improved.'... ... ...
>
> I ask Greg 'would you do the same test or a different test?' He says, (prompted by Fiona), that some things could be the same and some things could be different.
>
> (Chat with Children *Ch/ChB.1/10 - Ch/ChB.1/13*)

[1] All names are pseudonyms.

The comments suggest a possible departure from what Karen says she does and does not assess in the classroom. However, the children may have been influenced by their procedural writing post-test, recently completed as part of a school-wide assessment (*Ob/B.2/0030*). It is interesting, though, that Greg refers to a Maths pre and post-test, and not a writing one. As previously mentioned, it is unfortunate that the researcher was not able to observe Karen's class for the full three weeks as planned due to Karen's ill-health. Therefore it is not possible to comment with confidence on the significance, or otherwise, of the apparent contradiction.

Formative assessment against the backdrop of formal assessment – some terminological confusion and reported practice

The researcher was surprised during the preliminary interviews when the teachers showed some confusion about the term "*formative* assessment". The surprise was greater because of the extent to which the teachers had been involved in the negotiation stage of the study in which the term had been freely used. Karen, for example, asked for clarification of the term, but when prompted gave an indication of understanding;

> K: [thinks] So by formative you mean...?
>
> R: ... ... What do you think I mean?
>
> K: <[laughs]> Now that's not very fair [thinks]...I guess that any assessment that I do apart from school requirements is where I'm going next ...
>
> (Karen - preliminary interview – *Ip/K/VT/0028 - Ip/K/VT/0030)*

Bryony, on the other hand, started by confusing 'formative' with 'formal' before realising a few moments later that she could have been mistaken. Finally she explained the reason for the confusion as the following extracts indicate:

> ... you need a balance between the formative and the informal assessments.
>
> And so often formative assessment, not all the time, but mostly in a school situation, is pen and paper ...
>
> Let's just clarify, Martin, what you're meaning by formative first, can we do that? Just in case we've got a slightly different meaning to it. I understand formative [is] that you do learning with the children and then you look at what they know. You take those results and then you plan the next step. Is that what you mean by formative?
>
> I want to comment about the formative and the summative and the fact that I think those terms are probably everyday language for people who study the theoretical side. But when you're in the classroom ... assessment is assessment you just do it. I don't have time to think about the, you know, the detail of what is happening you're just assessing and you're doing it and you're getting on with the job.
>
> (Bryony - preliminary interview – *Ip/B/VT/0040, Ip/B/VT/0046, Ip/B/VT/0048, Ip/B/VT/0104)*

See footnote[1]

Despite the terminological confusion, the preliminary interviews revealed that the teachers, on the whole, felt that their assessment practices fed into their teaching and planning as well as impacted on the children's learning. That is to say the practices were potentially, if not essentially, formative in nature. This was confirmed throughout most of the observations, as well as from the final interviews, (e.g *.Fi/B/VT/0136, Fi/B/VT/0138, Fi/S/VT/0229)* and teachers' notes *(e.g. Doc/S/07, Doc/B/02),*

The following extracts focus on comments from the preliminary interviews.

---

[1] *On both occasions the researcher felt it necessary to pause the tape and clarify the distinction between formative and summative assessment, to allow a more accurate investigation of the formative aspect of the teachers' assessment practices.*

B: Basically I'm looking at what knowledge they've picked up ... I'm looking to see what skills they've used. And, by looking at the work or marking the work whichever is applicable I'm able to get an indication of the patterns across the classroom and then also the detail of individuals which then influences the next step. ... ...

R: ... ... the next step being...?

B: Planning

(Bryony - preliminary interview – *Ip/B/VT/0014 – Ip/B/VT/0016*)

[referring to the use of information gained from assessment in general]

K: ...there may not actually be anything written. It may be just me moving around as they're working on an activity and assessing who can do what.

R: So what you're saying is you then use it in your teaching ...

K: Yeah.

R: Does it go into your planning?

K: Yes...it consciously goes into my organisation, yes yes definitely.

(Karen - preliminary interview – *Ip/K/VT/0010 – Ip/K/VT/0016*)

Both Bryony and Karen were assimilating information from their very informal assessments and then using this knowledge in deciding what to do next. In both cases there seemed to be an assumption that the 'next step' included some aspect of planning.

In contrast, Sue, as the next extract illustrates, clearly recognises the relationship between assessment information, planning and its use to enhance learning.

> S: ... I actually use [the information gained from observations, conferences, listening, practical activities, and discussions] to help further the planning ... It actually gives me an idea of where they're at and what actually ... they get stuck on [for example] ... they haven't recognised that a full stop needs to go in there...and...it would become apparent over a little while that's a constant thing with them and they may need to go back and revisit that for a short session and away they go again ... so ... I probably use, as I say, planning...helping them a lot further sometimes it's very short and quick and ...they just need that ... getting unstuck ... I think is the right word.
>
> (Sue - preliminary interview – *Ip/S/VT/0064*)

2. The purpose of assessment

Although the teachers acknowledged the need for school documentation "that go forward to the office" (*Ip/B/VT/0071*), for each teacher the main purpose of assessment was to establish *Where the Children are At.* To the opening question in the first interview, "*What's your view about the role of assessment in general?*" each teacher stated this within the first or second sentence and continued to refer to it throughout the interview. It was mentioned less by Bryony and Sue in the final interview and not at all by Karen in her questionnaire. Questions at the final stages, however, were not aimed at drawing out their position on assessment.

> Generally assessment, the purpose of doing it, is to see where the children are at ... usually initially.
>
> (*Bryony, Ip/B/VT/0002*)
>
> I personally, mostly, only do teaching related assessment in that I... I'm happy to assess to see where the kids are at...
>
> (*Karen, Ip/K/VT/0002*)
>
> Basically the role of assessment is to see where your children are at, at that particular point in time.
>
> (*Sue, Ip/S/VT/0006*)

These statements were supported by observation in the classrooms and occasional chats with the teachers as the following two extracts illustrate.

> Bryony then spends a moment establishing the stage in the work where the children are at.
>
> (*Ob/C.01/0022*)

> Regarding her marking of the children's work earlier today, I ask her what, if anything, she has learnt? She says that the work "confirms where they are at"
>
> She explains that she hasn't done much conferencing, or at least as much as she'd expected or she'd actually planned. Part of her reason is that she feels that she's seen their work and their books quite regularly anyway and has a good idea of where the children are at.
>
> (*Chat with Sue – Ob/A.4/0026, Ob/A.11/0030*)

Both Karen (*Ip/K/VT/*0002) and Sue made it quite clear that for them assessment had to *be useful* in that it should influence learning and that there should be, as Sue puts it:

> no assessing for assessing's sake. It has to have a purpose to me for the children so that I can act on the assessment and use it.
>
> (Sue, Preliminary Interview - *Ip/S/VT/0006*)

Bryony implied a similar concern stating that assessment tools should be "authentic" and arguing that children can often show their ability/knowledge in "normal test conditions" but may not be able to use the skills or knowledge in real life situations (*Ip/B/VT/0002*). Later, in the final interview, she commented about how she would have preferred to use a different topic for a procedural writing post-test. She felt this would have given a truer reflection of the children's ability to use the skills she had taught them (*Fi/B/VT/0140*). Whilst this was referring to the formal writing assessment,

Bryony had used the principle of authentic assessment informally when she gave the children the opportunity to illustrate their understanding of procedural writing in a homework exercise.

> I was interested to see, when I'm not interacting and reminding them, what they actually do ... what they do without me is actually what they've learnt.
>
> (Bryony, final interview -*Fi/B/VT/0146*)

Of course, one does need to interpret the homework evidence with caution, as the child may have been helped by others, such as parents or older siblings. With this in mind, the teacher may then seek to confirm the achievement through subsequent class-based work.

Information from this exercise was, in fact, used formatively the following day (*Ob/C.10/0006- Ob/C.10/0008*). Bryony began the lesson with positive feedback praising the use of headings and verbs. She then mentioned that several children had one area of weakness and asked if anyone could think what it was. One child pointed out that the steps should be numbered.

3. Formative assessment is often intuitive

All three teachers referred to this aspect of their informal classroom assessment using words such as "aware", "sense", "instinct," "intuition" and "automatic". Here the teachers are referring to sub-conscious acts. The manifestation of teachers' intuition, in terms of formative assessment, may be, for example, a decision to come back to a particular aspect of a previous lesson or activity. After one lesson Bryony told me that she:

> has become very aware she has "missed a step out," in her teaching. She has realised ... that she needs to revisit the instructional writing steps.
>
> *(Chat with Bryony* – Ob/C.08/0017*)*

This intuitive aspect of formative assessment means that quite often teachers do not realise they are engaging in it (*Chat with Sue – Ob/A.11/0030*). Consequently they may have difficulty explaining why they chose to react in some particular way to what they had just seen or heard.

> ... you actually do some of these things [assessments and responses] without thinking. And when you're asked to stop and think it's quite hard.
>
> (Bryony, final interview – *Fi/B/VT/0099*)

This, at least, may be one of the justifications for not writing down, or recording, much of what they are doing with or learning about the pupils.

> ... you get to the stage that you kind of do it [informal classroom assessment] instinctively ... ... and it may not, in some cases, be written down prior. Some cases it may be written down afterwards and in other cases it may never be written down but it still happened.
>
> (Karen, preliminary interview – *Ip/K/VT/0032*)

Teachers collect information about their pupils' ability from a wide variety of sources, from pupils' work, (performance or product), to the day-to-day pupil-teacher interactions (*Fi/B/VT/0152*). Although rough notes may be made at the time, (e.g. *Doc/S/07*), and some information summarised in formal records, (*Doc/B/04-* see figures 5.1 and 5.2), much exists only in the teacher's head as 'head-notes' (Hill, 2000b). As Bryony put it:

> ... I don't really write those things down you just somehow store them in your head you know about them act on them ... and you go from there...
>
> (Bryony, final interview – *Fi/B/VT/0160*)

This would then aid the teacher to determine *where the children are at.*

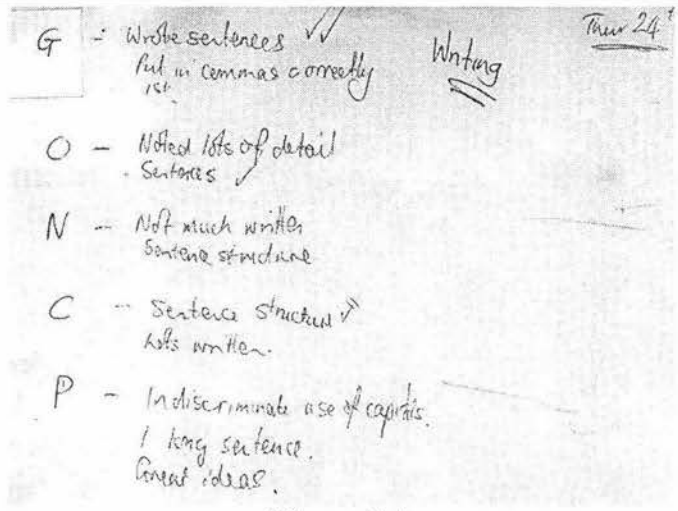


Figure 5.1
Informal notes, Sue – *Doc/S/07*
(Children's names replaced by Researcher's letter codes prior to photocopying)

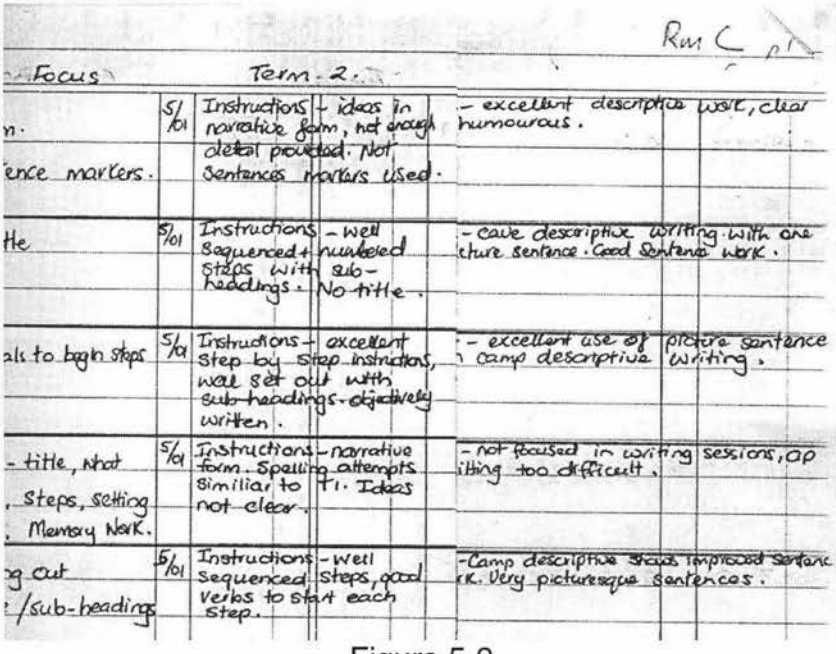


Figure 5.2
Formal notes, Bryony – *Doc/B/04*

Sue explained that she felt that through regularly looking at the children's work, she has managed to gain a good idea of where the children are at.

However, despite being able "to 'see' that there are clearly three ability groups in the class"...she was "not always aware of how she is getting the information" *(*Chat with Sue – Ob/A.11/0030*)*

This intuitive aspect of formative assessment was neatly summarised by Sue in her final interview:

> I just think I've become very in-tuned at observing what the children are doing, what the questions they ask are. And by using that information the observation, the work, listening to the questions they actually use, and all that, I modify what I teach and what I tell them sort of almost.... instantly, you know, or overnight or alter lessons and rearrange things ...So I do a lot of that without seriously thinking about it.
>
> (Sue, final interview – *Fi/S/VT/0032)*

This final comment from Sue, about the way she may modify, alter or rearrange things, introduces the next and most significant theme to emerge from the research; Formative assessment leads to *re...action.*

4. Formative assessment – the catalyst for *re...action*

During the process of the data collection, the researcher became increasingly aware that what was being observed was an extremely complex system in which pedagogy and formative assessment were very much intertwined if not interdependent. About half way into the observations in Sue and Bryony's classes and then towards the end in Karen's class the researcher recorded the following "thoughts":

> At this stage, (ie teacher not introducing new concept/ideas) does every bit of teaching/interaction have an antecedent assessment?
>
> (*Research Notes 1, 30/5/01*)

> "Pedagogic Reaction" ie *revisiting* – Ip/S/VT/17. FA can be (should be?) the catalyst for Pedagogic Reaction.
>
> (*General Notes 19/6/01*)

The use of the word *reaction* to describe how the teachers responded to the information gained from formative assessment was felt to be too *strong* suggesting an inordinate degree of compulsion. In fact, a quick word search of both the interviews and observations revealed only one occurrence of the word *react,* or any derivative, in each. Neither related to assessment or teaching. Yet the researcher was aware of the frequent use of words that suggested a reaction of some kind. The most obvious words used the prefix "*re*".

Sue most frequently used '*re*' words, the following being one example:

> Usually what I do if I'm looking at that and they haven't grasped the concept I usually **revisit** it again **redo** a lesson plan or even at the time do a small teaching session on it. I may find if I conference individual conferences I may find that three or four people have all got the same problem. I generally stop and **refocus**, do a **recap** and **redirect** them and see if they can go back and try again but sometimes it is a case of **revisiting** it in another lesson. Usually its it's the next lesson that follows.
>
> (Sue – preliminary interview – *Ip/S/VT/17*)

Bryony talked about, for example, *readdressing* and *revisiting,* (*Ip/B/VT/0036*); *reteaching,* (*Ip/B/VT/0102*); *readjusting,* (*Fi/BVT/0010*); and *reminding*, (*Fi/B/VT/0146*). In the observations it was noted that she frequently *rephrased* instructions, (e.g. *Ob/C.1/09, Ob/C.6/12,* O*b/C.6/14*) Karen mentioned *revisiting*, (*Fi/K/Qnr/3/017*), *reinforce*, (*Fi/K/Qnr/8/052*) and also confirmed that she regularly felt the need to *re-explain,* (*Fi/K/Qnr/7/048*).

These frequently occurring words led the researcher to consider formative assessment as a catalyst to a teacher's *re...action*, that is to say an action that is *done again.* In order to do the action again teachers would often decide to adapt, modify or readjust their plans, (*Ip/S/VT/25, Fi/S/VT/0032, Fi/B/VT/0010*)

From the observations it was noted that the teachers exhibited five principal types of *re...action*, (see table 4.3 in the previous chapter):

- A change of activity
- Answering pupils' questions
- Providing feedback (written, verbal, and non-verbal)
- Scaffolding or adjusting existing 'scaffolds' for assisting pupil learning
- Other *re...actions* as a result of indicators or evidence of pupil's misunderstanding or non-learning.

This evidence from the observations and interviews leads this researcher to consider that it is quite possibly the manner in which the teacher *re...acts* to information gained from formative assessment that contributes most significantly to fulfilling the purpose of formative assessment. That is, enhancing children's learning.

Whilst the researcher considers the above theme, (formative assessment – the catalyst for *re...actions*), is *the* most significant theme to emerge from the study, however a final aspect needs to be recognised. Formative assessment is both cyclical and ongoing in nature.

5. Formative assessment is cyclical and ongoing

> I think you actually do assessing ... as an integral part of [teaching]. It's a cycle. You just do it automatically. You plan you teach you assess you re-evaluate you plan you teach you assess you re-evaluate and that's just all part and parcel its ... you can't do one without the other.
>
> (Sue – final interview – *Fi/S/VT/0*231)

The cyclic nature of formative assessment can be considered at three levels; short, medium and long term. At the short-term level, the response and the assessment are very close, if not immediate, as would be the case in conferencing or a teacher-led question session. The teacher feedback at such times could be both verbal and/or non-verbal. Any information gained from the children's responses to both the original question and subsequent feedback would feed into the teacher's next action as well as forming a revised 'base-line' for the next assessment. That assessment could simply be another question to probe or prompt further. A similar situation could exist with teachers using observation as their assessment tool. For example, noticing something, commenting on it, looking for the child's response, commenting on that response, and so on.

The following extract illustrates the formative assessment in action at the short-term level. Bryony is working with one of her 'writing groups' in which the children are engaged in the process of peer assessment. Each child reads their own work before the other members of the group share comments about what they feel is good and offer suggestions for improvement. The 'writing groups' have been operating for just a few days and the children are still coming to grips with the process.

The extract shows Bryony both questioning and observing as she works with the children on their descriptive writing. Throughout this process she takes notice of their answers (or lack of them), provides feedback and models answers, listens while the children talk to their neighbour about what

descriptive writing is, and finishes by re-explaining what to do. She also uses the opportunity to assess the children's understanding of the peer assessment process.

> Bryony notices that Nate "cannot explain." Paul gives a detailed explanation in several sentences. Bryony has heard this and comments that his explanation is not specific enough. Bryony then offers her own definition and then refers to Bobbie's work pointing out that Bobbie actually did a recount not a description.
>
> Bryony reminds the children that the job of the writing group needs to remain focused. She comments that the group did not pick up that Bobbie's piece wasn't descriptive writing. She tells them they need to "think more focused". She offers the suggestion that the members of the group can say "awesome piece of writing and you should keep it, but it is not a piece of descriptive writing" and so, the child would need to have another go at descriptive writing
>
> Bryony then asks the children "what is your job as a group?" The children cannot get a correct response. Bryony re-explains what to do, to focus on a descriptive piece. She asks Paul again. He gives a complicated definition that includes a comparison with a recount. Bryony says "A descriptive writing is a piece of writing that tell someone, describes, what you see with your eyes." She then asks the children to "turn and explain it to your neighbour"
>
> Bryony brings the children back together into one group and then re-explains the steps.
>
> *(Ob/C.03/14 – Ob/C.03/18)*

At the medium-term level the re...action to information gained from a formative assessment is slightly further from the assessment, for example, the following day or later in the week. Such *re...actions* and subsequent assessments would usually, but not necessarily, be planned.

In contrast, formative assessment at the long-term level exists where the teacher decides to revisit or revise something, (e.g. a concept, skill or strategy), much later in the term or year. In fact, where the teacher has a

multi-level class it is also possible to plan to revisit something the following year, as Bryony suggested:

> If they're year five I might make a note on their file, "Hasn't got the idea. We'll then revisit this again next year".
>
> (Bryony – preliminary interview – *Ip/B/VT/36)*

Thus formative assessment can be ongoing. There will usually come a point where a teacher ceases to assess a child's grasp of a particular skill or concept. For instance when, because of time constraints, the teacher needs to 'move on' (*Ip/B/VT/36. Ip/K/VT/0065*), or when the teacher feels the child "has got it' (*Ip/S/VT/0021, Fi/S/VT/0112*), However, up to these points the information gained from the assessments, be they observation, questioning, marking, or listening, for example, is fed back into future assessments sometimes via the planning. The information, in a sense, seems to provide a new base-line from which to establish progress, or helps the assessment to be more focused. Early assessments may look for overall content. The next 'round' may concentrate on spelling and/or punctuation and a later one on layout/paragraphing. The criteria may be communicated to the pupils before progressing on to the next learning opportunity, as happened in Bryony's class:

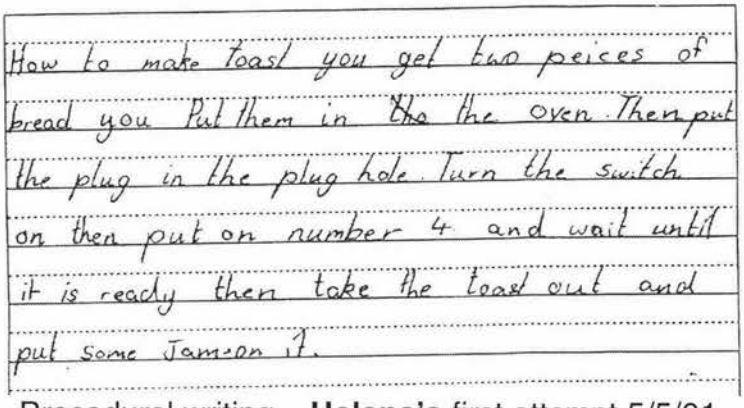
> 11.17: Bryony starts by recapping what writing the children had previously done and what they are going to do today. She ... reminds the children that they need to think about how to improve their work. ... She adds, "I will ask 'what was your main message?'". ... Bryony then adds that she expects the children to "come with picture phrases" and a "clear understanding of what your author's message was."
>
> *Ob/C.01/03- Ob/C.01/04*

Frequently, though, there are no stated criteria and the children are left to discern what is or is not required from their teacher's comments and feedback. Some of this way of working can be seen in the '*case study within a case study*' that follows.

Helena's formative assessment trail

Here Helena is learning about procedural writing. The extended extract that follows presents her work within the context of her teacher's (Sue's) teaching and assessment.

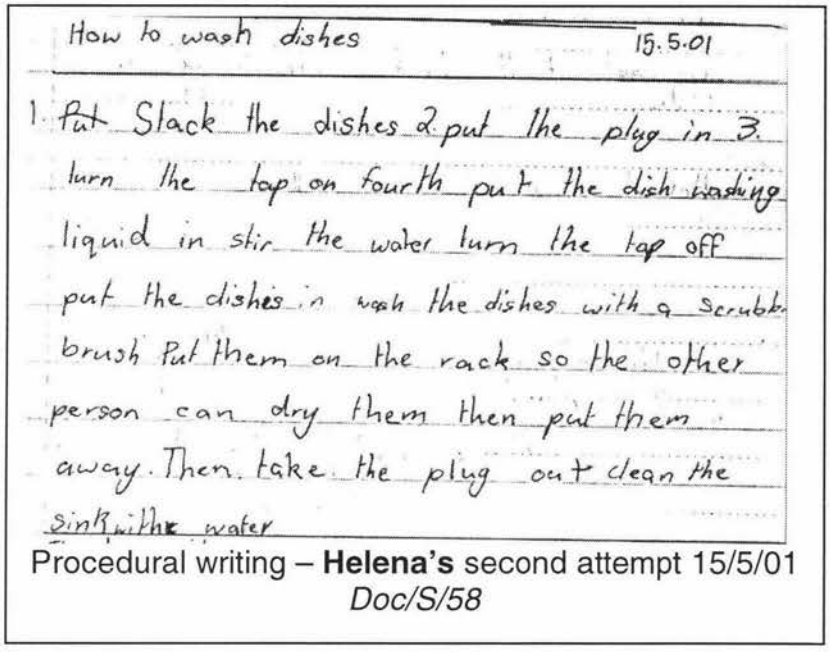
The first two attempts were written before the observations commenced.


How to make toast you get two peices of bread you Put them in the the oven. Then put the plug in the plug hole. Turn the switch on then put on number 4 and wait until it is ready then take the toast out and put some Jam on it.

Procedural writing – **Helena's** first attempt 5/5/01 Doc/S/23

The children were asked to write this first attempt as a pre-test. These were analysed by Sue to help her decide what teaching "intervention" (*Fi/S/VT/0006*) was needed. The above extract supports her decision to work "on specifics ...looking at the goals, the equipment...the steps" (*Fi/S/VT/0006).*

By the second attempt, below, Helena had learnt that in procedural writing one has a separate title, numbers the steps and writes everything in the imperative. This change, presumably, came about through Sue using the pre-test assessment information formatively to decide what was required to help children learn, and them teaching accordingly.



How to wash dishes 15.5.01

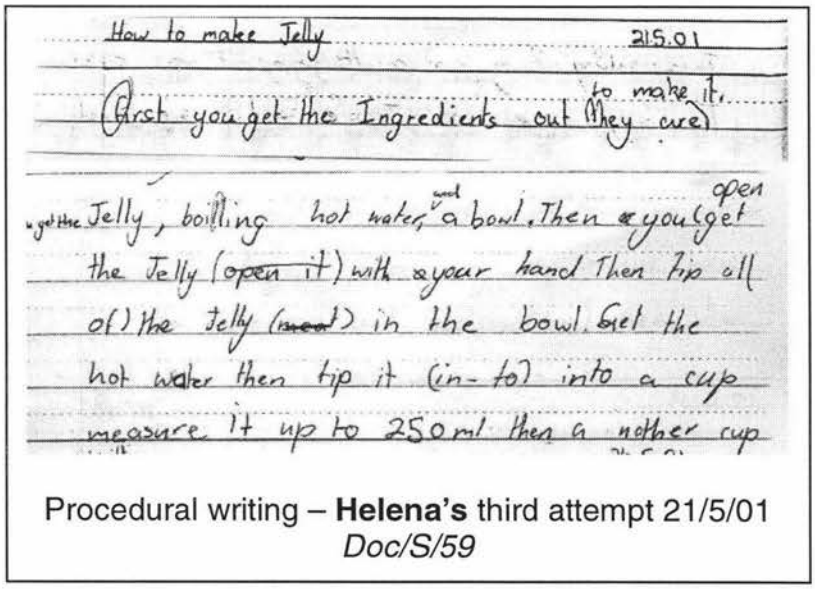
1. ~~Put~~ Stack the dishes 2 put the plug in 3. turn the tap on fourth put the dish washing liquid in stir the water turn the tap off put the dishes in wash the dishes with a scrubb. brush Put them on the rack so the other person can dry them then put them away. Then take the plug out clean the sink with the water

Procedural writing – **Helena's** second attempt 15/5/01
Doc/S/58

21/05/01

Today Sue models how to make jelly. She goes through the instructions, occasionally making deliberate mistakes to see whether or not the children will prompt her. Having gone through the whole process she sends the class back to their desks to write up the recipe in their own words.

(*Ob/A.1/02 – Ob/A.1/03*)



How to make Jelly 21.5.01

(First you get the Ingredients out (they are) to make it.

you get the Jelly, boilling hot water, and a bowl. Then you (get open the Jelly (open it) with your hand Then tip all of) the Jelly (meat) in the bowl. Get the hot water then tip it (in-to) into a cup measure it up to 250ml then a nother cup

Procedural writing – **Helena's** third attempt 21/5/01
Doc/S/59

> Sue now looks at **Helena**, watching her work [*Doc/S/59*]. She then asks **Helena** to read aloud what she has written. After a few moments Sue asks her to explain what she means by a certain sentence. [I am unable to hear **Helena's** response.]
>
> (*Ob/A.01/10*)

Here Sue is using observation, listening and oral questioning to assess Helena's understanding. One of the results of this intervention has been the self-corrections Helena made on her work. It is interesting to note, though, that Helena has not written in the imperative. Perhaps this was because Sue modelled the making of jelly in a natural way. Although the children were responding to Sue's prompts and questions in the imperative, for example, "Put the water in"..."Stir it..." (*Ob/A.1/0003*), Sue herself would have included phrases such as "Now, first we need to open the packet..." Further, other than the headings, she did not write an example of the instructions on the board.

> Sue moves to her chair and gathers the children around her again on the mat. "Some of you wrote down lots of neat things", Sue tells the class. However, she points out that many of children are not including all the steps. She then explains that they would do a similar exercise tomorrow, this time they will make popcorn.
>
> (*Ob/A.01/22*)

Here Sue provided immediate feedback although her comments are aimed towards the class as a whole, rather than individuals. This would leave each child to discern what applies to them. Nevertheless, it could be considered that Sue is simply laying the formative foundations for the following days work.

Although Sue had told the class they will make popcorn, she had reflected overnight on the needs of the children and decided that the children would benefit from seeing recipes in a variety of books.

In the following extract Sue uses class-wide questions to establish what most of the children have remembered from the previous day. This information may then have helped fine-tune the aspects of procedural writing to be focussed on during this lesson.

22/05/01

> ... asking the children to gather round. "Yesterday what did we write about?" she asks. "Jelly", they chorus,. "What in particular?" Sue probes. "Ingredients", "Jelly" some children call out. "What in particular?, Sue repeats. "How to make it" one child answers. "Good" says Sue.
>
> Sue shows the children three cookery books she's borrowed from the library. Opening one she reads: "Tic Tack Toe Pizza" and points to the words. "What is that?" Several answers offered none that Sue seems to be looking for. "Title?" , The children are not getting it. "You really don't know what you're doing", says Sue.
>
> She reads "you will need.... What does it have here?...something special...steps to follow...". "Numbers" one child points out. Sue goes on to explain the way the recipes in the three books are laid out.
>
> She opens another book points to the title and asks; "what is this?" "Title" most children chorus. "What are these...written in a long sentence?" "no?" "then these in bullet points?" Sue goes through the structure and points to the pictures explaining that these are part of the directions.
>
> *(Ob/A.02/28 – Ob/A.02/31)*

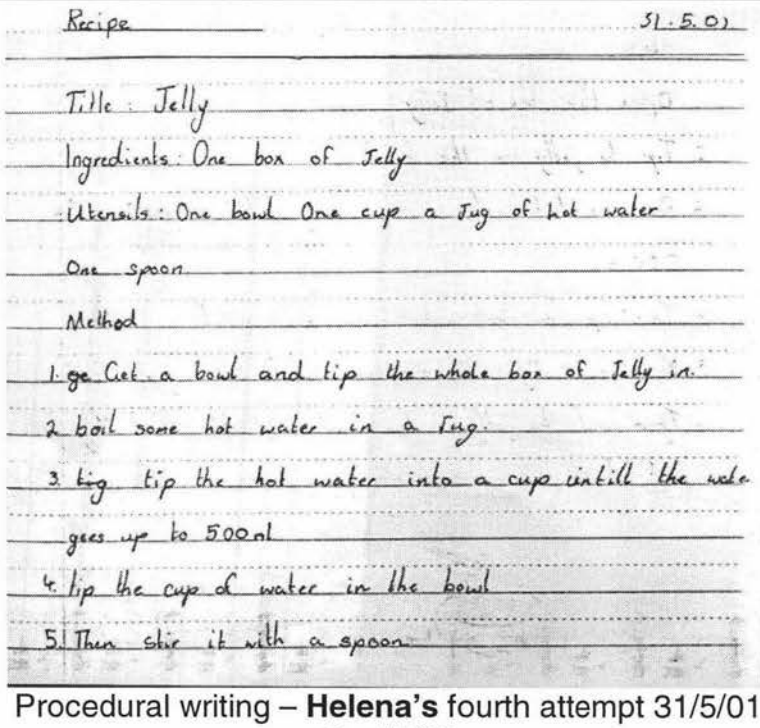
Sue justifies the introduction of recipe books as exemplars.

> Whilst this is happening Sue come across to me and explains that the purpose of the exercise is "example showing". She continues to justify the activity by telling me that she had read the children's books containing yesterday's work and realised that they didn't know how to set the work out.
>
> *(Ob/A.02/34)*

31/05/01

> Sue goes over to the board and says "Recipes", then encourages the children to settle down.
>
> Sue writes "recipes" on the board and asks , "what's a recipe for?" Kieran says, "to make something." "How do we know what we're making?" "A title," says, Paul. Sue then checks the children's knowledge of the parts of a recipe. When the children mention an appropriate part she writes this on the board.
>
> Sue takes a recipe book from the bookshelf next to her and shows the children the layout.
>
> The children return to their desks.
>
> (*Ob/A.07/12 - Ob/A.07/14*)

As the following extract shows, Helena has learnt a great deal since her previous attempt nine days ago. Much of this will have been as a result of Sue's regular informal assessments of Helena's and the other children's work and subsequent feedback to the children and modifications to her teaching.



Recipe 31.5.01

Title : Jelly

Ingredients: One box of Jelly

Utensils: One bowl One cup a Jug of hot water

One spoon

Method

1. ge Get a bowl and tip the whole box of Jelly in.

2 boil some hot water in a Jug.

3 tig tip the hot water into a cup intill the wate

gees up to 500ml

4. tip the cup of water in the bowl

5 Then stir it with a spoon

Procedural writing – **Helena's** fourth attempt 31/5/01
Doc/S/60

[Sue gathers the children on the mat again and goes through some of the work the children have done, commenting on both good points and omissions.]

Addressing the class as a whole, Sue asks, "what did you learn about that?" and then addresses Paul directly she asks, " What do need to fix up, Paul?" Paul answers, "steps." "At the beginning, Ronita?" Sue asks. "Ingredients," says Ronita.

"Before ingredients, **Helena**?" Sue asks. "Title," replies **Helena**. Several children now have their hands up. Sue then asks Ian, "why is it helpful to have ingredients?" "So we can know how to make it," says Ian. "No," says Sue.

"What have we learned the most?" Sue asks the class. No answer. "Who's learnt they have to do more?" she asks. Approximately half the class raise their hands. "We will work on these tomorrow, " she says.

(*Ob/A.07/33 – Ob/A.07/35*)

Again, Sue is using oral questioning to determine what the children know. However, Sue can only be certain of a child's understanding when that child answers a question. Even then, there is a possibility of guessing or prompting from others. The final paragraph in the above extract, though, is revealing. The children appear to have been honest in their self assessment and Sue has acknowledged that more work is necessary.

01/06/01

Sue works with the class on procedural writing. They go through the recipe for making jelly. The children are mostly enthusiastically answering Sue's questions and prompts although some are not participating.

Feeding off the answers to her questions and prompts Sue writes out a recipe on the board. When it is complete she rubs out everything except the headings. She then tells the children they have to go and write out the recipe in their exercise book. A number of children groan about the fact that Sue has rubbed most of the recipe off the board.

Cont/...

Someone asks how to spell, 'measuring' and 'kettle'. Sue writes these words on the board.

Sue comments to me that she intends to collect the work in to see how they've managed "after several times of [her] modelling" how to write a recipe.

(*Ob/A.08/13 – Ob/A.08/16*)

Sue has gathered the children onto the mat. She asks the class "What did you learn about recipes?" Several children put their hands up. She asks **Helena**. "It is neatly done," she answers. "What is it about it that makes it look neat?" Sue asks. Ian talks about the size and shape of the letters. [*I didn't catch Sue's response to this.*]

"What did I need?" Sue asks. Johnny says, "title" then Ronita says you "need the right steps." "Yeah, you need the right steps," repeats Sue, "...does that come next?"

Helena adds, "putting the recipe in the right order." "Good," says Sue, "putting the recipe in the right order. What is the right order?" she asks. Ursula says, "title, ingredients..." Sue writes these on the board and spells 'ingredient' incorrectly. She asks the children if it is spelt right and asks how it might be spelt. Sue then asks Ursula to finish. "steps," she says. "Yes," says Sue, "and pictures".

"What does the picture show? Sue asks. There are various answers along the lines of "what it looks like".

Sue then asks the children "what have you learnt?" Paul answers, "how to do the method." Ronita offers, "know how to make jelly...

Bobbie says, "know how to set it out properly." "Good," says Sue. "How many people set it out properly?" About half the class put their hands up.

(*Ob/A.08/19 – Ob/A.08/24*)

Although Helena, and a few other children seem to have learnt important aspects of procedural writing, it is clear there are quite a few children who have not, especially with regard to format.

In the following extract Sue uses the information gained from her informal assessments to decide there is a need for a lesson that demonstrates the importance of sequence and format.

05/06/01

> Sue now gathers all the children onto the mat. She goes over the steps in procedural writing referring to the recipes from last week. She then goes on to explain that they are going to look at other ways of giving instructions.
>
> Sue asks the class, "Do pictures give a good flow of what happens?" ... and then asks the children to turn to their neighbours and tell them why it's a good flow.
>
> While the children are 'explaining' (?) to their neighbour. Sue comes over to me and explains what she is doing. Her aim is to show the children that instructions can be presented in picture form and to get them to think about the sequence of steps in procedural writing
>
> Sue shows the class other examples and points out the use of numbers to indicate the steps.
>
> (*Ob/A.09/07, Ob/A.09/11, Ob/A.09/12, Ob/A.09/15*)

06/06/01

> Today the children are going to have their procedural writing post-test. Sue starts by writing the title, "How to make toast", then proceeds to elicit headings and items to also write on the board. Next Sue asks the children to give her instructions which she follows exactly, deliberately over-emphasising ambiguous directions.
>
> (*Ob/A.10/02 – Ob/A.10/06*)
>
> Once she has gone through the procedures Sue rubs all but the headings off the board.
>
> (*Ob/A.10/12*)

The children are given their paper and left to write.

Title: How to make toast

Ingredients: Bread, butter, spread,

Equipment: Toaster, Plate, Knife

steps:

1 Put the plug in the plug hole.

2 Turn the switch on.

3 Get 2 peices of bread and put it in the toaster.

4 Pull down the lever.

5. wait uhill the toast pop up.

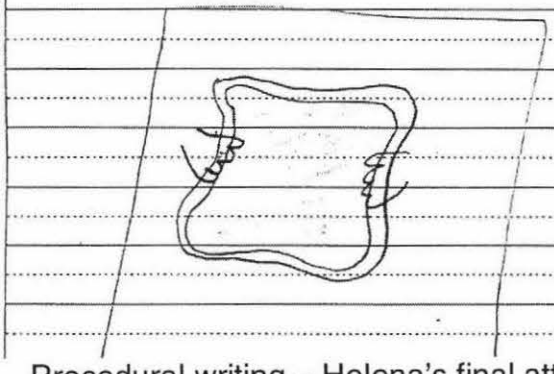
6 Be carefull you might burn yourself when you go to tuch it.

7. When you get the toast out put it on a plate.

8. Spread butter on top of the toast

9 Put some spreading on the toast.

10 Then eat it. yummy!



Procedural writing – Helena's final attempt 6/6/01
Doc/S/024

Helena has clearly learnt the various steps for procedural writing since Sue started teaching it this term. Nonetheless, the question remains, what does Helena *think* she has learnt?

> I have a chat with **Helena**. I ask her what she thinks Sue will do with her work. She says that Sue will "put it in the box thing over there" [the filing cabinet]. To my question, "why?" she answers the Sue will keep it to show "my mum at the end of the year." **Helena** tells me that the reason Sue has asked her to do this writing is to "learn how to make toast." I ask how she would write instructions for something else. She explains she would use a title, equipment and method. Finally I ask her if she could have written instructions like this before this term. She says that she couldn't.
>
> [***Helena*** *has clearly learnt the various steps for procedural writing since Sue started teaching it this term.*]
>
> (*Ob/A.10/20 Chat with Child*)

Through probing questions, the researcher is able to elicit an admission from Helena that she has learnt how to write instruction. However, her previous response about learning to make toast rather than learn how to write instructions would suggest that Helena is not particularly metacognitively aware of her own learning.

Consequently these facts would also suggest that much of Helena's learning has come about through Sue effectively using assessment information formatively to provide new learning opportunities for Helena and the other children in the class.

Summary

This chapter has illustrated and developed the five themes as they have emerged from the data. The '*case study within the case study*' at the end has placed one child's work within the context of her teacher's teaching and assessment. The next chapter takes a further step and, through discussion, draws the emerging themes and the literature together into a model of formative assessment in action.

CHAPTER 6

TOWARDS A THEORY OF FORMATIVE ASSESSMENT IN ACTION

Introduction

This research set out to seek a theory of formative assessment in action in the senior primary school. This chapter revisits the literature reviewed in Chapter Two, the data presented in Chapter Four and the emerging themes of the previous chapter. Drawn together, the research leads to a theoretical model that attempts to summarise the complex process of formative assessment in action.

An explanation, brief discussion and comments on the validation of the model are followed by the limitations of the study and recommendations for future research.

Revisiting the context of formative assessment

Evidence from the classroom observations and teacher interviews suggest that formative assessment *is* taking place in *Te Arawhiti Primary School.* However, this is against what has been termed 'a school-wide backdrop of formal, typically summative, accountability-driven assessment'. Mary Hill (2000a) would call this backdrop the dominant assessment discourse within the school.

Sue's reference to "assessment for school documentation" (*Ip/S/VT/0007*), Karen's concern about assessment being pointlessly used to produce "pretty graphs or ... pictures" (*Ip/K/VT/0002*), and Bryony's comment about the "wider global requirement of assessment" (*Ip/B/VT/0069*), all support Hill's contention that dominant discourses have a significant effect on assessment

practice. Consequently, formative assessment must not be considered in isolation. In short, within the assessment requirements of a school, formative assessment does not, nor cannot, stand alone. Any understanding of formative assessment in practice must, therefore, take into account connections with the larger assessment picture.

The study of the teachers at *Te Arawhiti Primary School* confirmed that formative assessment is a complex act. It takes place in dynamic environments (Black 2001; Carr *et al.,* 2000; Torrance & Pryor, 1998) where it is inextricably linked with teaching and learning (Black & Wiliam, 1998b; Bourke, 2000).

The model that has been developed as a result of this research recognises the links with teaching and learning, as well as the larger assessment picture.

Revisiting teacher's perceptions of formative assessment

How teachers perceive, and subsequently use, formative assessment is crucial to its effectiveness in bringing about positive changes in a child's learning.

There are two aspects to be considered here. Firstly, there is the matter of the terminological confusion that frequently exists, and secondly there is the understanding of the concept of formative assessment. This research supports Hill's findings that it is possible for teachers to be actually engaged in formative assessment whilst not realising that what they are doing is *called* formative assessment (Hill, 2000a). That is to say they have an understanding of the *concept* of formative assessment but fail to connect that concept with the term 'formative assessment'. They may see their formative assessment practices as just 'good teaching' (Hill, 2001) or, as one teacher in this study put it, as "part and parcel" of a cyclic process of teaching-assessing-re-evaluating-planning-teaching etc.

The terminological confusion that exists is not unique to the three teachers at *Te Arawhiti Primary School.* Black & Wiliam, (1998a) and Hill (2000a) recognised this. Hill went on to recommend that teachers use the appropriate assessment terminology in their professional life. However, simply using the phrase *formative assessment* is insufficient without there being an agreed definition, and/or a shared understanding, of what is formative assessment.

One teacher in this study used the term, quite confidently, but was in fact using it synonymously for 'formal assessment'. Yet, once this had been pointed out, she was able to demonstrate an understanding of the purpose and value of formative assessment as she was using it in her daily teaching. The extent of her understanding was confirmed through observation.

One of the possible reasons for such misunderstanding is, as pointed out by Black & William (1998a) and Harlen & Malcolm (1996), the fact that there is no agreed definition of formative assessment.

Teachers in this study defined formative assessment predominantly as a means of establishing *where the children are at* in relation to learning objectives. This understanding concurs with that of some of the teachers in the Bell & Cowie (1997b) and Hill (2000a) studies. Yet, although assessing 'where the children are at' is an important part of the process, it is not, by itself, what formative assessment is about. Only when the *information* about 'where the children are at' in relation to a particular task, instruction or concept, is used to modify subsequent teaching, and lead to *new learning opportunities*, is the teacher engaged in the formative assessment process (Black & Wiliam, 1998b; Hill, 2000a).

Black & Wiliam (1998b), in fact, refer to assessment as *becoming* formative. Thus, they are suggesting that the assessment activity, tool or approach itself is not inherently formative, it only *becomes* formative once the information gained is used to provide new or further opportunities for learning. It would seem, therefore, that Torrance and Pryor (1998: 10) come

close to accurately describing the nature of formative assessment when they refer to it as "a construct".

As such, there would appear to be a need for a radical change in the way teachers and academics alike refer to the process of assessing and then using the information to enhance learning. If 'formative assessment' is not an entity in itself, one cannot 'do formative assessment' or even 'assess formatively'. Instead, a more accurate way of describing what teachers do would appear to be that they 'use assessment information *for formative purposes'*. That is, quite simply to re...act to assessment information/ evidence or indicators to provide new learning opportunities.

This may account for why so many teachers appear to refer to 'formative assessment' simply as good teaching.

Revisiting feedback, feed-forward and *re...action*

Conner (1999: 23) suggests that at:

> the heart of assessment for learning is the way teachers respond to children – the feedback they provide.

Feedback is a crucial stage in the formative assessment process. At its simplest, feedback is providing the child with information about the standard of their work. Most writers, though, will agree that to be effective, the information needs to be at least informative (Crooks, 1988b; Hargreaves, McCallum & Gipps, 2000) and preferably linked to the development of metacognitive strategies for learning (Sadler, 1994, cited by Hill, 2000a: 86-7; Swaffield, 1998, cited by Connor, 2000: 223). This latter point implies that feedback should not only be directed at informing the child but that it should also interact with the teaching/learning process to influence planning. For this idea, Torrance (1993) uses the term 'feedforward'.

Taken together, feedback and feedforward cover a great deal of how teachers actually use assessment information for formative purposes. However, on the basis of the findings from *Te Arawhiti Primary School*, this researcher believes that these two terms do not provide a complete picture and that a more paradigmatic concept is required.

This study confirmed that the way in which teachers use assessment information for formative purposes is a central aspect of the formative assessment process. As mentioned in the previous chapter, possibly the most significant theme to emerge was the way assessment information could act as a catalyst (Hobson, 1997) for what is being termed "teachers' *re...actions*". The term "*re...action*" is coined here to reflect the frequent use of the prefix 're' in words that teachers at *Te Arawhiti Primary School* used in describing how they use assessment information for formative purposes. New or modified learning opportunities were provided by, for example, revisiting or redoing lesson plans, (Sue), reinforcing and re-explaining, (Karen), or, readdressing, reteaching and rephrasing, (Bryony).

Similar examples of how teachers use assessment information to enhance learning also appear in the literature. These include, but are not limited to: "reorganizing and responding" (Bell & Cowie 1999: 208); adjusting teaching and learning (Black 1998b); intervening (Carr *et al.,* 2000); and, repeating or reinforcing the original instruction (McGaw, 1988).

Further, elements of '*re...action*' also appear in existing definitions of formative assessment. Cowie and Bell's definition refers to *responding* (Cowie and Bell, 1999), the Ministry of Education (1994), includes the *informing* of decisions about future teaching and learning, and Black and Wiliam (1998b), stress the *modifying* of teaching and learning opportunities.

In each of the examples cited above, the teacher is using the assessment information, (filtered through their professional judgement), to either feedback information to the child or feed-forward into decisions about the immediate next step or future planning. The concept of teacher '*re...action*',

therefore, brings together the constructive and proactive aspects of both feedback and feed-forward.

Further, this researcher suggests that not only is the teacher's *re...action* central to the formative assessment process but also that the quality and/or appropriateness of the *re...actions* impacts directly on the efficacy of the process. If the teacher fails to re...act appropriately then the potential for the next learning opportunity to positively influence the child's learning is going to be significantly reduced.

Revisiting teachers' intuition

All three teachers in this study felt that the use of their intuition within the assessment-teaching process was very important. Sue felt that she was sufficiently 'in-tune' with how the children were working and was confident about responding 'instantly' to their needs (Fi/S/VT/00032). Karen suggested that, given her experience, her assessments and teaching were often instinctive. Bryony stated that she stored assessment information in her head and acted on it later (Fi/B/VT/0160).

Gipps, Brown, McCallum & McAlister (1995), Hill (2000a), and Sutton (1995) acknowledge the role intuition plays in teachers' decisions about what to do with, or how to interpret, assessment information. This is particularly the case when teachers are making on-the-spot decisions about what to do next.

> Really effective teachers will make decisions like these many times a day, based on intuition or experience or both (Sutton, 1995).

Yet, whilst intuition can be considered a 'gut-feeling' this is probably not what the teachers in this study were implying. Rather, it is likely that their 'instinctive' responses, or *re...actions*, were borne out of the assimilation of personal and professional experience, knowledge of "learning progressions" (Hill, 2000a, 246), and the accumulated evidence from, for example,

observations, examination of children's work and/or responses to questions. In sum, this intuition amounts to what could more rightly be referred to as 'professional judgement'.

Professional judgement, (and any intuitive reactions) though, do need to be grounded in sound evidence (Gipps *et al.*, 1995). To this end it is important that teachers develop highly refined assessment skills and, according to Wiggins (1998), a thorough understanding of the purpose of assessment.

The model of formative assessment in action that follows recognises the role of teacher's professional judgement as a key stage between collecting or acquiring assessment information and acting upon it.

Revisiting formative assessment – on-going and cyclical

Bell and Cowie (1997a) consider formative assessment to be an on-going, responsive process. The model they developed suggests that formative assessment is, in fact, two parallel cyclical processes: planned and interactive (i.e. not planned). Each of the cycles has three steps. For planned formative assessment these involve the need to 'elicit', 'interpret' and 'act'. For interactive formative assessment: 'notice', 'recognise' and 'respond'. Essentially the stages in each cycle appear to serve the same purpose as one can 'elicit' by 'noticing', 'interpret' by 'recognising' the significance of something, and, 'act' by 'responding'. The key in each case is that information gained provides the basis for a judgement and/or decision that results in a *re...action* which in turn provides the basis for further information to be gathered, hence the cyclical process.

Sue at *Te Arawhiti Primary School* also considered her assessments to be cyclical.

> I think you actually do assessing as an integral part of [teaching]. It's a cycle. You plan, you teach, you assess, you re-evaluate, you plan, you teach, you assess, you re-evaluate...
> (*Sue – final interview – Fi/S/VT/0*231)

Data from *Te Arawhiti Primary School* also supports Bell and Cowie's view that assessments for formative purposes can be both planned and unplanned. However, the data also suggests another way of considering the process, that is, at three levels - short, medium and long term.

At the short-term level the response and the assessment are very close, if not immediate. This would be the case in, for example, conferencing or a teacher-led question session "where teachers act on what they [see] immediately" (Hill 2000a: 338). This is basically Bell and Cowie's 'interactive' process. The teacher feedback at such times may be verbal and/or non-verbal. Any information gained from the children's responses to both the original question and subsequent feedback may then feed into the teacher's next action as well as forming a revised 'base-line' for the next assessment. That assessment could simply be another question to probe or prompt further. A similar situation could exist with teachers using observation as their assessment tool: - noticing something, commenting on it, looking for the child's response, commenting on it, and so on.

At the medium-term level, the teacher has more time to reflect on the information gained and may feed that information forward, (Torrance, 1993) into the day-to-day planning. At the long-term level the assessment information is used formatively when the teacher decides that it will be necessary to revisit or revise something much later in the term or year.

Whether at the short, medium or long-term level, the stages within the formative assessment process are essentially the same, forming the basis of the model of formative assessment in action as presented in the next section of this chapter.

Formative assessment in action – a model

The model of formative assessment in action, developed from data collected at T*e Arawhiti Primary School*, is presented in Figure 7.1. This is followed by a detailed step-by-step explanation of the model's process.

In short, the model begins with the teacher inputs of *learning objectives*, *pedagogy* and *initial learning opportunities*. These provide for the first link of the cyclic process, *student performance, product or behaviour.* The steps which follow are: *assessment* of the performance/ product/ behaviour, *evaluation of assessment information*; *teachers' re...action*; and finally, *new (or modified) learning opportunities*. The latter is then linked to student performance to complete the cycle.

'Exit points' at the '*evaluation*' and '*Re...act'* stages provide links with wider assessment and accountability requirements, as well as routes for future planning.

A detailed explanation and justification follows the presentation of the complete model.

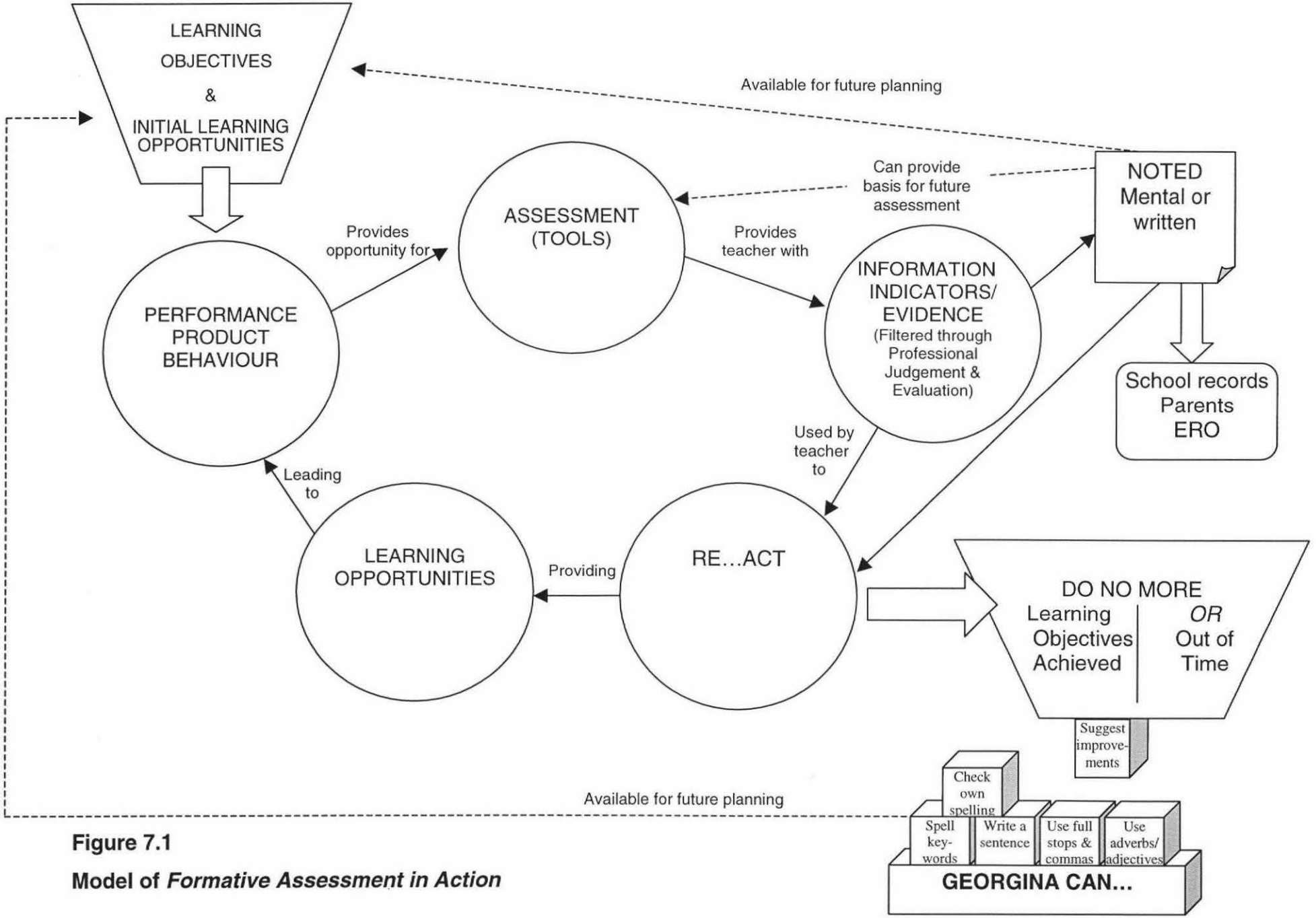
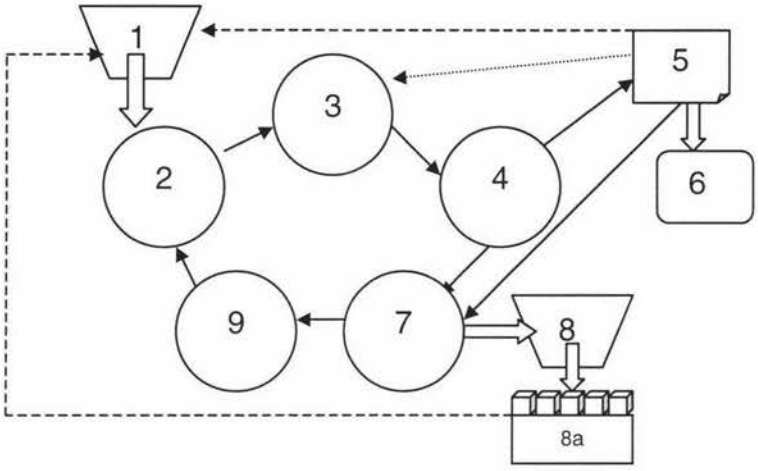


Figure 7.1

Model of *Formative Assessment in Action*

Explanation of model of *Formative Assessment in Action*



Box 1.- Teacher develops lesson plans/learning objectives – can be long, medium or short term. Teacher decides on teaching methods to use and provides initial learning opportunities.

Box 2.- The teaching produces a student performance, product or behaviour. The performance or product need not be completed. The behaviour may be obvious or subtle, verbal or non-verbal and may or may not relate directly to the teacher's objectives but is a response to the teaching, material, and/or, learning opportunities.

this provides opportunity for...

Box 3.- Assessment, in particular informal classroom assessment. These assessments can take the form of:

- Observing children at work, - include glancing around the room to see who is 'on task', watching children working, noticing what someone is, (or is not) doing
- 'Examining' (critically looking at) and/or marking products
- Questioning individuals, groups or the whole class
- Conferencing
- Children's self or peer assessment
- Teacher's intuition/gut feelings.

These assessments provide the teacher with...

Box 4.- Information, indicators or evidence of how the children are responding to the teaching and/or material, (bored, engaged, confused etc) as well as what the children can or cannot do, are struggling with and/or need help with.

Using their professional judgement the teacher reflects on then evaluates, (sometimes subconsciously) the information – is it significant, necessitating a response?

That response can take the form of one or both of two ways
either noting or re...acting.

Box 5. The information/indicators/evidence is/are noted. This can be either as a mental 'head-note' or written, either formally in the teacher's planning book, for example, or informally on scraps of paper.

These notes, if made, can be used in four ways:

i) in future planning, (long, medium of short term) (I.e. back to **Box 1**)
ii) as a basis for future formative assessment, (I.e. back to **Box 3**) –
iii) as a basis for formal school records/reports, feedback to parents and for ERO (**Box 6**).

the fourth way is to

Box 7. **Re...Act**. (this stage may often bypass the noting). At this stage the teacher is using assessment information for formative purposes.

Here the teacher **Re**does something as a result of the information/indicators or evidence. This may be **Re**peating, **Re**phrasing, **Re**focussing, **Re**directing, **Re**minding, **Re**organising, **Re**planning, **Re**visiting, **Re**teaching, **Re**vising, **Re**confirming, **Re**inforcing, etc. Other ***Re...actions*** would, for example, include providing feedback, deciding to conference, questioning further,

discussing, providing guidance, changing topic, extending the activity or even do no more (**Box 8**).

Box 8. do no more when:

a) the professional judgement suggests that the learning objectives have been achieved (**Box 8a**).

OR

b) Time has run out.

Box 8a Learning objectives achieved. The teacher is satisfied that the child has grasped a particular skill, concept or fact. These may be related to the development of a larger concept or aspects of a teacher's unit plan as suggested in the model. Alternatively the objective may stand alone. Either way, information from this stage can feed back into future planning (**Box 1**).

Box 9. The ***Re...actions*** provide learning opportunities for the children. These would not necessarily be *new* learning opportunities but would be provided on the basis that the intended outcomes would be learning and understanding for the children.

The learning opportunities produce the performance, product or behaviour (**Box 2**).

and so the cycle continues until the objectives are met or time runs out (**Box 8**).

Justification and validation of the model

Firstly, the model provides a structure for teachers to use the appropriate terms in their professional life - a point of focus, as it were, which would aid communication and discussion among teachers and between teachers and academics. This structure, in particular its cyclic nature, brings together a number of key points from the literature and was developed further using the data collected through interviews with the teachers. Elements were confirmed and refined through classroom observations, examination of children's work and chats with the children.

The model extends and integrates existing definitions of formative assessment as a "process" (Bell & Cowie, 1997a), integral to teaching and learning (MOE 1994; Bourke, 2000). It involves teachers in actively engaging and using assessment information to "*adapt* the teaching to meet student needs" (Black & William, 1998b:140) in social interactions between themselves and their pupils (Torrance and Pryor, 1998). It also acknowledges the wider assessment and accountability requirements as well as recognising the role of teachers' professional judgements.

Further, the model provides for both feedback to the pupil, (as well as others) and feedforward into planning. Some writers, such as Hattie (1999), suggest that feedback in the form of information and direction is all that is required to enhance learning. The teaching/learning/assessment process, though, is far more complicated than that and the model recognises this fact. Feedback in the form of information is not enough. Specific new opportunities for learning are required, provided through the teacher's *re...action*.

The model presented here does not, unlike Bell & Cowie's model, see planned and interactive formative assessment as distinct constructs. In fact, this model implies that formative assessment is always *interactive*. That is to say, the teacher engages with the children, their response to the task, the information gained from the assessment technique, the curriculum and the

learning objectives. However, the model does allow for both planned and *impromptu* formative assessment. In addition to any initial planning, there are three 'exit' points where information gained can be fed forward and/or planned into the process, one of which goes directly into providing a basis for the next assessment.

What the model cannot do is ensure that the use of the assessments tools, the teacher's interpretation of the information gained, and the subsequent *re...actions* are of high quality. That is left to the teachers, and the school, to develop. Nonetheless, it is considered that the model does provide a basis from which the staff of a school, *and* the pupils, can develop a shared understanding of the purpose and value of using assessment information for formative purposes.

It is therefore hoped that this model can help minimise the mismatch between theory and practice.

This model was developed from a study of what three senior primary level teachers in one school reported and were observed doing. Naturally, this opens the findings to criticism, particularly in regard to validity and potential generalisability. Being aware of this issue the researcher invited 5 non-participating teachers from *Te Arawhiti* and 15 other primary teachers (new entrant to Year 8) from six schools to anonymously comment on the model and the explanation (as presented above). Only one respondent found the model difficult to follow. Of the rest there was general consensus that the model fitted their 'reality', several respondents commenting on the important recognition of intuition and professional judgement (Appendix K, p. 150)

Limitations and recommendations for future research

Given the complexity of the teaching/learning/assessment process it is not surprising that there is much this thesis does not encompass. It does not discuss issues of power that are implicit in any consideration of assessment of children's learning. Indeed the impression that some may gain from what

has been presented here is that the 'power' remains with the teacher. This is not the intention of this thesis. It is acknowledged that the learner plays a considerable role in the efficacy of any assessment practice. In fact, much research has suggested the 'power-sharing' between teachers and children, through the development of peer and self-assessment, can have great benefits for the learner. However, this researcher believes that the first step in understanding the formative assessment process has to lie with understanding what the teacher does. From a purely practical point of view, the time and access available did not make it possible to study both the teacher and the children in-depth. Therefore, given the above assertion, a conscious decision was made to limit the scope of this study to discovering how teachers worked to enhance learning within their classrooms.

Further, no attempt has been made in this study to evaluate the quality of the teachers' formative assessment practices. Rather, the focus was on identifying the process. Nevertheless, the writer has acknowledged the importance of the quality and appropriateness of the assessment tool, the interpretation of the assessment information, as well as the use to which that information is put.

Future studies, therefore, could first examine the efficacy and appropriateness of teacher's *re...actions* and identify characteristics of quality. Once these have been established the study could be broadened to explore children's understanding and responses to teacher *re...actions*.

A study as small as this one cannot hope to generalise to the wider population of primary schools in New Zealand, let alone schools overseas. It does, though, suggest a *fuzzy* generalisation (Bassey, 1999) that the model *may* be an accurate reflection of the formative assessment process. Future research could start from this proposition and investigate how well the model reflects practice at all levels of the education system.

Finally, since those involved in education, from teachers to academics, are increasingly recognising the central role of assessment for formative purposes in enhancing learning, a study could be carried out to see how assessment information could be simply and efficiently documented by teachers without either creating pseudo-summative assessments or more work for teachers.

Summary

Assessment for formative purposes is increasingly being recognised for its potential to enhance learning. Studies from the United Kingdom and New Zealand have revealed that frequently classroom teachers are engaged in formative assessment practices without being aware of it, or are inefficient users of formative assessment information.

This research used a theory-seeking case study approach in an attempt to establish how assessment is being used to enhance learning in three senior primary school teachers' classrooms. Through semi-structured interviews and in-depth classroom observations, five emergent themes were recognised. One of these themes, that formative assessment is on-going and a cyclical process, led to the development of a model of formative assessment in action. Key features of the model include the use of assessment information/indicators to decide appropriate actions, or more frequently *re...actions*, to create further learning opportunities.

Appraisal and verification of the model by participants and other teachers from both the research school and other primary schools in the area suggest that it is an accurate representation of how teachers do assess children for the purpose of enhancing their learning.

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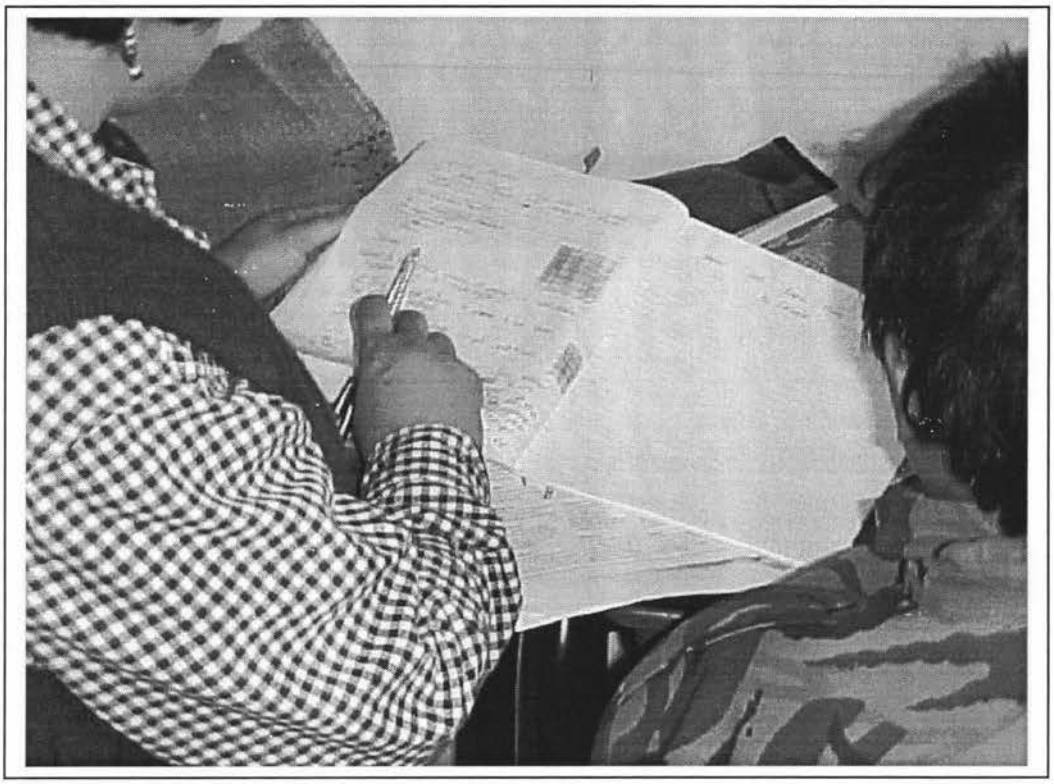

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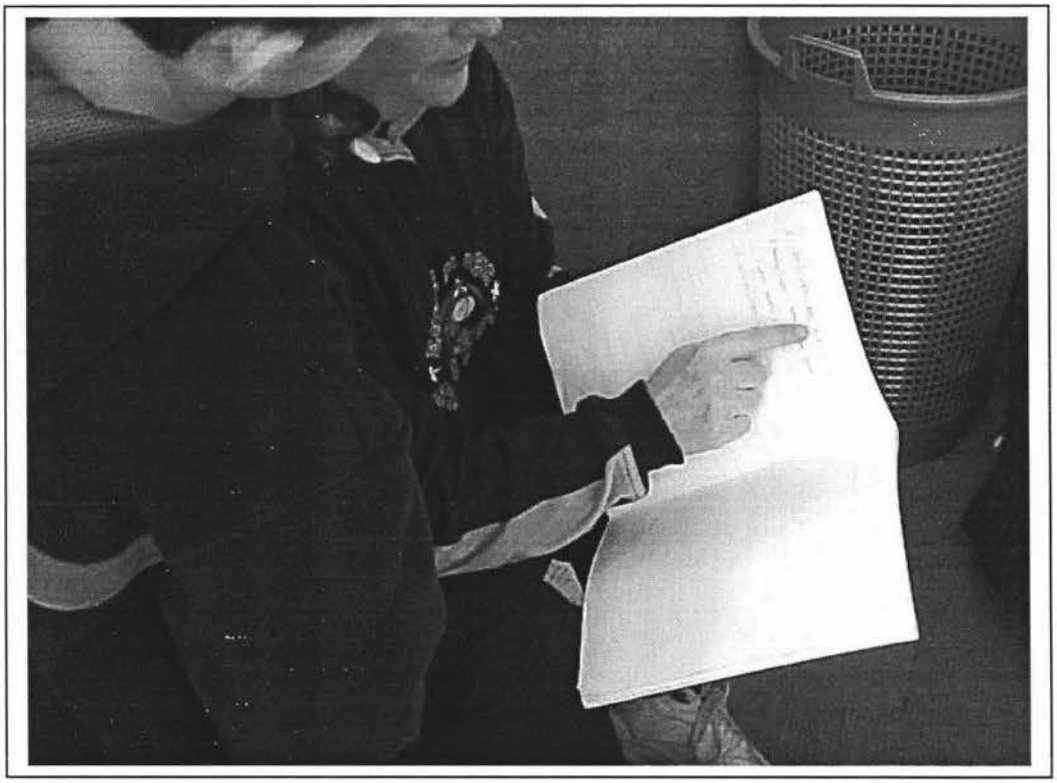


APPENDICES

Appendix A

[redacted] PRIMARY SCHOOL

[redacted]

Telephone (0[redacted]
Fax (0[redacted]
[redacted]@xtra.co.nz

20 March 2001

Mr Martin Vickerman
[redacted]
PALMERSTON NORTH

Dear Martin

Thank you for presenting your Research Project to the Board of Trustees on Thursday evening, 15 March 2001.

The Board was impressed with all you had to say and are delighted that you have selected [redacted] to work in. They grant you permission for your work with the ethical assurances that you outlined in your written and oral presentation.

On a personal note, I attended a meeting in Wellington at the week end and reference was made to the value of formative assessment and the lack of appropriate research on the topic.

We wish you all the best in your work and look forward to learning from your research.

Yours sincerely

[redacted]

[redacted]
Principal

22/3/01

MASSEY LETTERHEAD

[NOTE: A letter, similar in content to the one below, was given to the Board of Trustees and Principal. This is available from the researcher on request.]

Formative Assessment and the Development of Writing Skills in the Upper Primary School

Information Sheet
(Teachers)

Thank you for expressing interest in the proposed research. Details of the confirmed proposal and the extent of your involvement should you agree to take part are described below.

What is the research about?

I am interested in the way teachers in the upper primary school use formative assessments to modify their own teaching and enhance individual children's understanding. To focus the research I will be concentrating only on these practices as used in the learning and teaching of writing. In particular I will be looking at:

- *what* types of formative assessment teachers are using,
- *when, where, why* and *how* they are using them,
- *what* effect this appears to be having on the children's learning, and
- *what* perceptions the children themselves have on what the teacher is doing.

Why is this research important?

Research suggests that good formative assessment is essential for improving learning. A lot has been written about formative assessment but a recent review by Bell and colleagues from Waikato University identified much of this knowledge comes from reports of what happens rather than from actual observations of what happens.. They concluded that "*further research...on what actually happens in classrooms...is crucially needed*".

How will you, the school and children benefit?

- You will have the opportunity to reflect in depth about your assessment practices.
- Particular strengths and weaknesses of present formative assessment practices can be identified and shared, in an appropriate form, with other staff.
- Improved practice could increase learning opportunities for the children. They may also start to develop an understanding about why you intervene as you do.
- Overall I hope that all those involved in the research may come to feel increasingly confident about the purpose and value of formative assessment.

If you agree to take part what will be involved?

(i) Semi-structured Interviews of between 30 minutes and 1 hour at the start and end of the data collection period (tape recorded)

and

either another semi-structured interview, (tape-recorded) in the middle of the main data collection phase or a series of informal interviews (chats) at regular intervals. (Either tape-recorded or notes made).

(ii) Classroom Observations (when writing skills are being taught). 3-4 sessions a week per class, for 6 weeks lasting between 45 minutes and 1½ hours depending on your individual lesson plans. (The ideal of seeing every class every day for the six weeks is probably not feasible).

From time to time during these observations I will like to talk briefly with individuals or groups of children about their understanding of what you have been doing/saying. I will endeavour to reduce any interruption to an absolute minimum.

How long will the research take?

One session per class is planned for early second term. The main part of the research is planned to take six weeks towards the end of the second term. Contact with the classes will not exceed 1 ½ hours on any one day. On most weeks observations may take place on only 3 or 4 days.

What effect could my presence have on teaching and learning?

Initially my presence may cause some minor disruption, however this should be no more than would occur when somebody, other than the teacher, comes into the classroom. During early observations I will sit at the edge of the room. By the time I start to move around more freely you and the children should be used to my presence. If there is a problem I will encourage you to talk to me about it.

At all times every effort will be made to reduce any disruption to learning and teaching.

What other risks are there?

It is recognised that in a busy classroom things do not always work out as well as the teacher had planned. If such things were to happen while I was observing you may feel particularly uncomfortable. If you wish, reference to any particular incident will be removed from the field notes and not referred to in any reports. As with all data, knowledge of the incident will remain confidential. Should you allow reference to the incident to be used you have my assurance that the matter will be written about tactfully and diplomatically to avoid any potential embarrassment.

It is also theoretically possible that some formative assessment techniques are actually having a negative effect on some children's learning without you being aware of the fact. If this is

revealed it will be important to note this in the report. Again every effort will be made to do this sensitively and constructively in a way that does not apportion blame to any individual.

Despite these assurances it cannot be guaranteed that it will remain impossible for readers of any report, thesis or journal article to identify the source of the information.

What assurances can I give?

- Participation is voluntary. Consent can be withdrawn, either temporarily or permanently at anytime. A point will be made to reconfirm consent before any interviews and at the beginning of each observed session. Negative responses will be respected without consequence.
- You can ask any questions about the study at anytime during your participation.
- All information gained will be treated with the strictest confidence and all data will be kept secure at all times.
- You will have the right to refuse to answer any questions and to ask for the tape recorder to be turned off at any time during interviews or informal conversations.
- Pseudonyms rather than real names will be used in the raw data and final reports, unless you give your expressed permission for your name to be used.
- You will be invited to verify transcripts of any audio recordings. You will be able to strike out any material you do not wish to be used or make corrections where necessary.
- Information will be used in the first instance for the writing of my Masters Thesis. Any subsequent use in reports/articles will not make it possible to identify any individual.
- You will be given access to a summary of the findings when the research is completed.
- At the completion of the project all relevant data will, with your consent, be archived for possible future use. You will, however, have the right to request the original tape recordings of your interviews or have them destroyed once the thesis has been successfully examined.
- This research has the support of Massey University's College of Education's Ethics Committee and consent from the school's principal and Board of Trustees.

At all times I will endeavour to make the experience as rewarding and hassle-free for all concerned.

If you have any questions about this study, please feel free to contact me, Martin Vickerman, at Massey University 3505799, ext.8842 or my supervisor, Dr Jenny Poskitt, ext 8835.

Thank you

MASSEY LETTERHEAD

Getting it Write. Formative Assessment for the Development of Writing Skills in the Upper Primary School

CONSENT FORM

(Teachers)

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand that I have the right to withdraw from the study, either temporarily or permanently, at any time and to decline to answer any particular questions.

I agree to provide information to the researcher, Martin Vickerman, on the understanding that my name will not be used without my permission and all information passed on will be held in the strictest confidence. (*Information will only be used for this research and publications arising from this research project).*

- I agree*/do not agree* to provide access to my classroom for the purposes of observation during sessions focusing on writing skills. (**delete as appropriate*).
- I agree*/do not agree* to interviews being audio taped. (**delete as appropriate*).

I understand that I have the right to withhold access to my classroom, temporarily or permanently, or to ask the researcher to leave the classroom, at any time during the observation sessions.

I also understand that I have the right to ask for the audio tape to be turned off at any time during the interview.

I agree to participate in this study under the conditions as set out in the Information Sheet.

Signed: .....

Name: .....

Date: .....

MASSEY LETTERHEAD

RESEARCH PROJECT ON CLASSROOM ASSESSMENT OF WRITING SKILLS

PARENTS' INFORMATION SHEET

What is the research about?
The basic purpose of this research is to investigate the informal day-to-day assessments teachers make about children's writing skills and how children react to their teacher's comments. Researchers believe that this type of assessment is one of the most important influences on a child's learning. Through this research it is hoped that we can gain a better understanding about what really does go on in the classroom and what types of assessment are the most effective.

The project has the support of [redacted] School's principal, [redacted], and the Board of Trustees as well as Massey University's College of Education Ethics Committee.

Mr Martin Vickerman, who has previously worked at the school as a relief teacher in Rooms [redacted] and [redacted], and who is presently a Master of Education student at the University, will carry out the research. He is being supervised by Dr Jenny Poskitt of the Department of Learning and Teaching and Sally Hansen of the Department of Arts and Languages.

How will your child be involved?
If you are willing for your child to take part in the study your child will be involved in the following ways:

1. By allowing the researcher to observe him/her along with other children as they are working under normal conditions in the classroom during writing lessons.

   There will be one preliminary observation at the beginning of Term 2 followed by six weeks of observations during the last half of the term.

2. By being informally interviewed by the researcher from time to time during the main observations.

   These interviews will be more like short chats to help the researcher gain a better understanding about why children react to their teacher's comments in the way they do. They will take place in the classroom as soon as is convenient and would probably last no more than 5-6 minutes. Occasionally your child might be interviewed along with other children in his or her group. Notes will be taken during or immediately after these interviews.

At all times every effort will be made to ensure that the observations and chats do not interfere with your child's learning.

What can you and your child expect from the researcher?

You can expect that:

- Your child's participation is completely voluntary – you can withdraw him/her from the research at any time. Your child also has the right to withdraw from the study at any time.
- Either you or you child can ask questions about the research at any time.
- All information your child gives to the researcher will be confidential. Your child will be identified with codename or code number. It will not be possible to identify him/her in any reports.
- Your child has the right to refuse to answer any of the researcher's questions.
- Every effort will be made to ensure that the research causes the minimum of interference with the teacher's teaching or your child's learning.
- You will receive a letter acknowledging your child's participation in the research. The letter will also inform you of the results of the study.
- Information gained through this research will be used in the following ways:

  1. In the writing of Mr Vickerman's Masters of Education Thesis.
  2. In a report of the Board of Trustees, the principal and teachers will be given a summary report of the findings. They will be able to use this to develop assessment techniques throughout the school.
  3. In reports or articles for the wider academic community.

  The name and location of the school and the names of the teachers or children will not be used in these reports.

Once you have decided whether you are willing to allow your child to take part please complete the attached form and return it to the school office in the envelope provided.

If you wish to ask any questions at all about this research please contact Martin Vickerman on 3505799 ext. 8842 or Dr Jenny Poskitt, ext. 8835

Thank you for your time.

MASSEY LETTERHEAD

Formative Assessment for the Development of Writing Skills

CONSENT FORM

(Parents/Caregivers)

I have read the Information Sheet and understand the details of the study. I also understand that I, or my child, may ask questions regarding the study at any time.

I understand that I can withdraw my child from the study at any time and that my child can refuse to answer any particular questions.

I agree to allow my child to provide information to the researcher, Martin Vickerman, on the understanding that my child's name will not be used without my permission. I also understand that all information my child provides will be held in the strictest confidence. (*Information will only be used for this research and publications arising from this research project).*

- **I agree / I do not agree***
  to allow .....(NAME OF CHILD) to participate in this study under the conditions set out in the Information Sheet. (delete as appropriate)

Signed: .....

Name: .....

Date: .....

Please return this form to the school office in the envelope provided. Thank you.

MASSEY LETTERHEAD

Formative Assessment and Writing Skills Research

Information Sheet

(Children)

Mr Vickerman would like to do some research in your class. He has got permission from your teacher, the school's principal and the Board of Trustees to invite you to take part too.

The research is about the way your teacher uses her teaching to help you improve your writing skills. Mr Vickerman will also look at what you do after your teacher has talked to you about your work. To help him understand more Mr Vickerman might want to ask you some questions also.

You **do not** have to take part in this research. Even if you do join in you can change your mind at any time and stop being involved. If you decide not to be involved nothing unusual will happen to you. You will still be part of the class and your teacher will still work with you in the same way. Mr Vickerman will just not watch you and he will not ask you any questions.

If you **do** agree to take part this is what will happen:

- Mr Vickerman will come and observe your class for about 1½ hours at the beginning of term two. At that time he will not want to ask you any questions.
- From the middle of term two until the end of the term Mr Vickerman will come and observe your class for about 1½ hours on most days. This will be when you are doing writing.
- On some days Mr Vickerman may want to ask you a few questions about what you are doing and what you are thinking. If you do not want to answer any questions just say so. This is OK.
- Mr Vickerman will keep your name secret. He will not use it in any of his notes or in any of the reports he writes.
- If you give Mr Vickerman any information he will try to make sure that nobody else outside your group will be able to find out that it was you who gave him that information. Mr Vickerman will not even tell your teacher without your permission.

You can ask Mr Vickerman questions about his research at any time.
Mr Vickerman needs to know whether or not you are willing to take part in his research. Please think carefully about this.

When you have thought about this please complete the special form Mr Vickerman has given you. Fill it in even if you do not want to take part.

You may want to take it home for someone at home to help you fill it in correctly.

When you have completed the form please return it to the school office or your teacher in the envelope provided.

Your parents/caregivers have also been given an Information Sheet and have been asked to complete their own form saying that they agree or do not agree to you taking part.

Thank you very much for thinking carefully about this invitation to take part.

MASSEY LETTERHEAD

Formative Assessment and Writing Skills Research

CONSENT FORM

(Children)

	TICK
I have read the Information Sheet and Mr Vickerman or my teacher has explained it to me.	☐
I understand that I can ask Mr Vickerman questions about his research at any time.	☐
I understand that I have the right to tell Mr Vickerman that I want to stop being part of his research at any time.	☐
I agree to answer Mr Vickerman's questions knowing that Mr Vickerman will not use my name in his report.	☐
I also understand that I can refuse to answer any of the questions Mr Vickerman asks me.	☐

- **I agree / I do not agree*** (cross out one)
  to take part in Mr Vickerman's research.

Signed: .....

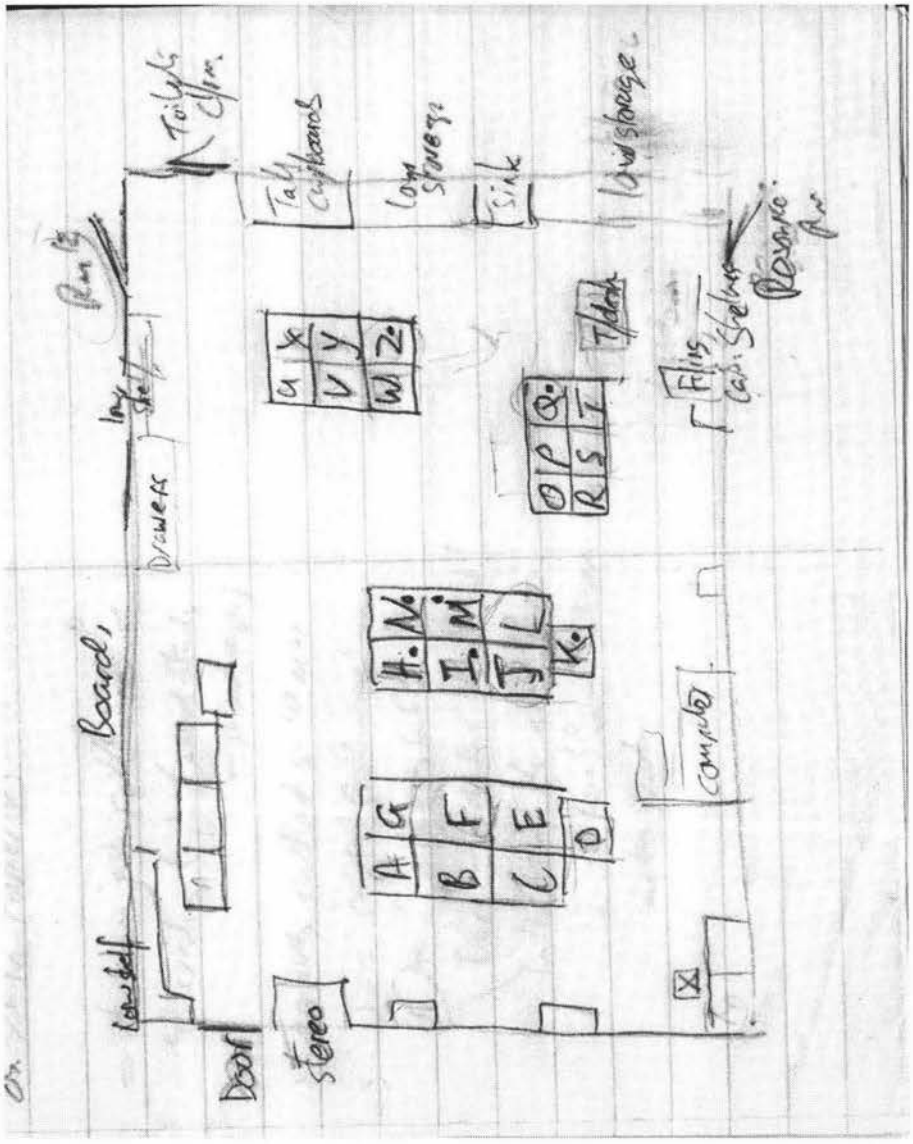
Your Name: .....

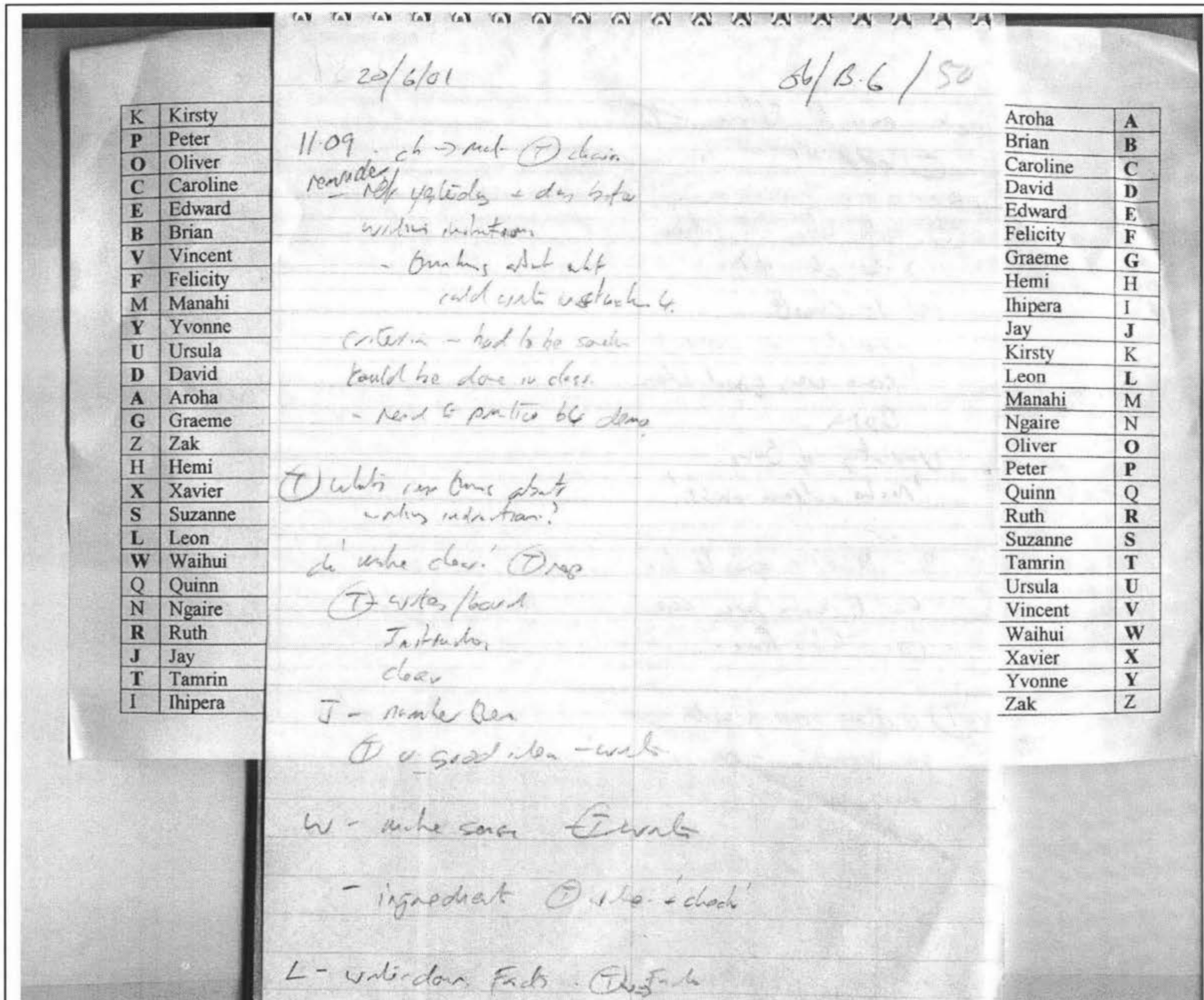
Date: .....

Please return this form to the office or your teacher in the envelope provided. Thank you.

Appendix C

Example of classroom seating plan and notebook with fold- out crib sheet for locating and coding participating children.





20/6/01

S6/B.6/50

K	Kirsty
P	Peter
O	Oliver
C	Caroline
E	Edward
B	Brian
V	Vincent
F	Felicity
M	Manahi
Y	Yvonne
U	Ursula
D	David
A	Aroha
G	Graeme
Z	Zak
H	Hemi
X	Xavier
S	Suzanne
L	Leon
W	Waihui
Q	Quinn
N	Ngaire
R	Ruth
J	Jay
T	Tamrin
I	Ihipera

11.09 . ch → mat (T) chair
reminder
- refer yesterday & day before
writing introduction.
- thinking about what
could write [illegible] 4.
criteria - had to be something
could be done in class.
- need to practice b4 demo

(T) what can come about
writing introduction?

ch 'make clear.' (T) rep
(T) writes/board
Introduction
clear

J - [illegible]
(T) [illegible] good idea - [illegible]

W - make sense [illegible]

- ingredient (T) [illegible] & check'

L - write down Facts . (T) [illegible]

Aroha	A
Brian	B
Caroline	C
David	D
Edward	E
Felicity	F
Graeme	G
Hemi	H
Ihipera	I
Jay	J
Kirsty	K
Leon	L
Manahi	M
Ngaire	N
Oliver	O
Peter	P
Quinn	Q
Ruth	R
Suzanne	S
Tamrin	T
Ursula	U
Vincent	V
Waihui	W
Xavier	X
Yvonne	Y
Zak	Z

PRELIMINARY (TEACHER) INTERVIEW QUESTIONS

1) I'd like to start by looking at assessment in the primary school in general.

   What's *your* view about the role of assessment in teaching and learning generally, (ie not specifically related to writing skills) and how do you use assessment in your class? (What sort of techniques/activities do you use?

2) What information would you gain from those activities and how would you then use that information?

   [Prompt for – Planning; teaching, record keeping, children's learning]

3) Now turning more specifically to formative assessment, what do *you* personally feel is the purpose and value of **formative assessment** in *your teaching*?

   What about it's purpose and value in terms of the children's learning?

4) How important is formative assessment to you personally in relation to all the other aspects of your teaching?

   What makes you feel this way?

5) You've already commented on the ways you assess the children [SEE ANSWER TO QU 1] but I wonder, which of those do you consider as having a specifically formative function? (and why?)

6) Now, as you know, for this research we're focussing on the formative assessment in the development of writing skills. What sorts of things would the children be doing in writing lessons that you would want to formatively assess?

7) How much of the formative assessment that you do during writing lessons is actually planned by you in advance?

8) When you are formatively assessing the children, either individually or in a group, how do you use the information you obtain?

   Do you record any of it [the information?]

   [If so,] how do you record it, then, and how would you use the recorded information?

9) Now, in terms of using formative assessment in *your* teaching, are there any issues that concern you at the moment?

10) As we are coming to the end of this particular interview, I'm curious to learn how you have acquired the knowledge and skills you have of assessment, particularly formative assessment.

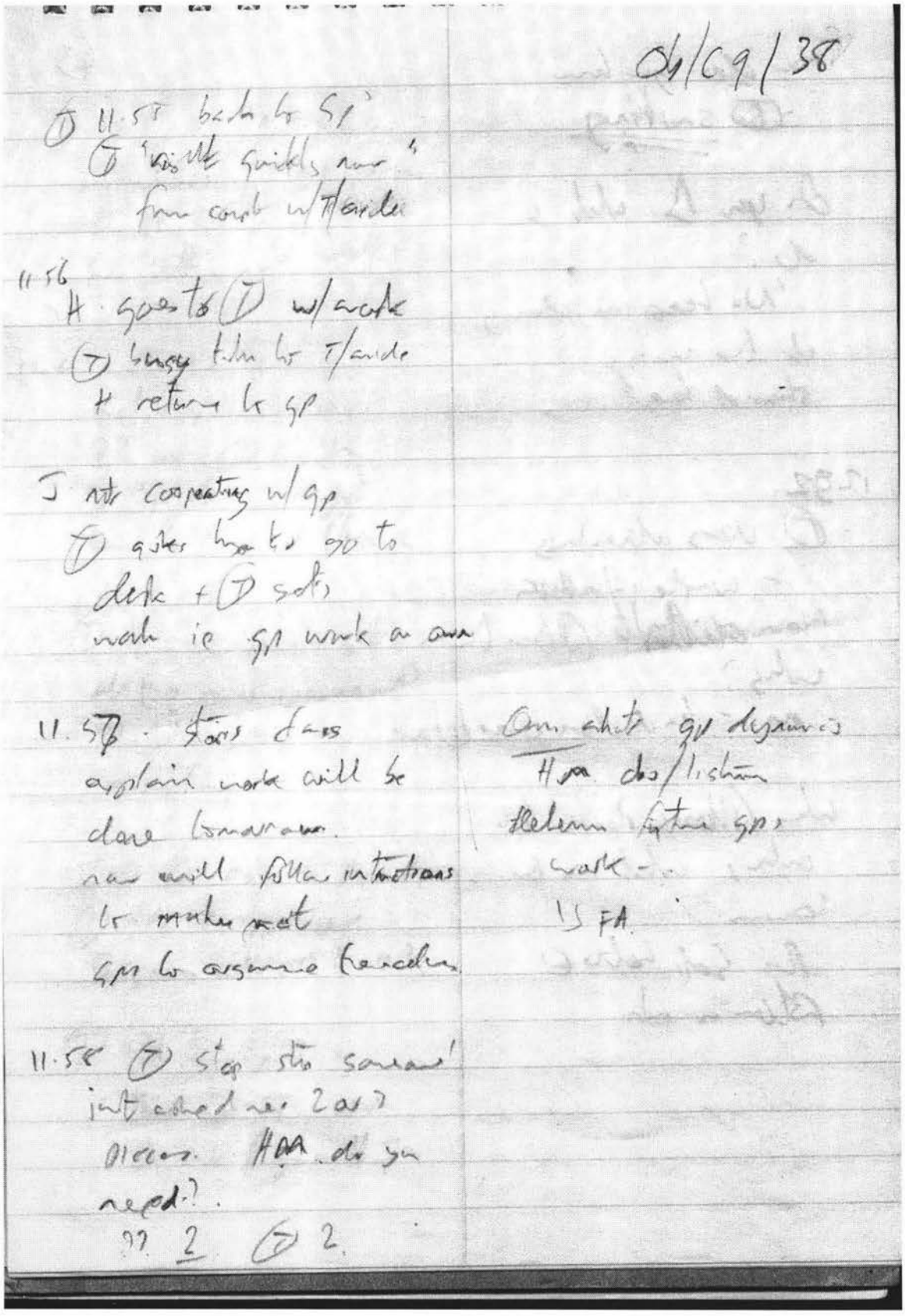
    [Prompt for – Initial teacher training, professional development/in-service courses/Guidelines official/school /own/other), On the job experience/just picked it up]

11) We've covered quite a lot of ground in this first interview but there may be some things that are important to you that we've missed. Is there anything else that you would like to add?

Thank you....

Appendix E

Example of field notes and typed-up copy



04/09/38

(T) 11.55 back to SP
(G) 'Will quickly run'
from comb w/ Hands

11.56
H goes to (T) w/ work
(T) hungry takes to T/aide
+ returns to GP

J not cooperating w/ GP
(T) gives him to go to
desk + (T) sets
work ie GP work at area

11.57½ - stays does
explain work will be
done tomorrow.
Ran will follow instructions
to make mat
GP to organise tomorrow

11.58 (T) stop stir sorcerer'
interested no 2 as?
Discuss. HA. do you
need?
?? 2 (T) 2.

On what GP disagrees
How does/listen
Return after GP's
work -
IJ FA

	Ob/C.9/32 Ob/C.9/fn2/38	11.55: Bryony glances back to Group 3 from where she's standing and says, "right, quickly now!"	
	Ob/C.9/33 Ob/C.9/fn2/38	11.56: **H** goes up to Bryony with the work from Jet Force. Bryony is busy talking with a teaching aide and doesn't notice him. Returns to his group.	
	Ob/C.9/34 Ob/C.9/fn2/38	In Generation X, **J** is not cooperating with the other members of the group. Bryony notices this and asks him to go to his desk. She then encourages him to get organized to do the work by himself.	
	Ob/C.9/35 Ob/C.9/fn2/38	11.57: Bryony stops the class. She explains that they will use the work that they have done today in their writing conference groups tomorrow and today they will follow the instructions that they themselves have written to weave paper mats. She tells the groups to organize themselves and reminds them that one member of each group should collect two pieces of coloured paper for each of the other members of the group. [*Will Bryony now use the information she has gained today from listening and observing the members of each group working to influence how she may use group work in future? – F.A.?*]	
	Ob/C.9/36 Ob/C.9/fn2/38	11.58: As the children are getting organized Bryony stops the class and says that someone has just come up and asked her whether they should have two or three pieces of paper. "How many do you need?" she asks the class. Somebody calls out, "two." "Two," says Bryony.	

FINAL (TEACHER) INTERVIEW (Bryony & Sue)

1) You mentioned in the first interview that for you the general purpose of assessment is to see where the children are at. When I started observing you had just begun the Writing Groups.

- Where are the children 'at' now with the writing groups?
  - What have you done to help them get there?
  - Why did you do that?
  - What problems did you notice? (barriers to learning)?
    - How did you overcome these?
  - What sorts of assessments did you make of each group as a whole?
    - What about assessments of individuals in the groups?
  - As a result of the work in the writing groups what learning has taken place?

2) You mentioned that you intended to introduce a reflection sheet. Have you done that?

- If yes, How is it working?
  - Is everyone using the reflection sheet, Why, why not?
  -
- If no, why not?
  - [If still plan to use the sheet will everyone be expected to use it? Why, why not?

3) When you are teaching the class as a whole you often ask them questions. Why do you do that?

- Often several children raise their hands to answer. Do you ever target specific children? Why? Why not?

Sometimes you would go round all of those with their hand raised and respond to their answer with a comment such as "good", "ok" or perhaps you'd say something more specific such as, "I like the way you said....." (Ob/C.9/03), or "no, you're not listening." Sometimes, though, you will let several children give their answer before you respond to a particular child's suggestion.

- Is there any reason why you sometimes don't give a comment or a response to every child's answer?

4) Again when asking a question of the class as a whole there are usually a number of children who don't put their hand up.

- How do you interpret their non-response/participation?
- [IF "it depends on the child" Then.....]
  - What if it's one of these children who don't put their hand up, what would you possibly be thinking then?

5) I've noticed that you often re-explain what you have already told to class. Why do you do this?

- How you do you know that you need to re-explain something?
  - [what evidence?]

6) One of the activities that you seem to use quite a lot when the children are gathered on the mat is getting them to explain, re-explain or share with their neighbours. What is the purpose of this activity? [eg Ob/C.1/11 p4]

- What information do you get?
  - How do you use this information?
    - During that part of the lesson?
    - Later on in the lesson
    - At other times.

7) During one lesson you made an interesting comment to the class after you'd asked them a question. You said, "I am interested to see if your brain and my talking are making a connection." [Ob/C.9/05]

- What might have made you say that?
- What evidence would you then be looking for to see if in fact a connection had been made?

8) Frequently I have noticed that while the children are working you move fairly quickly around the classroom and glance briefly over their shoulders at their work. [eg OB/C.1/16 p 5]

- What might you be looking for on those occasions?
- Sometimes you move on to the next child without commenting, sometimes you'd make a brief comment and other times you'll stop and interact with the child.
- What might cause you to comment to or stop with the child?

9) When you are watching a child working to what extent do you focus on that they are *doing* and to what extent do you focus on what they have *produced*?

- Would the same apply when you are watching a group at work?

10) At the end of one lesson I mentioned I'd noticed that several children had made self-corrections of full stops and capital letters and you replies that you were actually disappointed with this because you were trying to get away from the "full stop and capital letter thing," as you called it and towards the "complete sentence with one idea in it."

- Has there been any progress in that direction and if so what did you do to move the children's learning along?
  - **[If reference to comment then ask;**
  - Apart from my comment to you on that morning was there anything else that encouraged you to do what you've done?]

11) In our first interview you mentioned a concern that you had regarding the validity of the assessments you make in the classroom. You said that it is important to consider if the assessment is "authentic"

- What did you mean by that?
  - How do you know that what you are seeing is authentic?

12) Now, I'd like to ask about the effectiveness of your assessment practices. Thinking of your day to day classroom assessments; your observations of the children working, watching what they do, listening to what they say; looking at their work, either in class with the children or later, perhaps at home; the conferencing and the peer assessment work in the writing groups, Overall, how effective do you think your assessment practices are.

PROMPT for - helping the children learn
- in planning
- barriers to effectiveness.

13) From your experience how do you think children learn and what is your role as the teacher in this?

PROMPT for - And where does assessment fit into this process?

14) How aware are you of the various techniques of assessment other teachers in school are using?

PROMPT - Are you more aware since being involved in this study?

15) As teachers, do you ever discuss formally or informally the various ways that you are assessing the children in your class? If so, what sorts of things regularly come up in the discussions?

16) I'd like to ask you now how you have felt about being part of this research. Include the pros and cons for you as an individual and its effects, if any, on your work.

PROMPT for - influence on actual classroom practice.

17) Finally, is there anything that We haven't covered here that you'd like to add 'for the record'?

Thank you

FINAL QUESTIONS FOR QUESTIONNAIRE (KAREN)

(If you need more space write, 'cont. over' and write on the back of the relevant page)

1) Please explain how the children were arranged in your classroom during my observations.

2) You mentioned in the first interview that for you the general purpose of assessment is to see where the children are at. Where are the children 'at' now with their writing?

   a) What have you done to help them get there?

   b) Why did you do this/these things?

   c) What problems did you notice (barriers to learning) and how have you overcome these?

   d) In what ways did you assessment of each group as a whole?

   e) In what ways did you assessments individuals?

   f) As a result of the work on procedural writing what learning has taken place?

3) When I started observing the class you were revisiting procedural writing. Before asking the children to write about "how to make toast" for their procedural writing post-test, you worked with the class to write instructions for "how to fill a hottie". What made you decide to do this activity before giving the children the post-test to do?

4) Although you had done the post-test you revisited procedural writing yet again a week later when you asked the children to write instructions for something that they themselves could demonstrate to the class. Why did you revisit procedural writing again?

5) When you are teaching the class as a whole you often ask them questions. Why do you do that?

   a) Often several children raise their hands to answer. Do you ever target specific children for their answers? Why? Why not?

   b) Sometimes you would go round all of those with their hand raised and respond to their answer with a comment such as "good", "ok" or perhaps you'd say something more specific. Sometimes, though, you will let several children give their answer before you respond to a particular child's suggestion.

      Is there any reason why you sometimes don't give a comment or a response to every child's answer? (What's probably going through you mind at that time?)

6) Again when asking a question of the class as a whole there are usually a number of children who don't put their hand up. How do you interpret their non-response/ participation?

   a) What if it was one of the following children who didn't put their hand up, what would you possibly be thinking then? (NB. To respect the anonymity of the children concerned and the confidentiality of the data, please refer to each child as she/he in your answer and then remove and dispose of the sticky labels before returning the completed questionnaire to me.)[1]

      [The names of nine children were written on *post-it* notes and stuck under the preceding question]

7) When you work with the children do you ever have to re-explain something that you've only just explained? If YES - Why would you do that?

   a) How you do you know that you need to re-explain something?

      If NO - Why not?

8) One of the activities that you use when the children are gathered on the mat is getting them to explain, re-explain or share with their neighbours. What is the purpose of this activity?

   a) What information about the children's work and learning do you get ?

   b) How do you use this information?

[1] Children's actual names were written and a 'key' kept by the researcher for subsequent coding

(i) During that part of the lesson?

(ii) Later on in the lesson?

(iii) At other times?

9) Sometimes, while you are sitting at your desk, children will bring their work to you to look at or mark. When a child gives you his or her work what sort of things do you look for?

a) What sort of things would you ask the child? [why?] And how do you use the information from their answer?

b) Occasionally I've noticed you writing on their work, although I've not been able to see exactly what you were doing. What sort of things would you write on a child's work? [why?]

c) How do you deal with spelling errors? [why?]

d) Do you use the information you gain from seeing the children's spelling errors for any other purpose? If so, please describe those purposes.

10) I have noticed that while the children are working sometimes you move fairly quickly around the classroom and glance briefly over their shoulders at their work. What might you be looking for on those occasions?

a) Sometimes you move on to the next child without commenting, sometimes you'd make a brief comment and other times you'll stop and interact with the child. What might cause you to comment to or stop with the child?

11) When you are you are looking at someone's work I've noticed that you might, possibly, after making a comment first to the child, make a comment to the class as a whole. Why do you do that?

12) When you are watching a child working to what extent do you focus on that they are *doing* and to what extent do you focus on what they have *produced?*

a) Would the same apply when you are watching a group at work?

13) Thinking of your day to day classroom assessments; your observations of the children working, watching what they do, listening to what they say; looking at their work, either in class with the children or later, perhaps at home; the conferencing etc, overall, how effective do you think your assessment practices are -

a) in helping the children learn?

b) in influencing your teaching ?

c) in contributing to your planning, (both long and short term)?

d) What barriers, if any, are there to making/keeping your assessments effective?

14) From your experience how do you think children learn and what is your role as the teacher in this?

a) Where do your assessments fit into this process?

15) How aware are you of the various techniques of assessment other teachers in school are using?

a) Are you more aware since being involved in this study? If yes, why?

If Not, why not?

16) As teachers, do you ever discuss formally or informally the various ways that you are assessing the children in your class? • If so, what sorts of things regularly come up in the discussions?

17) How you have felt about being part of this research? Include the pros and cons for you as an individual and its effects, if any, on your work and influence on actual classroom practice.

18) Finally, is there anything that we haven't covered here that you'd like to add 'for the record'?

Thank you very much for your time.

Appendix H

Using the table functions in Microsoft Word™ to facilitate qualitative data analysis

Data analysis in qualitative research has been described as an iterative process (Burns, 1997: Merriam, 1998; Stake, 1995) where data, often in the form of transcripts, accounts of observations and other documents, are read and re-read over and over again in the search for common threads or themes. Identifying keywords and phrases facilitates the identification of the themes. To aid this further the data is coded and these codes brought together. One method researchers have used in the past, and perhaps still use, is literally cutting up copies of their coded data and arranging and re-arranging them into themes on large sheets of coloured card or even into a set of labelled shoe boxes (Gummer, 2001)[1]. One of the problems with this method is that it can be difficult to keep track of earlier permutations of data. Another problem can be with the time it takes to search for keywords, especially when the data is extensive, and the consistent assignment of meaning to each keyword. The longer it takes to search for keywords the greater the likelihood that the original meaning may migrate.

Specialist computer programs such as NUD*IST, ETHNOGRAPH, ATLAS and CAQDAS (Seale, 2000) are available to researchers to aid in qualitative data analysis but they are not without their problems including the possibility of the imposition of "a narrowly exclusive approach to qualitative data analysis." (Seale, 2000, 173). Further any program that 'analyses' data for the researcher may lull the researcher into a false sense of security. Seale warns, quite rightly, that programs such as CAQDAS are "no substitute for thinking hard about the meaning of data" (p.165). Cost and the time required to learn how to properly use such programs can also be a disadvantage to one engaged in small scale research.

One solution is the use of the table functions in Microsoft Word™ to facilitate data analysis. In essence it is a simple computerisation of the traditional cut and paste method. Using the table functions in Microsoft Word™ the researcher is able to code and organise written data, undertake keyword searches, count frequencies of key words and phrases, locate specific text and cut and paste into the draft document. Furthermore, once a standard format for the table has been decided the researcher can combine data from several sources.

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[1] Personal communication (2001)

The concept of using the table functions in Microsoft Word™ for data analysis was developed by this researcher from an earlier idea of using the table function for the compilation of bibliographies and the sorting of notes and quotes. In the latter, a table with three columns is created. The first column is used to assign a general theme to the subsequent note. The second contains the source of the notes and the final column contains the notes or quotes, (fig 1).

Fig. 1

THEME	SOURCE	NOTES & QUOTES

It is not necessary to determine the number of rows as a new one can be created by simply using the tab key after completing a particular note.

Notes can be typed into the table in any order. At any time the researcher can simply sort the notes by theme or source using the table sort function. Where a particular note refers to two or more themes it is simply a matter of copying and pasting the notes and source into another row and assigning a different theme in the first column. Figure 2 illustrates the principle in a very simplified way.

Fig 2a - Notes are entered in any order

THEME	SOURCE	NOTES & QUOTES
ASS	Black, 94 p34	Assessment has changed significantly over the last 20 years
FA	Gipps, 96 p23	Formative assessment is becoming increasing important
ASS	Torrance, 98 p.5	Changes in assessment policy impact on curriculum policy
Curric policy	Torrance, 98 p.5	Changes in assessment policy impact on curriculum policy
Case Study	Yin 96, p34	There are four types of c.s. design
FA	Torrance, 98 p.12	Study of FA in UK lower primary schools

By clicking anywhere on the table then using the Table Sort function, (Table → Sort) then selecting THEME the table is sorted.

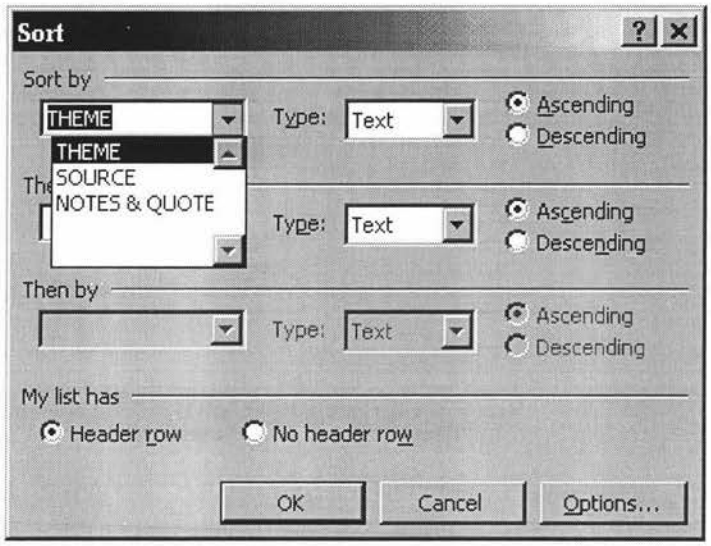


Fig. 2b - Notes sorted by THEME

THEME	SOURCE	NOTES & QUOTES
ASS	Black, 94 p34	Assessment has changed significantly over the last 20 years
ASS	Torrance, 98 p.5	Changes in assessment policy impact on curriculum policy
Case Study	Yin 96, p34	There are four types of c.s. design
Curric policy	Torrance, 98 p.5	Changes in assessment policy impact on curriculum policy
FA	Gipps, 96 p23	Formative assessment is becoming increasing important
FA	Torrance, 98 p.12	Study of FA in UK lower primary schools

The same principle was applied for the data write-up and subsequent analysis for this thesis. In this case the table consisted of four columns, theme/keyword, source code, text and a blank one for comments and/or other use. To ensure that all data was recorded in a consistent format the initial table comprising the header row and the first data row was saved as a Word™ template. Figures 3 & 4 illustrate how the same format was used for recording data from both observations and interviews

Field notes were recorded in spiral notebooks and were written up as soon as possible and in all cases within 12 hours. To increase the reliability of the typed notes the field

notes were first used, in most cases, to record expanded oral notes into a personal tape recorder immediately after the observation. This tape recording was then transcribed into the data table. On the few occasions where it was not possible to record the oral notes the researcher had to rely on the written notes for the write up. This occasionally resulted in some instances not being recorded where the field note were illegible and the researcher was unable to remember the event clearly.

Fig 3. Example of Data Recording of Observations in Microsoft Word™ Table

THEME	Ref – Typed notes/original field notes[1]	NOTES TIME	
	Ob/B.5/001 Ob/B.5/fn1/41	11.11: Karen has just finished working on the computer with the class. She now asks them to move to the mat.	
	Ob/B.5/002 Ob/B.5/fn1/41	11.12: Karen sits on her chair at the front. The children are quite unsettled.	
	Ob/B.5/003 Ob/B.5/fn1/41	11.14: Karen stands up and stands behind the tall table. She explains that she is going to show the children how to do stitching. She asks the children, "if I was going to write down the instructions, what would the heading be?" One of the children calls out "cross-stitching." Karen comments that "it would be if we were doing cross stitching but this is not necessarily cross stitching."	
	Ob/B.5/004 Ob/B.5/fn1/41	Another child calls out, "stitching. "Karen says, "good." And writes this on the board.	

[1] Type notes/original field notes ref: example:- Ob/A.1/1 – Ob/A.1/fn1/2 = Observation/room A 1st Observation/Typed notes row 1 - Observation/room A 1st Observation/field notebook 1/page 2

Fig 4. Example of Data Recording of Interviews in Microsoft Word™ Table

THEME	Approx tape# (from start of tape)[2]	TEXT	
	Ip/S/VT/058 Tc/247	S: Yeah so when I say it's not planned ... they all get... ... ...direction feedback ... umm a lot...	
	Ip/S/VT/059	R: Ok...? Ok..? When when you're formatively assessing the children [interruption] So when you're formatively assessing the children either individually or in a group, how do you use the information, we've covered it some extent but you may want to.. <to>.	
	Ip/S/VT/060	S: <How> do I use <the information>....	
	Ip/S/VT/061	R: <How do you use> the information, yeah yeah...	
	Ip/S/VT/062 Tc/255	S: ...well I try make a little note of where they're at and [??? ???] where they're at what they're doing. Umm... ... sometimes it's a mental note but more often it's written.....and I had something else to say but I... ...ummm ... how I use the information wasn't it....?	

[2] Code Ip/S/VT/58 = Interview(Preliminary)/Sue(teacher's name)/Verified transcript/row 58; Tc = Tape counter

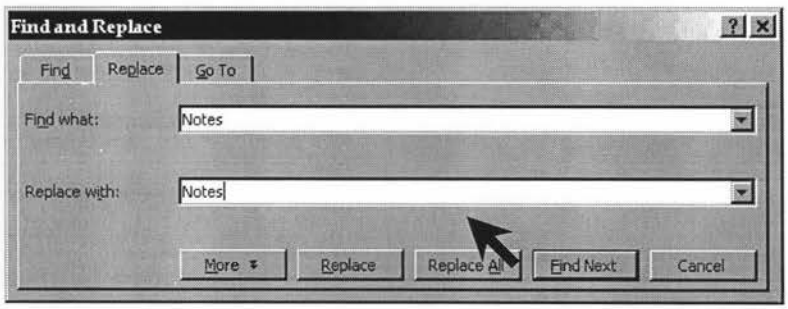
The reader will notice the codes for row's numbers have three digits. The apparent necessity to do this was discovered through trial and error. Experimenting with and regular checking, (in longer documents), of the table's sort facility revealed an idiosyncrasy with the way the table function seemed to deal with codes in this format. If the first nine rows are coded .../1, to .../9, rows 10 to 99 coded .../10, to .../99,etc and rows 100 to 999 coded .../100 to .../999 etc attempts to sort resulted in a sequence such as 1, 10, 11...19, 100, 2, 20, 21. However the problem disappeared when the row number was coded with three digits, eg. 001 instead of 1, and 012 instead of 12.

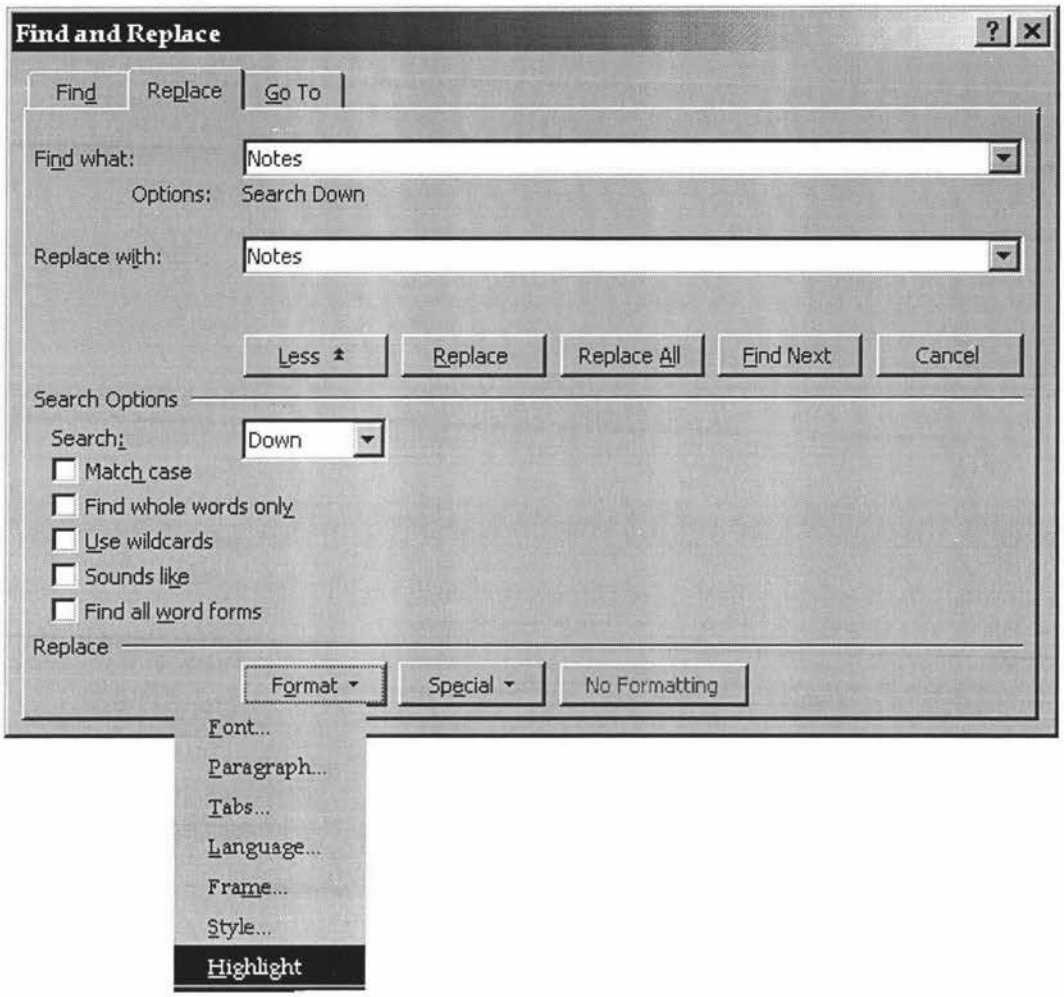
Facilitating Data analysis

Each observation and interview and the single questionnaire were recorded on their own table and stored on floppy disks. Two paper copies were printed one being kept in storage as a 'clean' copy the other spiral bound in three books one for each class/teacher. Also included in each volume were copies of additional documentary evidence; e.g. children's work, teacher's records and notes.

Analysis started by first reading through each volume of data. At the first reading no notes were made. During a subsequent reading the researcher began coding data in the left hand column and making occasional notes in the right. Originally the researcher had intended to do all coding on the paper copies. However after transferring the codes and notes of the first few tables to the computer files he decided to continue coding directly onto the computer files.

After the second reading and armed with an ever growing list of key words it was decided to use Word™'s *Find and Replace* facility to establish the frequency of the keywords. By finding each occurrence of a keyword and replacing them with exactly the same keyword using the *Replace All* command, it is possible to determine, at the touch of a button, the frequency of occurrence.





On the face of it this seemed like an effective way of determining the possible significance of certain words. However it soon became apparent that some words have different meanings depending on their context. Further some keywords can occur more than once within close proximity to each other. This was especially true in verbatim interview transcripts. Often such repeated keywords refer to one incident and as such should only be counted once. Consequently simple frequency counts would produce misleading results. It was therefore necessary to consider each keyword within its context and to establish it's real, or at least most likely, meaning as well as it's true count. Combining the *Find and Replace* facility with the *Data Sort* function helped overcome these problems.

First the *Find and Replace* facility was used to highlight the keywords. This was done by clicking on the *More* button on the *Find and Replace* menu, then going back to click at the end of the *Replace with* word before clicking on the *Format* button. *Highlight* was then selected.

When the *Replace All* command was used every occurrence of the keyword was highlighted in the document. In a relatively short data table it was an easy matter to

scroll down to each highlighted word and to consider its meaning or where multiple occurrences refer to the same instance its frequency. The appropriate code or codes were then assigned to the THEME/CODE column. However with a considerably longer data table, for example when the observations for each room were combined, (c. 60 pages), scrolling through the whole document and pausing at each word became tedious. One solution was to sort all occurrences to the top of the table. This was achieved by scrolling through and typing a single letter or number (eg, 1) in the right hand column wherever the keyword occurred in that row. Then by sorting by column 4 the rows with the keywords came together at the top of the table.

Whilst this was extremely useful care had to be taken in assigning meaning as the context may have extended beyond that particular cell. In cases of uncertainty it was necessary to re-sort the data into its original order, (using the second column), and to examine the word in its wider context. If a note had been made of the row code from column 2 it was an easy matter to relocate the ambiguous word by using the *find* facility. Frequently, however, the researcher referred to the paper copy to establish context.

Once the data was coded the *Find & Replace* function was used to establish the frequency of each code. For example, the results revealed that for one teacher 22 instances of her looking at children's work, (Exam-look) but only 1 instance of her marking the work, (Exam-mark) were observed.

Other uses of table and Word™ functions

The researcher also used the table facilities and Word™ functions to combine and then sort interview transcripts by question and to identify a trail of related interactions between a teacher and a given pupil over several observations.

Martin P. Vickerman
1 Oct 2001 (Revised 28/04/02)

		B p	B f	K p	K f	S p	S f	f (P)	f (F)	F (All)	COMMENTS
BEH AV	Off-day		-		-		1		1		-
EVAL	Evaluation†[†]		1		-		-		1		-
	Look(ed/ing) at[i]		1d		-		-		1		
			2		-		-		2		
FDBK	Comment[ii]	2	-	-	1b	3	-	5	1	6	T- fdbk
	feedback[iii]	1	-	-	-	-	2b	1	2	3	T- fdbk
	Feedback comment†	-	-	-	-	-	2a	-	2	2	Ch response to teacher
	Respon(d/se/ses)[iv]	-	-	-	1b	-	-	-	1	1	T- fdbk
		3	-	-	2	3	4	6	6	12	
IND	(responses)	-	1	-	-	-	-	-	1	1	
	~~Looking~~ for[v]										
	Actually doing	-	1	-	-	3	-	3	1	4	
	apparent	-	1	-	-	1	-	1	1	2	-
	ask[vi]	-	1c	-	-	-	2c	-	2	2	
	behaviour[vii]†	-	1a	-	-	-	4a	-	5	5	
	behaviour[viii]†	-	-	-	-	-	1	-	1	1	
	block	-	-	1	-	-	-	1	-	1	-
	Comment[ix]	-	1a	-	-	-	-	-	1	1	
	Cottoned on	-	-	-	-	1	-	1	-	1	-
	Day-dreams	-	-	-	-	-	1	-	1	1	
	feedback[x]	1	-	-	-	-	1a	1	1	2	
	Feedback[xi]†	-	1	-	-	-	2	-	3	3	
	feel[xii]	-	2a	-	-	-	-	-	2	2	
	feel[xiii]	-	1b	-	-	-	-	-	1	2	
	feel[xiv]	-	2c	-	-	-	-	-	2	2	
	Feeling[xv]†	-	-	-	1	-	-	-	1	1	
	Happening (it's)	4	-	-	-	2	-	6	-	6	
	Haven't got a clue	2	-	-	-	-	-	2	-	2	
	How they are	-	-	-	-	4	1	4	1	5	
	How things are going[xvi]	-	-	-	-	-	1a				
							1b	-	2	2	
	informative	1	-	-	-	-	-	1	-	1	
	Interact(ing/tion/tions)[xvii]	-	1a	-	-	-	-	-	1	1	
	intune	-	-	-	-	-	1	-	1	1	
	Keep making	1	-	-	-	-	-	1	-	1	
	learning[xviii]	-	-	-	-	-	1	-	1	1	
	Learning (not)[xix]	-	7	-	-	-	1	-	8	8	
	listen[xx]	-	4b	-	2b	-	1b	-	7	7	

[†]Keyword derived from meaning of sentence/paragraph in relation to question and other context

		B p	B f	K p	K f	S p	S f	f (P)	f (F)	F (All)	COMMENTS
	mark	-	-	1	-	-	-	1	-	1	
	measure[xxi]	1c	1b	-	-	-	-	1	1	2	-
	Measure†	-	-	-	-	-	1	-	1	7	
	muddled	1	1	-	-	-	-	1	1	2	-
	Need help with	-	-	-	-	1	1	1	1	2	-
	Non-verbal communication †	-	6	-	2	-	3	-	11	11	-
	notice[xxii]	-	1b	-	-	-	-	-	1	1	-
	Noticeable	-	-	-	-	1	1	1	1	2	-
	On task	-	1	-	1	-	1	-	3	3	-
	On track	-	-	1	1	-	-	1	1	2	-
	pattern	5	-	-	-	-	-	5	-	5	-
	Performance†	-	1	-	-	-	5	-	6	6	-
	Pick up†	-	-	-	-	-	1	-	1	1	-
	Picked up	4	-	-	-	-	1	4	1	5	-
	Picking up	-	1	-	-	2	2	2	3	5	-
	Problem†	-	1	-	1	-	3	-	5	5	-
	Processing	-	-	-	-	-	1	-	1	1	-
IND+	progress[xxiii]	2a	2a	-	2a	1	-	3	4	7	-
	progress[xxiv]	-	1b	-	-	-	-	-	1	1	-
	question[xxv]	-	-	-	-	-	1b	-	1	1	-
	Repeating words[xxvi]†	-	-	-	-	-	1	-	1	1	-
	Respon(d/sc/ses)[xxvii]	-	2a	-	-	-	-	-	2	2	-
	Sense[xxviii]	-	2a	-	-	-	-	-	2	2	-
	show[xxix]	-	-	-	-	-	2b	-	2	2	-
	skill	2	-	2	-	4	-	8	-	8	-
	Spelling errors†	-	-	-	-	-	1	-	1	1	-
	Stood out	1	-	-	-	-	-	1	-	1	-
	Struggl	2	1	-	-	1	4	3	5	8	-
	Stuck[xxx]	-	-	-	-	3a	1a	3	1	4	-
		-	-	-	-	3b		3	-	6	-
	Unstuck	-	-	-	-	1	-	-	-	1	-
	Talk – Pupil†	-	-	-	-	-	1	-	1	1	
	information[xxxi]	3s	1a	-	-	3a	5a	6a	6a	12a	
						3b	1b	4b	-	4b	
		30	46	5	10	34	52	69	108	177	

Condsolodated ALL interviews draft 3/09/2001 17:44

[i] a- Observation b- Examining work c- finding out d- evaluation
e- learning opportunity
[ii] a- children's comment as part of PA b- T fdbk
[iii] teacher fdbk to ch
[iv] a- ch's response to T qu - b- T fdbk
[v] "not getting responses I was looking for"
[vi] ask ch to do smthg b- T asks P qu c- P asks T qu
[vii] a- Ad hoc behaviour
[viii] b- repeated behaviour
[ix] a- children's comment as part of PA b- T fdbk
[x] fdbk from the children
[xi] Fdbk from P-T
[xii] a- come to the conclusion b- intuition c- satisfaction
[xiii] a- come to the conclusion b- intuition c- satisfaction
[xiv] a- come to the conclusion b- intuition c- satisfaction
[xv] feeling = inkling - "I've probably found something"
[xvi] a- find out what needs to be adapted b- how ch are managing
[xvii] a- participation (by ch) b- T-P interactions
[xviii] a- learning (v) b- learning (n)
[xix] a- learning (v) b- learning (n)
[xx] a- assessing b- ch are are/not listening c- 'observing'
[xxi] a- assess b- measure of understanding c- statistics
[xxii] a- observed b- ch likes to be "noticed"
[xxiii] a- progress b- work in progress c- progressed on (continued to next step)
[xxiv] a- progress b- work in progress c- progressed on (continued to next step)
[xxv] a- T – P qu b- P-T qu
[xxvi] - ie limited vocabulary
[xxvii] a- ch's response to T qu - b- T fdbk
[xxviii] a- make sense b- sensed
[xxix] a-showed them = modelled b- indicated ability
[xxx] a- problem b- SA'ed problem
[xxxi] a- info ch 'take on board' b- assessment data

Appendix J

Initial Codes and Frequencies for Room A

T/P/E	Code	Definition	Keywords	Frequency
T	Act-chng	Change of activity		1
T	Ans-T	Answer – Teacher replies to pupil question	Answers Replies Says	9
T	Evaluation	Evaluation of programme		1
T	Exam-correct	Looks at work and corrects it for ch	Correct(s/ing/ed) Correction(s)	3
T	Exam-listen	Listens to ch reading	Listen(s/ing/ed)	43
T	Exam-look	Looks at work and corrects it for ch	Look…at…over..work	49
T	Exam-mark	Looks at work and marks it.	Mark(s/ing/ed)	28
T	Exam-read	Reads ch's work	Read(s/ing/ed) (work)	31
T	Fdbk-com	Feedback comment	Comment(s/ing/ed)	111
T	Fdbk-correct	Feedback -correction	Correct(s/ing/ed)	21
T	Fdbk-nvc	Feedback – non verbal	Nod Smile	6
T	Fdbk-rew	Feedback reward	Reward	5
T	Fdbk-sugg	Feedback suggestion re next step (same activity)	Suggest(s/ing/ed) Suggestion	6
T	Fdbk-sugg-fol	Feedback suggestion re follow-up activity –(extention)	Suggest(s/ing/ed) Suggestion	-
T	Fdbk-sugg-next	Feedback suggestion re next (unrelated) activity	Suggest(s/ing/ed) Suggestion	-
T	Fdbk-utt	Feedback -utterance	Laugh	8
T	Fdbk-written	Feedback - written	write(s/ing/ed)	11
T	Formal-Ass	Formal Assessment		3
T	Int-chat-T	Interaction –Teacher initiated chat	Chat	1
T	Obs-glance	Very quick look at ch/ch's work	Glance(s/ing/ed)	3
T	Obs-look	Teacher looks at child/ group/class child's/group's/class's work	Look .. across at over to towards up	28
T	Obs-notice	Teacher notices something not expected/anticipated/ desitred	Notice(s/ing/ed)	14
T	Pedagogy	Pedagogy		1
T	Plan	Planning	Plan(s/ing/ed)	8
T	Prior-Know	Prior Knowledge		1

T	Purpose-T	Teacher's comment re purpose of formative assessment	Chat	1
T	Qu-T-C	Question –teacher asks class	ask(s/ing/ed)	81
T	Qu-T-G	Question –teacher asks group	ask(s/ing/ed)	4
T	Qu-T-P	Question –teacher asks individual pupil	ask(s/ing/ed)	64
T	Re…act	A change in plan		2
T	Rec-note	Record keeping notes	Note(s/ing/ed)	14
T	Reflect	reflection		1
T	Remind-C	Reminds class of something previously stated	Reminds(/ing/ed)	12
T	Remind-G	Reminds group of something previously stated	Reminds(/ing/ed)	0
T	Remind-P	Reminds individual pupil of something previously stated	Remind(s/ing/ed)	11
T	Repeat-ans	Teacher repeats child's answer	Repeats Says	8
T	Repeat-com	Teacher repeats earlier comment	Repeat Says	6
T	Repeat-Qu-C	Repeats question to class	Repeats	2
T	Repeat-Qu-G	Repeats question to group	Repeats	1
T	Repeat-Qu-P	Repeats question to individual pupil	Repeats	1
T	Scaf	Scaffolding	Model(s/ing/ed) Show(s/ing/ed) Help(s/ing/ed) Giving(s/ing/ed)	42
T	Unconsc	Unconscious action		1
T	WCAA	"Where Children Are At"- present ability		3

P	Ans-C	Answer – Class replies simultaneously to teacher question		7
P	Ans-G	Answer – several pupils reply simultaneously to teacher question	Answer Reply Say	30
P	Ans-P	Answer - Pupil replies to teacher question	Answers Replies Says	95
P	Fdbk-PA	Feedback –peer assessment		2
P	Fdbk-utt-P	Feedback- utterance by Pupil		2
P	Improvement	Improvement in ability		1
P	Int-chat-P	Interaction –Pupil initiated chat	Chat	-
P	Int-P-T	Interaction – pupil initiated with teacher		1
P	Learning	learning		5
P	NVC-C	Non-verbal Communication – class		3
P	NVC-G	Non-verbal Communication – Group of/several children		9
P	NVC-P	Non-verbal Communication – individual pupil		4
P	Purpose-P	Pupil's comment re purpose of teacher's assessment(s)	Chat	5
P	Qu-P-P	Question – Pupil ask pupil	Ask(s/ing/ed)	1
P	Qu-P-T	Question – Pupil ask teacher	ask(s/ing/ed)	16
P	Sugg-P	Suggestion by pupil for improving work		1
P	Transfer	Transfer of skills/knowledge/learning		2

Possible additions ; replies/answer to questions (search reply/replies, answer(s), say(s)
Child's suggestion for improvement/next step etc. either unsolicited or following teacher prompt/question

Example of feedback from model appraisal

Thank you for agreeing to look at the above model. Your comments are extremely valuable and will help 'test' whether the model can be applied outside the classes from which it was developed.

Please comment on

the extent to which the model fits with the reality of your teaching and informal classroom assessment.

It is important to mention any aspects which **do not** fit your reality as well as those that do.

Feel free to write on the model if you feel that helps.

It would also be helpful if you could answer the following questions.

1) What year group(s) do you teach? Y2-Y6

2) Many years experience do you have as a teacher? 10 years approx.

COMMENTS: (Continue over if necessary)

A very accurate portrayal of my life at the chalk face!
I appreciate the model's acknowledgement of the extent of informal assessment that occurs constantly in the classroom and is instantly reacted upon by the teacher without returning to a formal testing and/or planning situation (- starting at the basic level of minor off-task behaviours!)

Certainly many assessments are informally noted and are also carried in the "head" and shape future planning.

Even at stage 1, I don't feel that all learning objectives are necessarily formally noted particularly as experience grows and depending on the detail of written weekly planning.

I like the recognition (box 8) that in reality we do run "out of time" at times.