Formative assessment for non-verbal students with autism and severe learning difficulties: a case study

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I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

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Abstract

For a topic as popular as formative assessment, glaring omissions of student populations such as non-verbal students with autism and severe learning difficulties can label the process as non-inclusive. This thesis was developed as a result of a wish to improve the students’ educational experience by examining the uses of formative assessment with the specific student group and attempting to suggest ways in which students can access the formative assessment process, regardless of their challenging communication needs. In this case study, the first part of the research aimed to gather teacher views through semi-structured interviews on problems and successful formative practices, while the second focused on student video observations to establish how effective those practices were for this group of students. Interventions such as rewards and interesting resources were used to establish ways in which students give feedback through body language. The results indicate students can give feedback through body language, while the use of external stimuli can have varying degrees of effectiveness when it comes to attracting student attention. Among others, this thesis examined the themes of dialogue, reciprocation of feedback, behaviour and communication and student voice as related with formative assessment.
In the loving memory of Professor Filitsa Sofianou-Mullen (1962-2017).

‘And will you die, then?
He’ll ask
As she closes the shutters
To the evening…
At least, don’t grow old, I will not let you…’ (p. 37)

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Chapter 1: Introduction

Overview

In the 1970s the English government came under pressure because of concerns about ‘standards’ in education and accusations that those were slipping. In response to this, the level of national assessment was increased in English schools (Broadfoot 1997). It was at that time that schools in England and Wales started focusing on examinations, publication of individual school test results as well as comparisons between different primary schools across the country. Furthermore, the Office for Standards in Education (Ofsted) introduced a new type of inspection for schools and teachers and assessment and testing became a main focal point of the educational system in England and Wales (McNess et al. 2001). However, its implementation was not based on an explicit understanding of how assessment would improve standards (Broadfoot 1997).

The initial incentive for many of the current summative assessment initiatives was the 1988 Education Reform Act (McNess et al. 2001; Acquah 2013; Burks and Hochbein 2013). This introduced for the first time in the history of English education a National Curriculum that was compulsory, nationally assessed and linked to specific learning targets. The Conservative government, concerned about the country’s economic performance introduced it and both the Conservative and Labour political parties supported it through the 1990s (McNess et al. 2001).

The role of assessment has been discussed as a central element of education in recent years, and several types of assessment have been identified including summative, formative and self-assessment. However, as Taras (2008) notes, there are a number of definitions of each of these and no agreement about each or the relationships between them. Wiliam (2000b) summarised the distinction between evaluation and summative and formative assessment. He outlined how formative assessment ‘supports learning’, summative assessment ‘certifies individuals’ and evaluative assessment ‘holds educational
institutions accountable’ (p.105). Perie et al. (2009) argue that summative assessment also has a role in informing policy.

In the 1970s, Bloom et al. (1971) defined ‘formative evaluation’ as ‘another type of evaluation’ that students, teachers and curriculum makers welcome as it can help them improve ‘what they wish to do’ (p.117). In other words, formative assessment helps students enhance their understanding of areas of the curriculum where they wish to improve and can improve their progress. This definition includes two essential elements: the participation of both teachers and students in the learning process, but also the large-scale participation of curriculum makers, who can create a personalised curriculum and assessment, tailored to the needs of the individual students.

Focusing on formative assessment, Black and Wiliam (1998a) describe it as ‘encompassing all those activities undertaken by teachers and/or their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged’ (p.7-8). Based on this definition, formative assessment is a two-way process that shapes teaching and learning according to the feedback and information teachers and learners use in the classroom. This implies that teachers observe students on a daily basis and attempt to determine through their behaviour and performance what they need to do to improve. Such feedback can provide a teacher with information on how a student learns best.

**The rationale of the research**

Even though formative assessment has been researched in various contexts and it attracted a lot of interest in the latter part of the 20th century (Wiliam 2000b; Sadler 1989; Black 2003; Clarke 1996; Cowie and Bell 1999), the specific learning environment of non-verbal students with severe learning difficulties has been neglected. This is not surprising considering there is relatively little research in general in the population of students with severe learning difficulties and little, which describes the
schooling experiences of children with severe learning difficulties (Costley 2002). Further to this, progress for this group of students is often slow, which makes major claims about their attainment difficult to make. As Hughes (2014) remarks, to keep assessment as a positive tool ‘… assessment must judge progress rather than attainment’ (p.3). As she notes, it is possible to have assessment that records and celebrates progress, a subject central to the present thesis.

As a teacher in a special needs school, which I will name ‘Highland school’ for the purposes of this thesis, I noticed gaps in my own and my colleagues’ practice related to our use of formative feedback and assessment methods. At the time of starting this research there were gaps in the use of both summative and formative assessment, although these did improve over time. For example, summative assessment was task-based (the system was called PACE assessment) and was only in place as an isolated occurrence at the end of the year when students were required to complete a single task, which would allow them to complete one level and move on to the next. This was replaced by a more rigorous system that evaluated student progress throughout the year. Nevertheless, the school’s assessment policy (to be discussed in a later chapter) revealed how little was known about the process of formative assessment with non-verbal students within a school that catered for such students.

The research context

Highland school was a special needs state school, attended by approximately 300 students employing 150 members of staff. The school was organised into three sections: Primary, with one section for students with physical and sensory impairments and the other for students with communication and interaction difficulties and Secondary for students with communication and interaction difficulties. The research took place on the primary site of the school and focused on students with communication and interaction difficulties.
The students attending this section of the school often had autistic spectrum disorders and behavioural difficulties that derived from their communication needs. Within the school, different types of curriculum were followed depending on the level and needs of the students. More advanced students were taught using National Curriculum targets, while less advanced students were taught within the school’s curriculum, which had been developed in relation to their P-levels (levels that are used to describe performance that is lower than level 1 of the National Curriculum). Appendix 1 includes a detailed description of all the P levels and what they mean for the subjects of literacy and numeracy.

A number of students have speech and language impairments and/or learning difficulties, which often lead to additional communication needs.

The focus of this research has been on formative assessment with students in the lower attaining groups of the school, as well as non-verbal feedback. Feedback in its written or spoken form has been well-documented (Ramsden 1998; Ramaprasad 1983; Mory 2004; Askew and Lodge 2000); however, non-verbal feedback has received less attention, possibly because it is challenging to interpret. It was within this context that my research questions were developed.

**The research design**

This was a case study research was completed in two phases:

**Phase 1** of the research included teacher interviews, which took place in order to identify key issues relating to formative assessment with non-verbal students with severe learning difficulties. Teachers in the organisation focused on what they considered problematic when it came to using formative assessment interventions in their everyday practice. They expressed their views about the nature of formative assessment and they described the types of formative assessment they used within their lessons. These interviews were transcribed and analysed and used as guidelines for the development of phase 2 of the research (details are in chapters 4 and 5).
Phase 2 of the research entailed using the findings from phase 1 to test how some of the suggested formative assessment methods might help students and teachers give each other formative feedback (defined and discussed in chapter 2). Through the use of video, I followed an eight-week schedule, during which I used a combination of rewards and resources (explained further in chapters 6, 7, 8 and 9) and through video observations noted the ways in which non-verbal students gave formative feedback to their teacher and vice versa.

The research questions

The research reported here addresses the following research questions:

What are teacher perceptions of what constitutes ‘formative assessment’ in the context of children with autism and severe learning difficulties?

How is formative assessment applied in the context of children with autism and severe learning difficulties and what strategies do teachers use?

Is the form of feedback given by teachers to non-verbal children with autism and severe learning difficulties effective?

How do non-verbal students with autism and severe learning difficulties give feedback to teachers about their progress?

The present research investigated the implementation and effectiveness of formative assessment with a view to providing guidelines for better practice focusing in particular on non-verbal students with autism and severe learning difficulties.
Chapters 2, 3 and 4 consider the literature relating to formative assessment, literature relating to autism and severe learning difficulties and the case study methodology adopted in this research.

Chapter 5 describes the teacher interviews method, employed as part of this case study. Chapter 6 describes the teacher interview findings while chapter 7 the student video observations method also employed as part of my case study methodology. Chapters 8 and 9 describe the findings from those video observations. Chapter 10 discusses the findings in relation to the research questions, presents the limitations of the research and sets out the implications of the findings.
Chapter 2: Formative assessment: a literature review

Introduction

Even though the term ‘formative assessment’ has been utilised for over fifty years there is no agreement on what it entails (Wiliam and Leahy 2015). The implications of this confusion are vast: as I will explain in this chapter, it is almost impossible to successfully apply an assessment method when its components have not been agreed upon. To start, I will present the various conceptualisations of formative assessment and will examine how the formative assessment debate has evolved with the majority of definitions mostly considering typical mainstream pupils: verbal, able to reflect, presenting no serious deviations in their social interaction. Then, I will discuss the relationship between formative and summative assessment and how the tensions between the two and the debate on whether they should be used jointly or in isolation can jeopardise the success of formative assessment.

Subsequently, I will reflect upon the notion of informal formative assessment, which has been often uncelebrated and overlooked in the research world (Ruiz-Primo 2011). I will discuss how this offers a wider positioning of formative assessment to include all those unplanned and often unconscious actions that can qualify as formative assessment. I will also explore how informal formative assessment can be more appropriate for certain settings, such as special schools, since it incorporates different modes of communication instead of only verbal interaction. Furthermore, I will explain how in special needs settings day-to-day unplanned formative assessment actions would address some of the communication and comprehension challenges that formative assessment for this group of students often presents.
Next, I will differentiate between types of feedback, with focus on formative feedback, which, I will argue, is an important part of formative assessment. However it does not qualify as formative assessment in itself: a comparison between formative feedback and reciprocal feedback will follow in an attempt to explain their relationship with formative assessment and clarify why this is a crucial distinction. I will discuss some of the issues related to the applications of formative assessment and will explain how those can inhibit successful formative assessment practice. Finally, I will set out my own conceptualisation of formative assessment for non-verbal students with autism and severe learning difficulties and explain how it fits into the wider context of the formative assessment literature.

**Why define formative assessment?**

Defining an area of research is not a linguistics exercise planned merely to provide the semantic meaning of a phrase or word, but defining a term is important because ‘if we can’t clearly define an innovation, we can’t meaningfully document its effectiveness’ (Bennett 2011, p.8). The lack of an agreed definition has led to formative assessment’s ‘ethereal status’ (Ibid, p.2) potentially making it intangible to teachers and often contributing to identifying weaknesses in literature verifying the successful implementation of certain formative assessment practices (Dunn and Mulvenon 2009).

Contrasting this, is the view that formative assessment can be restricted by using rigid definitions: it is more useful to use broader definitions and encourage practices that improve student learning instead of trying to fit practices within an inflexible formative assessment framework (Wiliam and Leahy 2015). Both sides of the argument make a valid point: a definition is necessary as it will provide guidance and instill the confidence in teachers that what they are doing is considered valuable and suitable. Also, accessible and agreed upon definitions and the formation of a common belief system can encourage further research (O’Rourke et al. 2013). Regardless of one’s point of view, any further
delays that perpetuate the formative assessment debate can reduce the confidence of practitioners and researchers and might make it less likely that formative assessment will be used where it is mostly needed: in the classroom.

**Why explore formative assessment for students with autism?**

In 2010, Wilkinson and Twist pointed out that no formative assessment research existed linking formative assessment strategies and students with autism. Three years later Ravet (2013) observed that research for students with autism is scarce, even though there are indications that the formative assessment process is not inclusive. In spite of the age of those observations, to date, no literature exploring potential applications of formative assessment in a special school where students with autism and severe learning difficulties are taught has been identified. This has prompted the need to explore the possibilities for better-suited formative assessment practices for this group of students.

**What is formative assessment? Views and contradictions**

Wiliam and Leahy (2015) argue that there are four main areas in which the various formative assessment definitions differ:

1. How much time should elapse between instruction and feedback.

2. Whether the assessed students directly benefit from the process or the evidence is used by the teacher to benefit future students.

3. Whether students should be actively involved in the formative assessment process.

4. Whether formative assessment should be used to change instruction.

These areas need to be kept in the reader’s mind while they are guided through different definitions within this section. It is important to consider whether those main points are indeed pivotal, or whether
the debate should be focused on different areas of formative assessment. Perhaps the differences are slight and room for consensus between the various researchers’ ideas exists.

Bennett (2011) suggests that the best type of definition includes two components: what he calls ‘theory of action,’ (p.8) something that identifies the characteristics of formative assessment with an explanation of why those components are necessary and how they all work together to create a formative assessment episode and a clear and tangible example to support an abstract concept such as formative assessment. These ideas are echoed in the work of Nicol and MacFarlane-Dick (2006) who agreed that a theoretical definition with no example, could offer little at a practical level as examples can help teaching professionals use theories in their everyday teaching practice.

One problem in defining formative assessment is that although many practitioners and researchers talk about it, little is understood about how formative assessment is ‘designed, developed, embedded and… implemented by teachers’ (Ayala et al. 2008, p.316). For a concept as practice-based as formative assessment I would argue there is little meaning in attributing a separate academic and practitioner definition to the term. The key to this is to come up with a broader, more inclusive definition that can be useful to both the research community and schools (Rynes, Giluk and Brown 2007).

An early definition of formative assessment by Black and Wiliam (1998a) described formative assessment as ‘encompassing all those activities undertaken by teachers, and/or their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged’ (p.7-8). Black and Wiliam, key players in the field of formative assessment, even in their early definitions of the term included three elements of formative assessment: 1. Adjustment of teacher instruction is an essential part of formative assessment (in agreement with Cowie and Bell 1999), 2. Student actions can be used as feedback and 3. Information given by the teacher and to the teacher can be used as feedback (also in agreement with Sadler 1989).
Black et al.’s later (2003) definition of formative assessment states that the priority of formative assessment is to first and foremost enhance student learning by providing information that can be used as feedback by teachers and students when they self and peer assess. Black continues that this type of assessment becomes formative only when used by the teacher to adjust their teaching so as to meet the students’ learning needs. What does this add to Black and Wiliam’s definitions as presented in the previous paragraph? The elements remain the same, however central to the definition becomes student learning: any action that prioritises the promotion of student learning can be considered formative, while modifying teaching to meet those needs is a tool that can be used to do so.

Black and Wiliam (2009) extended this definition by explaining that practice in the classroom is formative as long as evidence is used to aid student learning and the outcome is better than it would have been in the absence of the evidence elicited. Further to the idea that any activities designed to improve student learning can be described as formative assessment, a term called ‘informal formative assessment’ was introduced (Tomlinson 2014; Ruiz-Primo 2011). Based on the fact that any activity intended to improve learning in the classroom could be classed as formative assessment, Ruiz-Primo (2011) identify informal formative assessment as including any of the following:

‘(a) oral evidence (e.g., students’ questions and responses, listening to what they say in small groups, having conversations with students), (b) written evidence (e.g., notes in science notebooks), (c) graphic evidence (e.g., drawing, graphs, drawing concept maps), (d) practical evidence (e.g., observation of students conducting an experiment and measure the mass of an object), and (e) non-verbal evidence (e.g., body language, body orientation)’ (p. 15).

Non-verbal evidence is of particular relevance in the context examined since student participants have autism and severe learning difficulties, which limit their ability to communicate with others. The details of the challenges that come with autism and severe learning difficulties will be discussed in a later section, however an obvious impediment is the fact that students are non-verbal and they cannot
speak to each other or their teacher. Symbol use is also limited since the complexity of this context is
not only limited to the lack of speech, but comes with general communication challenges.

In addition, Ruiz Primo (2011) point out that assessment objectives can vary and they can cover the
following areas:

- conceptual understanding, an example of which in the context examined is whether the student
understands if an object is heavy or light,

- practical, which examines if a student can cut on a straight line, and

- social, which is one of the most important components of learning and formative assessment and it
would involve the student being able to sit down alongside others and attend a lesson.

Not all objectives are academic and one may choose not to prioritise the one type over the other in
order to achieve balanced education for each child.

The definitions discussed have a number of components in common: the teacher needs to elicit
evidence from student performance and/or feedback and use it to improve learning. That can be done
through timely corrective teaching. An important element to add to this is that ‘…the information
obtained from the formal or informal formative assessment procedures must be used during the
instructional segment in which the assessment occurred’ (Popham 2006, p. 4). Popham explains that if
there is no time to make changes in teaching instruction after an assessment takes place then it cannot
be regarded as formative. In agreement with Popham is the observation that, ‘…short cycle formative
assessment has the greatest impact on pupil achievement’ (Wiliam and Leahy 2007 p. 38). Short-cycle
has been established as being within a single lesson, which makes formative assessment an instant
interactive process. The added element of well-timed assessment is crucial: no matter how well-
planned, individualised and organised an assessment is, if it takes place at a much later stage it will not
be effective because a) it will not be rigorous enough and b) the relevant unit of study will have been
forgotten.

Revisiting the original criteria as set out by Wiliam and Leahy (2015) one can conclude the following:

1. In order to be effective, feedback needs to be instant and timely.
2. The evidence should benefit the students themselves rather than future teaching in order to be formative.
3. Students need to take active part in the formative assessment process.
4. Formative assessment should be used to change instruction if that modification can help students learn.

_A flexible view of formative assessment_

It would seem that one can conclude that the way forward with formative assessment is to be more flexible so that it can be applicable in more settings. Wiliam and Leahy’s (2015) principles of formative assessment could give adaptability to the term so that it is neither intimidating to practitioners nor limiting with regards to where or how formative assessment takes place. Specifically:

1. Teachers, students and peers can be involved, but the participation of all is not obligatory.
2. The intention is to improve learning.
3. Instruction can be modified to assist student learning and it can be used as a corrective learning strategy (but it does not always have to).
4. A decision prior to the assessment episode needs to be made with regards to what will be assessed.
5. Formative assessment practice does not always have to improve learning as long as the teacher does not give up trying to apply it as part of his/her day-to-day teaching.

6. Formative feedback needs to be timely, and it preferably needs to be given within the same lesson (Wiliam and Leahy 2015).

What this definition adds to the principles discussed before is the option for formative assessment to be led by all or some of the parties involved (i.e. teachers, students, peers) and it relieves teachers from the pressure to perform: as long as their intention is to improve student learning, their assessment will be appropriate. The formative assessment definition has moved forward and it appears that an agreement has been reached that an all-inclusive meaning can maximize the possibilities for more extensive formative assessment practice that can be adapted to a variety of learning environments.

Wiliam and Leahy’s definition is an important general definition of formative assessment which exonerates teaching and learning practices from being considered redundant when they do not fit into a specific set of formative assessment definition criteria. It is important to note though that such a definition does not offer guidance to teachers and context-specific definitions would also be needed for that reason.

**Summative and formative assessment: separate or intertwined processes?**

Historically, there was no clear distinction between formative and summative assessment in the academic literature (Wiliam and Black 1996). This can be explained by the fact that everyday teaching activities have mostly been ignored by researchers (Ibid).

Sadler (1989) suggests that the main distinction between formative and summative assessment is that summative assessment is geared towards evaluating an end result and has no impact on student
learning, as opposed to formative assessment which aims to improve performance, and this is what Wolf et al. (1991) named as the testing culture. It is mainly used for certification purposes and is a passive process. ‘The primary distinction between formative and summative assessment relates to purpose and effect, not timing’ (Sadler 1989, p.120). To which, Pellegrino et al. (2016) would remark that one of the main distinctions between formative and summative assessment is that formative assessment is on-going and summative assessment is periodic and gives the teacher information about the grade-related progress of the students.

Timing in this case (contrary to Sadler’s claims) is an important factor since frequency is central to formative assessment, while periodic reviews are part of summative assessment. Taras (2005) argues that ‘The process of assessment leads to summative assessment, that is, a judgement which encapsulates all the evidence up to a given point. This point is seen ‘as a finality at the point of the judgement’” (p.468). Taras agrees with Sadler that summative assessment serves no other purpose than evaluating whether something has been learned and it has no impact in the learning process. However, does this need to be its only role? Would one not expect to see progress in summative assessment in an evenly paced manner, which means that summative assessment is not as ‘final’ after all?

What the definitions share is the view that formative and summative assessment are two completely separate processes. Formative assessment improves learning, while summative assessment tests determine whether something has been learned with no intention of changing that final result. In some of the definitions like the one by Sadler, there is a negative undertone on summative assessment. Across the definitions works such as ‘judgement,’ ‘testing culture,’ and ‘evaluating an end result,’ present summative assessment in a negative light. Black (2003) on the other hand claims that even though summative and formative assessment are different, it is unrealistic to expect teachers to keep the two separate in their everyday teaching practice, while Wiliam (2000b) suggests that it is
important that formative and summative assessment coexist, ‘no matter what the tensions between the
two might be’ (p.16).

Insisting on separating formative and summative assessment can only contribute to further criticising
of both. If summative assessment remains separate, it is just a ‘judgement’ or a ‘snapshot’ of what a
student knows. If formative assessment remains separate it will be considered less valuable due to its
detachment from the formal curriculum. Connecting the two would be mutually beneficial: summative
assessment can become a positive result of a series of positive formative assessment episodes, while
formative assessment can be part of the formal curriculum, a valued part of the assessment process. As
Wiliam (2000a) remarks ‘…within the past ten years, there has been a recognition of the need to
integrate…the routines of informal classroom assessment with more formal assessment practices’
(p.1).

One needs to be mindful of some potential pitfalls in this process: if summative assessment comes to
be recognised as the result of a number of collective formative assessments, as is currently the case in
some schools, it is inevitable that formative assessment will become a standardised, measuring tool,
resulting in a rigid type of education (Harlen and James 1997; Blackburn 2017). It might even be used
as a summative assessment tool (Fisher and Frey 2014; Ecclestone 2002; Gipps 1999).

It is important that in order to avoid making formative assessment a slave to summative assessment,
the two processes also have a chance to work separately: specifically, formative assessment can be
applied in areas of learning that do not belong to the curriculum (Tomlinson 2014). Further to this, it is
important to value individual student improvement, which might not be keeping up with the ‘norm,’
nevertheless it is of value in comparison to the child’s starting point (Hughes 2014). It may also be
better for summative assessment to be closely linked to all areas of the curriculum (Pellegrino et al.
2016).
Policy makers have been led to believe that tests can motivate students to learn (McMillan 2007). However, ‘…learning by demanding it’ (Ibid, p.26) can no longer be considered a simple recipe for success. In order to improve learning, summative tests need to be supported by formative assessment in the classroom and for that to take place successfully, teachers need full access to formative assessment training (Ibid). Improving learning through formative assessment could coincidentally lead to better summative assessment results, rather than the results being a means to an end. This indicates that summative assessment would naturally follow formative assessment. Taras (2005) agrees that formative assessment can be seen as a necessary step, which justifies and explains summative assessment.

**Feedback**

**Types of feedback**

According to Tunstall and Gipps (1996) there are two types of feedback, evaluative and descriptive feedback. Specifically, evaluative feedback includes rewarding, punishing, approving and disapproving. Descriptive types include specifying attainment, specifying improvement, constructing achievement, and constructing the way forward. Descriptive feedback appears to be closely linked with formative assessment as it suggests ways to progress by specifying attainment and improvement. Evaluative feedback can be used for formative assessment purposes so as to encourage correct response and discourage repetition of errors (Ertmer and Newby 2013), especially useful in settings that students have no formal language and they need their feedback to be more stimulus-based than verbal.

Shute (2008) investigated a specific type of feedback, formative feedback, which is of particular interest in this research. Formative feedback is defined as ‘…information communicated to the learner that is intended to modify his or her thinking or behavior to improve learning’ (p.154). Even though I am inclined to agree with this definition of formative feedback, I suggest that there is still something
missing, and that is the student perspective. Formative feedback is meant to be a reciprocal process and it is important to be able to identify the ‘signals’ originated by the students in order to modify the teachers’ own feedback to student needs (Chan et al. 2014). Shute (2008) mentions that there is some information that might come from the student, but that is viewed as something secondary within her review.

Reciprocal feedback requires teacher perceptiveness, especially in a context that students are non-verbal and have autism and severe learning difficulties. One needs to be mindful of the fact that in such a context the desire to communicate is often not present due to autism and the fact that students are non-verbal makes establishing a common mode of communication complicated (see Chapter 3).

**What is the relationship between formative assessment and feedback?**

Some researchers believe that for feedback to be effective, students need to be active participants rather than passive recipients of it (Boud 2000; Nicol 2010; Sadler 2010; Taras 2013), moving away from the ‘teacher-expert’ view of the past. For feedback to be effective, it needs to be regular, at the right for the student level, constructive, detailed and timely and it needs to be a dialogue between the teacher and the student (Nicol 2010; Carless 2006; Mory 2004). Weurlander et al. (2012) comment that feedback is the ‘key component’ (p.748) to formative assessment and students in the position of receiving feedback need to be able to understand and act on it to make progress.

Nevertheless, feedback is not a reciprocal process in the same way that formative assessment is sometimes defined, but it appears to be part of a successful formative assessment episode. Stull et al. (2011) comment that feedback needs to serve a dual function: it needs to identify student problem areas and suggest solutions for successful learning. It pinpoints up to what extent instruction was successful and underlines areas that need improvement since it allows comparison between an actual outcome and a desired outcome (Ramaprasad 1983).
Based on Ramaprasad’s definition, Wiliam (2000a) concluded the following about feedback, which is also in agreement with Stull et al.:

1. there must exist a mechanism for evaluating the current level of achievement;
2. a desired level of achievement, beyond the current level of achievement (the reference level) must be identified;
3. there exists some mechanism by which to compare the two levels, establishing the existence of a ‘gap’;
4. the learner obtains information about how to close the gap;
5. the learner actually uses this information in closing the gap’ (p.10).

The final two points refer to the process of receiving feedback that the student needs to improve, yet there is no reference to reciprocation of feedback. As discussed, this would be the primary goal of formative assessment, hence the main distinction of formative assessment and feedback. In conclusion, in order to serve as formative assessment, feedback needs to come from both the teacher and student side and it needs to be used in order to improve.

**Formative assessment problem areas**

An earlier study on assessment and students with profound and multiple learning difficulties (admittedly a group of students that present more of a challenge than students with severe learning difficulties due to their kinetic and neurological impairments) pointed out that ‘continuous assessment’ and systematic observation and recording need to be clarified and understood by teachers’ (McNicholas 2000, p.153), which is, in essence, formative assessment. Little appears to have been done since then in terms of how assessment (and more specifically formative assessment) is applied with students that have severe or profound learning difficulties. Some of those problems, inherent with the communication difficulties the students present and the nature of formative assessment are discussed in this section.
**Lack of expertise and guidance**

At the time of this study the term formative assessment was being used consistently in schools. Yet, it was rather intangible, a concept that researchers could not agree on. McMillan (2007) commented that there was little in the way of classroom assessment training for teachers and the same held of leadership programs. Lack of guidance and training can hold teachers back from applying successful formative assessment practices in their classrooms.

The lack of guidance leads to lack of clarity with regards to the necessary components of formative assessment. This makes formative assessment less likely to become a natural part of the lesson (Shute and Kim 2014) as it gets placed on a pedestal as an unattainable goal since expert advice is scarce.

**Communication and feedback**

Understanding the nature of communication in the research context is crucial in order to appreciate the complexities of this environment and the challenges it presents when one attempts to apply formative assessment principles. To put this into perspective, in a survey including 211 adults and children with severe learning difficulties it was established that 59% of those participating communicated through symbols, or speech, 19% were non-verbal however they did practice communication with intent (turn taking, waiting for response), and 21% had not yet developed communication skills (McLean et al. 1996), while in another survey less than 10% of the participants with severe learning difficulties were reported as being able to communicate more than their basic needs (Bouras et al. 1988). Reciprocation of verbal feedback in this case would be neither relevant, nor meaningful, especially if one considers the students in the research context are non-verbal and they also have autism. If symbol exchange is a more desirable communication skill for those with limited language and understanding, one can question how complex this communication exchange can be and whether formative feedback through symbols can be detailed.
This leads to the question of the nature of feedback in this context. Communicative signals may include facial expressions, eye gaze or whole body movements (Bunning 1997) and individuals with severe learning difficulties are more likely to use actions, vocalisations or facial expressions to communicate (Ware 1997). This makes their feedback highly dependent on teacher interpretation, which makes it more likely that signals will be missed. For example, less than 10% of the students’ attempts to communicate were noticed by staff in teacher student interactions observed between students with severe and profound learning difficulties and their teachers (Ware 1990). What makes interpretation of feedback even more difficult is that students with severe learning difficulties are unlikely to repair instances of miscommunication (Grove et al. 1999), making errors in teacher interpretation more likely to occur. Brady et al. (1995) though discovered that attempts of repair in communication do take place, however they are normally non-symbolic (i.e. words, symbols or signs are not used). This reinforces the idea that the interpreter needs to be familiar with the setting, so that they do not miss all those valuable attempts to give non-verbal feedback, be it symbolic or non-symbolic.

Communication in this context is undoubtedly an imbalanced process. The balance of power between teacher and student can affect how the communication process takes place. For example, Bunnings’ et al. (2011) study revealed that teachers tended to dominate the interaction and had a number of turns more than the student, potentially limiting the students’ opportunities to give feedback to their teacher. Is it possible, however, to have equal opportunities for feedback? Based on Wetherby’s et al. (1998) work, at the earlier developmental stages the adult naturally takes over the communication process. This occurs because babies are unable to respond due to developmental reasons and they learn to react through the adult’s response to their every cry, giving their every cry meaning. Since a number of children with severe learning difficulties are at their earlier developmental stages, they, like babies,
need to be taught that their actions carry meaning before they can increase their attempts to communicate and give meaningful feedback to their teachers.

Since interpretation is so central to validating communication as well as formative feedback between teacher and student, it is important to be mindful of the drawbacks of interpreting student body language. Porter and Ouvry (2001) pointed out that confirming how valid one’s interpretation is, is essential to avoid misinterpretation and they revealed a number of things that can go wrong as part of the communication process. For example, one cannot assume the other person must certainly have a point of view, and staff can often disagree on the meaning of student actions or give up trying to interpret student behaviours because it can prove challenging. Since this area of non-verbal communication is often not explored via formal procedures and members of staff are not skilled in this area (Porter and Ouvry 2001), interpretation of communication can prove less reliable unless it becomes part of a consistent approach.

Finally, the communication challenges that this group of student has to face makes the necessity of using multimodal learning (Jewitt 2003) in the classroom imperative. Especially since the introduction of computers and interactive whiteboards this type of approach can be more effective for students with autism for the further reason that they respond well to visual cues (Pirtle and West 2014). Paired with their communication challenges, having more media to attract student attention and help students point at lesson features that they find appealing makes formative assessment with this group of students possible, enabling communication to take place in more than one ways through multimodal stimuli.
Inference and student voice

‘Student voice’ has been discussed as a stepping-stone that can be used to improve both student performance and for the purposes of school reforms (Mitra, 2003; Rudduck and Flutter 2000). The student voice movement talk enthusiastically about the students being able to openly express themselves and speak about all those things that matter to them: yet, several questions are asked with regards to that voice: who is allowed to speak? Who are they allowed to speak to? What are they allowed to say? What type of language can they use when they speak? (Fielding 2001). And, I would ask, how is it student voice if there are so many conditions attached to it?

The focus in this section will be on what type of student voice can be used with non-verbal students with autism and severe learning difficulties. Specifically, I will concentrate on the point that student voice is not just ‘audible articulations alone’ (Baker 1999, p. 380) and silence and voice are not antithetical notions (ibid).

It has been established that the ability to speak does not grant a person a voice. Following on from the complications that arise when one tries to apply formative assessment with students with autism, it becomes obvious that students with autism cannot apply the theory of mind, i.e. the ability to relate to others and understand that other people have a different point of view which differs from their own perspective (Kana et al. 2015), hence they cannot express their opinion using the correct, socially accepted language. Added to this is the students’ inability to produce meaningful speech other than vocalisations. Lewis (2010) commented that when attempting research communication is the most challenging part in these contexts since relying on another person’s interpretation might compromise the student’s chance of having a voice. Nevertheless, sometimes, having a trained communicator is the best possible option and he
admits it is not a question of using simple language and different modes of communication to assist students. So, since students cannot articulate their thoughts and most of the communication needs to be facilitated and still be heavily dependent on interpretation, how can student voice have any place in this context?

Baker’s (1999) notion that voice does not equal articulation, encourages the idea that it is possible to look for alternative forms of student voice. Linked with informal formative assessment is the idea of body language being used for formative assessment purposes (Ruiz-Primo 2011). Interpreting body language can become part of formative assessment, and in the case of non-verbal students body language can be used as their alternative to articulation, hence serving as student voice.

Is giving non-verbal students a voice by using a teacher’s inferencing skills a real or a distorted voice? Grove et al. (1999) highlighted the fact that establishing meaning through interpretation of another person’s communication attempts is problematic. As Ware (2004) remarked, one cannot be certain that their interpretation is accurate as it heavily depends on inference, however she urges that attempting to interpret does not stop even if running the risk of getting it wrong. She stresses the fact that getting students to express their views is going to be a long-term, but worthwhile task. A further danger is that due to the imbalance of the two people’s communication ability, it is likely that the student is more likely to passively agree than to negate (Sigelman et al. 1981). Taras’s (2013) observation that a teacher cannot know what the student is really thinking at any given point is of particular relevance. Regardless of mode of communication, placing oneself in another person’s thoughts is neither straightforward, nor objective.

When it comes to interpretation in itself, Porter and Ouvry (2001) pointed out that one of the main dangers is to assume that one person’s interpretation is correct and omit looking for alternative
interpretations. Further to this, they discovered that members of staff do not always agree on the interpretation of a student’s response. In Porter and Ouvry’s research both carers and parents agreed that they could not be certain whether their interpretation was accurate, however they were determined to keep trying to get it ‘right.’ This suggests that even though interpretation is not a straightforward process, it is nonetheless considered worthwhile by those involved with students that have severe and profound learning difficulties. Further to this, persistence and repetition is required if one is to get interpretation of non-verbal communication right in the long run. Ware’s (2004) research confirmed that it is possible for adults that work with a child to reach a consensus on interpretation: from a video observation of a student, members of the school staff and family agreed on what the student appeared to dislike. This suggests that, when carers and parents know a child well they can interpret their behaviour accurately. Ware (2004) reported that it was less clear what the child liked and interpreting what a child (with profound difficulties in this case) likes or dislikes is ‘inexact science’ (p.177), hence the interpretation needs to be kept under constant review as, aside from the fact that it is not easy to interpret, a person’s likes and dislikes can change over time.

Ravet (2013) points out that student with autism often ‘sound their own warning bell by acting out, giving up or triggering disruption…’ (p. 958). The interpretation of this behaviour depends on the individual teacher and it is often the case that teachers interpret distress as a problem within the child rather than an expression that they are trying to explain that there is something wrong with the lesson (Ravet 2013). Drawing on one’s own experience as a teacher and giving student voice via the teacher’s own interpretation is not an easy task to undertake.

‘The more teachers know about autism, the louder this voice and the easier it becomes to undertake the slow, deliberate analysis required to modify the inferential process’ (Ravet 2013, p.959). Ravet goes further to explain how modifying activities to meet the needs of a student with autism in a mainstream classroom is essential. For that to happen, she points out autism training for teachers is essential. She
also points out that even though Black and Wiliam should be applauded for having introduced formative assessment as an important part of learning, the adoption of majoritarian applications of assessment is a danger. Truly, when one considers a unique population like the one explored in this thesis there is no room for majoritarian methods of formative assessment.

Ravet (2013) also explained that the majoritarian view of formative assessment is clearly failing certain groups of students like students with autism: ‘…working with minoritarian discourses provides room for change and growth…if the minoritarian knowledge can be revealed…this would provide a vehicle for the voices of all the participants to be heard and valued…’ (Watson and Emery 2010 p.769). In the microcosm of a special needs setting it is important that the mechanisms of formative assessment and the complications and challenges that this context presents are revealed so as to give this group of students an opportunity, a voice. Exploring ways in which this can materialise is one of the aims of this thesis.

There are obvious limitations to this discussion: first of all, the fact that in the vastness of formative assessment literature only one piece has been identified to discuss issues of autism and formative assessment as linked with student voice and teacher interpretation: even this is linked to a mainstream setting, and a few more dated pieces of research exist that discuss the idea of communication between students with profound and multiple learning difficulties, to date. The sole fact that all these problems have been identified within the past thirty years and still not much has been done in the way of rectifying those is of great concern. This could potentially be linked with the fact that researchers are not often trained to facilitate a conversation with a student that has severe learning difficulties and independently interpret their communication attempts, while possibly the key lies with the ones that know what the practical problems are but need to start daring to attempt more unconventional teaching and assessment methods without the fear of failure. This gap needs to be filled, even though as Ware (2004) pointed out, this is a more long-term process than it appears to be, nevertheless particularly
Reciprocity and dialogue

Dialogic teaching, as discussed by Alexander (2010) involves students and teachers engaging in a form of talk, as a means to encourage effective learning. In order for that dialogue to be effective, five main components need to be present: it needs to be ‘collective, reciprocal, supportive, cumulative and purposeful’ (p. 8). In particular, the concept of collective includes both teachers and learners tackling classroom activities together, reciprocal refers to the idea that teachers and students listen to each other’s viewpoints, supportive means that they can all express their ideas without the fear of getting it wrong, cumulative denotes that teachers and children build on each other’s ideas and purposeful refers to the teachers organising the activities having specific outcomes in mind, while facilitating dialogic teaching. It is the concept of cumulative that is linked with formative assessment (Marshall 2015). According to Marshall that is because, when talking cumulatively students and teachers do not simply react to each other’s arguments, but they build on each other’s knowledge: this is how students improve their first response. Marshall also were for an unplanned exchange of ideas, since spontaneous feedback is more likely to help students reconfigure their ideas as expressed at a specific point in time. Student response is not possible to plan, hence the idea of Black and Wiliam (1998a) that teachers need to pre-plan their questions might be less valid in a dialogic teaching environment.

Teachers often struggle with responsive teaching (Davis et al. 2006). A lot of teachers also struggle to adjust teaching instruction to reveal student thinking (Ruiz-Primo and Furtak 2007). In addition, it has been identified that if informal formative assessment is employed (that is during teaching instruction) a teacher can be responsive to student ideas (Ruiz-Primo and Furtak 2007; Shavelson et al. 2008). It appears that responding to students during the lesson is a problem not limited to environments where
communication impediments naturally occur, but teachers find responsive teaching challenging in general. Being able to instantly respond to students during the lesson is an essential part of reciprocity. Unless the teacher is able to give an instant response, an open reciprocation of feedback, a dialogue is not possible. Engaging in responsive teaching can lead to a dialogic conversation that improves learning (Otero 2006).

The principles of dialogue as an important part of learning derives from Vygotsky’s (1978) zone of proximal development: according to this, interaction aids the learner to move from one level to another, which is closely linked to cumulative learning as discussed by Alexander (2010). With spontaneous and relevant questioning, the teacher and peers can help a student move from one level to the next, but that all requires responsive and dialogic teaching. Taras (2013) poses the problem that a teacher cannot know what a student is thinking. In the case of a mainstream setting, this can be overcome by cumulative learning. However, when students are non-verbal and their language (including any signs or symbols) is limited, the question that Taras poses is of particular relevance: how can teachers be certain that the interpretation they give or that the voice they are attempting to give their students is representative? These ideas relate to what Swaffield (2011) called effective implementation: this refers to adjusting teacher response according to student needs and it is an ongoing process. This idea is closely linked to cumulative learning too, since in order to build upon each other’s ideas, the teacher needs to understand what those ideas are and make sure that so does the student. The concept of dialogue in this case is built upon understanding and assisting the learning process.

This dialogue/conversation is what is often referred to as formative feedback or reciprocation of feedback. As Taras (2013) points out giving feedback that is ‘…dialogic, negotiated and understood by all’ (p.34) can be a challenge. Something she also confirmed in her earlier work is that all the
protagonists need to be engaged in the process as feedback is a reciprocal activity (Taras 2008) and ‘feedback is the result of assessment not part of the assessment’ (Taras 2013, p.35). This last observation is not in agreement with the dialogic view of formative assessment as discussed earlier as it leans more towards the idea that feedback is final, something closely linked with summative assessment. Taras’s two earlier observations are in line with the idea that feedback as used in the context of formative assessment is a reciprocal process and requires the engagement of all parties.

In a context where students are non-verbal and have autism and severe learning difficulties, a dialogue can take a different form, with a non-verbal mode of communication and the dialogue being more closed and guided. Learning, according to James (2009) is a social and collaborative activity in which different parties develop their thinking jointly: this does not imply that all parties need to have the same input, it only explains that learning is not an isolated process. Dialogue in a context like the one described, is more of a collaborative activity than a conventional dialogue. Equal opportunities to participate in the learning process need to be offered to all parties, even if not all opportunities for reciprocation are taken. Most of the responsibility on this inevitably lies with the teacher. Responsiveness is essential and for responsiveness to exist teacher insightfulness is crucial. A condition necessary for the dialogue to be successful is teachers noticing or listening (Van Es and Sherin 2008) which is linked with insightfulness as by constantly receiving and giving feedback, successful interpretation of a student’s current point and misunderstandings become clearer.

Interpretative listening can lead to fruitful classroom assessment (Duschl 2003). As Black and Wiliam (1998a) remark, ‘thoughtful reflection… involves some degree of feedback between those taught and the teacher’ (p.16) and, as a result, it is a reciprocal process. For all this to be fruitful, a productive teacher needs to be able to create the right social classroom environment that will establish the right conditions for the learning dialogue (Alexander 2010). Building that type of environment is important
as the successful implementation of formative assessment does not depend on applying methods such as questioning, feedback and sharing of assessment criteria: it is about understanding the inherent mechanisms of teaching and learning (Marshall 2015).

But what are the specific dangers when it comes to reciprocation in an environment where students have severe learning difficulties? When Greathead et al. (2016) conducted a case study of student-teacher interaction with students that had severe and profound learning difficulties, they discovered that in one of the cases adults initiated 128 interactions (0.41 per minute) and the student responded to 98 of those (77%) but only twelve of those interactions (9%) were reciprocal. Interestingly, and importantly for the current context, reciprocal interaction developed less often when adults initiated the communication process than when the children did. When children initiate communication it is considered that they potentially set the pace and tone for the adult to attune to them (Greathead et al. 2016). In the case of formative assessment, a lot of guidance is often given by the adult since questions are asked that require answers during the lesson. However, being in tune with the student is about looking at the student as a whole and seeing the potential for communication in everything the student does.

**Definition of formative assessment for non-verbal students with severe learning difficulties**

It has been established that formative assessment can be a challenging concept for children with special needs (Hollenweger 2011). In particular, groups of students on the autistic spectrum (in a mainstream classroom, where a more ‘fit all’ formative assessment approach is likely to be followed) have been found to be disengaged and, in the long run, start underachieving and misbehaving because this type of assessment has not been tailored to their needs (Humphrey and Lewis 2008; Parsons et al. 2009).
In addition, one would need tools to understand the students’ current position (i.e. communication tools that will adjust to each student’s needs) by being perceptive and encouraging interaction and reciprocation of feedback between the student and the teacher that will help the student improve and the teacher adjust their teaching to assist them with their progress. The type of feedback and mode of communication used are crucial, especially since children with autism often find interpreting feedback difficult (Frith 2003).

Based on the literature outlined in this chapter, I have concluded that the definition most appropriate for formative assessment in this research in a non-verbal special needs setting, would be:

Formative assessment in a non-verbal setting with students that have autism and severe learning difficulties requires a variety of flexible and rigorous interpretative tools that will examine and interpret student behaviour in an attempt to give students a voice. It is a day-to-day, on-going dialogue that heavily involves teacher perceptiveness that can encourage teacher responsiveness which will enable reciprocation of feedback between the student and the teacher, and it may be partially non-verbal. It requires the teacher to be observant and perceptive to maximize the chances of the interpretative tools created being successful. More importantly, any action that is likely to improve a students’ current position and enforce further learning, can be considered formative assessment.

Several keywords in this definition are crucial: interpretation, on-going, any action (that assists improvement), dialogue, feedback, student voice. Teacher perceptiveness, responsiveness and rigorous interpretation of dialogic feedback within the lesson, as discussed earlier in this chapter, is not only desirable, but actually essential for formative assessment to be possible. Even when verbal mainstream students are involved, a teacher is required to interpret what they say in order to understand what it is that they have learned and what their potential learning style might be to take them further with their
learning journey (and even that interpretation has been proven challenging based on the literature discussed earlier on in this chapter).

When non-verbal children are involved, interpretation becomes not only a necessity, but it also translates into student voice. When the physical voice is not present an alternative is interpretation of body language. One might want to question whether this is student voice or a distorted version of it through another person’s subjective lens, but I would argue that regardless of whether it is a student’s true voice or not, any attempt to give them a voice as opposed to giving up completely is a lot more desirable.

Dialogue is also an important keyword, not because formative assessment is expected to always involve dialogue, but because the opportunity for reciprocation of feedback needs to be present (even if not always taken advantage of). This keeps the channels of communication open and maximizes the chances that feedback will be more than a one-way type of input and it is more likely to lead to better understanding of the student’s current position and establish gaps in their knowledge. Feedback is a crucial part of formative assessment as without it a student does not know s/he is doing well and what his/her strengths or weaknesses are. Ultimately though, I agree with Wiliam and Leahy’s (2015) latest definition of formative assessment and stress that any action with the intention of improving a child’s learning experience, is formative assessment. Then and only then will it be possible to open up formative assessment and make it an everyday tool as opposed to a meticulously planned, complicated and rarely to be used tool.

Clearly, this type of assessment differs from more conventional models of formative assessment in the sense that it is heavily based on the teacher and their ability to interpret and respond. Communication is different when no verbal means are available. Formative assessment in this approach might not always lead students into understanding their current position and working towards a goal, but in some case it can guide them in a less subtle way from their present position to their desired goal. This does
not mean that it will be less successful than the more conventional models of formative assessment, it only means that as yet ways have not been found to understand and give feedback to students in a more meaningful manner, hence helping them improve and learn how to assess themselves.

Peer assessment would prove to be difficult to implement, especially due to the limitations the lack of understanding of others and the lack of the theory of mind present, making peer assessment unachievable for students whose cognitive ability and lack of verbal expression pose further challenges to the peer assessment process.

Based on the above, formative assessment in this context heavily depends on the teacher and their ability to understand and interpret student signals; hence, teachers need to be highly skilled and trained to ‘read’ body language. This is not a simple process and it is not easy to measure the results. Teachers may need to be experienced to become competent at using formative assessment in the special needs classroom with non-verbal students. Examples of how complex this type of assessment can be are set out in the case study chapters.

**Summary and conclusions**

The discussion of formative assessment and feedback and the challenges they present have been set out in this chapter. Further to this, the additional challenges of dialogue, reciprocity and teacher receptiveness and interpretation combined with the added pressures and challenges that come with non-verbal students with autism and severe learning difficulties have also been analysed. This has led to the formation of a definition appropriate for non-verbal students with autism and severe learning difficulties.

Communication is the key to formative assessment. It has been established that even in mainstream settings teachers fail to pick signals up and understand how to guide students through their learning
journey. Key aspects to this communication process is teacher perceptiveness which can lead to teacher responsiveness that will encourage dialogue/reciprocity of feedback during the lesson, something that often requires spontaneity and flexibility.

So if teacher perceptiveness and responsiveness are complicated in a mainstream setting, how much more complexity is added due to the nature of the students in this study? Students lack a theory of mind, which prevents them from understanding the thoughts and ideas of others. Further to this, severe learning difficulties present a further cognitive challenge (discussed in the following chapter) and being non-verbal poses a further complication since the mode of communication in the formative assessment dialogue can no longer be speech.

If one considers the elements of peer and self assessment, these limitations impose further problems since the one in control of the formative assessment situation is no longer the teacher: the student, limited with his/her understanding of others and unable to express their opinion or reflect on their own work cannot access this element of formative assessment that involves the self and others.

Majoritarian models of formative assessment can clearly not be applied to this minority. Hence, in this study I will be exploring a minoritarian approach to overcome the challenges presented when working with non-verbal students with autism and severe learning difficulties.

This will lead to an attempt to answer three of my main research questions:

How is formative assessment applied in the context of children with autism and severe learning difficulties and what strategies do teachers use?

Is the form of feedback given by teachers to non-verbal children with autism and severe learning difficulties effective?

How do non-verbal students with autism and severe learning difficulties give feedback to teachers
about their progress?

These questions, alongside teacher views on formative assessment will be discussed in the following chapters.
Chapter 3: Defining autism and (severe) learning difficulties

Introduction

The context examined is a complex one: not only because it comprises of several components (i.e. autism and learning difficulties with the added severity element), but also because each of these components present their unique challenges in relation to formative assessment. An additional challenge comes with one of the components (severe learning difficulties) having no agreed terminology and a clear, common set of diagnostic criteria, globally. Defining each of the elements and examining how, all combined, they pose difficulties in applying formative assessment in the classroom is one of the main aims of this chapter: especially since student needs vary and they cannot be met unless it is clear what those needs are. Further to this, I will argue that having autism and severe learning difficulties can work against each other, limiting the students’ ability to access formative assessment, further.

I will also discuss the issues around putting together a formal definition and identifying concrete diagnostic criteria for the term ‘learning difficulties’ and distinguishing severity levels (i.e. mild, moderate, severe or profound). I will explain how this lack of transparency limits teacher understanding of student needs and inhibits a distinction between severe and profound learning difficulties, potentially also hindering the correct allocation of resources.

Finally, I will discuss how a number of factors, external to the students themselves and relevant with the education and research world, can further limit student access to the type of education they are entitled to: stimulating, interactive, taking into account all the students’ strengths and needs. I will further discuss how a number of teaching methods currently adopted in schools that accommodate students with autism and severe learning difficulties have been affected by behaviourism. I will also
discuss some of the reasons why behaviourism has been adopted as one of the most relevant and dominant methods in these environments.

**Why define the ‘labels’ or ‘terms’?**

Even though an agreement has been reached with regards to the definition of learning difficulties, no common name has been adopted internationally to refer to the condition (Schalock 2011). Naming a condition is a complex procedure as it reveals a lot about what the individual’s place in a certain society is (Luckasson and Reeve 2001).

According to Schalock et al. (2010) having a clear, functional definition is important as it establishes who or what is included in the term as well as who or what is excluded. It can also lead to better understanding of a person’s individual needs amongst professionals, while the individual’s legal and social status might depend on those definitions (Schalock 2006; Schalock et al. 2007). Having a clear view of the needs of these students can modify the expectations external observers such as Ofsted might have and give professionals, like teachers clarity with regards to what they can or cannot expect their students to achieve in relation to formative assessment.

**Issues with terminology**

One of the issues within this ‘debate’ on what the term ‘learning difficulties’ entails is that it is often used interchangeably with the term ‘learning disabilities’ (Hardie and Tilly 2012). The term ‘learning disability’ belongs more to the health and social care sector, while ‘learning difficulty’ is closer to the education sector (Ibid). To complicate matters even further, it appears that the term ‘intellectual disability’ is more common internationally and has been used by well-known and respected diagnostic manuals such as the Diagnostic and statistical manual of mental disorders, fifth edition (DSM-5), (American Psychiatric Association 2013), the ICF (International Classification of Functioning,

It can be confusing that in some non-UK contexts, the term ‘learning difficulties’ refers to specific learning difficulties, especially in relation to reading difficulties (Kavale and Forness 2000; Hulme and MacKenzie 1992; Stanovich 2005), particularly since specific learning difficulties are not linked with any Intelligence Quotient (IQ) impairments (Emerson and Heslop 2010). Adding to this complication is the substitution of the term ‘mental retardation’ with the term ‘intellectual disability’ (Schalock et al. 2010). It is likely that the term ‘intellectual disability’ will eventually become accepted in the UK, a process that started when Professor Mansell referred to intellectual disabilities when he put together a document for the Department of Health named ‘Raising our sights: services for adults with profound intellectual and multiple disabilities’ (2010), however until that happens it appears that terminology will remain varied.

I will treat the terms ‘intellectual disability,’ ‘learning difficulty’ and ‘learning disability’ in this section as identical, as they all have an agreed current set of criteria, even though each of them is a preferred term in different contexts for a variety of reasons which will not be discussed in this thesis. I will use the term ‘learning difficulties’ to refer to my students as this is what is commonly used in educational contexts and also because I feel that the term ‘difficulty’ implies that improvement is possible with the right type of instruction, while the term ‘disability’ is more rigid.

**Meeting individual student needs**

Clarity in diagnostic criteria and legal documents is important, since meeting individual student needs is only possible if the right type and level of support is in place. This can be achieved through a
common, detailed set of accurate diagnostic criteria. The term ‘learning difficulties,’ has been given a different set of diagnostic criteria from different sources, most of which have common elements.

At an international level, three criteria need to be present for an individual to be diagnosed with a learning disability: intellectual impairment (linked with IQ levels), social or adaptive difficulties (for example communication, eating, personal hygiene) and early onset (Emerson and Helsop 2010). In ICF (2007) intellectual disability is viewed as a type of disability that affects brain functions and structures, hence it results into limitations in social participation and limits the individual’s ability to perform self-help skills and everyday activities. Formative assessment often requires the student to be able to understand what they have achieved and what they need to work on to improve, through the use of teacher feedback. If brain functions and structures are impaired, this can limit the students’ understanding of the formative assessment process. Further to this, if social participation is also limited, reciprocation of feedback (part of formative assessment) as discussed in Chapter 2 can be affected.

These three criteria are in agreement with the definitions of the American Association on Intellectual and Developmental Disabilities (AAIDD) that identify Intellectual disability (at the time named ‘mental retardation’) as presenting individuals with ‘… significant limitations both in intellectual functioning and in adaptive behaviour…’ and it has an effect on ‘…conceptual, social, and practical adaptive skills’ while it needs to be present ‘…before the age of 18’ (Luckasson 2002 p. 8). The term ‘mental retardation’ was substituted with the term ‘intellectual disability’ in the 11th edition of the manual (Schalock et al. 2010). In agreement is the DSM-5 (2013), which explains that individuals with intellectual disability present deficits in intellectual functions and adaptive functioning, leading to living with on-going support, and onset during the developmental period. The White paper’s definition in the UK, ‘learning disability includes the presence of: a significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with; a reduced ability to
cope independently (impaired social functioning), which started before adulthood, with a lasting effect on development’ (Department of Health 2001, p.14) agrees with the AAIDD (Luckasson 2002) and the DSM-5 (2013).

More recently, the SEND Code of Practice (Department for Education 2014) has marked a shift in attitude towards needs rather than disabilities: it makes no reference to specific categories such as learning difficulties or autism, however it refers to four broad areas of needs. Those are: communication and interaction, cognition and learning, social emotional and mental health and sensory and/or physical needs. The general idea of the code of practice is to not fit a student under a label, but to better meet their needs. On the surface, this document seems to be positive, however it misses the point of giving clarity to terminology. For example, even though the term ‘needs’ is discussed alongside ways of meeting those, what those needs entail and how and who would meet them is entirely vague (Farrell 2014).

On the other hand, the students participating in this study are non-verbal, and they have autism and learning difficulties. All these would be addressed under the areas of interaction (particularly relevant to autism and being non-verbal), cognition and learning (severe learning difficulties), social and emotional and mental health (relevance to autism) and sensory/physical needs, which are closely linked with autism and severe learning difficulties. Understanding there is a need in these areas is potentially more direct and easy to understand than the labels ‘autism’ and ‘severe learning difficulties and how those interact with being non-verbal. It is uncertain how the legal entitlements of these individuals will be secured and it remains to be seen how effective the ‘needs based’ system will be in practice.

Even though many of the definitions discussed include the students’ psychological and social difficulties, these needs can be often overlooked if one focuses on formal curriculum subject areas (Baum Cooper and Neu 2001; Bryant, Bryant and Smith 2016). Since there is a deficit in self-help
skills and performing everyday functions, which form such an important part of the diagnostic criteria of learning difficulties, it is a surprise that this is not addressed through formal curriculum subject areas. This implies that in terms of formative assessment, achievements in these areas of learning are overlooked even though they appear to be central to the students’ ability to function as individuals.

**IQ and learning difficulties-severity levels/severe learning difficulties**

In the 2002 AAIDD classification manual (Luckasson et al., 2002) suggested four levels of support intensities (intermittent, limited, extensive, pervasive), but did not intend those four to form a classification system in the way that the four levels of intellectual disability (mild, moderate, severe, profound) have done. At this point in time, although traditional classification systems are generally still in use, there is no agreement as to the best way to classify people within this population or, alternatively, whether that is useful or necessary.

One of the reasons why identifying severity levels with regards to learning difficulties is important is because those on the severe and profound end of the severity scale are more likely to need support with their living arrangements as they would need long-term care (as opposed to those in the mild category) (Salvador-Carulla et al. 2011). However, distinguishing through the use of IQ levels, especially when it comes to severe and profound learning difficulties is less consistent. Table 3.1 presents a few of the scores suggested by some of the literature. From the table it becomes obvious that there is no agreement on the IQ scores and severity levels.
Table 3.1 IQ and severity level of learning difficulties/disabilities

<table>
<thead>
<tr>
<th>Source</th>
<th>Learning difficulty IQ levels</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe learning difficulty</th>
<th>Profound learning difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burton (1997)</td>
<td>&gt;70</td>
<td></td>
<td>50-55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSM-5 (2013)</td>
<td>65-75 (severity not specified). Level of severity defined based on adaptive functioning within the conceptual, social and practical areas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hulme and MacKenzie (1992)</td>
<td>&gt;70</td>
<td></td>
<td>20-50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collins (2007)</td>
<td>&gt;50-55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luckasson et al. (2002)</td>
<td></td>
<td></td>
<td></td>
<td>&gt;40 (no language, money and self-direction, limited social skills)-level of severity not identified, just a general observation.</td>
<td></td>
</tr>
<tr>
<td>ICD-11 Beta Draft</td>
<td>No IQ levels are proposed for any of the severity levels, but the use of appropriate standardised tests is proposed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICD-10</td>
<td>50-69</td>
<td>35-49</td>
<td>20-34</td>
<td>&gt;20</td>
<td></td>
</tr>
<tr>
<td>AAIDD-11</td>
<td>No IQ levels proposed. First looks into intellectual level, adaptability, social participation and health factors. The level of support is established by using the Supports Intensity Scale which measures intensity of support needed when it comes to the individual’s level of adaptability.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Some sources such as the Diagnostic and statistical manual of mental disorders, 4th edition (DSM IV (American Psychiatric Association 2000) and the International Statistical Classification of Diseases and Related Health Problems 10th revision (ICD 10) (2010) (refer to table 3.1) distinguish between severe and profound learning difficulties based on IQ levels being below 20 for students with profound learning disability and between 20 and 34 for students with severe learning disability, but this distinction has been disputed as an insufficiently reliable discrimination between low levels of IQ, deeming the distinction between severe and profound learning difficulties based on IQ score cut-off points, unreliable. This has led to the adaptation of severity levels based on a person’s adaptive functioning on the DSM-5 (2013) as opposed to relying on IQ scores. Those areas of adaptive functioning include social, conceptual and self-management skills. This distinction is important, since how severe disability is conceived, the domains practitioners and researchers distinguish between, and the relations between these domains can be linked with the instruments and formative assessment practices the students will best respond to.

For example, in the social domain, the DSM-5 (2013) notes that ‘speech may be single words or phrases and may be supplemented through augmentative means’ (p.36). With regards to formative assessment, this implies that complex sentences used as part of elaborate feedback cannot be used and the communication element within the lesson needs to be limited to single words or symbols. ‘Speech and communication are focused on the here and now within everyday events’ (p.36) making the importance of timely feedback even higher than it is with mainstream students. In terms of the practical domain, ‘skill acquisition in all domains involves long-term teaching and on-going support’ while in the conceptual domain ‘caretakers provide extensive supports for problem solving throughout life’ (p.36). This has implications for teaching concepts and the length of time and repetition required to teach a single concept. Further to this, problem-solving, which is required as part of formative assessment is unlikely to be achieved without substantial support.
Burton (1997) disagreed with the view that social competence and adaptive behaviour alone can fully identify the level of severity of a person’s learning difficulties. He suggested that a composite definition that would combine elements from both IQ test elements of social and independent living alongside ability to learn, and some legislation and classification elements to help with the identification process of individuals in need of support.

In the US, various views have been expressed on what severe learning difficulties are, but there is a lot they have in common. Westling and Fox (2008) believe that severe learning difficulties have to do with shortcomings in areas such as learning, personal, social and physical skills. Luckason et al. (2002) and Collins (2007) described people with severe learning difficulties as having cognitive disabilities or a developmental disability that limits their everyday functions. All these elements have been included in the DSM-5 (2013), as discussed.

**Characteristics of children with autism**

Regardless of any definitions given in this section it is important to note that, given how heterogeneous this group of children is (Daniels and Mandell 2013; Boucher 1998; Watson et al. 2011; Leekam et al. 2000; Waterhouse et al. 1996) coming up with a single set of formative assessment interventions that will meet all the children’s needs is potentially impossible. Also important is the fact that children with intellectual disability also display heterogeneous characteristics and needs (Tonnsen et al. 2016), something that complicates matters even further when dealing with students that have both autism and severe learning difficulties. Evidently, children with intellectual disability are more likely of having more co-occurring disabilities and, in particular, autism (Ibid).

Most of the difficulties that individuals with autism have are related to their communication (Kroncke, Willard and Huckabee 2016): features such as limited facial expressions, expression of emotions
unrelated with the content of the dialogue, inability to share emotional experiences with others, flat tone of voice and use of repetitive and scripted language are all characteristics of impaired communication (Ibid). Since a lot of their emotions are unrelated to what happens in the specific point in time, it could mean that a lot of their actions will be unrelated to the lesson and the formative assessment process, making the interpretation of their signals difficult for their teacher.

Another aspect that is directly relevant to those individuals’ impaired communication is linked with the “Theory of Mind,” which is the understanding of another person’s perspective: this often means that they do not engage with the listener (Kana et al. 2015). Since formative assessment is a shared experience and relies on the understanding of both parties sharing what was good and what could be improved in the student’s performance, the lack of a theory of mind could mean that the student cannot receive constructive feedback and understand what it implies.

Poor reading and oral comprehension and narrative coherence (telling a story clearly and coherently) (Kroncke, Willard and Huckabee 2016) are potentially also linked with the theory of mind as these individuals are limited with understanding whether their listener knows what they are talking about, while activities such as reading often demand good joint attention. Peer assessment and self-assessment, often regarded as essential elements of formative assessment, alongside reciprocal between the teacher and student feedback can also be difficult to apply in the absence of joint attention and theory of mind as this hinders communication between children. Being unable to relate to others and see things from their point of view poses a significant difficulty when it comes to applying peer assessment as well as self assessment, since understanding of the self is often filtered through the understanding of others (Steinbeis 2015).

Children with autistic spectrum disorders have been conceptualised as having a triad of impairments, which affect social interaction, social communication and imagination (Wing 1988; American Psychiatric Association 2000; The National Autistic Society 2014). This triad
of impairments is accompanied with a limited and repetitive pattern of activities, and it is considered to have a strong link to aspects of the function of the brain (Wing 1988; Rice and Baio 2009). Secondary impairments include strong resistance to change, sensory overarousal and underarousal, reluctance to share, self-stimulatory behaviours, self-injurious behaviours, and impaired motor skills (Cohen and Volkmar 1997; Dawson et al. 2004). In the context of this study, getting overaroused and engaging in self-stimulatory behaviour could cause great issues with regards to engaging in the formative assessment process. Since students have the natural tendency to engage in such behaviours, which are not a reaction to the lesson itself, it is important that they are managed before attempting to get the child to access the formal curriculum. Since these behaviours often occur during lesson time, it can be difficult to distinguish between behaviour that seeks to signal the student’s disapproval of an activity (formative feedback) as opposed to behaviour that is present as part of the student’s condition (autism).

Children with autism tend to have delayed development of language and often their language comprehension skills are lower than would be expected at their age, while many remain non-verbal (Schopler et al. 1980; Watson et al. 2011). Gestural communication is rarely used to compensate for the lack or reduced use of spoken language and children with autistic spectrum disorders have little interest in communicating with others. This is key to the communication and interaction element of formative assessment, which poses a natural impediment to the process. Their auditory short-term memory can be advanced, while their long-term memory can be impaired (Schopler et al. 1980), something that underlines the importance of instant rather than delayed feedback for this group of students. Children with autism often have strong visual memory (Schopler et al. 1980), making symbols and the use of actual resources such as objects and the use of information technology such as the interactive whiteboard in the lesson of great importance.
**Autism and severe learning difficulties**

As Jordan (2001) points out, people with autism belong to one of the most vulnerable groups. That, paired with cognitive impairments makes them even more so. Cognitive impairments according to Jordan are classed as severe or profound learning difficulties. These individuals come with the most complex needs, which teachers and carers need to address so that individuals with learning difficulties can have a good quality of life. And as Jordan remarks, this type of support does not come natural to most carers or teachers: it needs to be taught. An observation central to this research that Jordan makes is that children with autism cannot all be treated in the same way, since they do not follow the expected, typical pattern of development, something also valid for students with learning difficulties, as discussed. What are the implications of this for formative assessment? The demand for highly trained, specialist members of staff and researchers is highly important in order to have the opportunity to practice individualised and effective formative assessment.

Jordan (2001) observed that severe learning difficulties are not always paired with severe autism, but there are varying degrees of each, which can mean that children with less severe learning difficulties can potentially learn to mask their autism. She further observes that the causal relationship between learning difficulties and autism means that the former is not caused by the latter: but that having learning difficulties can cause a child to appear more autistic. That also does not mean that with good teaching one can ‘remove’ the autism, because it is actually part of who the individual is. Equally, those that have autism with no severe learning difficulties are significantly different to students that have severe learning difficulties without autism. This implies that they have different needs, hence they need different teaching approaches (Jordan 2001). This further reinforces the need for specialised staff and researchers who can develop a different type of thinking than the conventional one used in majoritarian teaching and assessment approaches.
But why does having any level of learning difficulties (let alone severe) make such a difference to only having autism? Let’s take the triad of impairments as identified by Wing (1988) and pair those with Jordan’s (2001) observations:

- Social interaction: having learning difficulties makes it much harder to learn those social communication rules that do not come natural to individuals with autism.

- Communication: there is a mismatch between level of language and communication in autism. Having an appropriate language level means that a child can learn how to interact appropriately. However, when matched with language difficulties (which naturally occur when a child also has severe learning difficulties) create a more complex situation, in which a child will need to be taught alternative forms of communication.

- Flexibility in thinking and behaviour: Individuals with autism have great difficulty perceiving themselves as learners and understanding what it is that they know or do not know. This has a significant impact on formative assessment and its applications as explored in the previous chapter, and specifically when it comes to the part that requires self-assessment and reflection. As Jordan (2001) remarks, there will always be those with the most severe and profound difficulties that will never be able to learn independently, but their learning will need to be facilitated.

It is often the case that professionals feel that when a child has severe learning difficulties, autism plays a secondary role. However, as Jordan points out having social difficulties that come with autism need to be addressed first: as individuals with severe learning difficulties and autism are going to be dependent on others for the rest of their lives, it is important that fearfulness of others (due to autism) is addressed first to avoid isolating them further. This makes coincidental learning as described by Imray, Gazquez Navaro and Bond (2010) an important part of the learning process since it includes
social interaction and the satisfaction of being part of the learning process. Sitting alongside others and learning with them is part of socialising, an important part of these students’ schooling experience.

Children with autism and severe learning difficulties have both a deviant and delayed learning pattern (deviant is attributed to autism and delayed to severe learning difficulties) but neither of those can be ignored (Jordan 2001). The P scales provide these multiple, smaller steps of learning (Imray and Hinchcliffe 2012) which address the issue of delayed learning, however since they still respond to a linear developing pattern, they do not address the issue of the deviant learning pattern, which can make keeping track of their progress harder.

One final but important distinction is the one between the child with autism and severe learning difficulties and the child with severe learning difficulties. From the teacher’s perspective, a child with severe learning difficulties can be indeed incredibly needy, however they will reach out and often acknowledge that they benefit from the professional intervention in place. Nevertheless, as Jordan (2001) points out the natural nurturing tendencies carers and teachers display might have the opposite to the desired effects with children that have autism and severe learning difficulties. Formative assessment is a social situation, as it requires reciprocation of feedback, looking critically at one’s own work and the work of others and improving learning through interaction with others. Cognitively, engaging in activities that require criticality is a difficult activity for students with severe learning difficulties. Equally, engaging in social situations is complex for students with autism. The combination of the two elements can have a detrimental effect to a student’s ability to participate in a social and cognitively challenging process such as formative assessment.

**Lack of in-service research**

Alongside the problem of general lack of research with students that have severe learning difficulties,
is the lack of practitioner research. Specialised knowledge of the problems and gaps in the educational field of severe learning difficulties and autism are well-known within schools. Researchers from that type of environment, however, appear to be lacking: ‘Significant ideas and interventions need to be openly discussed, tried out, tested, shaped, changed, incorporated, discussed…more action research needs to be done in schools and more good practice disseminated; even humble ideas need exposure with special schools working more collaboratively’ (Imray and Hinchcliffe 2012, p.154)

The main reason why in-service research is so important is encapsulated in Pring’s (2004) remark that research in the special needs sector is burdened with significant difficulties and it lacks depth needed to inform practice, something also confirmed by Imray and Hinchcliffe (2012). This could be linked with many researchers’ unfamiliarity with this type of students and the reliance on others to communicate with them (Lewis 2004).

The inexperience of researchers sometimes can lead to the exclusion of these pupils from research, evident in some pieces of research which consider them to have a limited ability to communicate: for example, in one study 17 students were excluded due to being preverbal even though the researchers had come up with different ways of eliciting responses from the participants (Rabiee et al. 2005), something that could have enabled this group of students to participate in the study. Generally speaking, seeking the views of children with severe learning difficulties is limited because of their communication needs and the low expectations linked with this group of students (Milton Mills and Pellicano 2014; Nind, Flewitt and Payler 2010; Simmons and Watson 2014). Nevertheless, with the right tools employed and more in-service research it is possible that research methods will develop to address the needs of these students and enable them to express their views.
Teaching and learning approaches: curriculum and behaviourist principles

Given the difficulties students that have autism and severe learning difficulties face, it becomes evident that creating an appropriate learning environment to address student needs and apply formative assessment is a demanding task set for teachers. Successful formative assessment requires an effective teaching and learning framework, tailored to each student’s needs.

Specifically, one of the issues that admittedly has not received the attention it deserves from the academic world since little research exists as to whether it is effective or ineffective for students with severe learning difficulties is the application of the National Curriculum with this group of students (Imray and Hinchcliffe 2012). Imray and Hinchcliffe (2012) believe that aside from the National Curriculum, students with severe learning difficulties need additional educational experiences that naturally take place for other children like, for example, educational outings, being able to use money in exchange for goods and a lot more to cover their independent living skills. This is linked with the earlier discussion in Chapter 2 of the type of domains these students have difficulty with and how those can be addressed through teaching that tackles their social and practical domains alongside the conceptual domains. An example of this type of teaching approach used with students with autism is the Higashi School approach (Jordan et al. 1998), which offered educational outings as part of the children’s day-to-day teaching.

Of particular importance is the observation by Norwich and Lewis (2005) who pointed out that one of the main foci is not whether the students need a distinct curriculum to the rest of their classmates, but it is more about the type of teaching they receive. Even though Norwich and Lewis did not believe students needed distinct curriculum objectives, they did believe that special needs students need ‘…distinct kinds of teaching to learn the same content as others without special educational needs’ (2005, p.7) while McNicholas (2000) stressed the importance of a balanced developmental and subject based curriculum to increase its relevance for this group of students. Further to this, and especially
when it comes to students with severe learning difficulties, Norwich and Lewis (2005) questioned the relevance of a solely subject-based curriculum and suggested that individual learning needs could be met through a differentiated curriculum. Davis (2001) underlined the importance of an alternative, sensory-based curriculum and intrinsically motivating activities, making the use of appropriate resources to teach these students of great significance.

Collis and Lacey (1996) remark that there is a problem with schools trying to follow the National curriculum by devising their own version of it, while they use the P-scales to note progress as if it were linear. There is also the added issue of the P-scales not being relevant or sensitive enough, since they were never created for the purpose of recording school achievement (Imray, Gazquqz Navaro and Bond 2010). Even though they were quickly adopted by the Department of Education in 2001 after having been published by the Qualifications and Curriculum Authority (QCA) in 1998 (Ibid), it remains uncertain whether the P-scales are the most suitable assessment system, since it appears to be the only available option for ranking student achievement for those under level 1 of the National Curriculum, to date. As this reveals the summative assessment system (based on P scales) as being ineffective, it is likely that the formative assessment processes based on it will also be ineffective as it is likely to fail to record progress.

With regards to teaching and learning approaches, behaviourism has been a key theory used with students that have autism (Shyman 2015), making it a dominant teaching approach used in such environments. As Shyman stresses, behaviourism is undoubtedly invaluable and it ‘must be maintained in any legitimate or potentially effective educational approach for children with Autistic Spectrum Disorders’ (Shyman 2015, p.9), especially when they are learning a new skill (Ibid). Historically, its success with students that have autism has been documented by various studies some of which, such as the one by Lovaas reporting an increase in speech, appropriate play, social non-verbal behaviours and spontaneous use of language (Shyman 2015). However, it does not come
without any flaws and one needs to be warned that the monopoly of behaviourism and the promotion of methods such as applied behaviour therapy, which is heavily based on behaviourism, as the only way to support students with autism cannot be healthy and is certainly counterproductive (Shyman 2015).

Behaviourism has as its target to reinforce the strength of the link between the stimulus (for example, an object) and the response (a symbol representing that object, which needs to be picked by the student). As Ertmer and Newby (2013) suggest the main concern of behaviourism is that the association between stimulus and response is ‘made, strengthened and maintained’ (p.48).

Behaviourism is based on the principle that responses that are followed with a reinforcer (desirable object) are more likely to be repeated. Within the context of behaviourism the learner is considered reactive to his/her environment rather than an active learner (Ertmer and Newby 2013). The long-term target for these students as Imray and Hinchcliffe (2012) pointed out is to be independent learners and to problem–solve, which could mean that behaviourism alone can be appropriate for students that are at the initial part of the learning process, while once they become more proactive or they have started mastering a new skill behaviourism might not be sufficient on its own.

Other problems in connection to behaviourism have to do with generalisation and the learning being primarily teacher-led (Collis and Lacey 1996; Jordan et al. 1998). As Greathead et al. (2016) discovered in their research reciprocity was less likely if the adult was the one initiating the interaction. Since reciprocity is one of the primary goals of formative assessment, one can question the behaviourist principles that are largely adopted when teaching in special needs environments, since the reinforcer is always introduced by the teacher, making the teacher the dominant party of the process.

Nevertheless, when a child is at the lower P levels, making no or few attempts to communicate, the dominance of the adult is not only coincidental to behaviourism, but potentially necessary due to the characteristics of autism (in this case, limited communication). Especially since communication is a
new skill that children with autism need to learn and as Shyman (2015) noted new skills can be effectively taught through behaviourist principles, behaviourism remains relevant to students even when they are proficient in some areas of learning, but not as advanced in some others. Imray and Hindcliffe (2012) stressed that learners that have autism and severe learning difficulties can achieve a lot when it comes to play, games and sports and some can even achieve independent living skills, which holds particular relevance to students that are more advanced in their learning. Teachers need to be mindful of this and, in addition to behaviourism, they will need to employ other teaching approaches so as to help students at all levels progress. Behaviourism appears to form the basis for student learning and it has a dominant place when educating children with autism, but it is not an exhaustive or complete educational approach in itself.

**Summary**

Contextualising this research and forming a better understanding of the challenges students with autism and severe learning difficulties may present as well as what communication challenges a teacher needs to overcome so as to enable these students access teaching, learning and assessment have been central to this chapter. Without this type of understanding it is impossible to appreciate firstly how important the small steps that students take in their learning are and secondly how the way they think and communicate with others can affect their ability to access the formative assessment process.

By explaining what communication challenges autism presents and explaining how the heterogeneity of the student population in this type of environment can affect their ability to access formative assessment, I have attempted to expose some of the challenges these students present with their education in general and formative assessment in particular. Finally, by having discussed dominant
teaching and learning approaches and how those have been adopted in special schools that children with autism are taught I endeavoured to explain how those approaches can address some of the student needs but also how they may have shaped the teachers’ understanding of learning and formative assessment related to this group of students, as a result.
Chapter 4: Conceptualising the research approach: case study methodology

Introduction

In this chapter, I will explain what a case study methodology is, why I selected it as the most appropriate methodology to answer my research questions, what type of case study methodology I chose to employ as well as what its limitations are, and how those affected my case study research.

Collis and Hussey (2009) defined methodology as the overall approach of the research study. Saunders Lewis and Thornhill (2009) used the analogy of an onion to explain the idea of research methodology. In this analogy, thoughts about the research problem were in the centre, while the layers that needed to be peeled off to reach the centre were things like the research strategy, research tools, purpose and time frame of the research. Collis and Hussey (2009) identified the case study as a methodology that seeks to explore a phenomenon within its natural setting. In this research I used the case study methodology in order to explore how formative assessment is applied with non-verbal students that have autism and severe learning difficulties through various research tools such as teacher interviews, student video observations and documentary analysis.

Why the case study methodology?

This research focused on methods of formative assessment suggested by specialist teachers and how formative feedback can be reciprocated between students and teachers in a context with students that have autism and severe learning difficulties. I employed the case study methodology to provide me with detailed, focused empirical findings. Specifically, the first phase of my study included the teacher interviews, set out to inform the second phase of my research, the student video observations.
The interview schedule I employed as part of my case study endeavoured to answer the following research questions:

- What are teacher perceptions of what constitutes ‘formative assessment’ in the context of a school with children with severe learning difficulties?

- How is formative assessment applied in the context of a school with children with severe learning difficulties and what strategies do teachers use?

Specifically, the examples provided by teachers were filtered, modified and applied with my students to assess their effectiveness as formative assessment methods for non-verbal students with autism and severe learning difficulties. Phase 2 of my research included student video observations, set out to evaluate the effectiveness of formative assessment interventions suggested during Phase 1, and to also explore how non-verbal students with autism and severe learning difficulties give feedback to their teacher. Specifically, Phase 2 aimed to answer the following research questions:

- Is the form of feedback given by teachers to non-verbal children with severe learning difficulties effective?

- How do non-verbal students with severe learning difficulties give feedback to teachers about their progress?

The details of the two phases will be discussed in chapters 5 and 7.

**What is a case study? Why use a case study? What type of case study?**

According to Yin (2009) a case study is ‘…an empirical inquiry that…investigates a contemporary phenomenon in depth and within its real-life context…when… the boundaries between phenomenon
and context are not clearly evident’ (p.18) while multiple sources of evidence are used. Based on this, my thesis is a case study, an in-depth investigation, and the actual case examined (the focus of my enquiry), is formative assessment for non-verbal students with autism and severe learning difficulties, within its natural setting, Highland school. Stake (1995) and Merriam (1998) consider the focus of the study to be the bounded system itself, while Yin (2009) appears to be focusing on the case study as a process, or ‘empirical inquiry’ (p.18).

Swanborn (2010) comments that a case study research ‘collects information by studying the characteristics of those people who are/were involved in the same case and their relationships. Instead of the word ‘people’ one could use the words ‘organisations,’ ‘events,’ ‘nation-states’ or any other entity’ (p.3). In the present research, detailed student profiles have been examined and student reactions to formative assessment interventions have been studied.

‘Case research is particularly appropriate for certain types of problems: those in which research and theory are at their early, formative stages’ and ‘sticky, practice-based problems where the experiences of the actors are important and the context of action is critical’ (Benbasat et al. 1987, p.369). In this research, the case study methodology was the most appropriate to use in order to extend and improve the understanding of formative assessment and the ways it can be applied in a variety of settings. According to Yin (2009), a case study can build, extend or challenge a perspective. The interviews have served to extend on the perspective of what formative assessment is in the case study context and the student video observations aimed to build on the formative assessment interventions suggested by teachers after testing their effectiveness.

Stake (1995) noted that choosing to perform a case study is based on the interest of the individual case rather than the research tools employed as part of the research. Formative assessment with students that have autism and severe learning difficulties presents a case of particular interest, as it is set out to extend the notion of formative assessment as it is currently known and accepted and enable teachers to
apply it successfully in non-mainstream settings. In fact, and as pointed out in Chapter 3, research with students that have severe learning difficulties is generally scarce, putting these students in a disadvantaged position, making the level of interest in this individual case even higher.

According to Yin (2009) it is the type of research questions asked that define the appropriateness of the case study as a methodology to employ as well as the phenomenon studied being contemporary, alongside the level of researcher control over the research. As Yin (2009) remarks, if ‘how’ and ‘why’ questions are asked, using a case study as a research methodology is appropriate. The type of questions used also define the purpose of the case study (Yin 2009): the purpose of my research is exploratory ('what' research questions asked), descriptive (since little or no research has been done in the area explored) and explanatory ('how' research questions asked). This study is also heuristic (Merriam 1998) since it aimed to refine the reader’s understanding of formative assessment and it is a revelatory case (Yin 2009) as it studies formative assessment with non-verbal students that have autism and severe learning difficulties, a phenomenon never studied before, something that Stake (1995) described as an instrumental case study, which, according to Stake, can provide opportunities for generalisation. Also, the fact that Highland school was a large institution, and the biggest special needs school in Europe at the time of the study made it a representative case as described by Yin (2009).

The present case study is embedded (Yin 2009), as it allowed for multiple units of analysis which focus on different significant aspects of the case to be considered. Such are the problems that teachers face when attempting to employ formative assessment with students that have autism and severe learning difficulties and the types of formative assessment methods they employ, alongside the student reactions to formative assessment interventions explored through the student video observations. An embedded case study also allows for multiple sources of evidence to be explored such as the teacher interviews, the student video observations and documentary analysis of the school’s assessment
policy.

Yin (2009) suggested that a case study protocol is essential to serve as a frame of operation that will include the main elements of the case study research. As part of my protocol, I explored the following topics:

- The purpose and rationale of the case study;
- The significance of the phenomenon explored;
- The type of research questions explored;
- The research design;
- The data collection techniques (in this case teacher interviews, video observations and documentary analysis as explored in the interviews chapter and student video observation chapter that follow);
- Thematic analysis of the video observation findings;
- Analysis of findings based on purpose, rationale and research questions;
- Establishing how the issues of validity and reliability were addressed.

This research protocol has been followed throughout the thesis and elements of this have been explored in different chapters.

Based on Stake (1995) the case study researcher might serve the role of a biographer that focuses on a specific phase of life of the individual as a unit of analysis. I consider my five students as separate distinct cases and I focused on the specific stage of their lives which informed me about various aspects of formative assessment and how feedback is reciprocated between teacher and students depending on the individual background and responses of each of the students.
Validity and Reliability

As Yin (2009) remarks, four tests common to all social sciences need to be passed within case study methodology to ensure that a researcher meets validity and reliability criteria, essential for a study to be generalised. Those are:

‘Construct validity: establishing correct operational measures for the concepts being studied. Methods to meet this criterion suggested include using multiple sources of evidence and establishing chain of evidence’ (p.34).

The term operational measures implies that planning needs to be precise and rigorous: as revealed in Chapter 7, a precise schedule that included the type of activities, resources and rewards used was in place. Also, a time schedule specifying when (what day and time) each intervention would take place and the sources of evidence used for each of the five student case studies (to follow in chapter 7) was in place.

‘Internal validity (for explanatory or causal studies only, and not for descriptive or exploratory studies): establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships’ (p.34).

This study was explanatory, because its target was to not only explore a situation (in this case formative assessment with non-verbal students), but to also explain how formative assessment manifests itself in a non-verbal context and develop theory (i.e. provide a method that can be used to explore formative assessment with non-verbal students in the future). As this was an explanatory case study, in chapter 7 it is demonstrated that a causal relationship between interesting resources, rewards and student feedback did exist.
‘External validity: establishing the domain to which a study's findings can be generalised’ (p.34).

Every student presented a unique case, however a modified version of the student behaviour checklist (as discussed in Chapter 7) could be used to generalise and use these resources to do formative assessment with other students with autism and severe learning difficulties.

‘Reliability: demonstrating that the operations of a study-such as the data collection procedures-can be repeated, with the same results’ (p.34). In the case of the current research similar findings would be expected if the study was to be repeated with a similar set of students, at a specific time and under similar circumstances. The process has been described in detail including research plans, time-scales, type of resources and the behaviour checklist through which students gave their feedback, thus it would be possible to repeat the case study. As video was used as the means for analysis, it was possible to watch the videos repeatedly to increase reliability.

**Limitations of the case study methodology**

A case study researcher is faced with other people’s realities and interpretations of a certain phenomenon, which the researcher himself/herself further interprets through their own perceptions of reality (Merriam 1998). This is one of the reasons it is considered a subjective form of research. Merriam however believes that there is no single, universal ‘truth,’ but several interpretations of the truth. The subject of interpretation, central to this thesis, will be a key topic, especially since the students are non-verbal and they have comprehension and social difficulties linked with their disability, making teacher and researcher interpretation key to interpreting a version of the truth.

According to Cohen et al. (2003) ‘Case studies, in not having to seek frequencies of occurrences, can replace quantity with quality and intensity, separating the significant few from the insignificant many instances of behaviour’ (p.185). In the context of my analysis, I was looking for the significant changes in student behaviour that could indicate students were attempting to give feedback to their
teacher about the lesson or their level of interest (to be discussed in detail in chapter 7). Feedback through behaviour poses obvious limitations to my interpretation attempts and adds a certain amount of bias, however without my knowledge of the group I was examining and an understanding of their body language and its implications I could not have interpreted their behaviour and signals, successfully.

A further problem that Simons (2009) exposes is that a lot of data might accumulate, making the analysing and reporting unmanageable. He suggests that this can be overcome by careful planning and consideration, something that agrees with Yin’s (2009) notion of planning before research commences. Since this was a multi-phase research and the first phase was aimed to inform the second phase, this type of careful planning and understanding of what I was looking for was essential: through planning I could manage the volume of the data once it was produced by focusing on what was worthwhile in the context of my research. Therefore, in addition to the teacher interviews and student video observations I performed documentary analysis of the school’s policy documents on assessment, to evaluate the type of guidance provided to teachers through school official documents and provide an understanding of how those might have affected the teachers’ perception of formative assessment with students that have autism and severe learning difficulties.

Furthermore, Simons (2009) suggests that case studies can give a distorted picture of reality and belong in the past as there is always a gap between reporting time and the actual case study. Simons suggests that by underlining the timing of the study, the subjectivity of our interpretations and the conditions under which those interpretations took place these limitations can be overcome. In the current research every effort was made to describe the participants, the context and the conditions of the study, as well as the policies and curriculum that were in place at the time, to give as accurate a description of the ‘moment in history’ as possible, without compromising the students’ privacy and anonymity.
A further limitation is linked with generalisation: Simons argues that the goal of a case study rarely is
generalisation. It is rather to make a detailed study of an organisation or individuals to inform practice,
or to add to knowledge on a specific topic. Analytic generalisation might apply since, according to Yin
(2012) ‘…the extent that any study concerns itself with generalizing, case studies tend to generalize to
other situations (on the basis of analytic claims), whereas surveys and other quantitative methods tend
to generalize to populations’ (on the basis of statistical claims) (p. 19). Stake (1981) also suggests that
knowledge gained from case studies is more concrete (detailed descriptions rather than abstract
notions) and contextual (closely linked to its context) and generalisations link to the reader’s
interpretation and reference population. In a population as varied as students with autism and severe
learning difficulties, one can hope to establish a concrete example of how formative assessment can be
used, once modified, to apply to other groups of students of a similar nature and to give guidance to
teachers on how they could achieve successful formative assessment with students that have autism
and severe learning difficulties.

Summary

This chapter presents my rationale for adopting the case study approach as the most appropriate to
address my research questions. I attempted to explain why I consider the case study a methodology,
what research methods/tools I employed as part of my case study and how those served to answer my
research questions. In chapters 5 and 7 I will explain what the research tools I employed involved (i.e.
the teacher interviews and the student video observations) and how the teacher interviews (phase 1 of
my research) served to inform the student video observations (phase 2 of my research).
Chapter 5: The teacher semi-structured interviews

Introduction

In this chapter I will focus on phase 1 of my research, the teacher interviews. Specifically, I will explain the rationale behind using semi-structured interviews and how I developed my interview schedule. I will include the background of the teachers (research participants) and explain how I addressed the issues of validity and reliability in my study. Furthermore, I will provide an example to explain how I analysed my research data and discuss ethical issues related to my position as a practitioner researcher. As part of my embedded case study research I will also perform documentary analysis and I will explore how the formative assessment school policy failed to contextualise formative assessment for students with autism and severe learning difficulties or provide appropriate guidance to teachers on how to apply formative assessment with such a unique and diverse student group.

Rationale of teacher interviews

Yin (2009) notes that ‘one of the most important sources of case study information is the interview’ (p.106), or else, as Merriam (1998) comments, the most common method of data gathering. Semi-structured interviews include open-ended questions which do not need to be read and answered in the exact same sequence by all interviewees (Cohen et al. 2003, p.278). According to Lincoln and Guba (1985), a structured interview is useful when the researcher is aware of what s/he does/does not know about the field s/he is researching, while a more unstructured one is useful when the researcher is unsure about what they do not know, and needs to be informed by their interviewees. In my case, even though I had some ideas about the use of formative assessment with children with severe learning difficulties I needed to explore the issue further with the other teachers who may have adopted
different practices. Furthermore, when part of a case study, interviews need to be open-ended (Yin 2009). For this reason alone, a structured interview would not be appropriate. Equally, by being semi-structured, the questions provided an organised framework which could increase the reliability of the data.

It was important to ensure that the interviews were of high quality. Kvale (1996) lists a set of useful criteria relevant to high quality interviews (p.145):

‘1. The extent of spontaneous, rich, specific and, relevant answers from the interviewee.

2. The shorter the interviewer’s questions and the longer the subjects’ answers, the better.

3. The degree to which the interviewer follows up and clarifies the meanings of the relevant aspects of the answers.

4. The ideal interview is to a large extent interpreted throughout the interview.

5. The interviewer attempts to verify his or her interpretations of the subject’s answers in the course of the interview.

6. The interview is ‘self-communicating’-it is a story contained in itself that hardly requires much extra description and explanation.’

I met the criteria set out above as follows:

Criterion 1: I allowed my interviewees to respond to the questions at length without interfering. If they raised issues of particular interest I would probe further. If they did not appear to understand the question I offered further clarification.

Criterion 2: The questions, on the whole were short. I avoided confusing the interviewees and helped them to focus, without limiting their freedom to respond in any way they wished. Where the questions
were longer, I paused between sub-questions allowing responses to those before the interviewees moved on to the next topic when ready.

Criterion 3: If something was unclear and I needed clarification or if an area needed further explanation I asked further questions.

Criterion 4: I chose semi-structured interviews because I wished to have the flexibility of asking more or different questions based on the interviewees’ responses.

Criterion 5: I asked for clarification or for further ideas if the interviewee had expressed ideas that were interesting and different.

Criterion 6: Allowing the interviewees freedom to express their views freely led to responses that were self-explanatory.

**Developing the interview schedule**

My questions were formed based on the literature and my professional experience, both of which suggested a number of gaps in what was known about formative assessment that needed addressing in a special needs environment. The school’s most recent (at the time) Ofsted inspection in 2009 had also identified certain gaps that also influenced my choice of interview questions. The type of questions used as categorised by Spradley (1979) and Patton (2002) included descriptive responses (for instance question 1 asked: Could you give me a general description of the students in your class?), experience questions (e.g. question 3: I am interested to know what your views are on assessment in general and formative assessment in particular. Do you think assessment is valuable as a tool? Is it valuable in a special needs setting? What type of information does it give practitioners in the field?), and knowledge questions (e.g. question 4: What is assessment? What would you define as formative assessment?).
also asked for information concerning the teachers’ background, experience and position in the school (see Appendix 6).

In addition to answering some of my research questions, the interview questions were also devised to aid in the second part of my research, the case studies and how formative assessment affected non-verbal students with severe learning difficulties. The interview questions directly addressed the following research questions:

- What are teacher perceptions of what constitutes ‘formative assessment’ in the context of a school with children with severe learning difficulties?

- How is formative assessment applied in the context of a school with children with severe learning difficulties and what strategies do teachers use?

In addition to the main interview questions I also had a set of questions with explanatory bullet points that I could use to elaborate more on or give examples. These were rarely used, as I wanted to avoid over-explaining or leading my interviewees. These were not shown to my interviewees at any point, and were only used as a guide whenever necessary. They were devised in advance of the interviews to ensure that I gave the same additional information to each interviewee, when needed. This list of questions with examples is included in Appendix 2b.

**Piloting the interview schedule**

As part of stage 1 of my research I piloted the interview schedule, which helped me clarify any procedural problems so as to modify the content and understand the importance of context, without taking it for granted that all the terms I was planning to discuss would be familiar to all teachers.

Specifically, piloting my interview schedule involved three informal interviews, with three former colleagues who had no connections with Highland school. Since they were all former colleagues and
friends, they had both the professional experience being teachers and they wanted to assist me rather than rush me through an interview, which helped clarify matters prior to the official interviews. They had a mainstream education background, which was an advantage as some of the teachers at Highland school had only recently moved into this special needs environment and had no previous experience with special needs children. This meant that they may not have necessarily understood all of the relevant terminology. These teachers helped me identify problems with the interview questions. They frequently raised issues with the terminology that I had used which helped me make adjustments and develop explanations.

In relation to the interview procedure there was discussion about positioning the voice recorder further from the interviewee (so that it was not too obvious to avoid making them nervous). While this raised issues about voice quality and analysis, in the event this was not a problem. Another procedural matter was whether I should present my interviewees with a copy of the questions at the beginning of the interview and allow them to read through them before commencing the interview. It was agreed that this was a good idea as it helped the teachers relax and prepare mentally for the questions to come. As they would only have a short time to look at the list of questions this was unlikely to allow them to ‘overthink’ their answers and affect the quality of their responses.

Some minor wording changes to the questions also took place to avoid confusion, which could interrupt the interview or affect the quality of the answers. For example, in Question 3, the question was changed from ‘What would you class as formative assessment?’ to ‘What would you define as formative assessment.’ Ways in which to make the interviewees more relaxed and open were also discussed, to help me modify my body language or interview approach.

Finally, as a result of my piloting, I devised the set of questions with the explanatory bullet points mentioned in the previous section (and included in Appendix 2b) to make sure I gave the same guidance to all teachers that needed assistance with their interview answers.
Participants

The sample of teachers was substantial as the school was large (300 students at the time of the research) and the teachers in the primary area of the school for students with communication difficulties were all willing to participate. By having all of the teachers in the primary area of the school participating in the study, I attempted to eliminate sampling bias, as none of the teachers within the population that formed my interest group were excluded from the sample. Admittedly, this group was still chosen for their expertise, so one can claim that sampling bias was present, however their expertise was crucial for the purposes of my study, therefore a level of bias would always be expected to be present. The study involved fourteen teachers of various ages and levels of experience who taught children from the lowest P levels to the ones that would follow the National Curriculum.

Furthermore, I was aware that all teachers had their teaching observed, scrutinised and frequently checked to sustain the ‘outstanding’ school status. So even though everything else was in place something was not working when it came to formative assessment: and by choosing the specific population that I was deeply familiar with, I was confident that this would produce more representative data. Within the scheme of case study research, one might not be able to claim their sampling is completely unbiased. However, my priority was for a representative rather than a completely unbiased sample, while by not selecting only some of the teachers to be interviewed within this population I believe I managed to partially avoid sampling bias itself: perhaps sampling bias in case study research is inevitable, especially when one aims to find answers to specific questions that require context-specific expertise.

All teachers had a different area of specialism some teaching early years/foundation children (3-5 years of age), some Key Stage 1 (KS1) (5-7 years of age) and others Key Stage 2 (KS2) (7-11 years of age). All of the teachers had a mainstream teaching background and their experience varied at the time
of the interviews. The majority of the teachers had been teaching in the school for 1-2 years and were new to the specific context. Appendix 6 sets out details of the teachers’ experience and duties at the time of the research.

The teachers were given the option to have an interview during lunchtime, before school, after school or at the weekend. I encouraged teachers to suggest any time that was convenient for them. The timing of the interviews was arranged taking account of weekly school meetings to avoid times that teachers would be overworked and tired.

The setting was to be chosen by each teacher as I offered to go to a café with them or have the interview within the school depending on their preferences. In most cases, teachers decided to have their interviews within the school and before or after school. Only one teacher chose the setting of a café after school. None of the teachers chose a completely different time (such as the weekend or a late evening) to have the interview, although I offered this to encourage them to feel more positive towards the process. One teacher was interviewed in the school library, another in the classroom; the rest chose to come to my classroom. I offered snacks and hot drinks during the interview, as I wanted to make the interview a relaxed conversation rather than a chore.

The dual role of the teacher researcher

Even though the issue of the dual role of a researcher has been noted in a number of papers (Borbasi, Jackson and Wilkes 2005; Chew-Graham et al. 2002; Cieurzo and Keitel 1999; Shaw 2003; Tillmann-Healy 2003; Haverkamp 2005), not much research exploring the specific issues of in-depth interviews exists (Allmark et al. 2009). Nevertheless, the little research that does exist has got important findings to reveal (Ibid). Since my role as a teacher and researcher in the school presented a number of challenges, it is important to consider the power relations deriving from such a role and how this may have influenced my interviewees. Allmark et al. (2009) remark that even though a few points have been made about the dual role of a researcher and practitioner, not much has been offered in the way
of recommendations of how to address the issues of power imbalance stemming from this position and no guidance exists on how to address this problem.

Within this dual role of the researcher and teacher I needed to address several issues. One of the issues was over-involvement, as well as getting carried away and getting drawn away from the researcher role while conducting an in-depth interview (Allmark et al. 2009). It was often tempting to take the teacher role as opposed to the researcher role during my interviews, especially since all these problems I was discussing with my interviewees were problems that I had encountered in my day-to-day practice. There was also the danger of taking sides (Ibid), which could naturally happen, as I was a teacher influenced by the decision-making of the senior leadership team and naturally belonging to the teachers’ team. Nevertheless, obtaining a closer friendship role with the participants has also been considered necessary for conducting in-depth interviews by some researchers (Tillmann-Healy 2003).

Another issue discussed by various pieces of research is the issue of power (Borbasi et al. 2005; Chew-Graham et al. 2002; Cieurzo and Keitel 1999; Haverkamp 2005; Shaw 2003; Tillmann-Healy 2003). The participant may feel obliged to participate in the research because of the researcher’s position and the interviewer has got a level of power when it comes to the direction of the interview (Allmark et al. 2009). The choice of semi-structured interviews aimed to give a level of power to the interviewee with regards to discussing more the issues they felt more confident with, but, equally, I as an interviewer I would seek to discuss the issues directly relevant to my research more, hence guiding the conversation towards those.

Further to this, the interviewer also has power over the quotes chosen and analysed at a later stage as well as how those are interpreted (Allmark et al. 2009). As a result, the interviewee may feel misinterpreted (Sandelowski 1994). Even though the difficulty of avoiding taking sides and reporting findings from a non-neutral position has been discussed by various studies (Forbat and Henderson 2003; Antaki, Young and Finlay 2002), not much has been suggested in the way of guidance on how
to overcome these issues, while little focused research on the subject of in-depth interviews has taken place in general (Allmark et al. 2009).

Allmark at al. (2009) commented on the participants high level of commitment once they have decided to participate in a study and their feelings about participating in the research being affected based on whether they feel the idea would make a difference. This was something my interviewees commented on as they hoped my research would offer a solution to their problems with applying formative assessment. I attempted to make their expectations realistic and explained that even though I wanted everything to be geared towards creating a set of appropriate formative assessment practices for students with autism and severe learning difficulties after the completion of my research, I could not provide a quick solution to their short-term struggles with formative assessment.

**Conducting the teacher interviews**

The research took place over the period of two years (six terms), with a gap between the interviews and the student video research, to allow for data processing of the interviews prior to and in preparation for the student video observations. At the first stage of the research (conducted in the autumn, 2009 term and completed within that term), teacher interviews with all fourteen staff members working on the primary school site took place. One of the teachers was a specialist music teacher who taught that subject exclusively, while three of the teachers were also managers covering different areas of the curriculum. Their views on formative assessment and its practices in a special needs school were investigated, alongside their opinions on how formative assessment could be made meaningful for non-verbal students.

The vast majority of my colleagues were interested in the research, although some declared that they felt as if they were going to be ‘tested’. I reassured them that I wanted to hear their views and that there were no ‘correct answers.’ A few expressed interest in knowing the final results. Keeping a
good, professional relationship with my colleagues and being a researcher required a delicate balance as I did not want them to feel intimidated, but I also needed to find out as much information as possible for the purposes of the research.

Prior to the interviews, I made an informal announcement during a teachers meeting, informing teachers of the scope of the research and asking them to participate if they wished to do so.

All teachers were asked to give informed consent via signing a letter (included in Appendix 3) prior to the interview, which I also encouraged them to re-read immediately before the interview. In that letter, I informed them that they could opt out at any stage of the process and I gave them the option to contact me via email or phone. They were given a copy of the letter to keep and they were also told I would record the interviews. I chose to do this as it gave me the opportunity to examine the data in detail, avoid data misinterpretation as I could listen to the interview word for word, and also pay attention to the interviewee rather than take notes.

The letter explained that the interviews would form the first part of my research and would inform the second, crucial student video observation part. Based on the information teachers gave me, I would consider a number of methods to use in the student video observations which would involve using formative assessment methods within my class, with my own students, based on the information gathered through my interviews.

Interviewees were presented with the questions in advance to look at for a few minutes in order to give them the opportunity to express any concerns or to ask questions if they were unsure about the phrasing of questions. This was done in an effort to help them feel secure and relaxed as the vast majority of the teachers appeared nervous, since they did not know what to expect. This was important because I wanted my interviewees to feel relaxed about the interview process and express their opinions freely.
Disruptions were kept to a minimum by keeping doors closed and instructing my assistants to keep everyone out of the room. Inevitably, in a busy school environment, there were some interruptions but these were quickly addressed by pointing out that we were in the process of undertaking an interview. In the cases where teachers felt confident with their knowledge of formative assessment, they gave more in-depth and detailed responses, even though in many cases they ‘questioned’ themselves expecting me to object, criticise or agree with what they said. Positive body language was used (i.e. through nodding, leaning forward and making eye contact throughout the interviews). As noted in Cohen et al. (2003), it is essential that the human element exists (i.e. face-to-face interviews) in order to increase the validity of the interviews.

During the interview, I made an effort to present myself as interested, but non-threatening, by following steps such as: making encouraging noises, reflecting on remarks, probing ideas expressed in the interview and introducing the new topic (Robson 2002). I kept reminding my interviewees I was interested in their view, not a ‘correct’ answer whenever they doubted themselves during the interview process. Many expressed an interest in the findings of the research which I explained would be shared once my data gathering and analysis was completed. Ethical issues relating to this will be analysed later on in the chapter. It is important to note that I recorded all my interviews so that I can focus on my interviewees and inspire them with more confidence that it was their views I was interested in and, at the same time, increase the accuracy of my analysis later on by being able to revisit the data word for word if I needed to.

Kvale (1996) comments on the fact that difference in power and status between the interviewer and the interviewee can cause problems with the interviews. In my case, since colleagues were being interviewed it was necessary to keep a friendly tone and make sure I did not assume the position of the ‘expert’. It was evident from the first few interviews that a number of my colleagues expected me to ‘know everything.’ I tried to address this immediately by pointing out that if I did know everything, I
would not have needed to interview them, and that I did need their input since they were the ‘experts.’ I also reminded them that I would be basing Part 2 of my research on their responses, this is why I needed their expert views.

Hitchcock and Hughes (1995) point out that if the researcher and the interviewee know each other, it is more likely that the interviewee will give answers they think the researcher wants to hear, a ‘problem’ that could be part of my interviews. An effort to eliminate this problem was made by asking further questions to establish what formative assessment meant to the interviewees themselves.

**Validity and Reliability**

Qualitative research comes to conclusions via methods other than those of a statistical nature or different means of quantification (Strauss and Corbin 1990). Its findings result from real world settings with conclusions that are drawn naturally (Patton 2002). The terms ‘validity’ and ‘reliability’ have been substituted by terms such as credibility (instead of internal validity), transferability (instead of generalisability/external validity), dependability (instead of reliability) and conformability (instead of objectivity) by Guba (1981): these are often used in the field of qualitative research.

Validity is a relatively subjective concept and Creswell and Miller (2000) suggest that it is affected by the researcher’s perception of what the term means based on the type of research they perform. The concepts of validity and reliability have been replaced by trustworthiness (Mishler 2000; Lincoln and Guba 1985) in qualitative research.

Stenbacka (2001) stated that if one judges qualitative research on the grounds of reliability, most probably it will not be classed as a good piece of research, since reliability requires measurement. Seale (1999), however, states that a piece of qualitative research can have reliability, depending on its trustworthiness. Using a variety of data collection methods, and interviewing people classed as experts
in the field, from a school that was a training school and encouraged its members to carry out research assisted in ensuring that the study could be classed as trustworthy.

According to Shenton (2004) to increase the trustworthiness of a certain piece of qualitative research, the researcher must ensure they have accurately worked on the following set of criteria:

- the adoption of research methods well established both in qualitative investigation in general and in information science in particular...

- the development of an early familiarity with the culture of participating organisations before the first data collection dialogues take place...

- random sampling of individuals to serve as informants...

- triangulation’ (p.65).

To address the first of the criteria above, I followed a semi-structured style of interviews, which gave me the opportunity to follow-up on any interesting themes that emerged during the interviews. The wording of the key questions remained the same, with minor alterations whenever the question was not understood by the interviewee. The sequence of the questions remained stable, with the exception of cases in which the interviewee referred to a question that was further down the list, thus providing an opportunity to discuss the relevant question in depth. Full transcription of all interviews took place and all interviews took place in a relaxed environment, in an effort to eliminate the feeling of being ‘at work’ or being interviewed ‘by a colleague.’
The second criterion set by Shenton (2004) was met naturally as I had worked in the school for a number of years before interviewing my colleagues and, being a teacher in the school itself, I was familiar with the organisation and its policies.

I attempted to avoid sample bias by interviewing all teachers, but, naturally, bias occurred as teachers were selected because of their level of expertise as discussed earlier. The sample was only derived from one setting to ensure that in-depth data emerged from the research.

Triangulation is one of the main components used to confirm the validity and reliability of a piece of research and a key feature of the case study method. In qualitative research, triangulation can be achieved by combining a variety of research methods (Patton 2002). Guba (1981) confirms that by using a variety of methods, the researcher compensates for the each individual method’s limitations and enhances their individual, potential benefits. Patton argues that, by combining research methods, triangulation makes an argument more powerful. In the present research, I have combined two different methods and undertaken some quantitative analysis in addition to the qualitative analysis.

Shenton (2004) devised a list of possible provisions that could be made by the researcher to ensure that they met Guba’s four criteria of trustworthiness (p.73). Some of those with a description of how the criteria were met are included in Appendix 4, Table 5.1. To make my interviews more trustworthy and credible, I based all my questions on issues currently identified through research and the practice of myself and my colleagues. Since the teachers were experts in the field of autism and severe learning difficulties their views formed a trustworthy set of data suggesting a number of possible interventions for the future.

Barbour (1998) believes that triangulation can have a completely different meaning within qualitative research. She believes that, while any exception in data sources within quantitative research can invalidate an argument, in qualitative research exceptions can be used to modify theories. Within my
interviews and case studies, I have identified exceptions, mostly arising because of the individuality of the students and the fact that teachers had experience with students of a particular age group and ability level.

**How did I conduct my research?**

Brown and McIntyre (1993) stress that:

‘…any understanding of teaching will be severely limited unless it incorporates an understanding of how teachers themselves make sense of what they do: how they construe and evaluate their own teaching, how they make judgements, and why, in their own understanding, they choose to act in particular ways in specific circumstances to achieve their successes’ (p.1).

The first part of my research was based on semi-structured interviews in an effort to better understand the classroom situation. Teachers guide learners and also are the ones who can implement policies and different teaching methods to their students. If they feel they cannot access appropriate resources or have insufficient understanding of new policies including those relating to formative assessment methods, then they will not be introduced to the students.

I adopted Brown and McIntyre’s methods when conducting the interviews. They argued that in order to gain a better understanding of the classroom experience, they needed to include teachers and students in their research. In the current study, students could not be interviewed as they were non-verbal, however their reactions were video recorded (see Chapters 6, 7 and 8).

Brown and McIntyre focused on experiencing life in the classroom prior to the interviews, so that they would have a shared understanding of classroom reality with their interviewees. As I taught in the
school myself, I already had shared experiences of the classroom reality and was aware of practical issues and the problems with formative assessment.

The authors adopted an open approach in the interviews, asking open-ended questions that focused on the interviewees’ individual perspectives. I tried to avoid leading my interviewees and asked them for their definitions of formative assessment and the methods that they used in their classrooms. I reminded them frequently that they were the experts and that I needed to access their perspective.

Brown and McIntyre also avoided leaving a large time gap between observations and interviews to avoid any negative effects of time delay. I conducted and analysed the teacher interviews within the period of a term, quickly followed by the case study research, which took place during the following term (interviews took place during the autumn 2009 term and case study research took place during the spring 2010 term).

**Analysis of the interview data**

After transcribing the interviews, I identified common words/terms in the interviewees’ answers and grouped them together based on that (refer to Appendix 5). As a further step, I identified common themes in the highlighted responses, which were then grouped accordingly.

For example, the teachers were asked to define formative assessment. By highlighting all the answers relating to that definition with a specific colour (in this case purple) I then placed all of the relevant quotes in a table (see Appendix 5 for relevant example). I then grouped the data into sub-sections in the table based on the keywords and themes which emerged based on the content of the different responses. The emerging themes are set out in the following chapter (chapter 6).
Essentially, I followed Brown and McIntyre’s (1993) qualitative analysis method which is set out below.

- **Reading a random sample of transcripts**

All interviews were transcribed in full. To begin with, I read three transcripts simultaneously and underlined similar themes. The transcripts I chose were not randomly selected but carefully chosen from teachers whose responses were varied so I could identify a broad range of responses early on and identify relevant themes. After initially reading the transcripts and becoming familiar with their content, I also considered the research questions in addition to the interview questions to understand how they were linked.

- **Identifying points of similarity and difference among these transcripts in relation to research questions.**

I identified a possible list of themes that had emerged through the interviews. For example, easily identifiable themes related to the definition of formative assessment, problems areas and methods as there had been direct questions in the interviews relating to these. I continued colour coding the transcripts identifying new themes until finally 15 different themes emerged.

- **Generating theories describing emergent answers to research questions**

Cooper and McIntyre refer to ‘theories,’ which I have interpreted as ‘themes’ as these were more relevant to my study. At this stage, I was trying to identify common themes. In table 5.1 (Appendix 4) I included an example of one answer to research question 10 and the possible themes/theories that emerge from it. The relationship between the interview question, themes and research questions is highlighted within this example.
As a second step, and to ensure I had covered all emerging themes, I re-read through all of the interviews and underlined any other key words I felt were relevant which would add to my results. Once I had a list of themes, I assigned a highlighting colour to each one of them. Table 5.2 includes one interview question example and a demonstration of the analysis follows.

<table>
<thead>
<tr>
<th>Interview Question</th>
<th>Themes</th>
<th>Research Question</th>
<th>Colour coded quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Have you helped your students use any self-assessment methods? What were they? Do you think self-assessment is possible for non-verbal students? How?</td>
<td>Self-assessment methods. [pink]</td>
<td>How do non-verbal students with severe learning difficulties give feedback to teachers about their progress?</td>
<td>The way we tend to do it is, if it was doing that you would say, you would record, say one week, whatever you were doing, if you were singing a song or getting them to make sounds into the microphone, you would record it one week, then the next week you would play it back, you would play it back in that session as well, but before you did the next bit you would play that one back, then say “Listen to what you did last week, have a go again” and you’d give them the microphone again and then listen to them both together. I can think of a couple of children in there that yeah, I would expect her to say “Next time I want you to do or to try this” and I could see it working with a couple of them in there. But hand on heart, I don’t know whether I’ve ever done that, yeah, I don’t know. (i.e. communicate with non-verbal students using a different mode of communication).</td>
</tr>
</tbody>
</table>

Table 5.2 Data analysis example
A specific example is Lynda’s interview. Lynda spoke to me about a variety of methods, problem areas, and definition issues. In table 5.1 I included question 10 (sample transcript in Appendix 5), some broader themes (all the specific issues addressed will be analysed separately in chapter 6 of my thesis) and chosen colour coded quotes from Lynda’s interview (table 5.1), to demonstrate how I grouped the teacher responses together.

Question 10 provides an example. The question reads:

‘Have you helped your students use any self-assessment methods? What were they? Do you think self-assessment is possible for non-verbal students? How?’

This question linked up with the following research question:

‘How do non-verbal students with severe learning difficulties give feedback to teachers about their progress?’

The interview question contained the keywords ‘self-assessment methods,’ ‘non-verbal students,’ ‘how,’ which were underlined in table 5.1.

The research question contained keywords such as ‘how,’ ‘non-verbal,’ ‘give feedback,’ which were also underlined in table 5.1.

From these, I derived the general themes of self-assessment and how self-assessment was used in the classroom. This essentially is a method of feedback.

The two main themes were assigned two different colours: self-assessment methods (pink) and how to use self-assessment with non-verbal students (blue). The two responses given by Lynda were then highlighted with the chosen colours:
‘The way we tend to do it is, if it was doing that you would say, you would record, say one week, whatever you were doing, if you were singing a song or getting them to make sounds into the microphone, you would record it one week, then the next week you would play it back, you would play it back in that session as well, but before you did the next bit you would play that one back, then say “Listen to what you did last week, have a go again” and you’d give them the microphone again and then listen to them both together’ (pink).

‘I can think of a couple of children in there that yeah, I would expect her to say “Next time I want you to do or to try this” and I could see it working with a couple of them in there. But hand on heart, I don’t know whether I’ve ever done that, yeah, I don’t know’ (blue).

Within those answers, other keywords can be identified (analysed sub-themes are included in tables 6.1-6.9 as well as summarised in table 6.10 and analysed throughout chapter 6) such as ‘record/play it back.’ This was one of the specific self-assessment methods used by Lynda. They were categorised under the general theme of ‘self-assessment methods.’

Lynda’s second response, the part of the response that reads ‘I don’t know whether I’ve done that,’ was categorised under the theme of ‘self-assessment problem areas,’ since it identified the lack of self-assessment used with non-verbal students.

- Testing theories (themes in my case) against a new set of transcripts

I carried on introducing new transcripts one by one and including them in the data analysis table (see Appendix 5 for sample transcript). This process demonstrated whether the themes chosen were strong enough to remain. New themes were also introduced during the process whenever relevant.

I carried on colour coding all of the data and grouping it in tables. I then chose the data that I thought exemplified the different themes and included examples in the findings chapter.
After reading all the transcripts the data were further categorised into even smaller sub-themes based on keywords such as, for example, ‘post it notes,’ ‘written observations,’ or ‘team discussions,’ which were all related to examples of formative assessment (all to be analysed within tables 6.1-6.9 in the next chapter). Once the data were placed in themes and sub-themes I created a tick list that referred to individual teachers and the concepts that they referred to as well as problem areas that they had mentioned (table 6.10-6.15).

- Testing new theories (themes) against transcripts already dealt with

Once I had identified and colour coded the different themes as well as matched those with my research questions I carried on with colour coding the rest of the interview answers to see how they fitted within those themes and research questions. In some cases, I had to add new themes and match those with the research questions within my interview data table.

- Carrying all existing theories (themes) forward to new transcripts

I carried on colour coding all transcripts according to themes identified, always checking for any potential new themes emerging. Managing the process became easier as the analysis progressed as some themes had already been identified.

The teacher researcher: interviewing within one’s own professional setting

Admittedly, my position as a practitioner researcher was a challenging one. However being an insider carries a lot of benefits: I was aware of the problems that existed (albeit not explicitly), I had experienced a lot of those problems myself and tried to identify solutions on my own and I felt committed to both my colleagues and students. A problem I came across was the fact that when reporting I had to describe the obvious (to me, due to my insider status) and at the same time try and overcome all the inevitable biases I was carrying due to my background and preconception of what
constitutes good formative assessment practice: ‘…the social scientist realizes is that while the outsider simply does not know they meanings of the patterns, the insider is so immersed that he may be oblivious to the fact that patterns exist at all’ (Wax 1986, p.3). In order to be able to see the patterns, I had to distance myself and be a researcher instead of a teacher when conducting my teacher interviews in order to allow for the teachers to have their own opinion on formative assessment without my influence.

My status as an ‘insider’ posed questions on subjectivity, too. ‘Being an insider might raise issues of undue influence of the researcher’s perspective, but being an outsider does not create immunity to the influence of personal perspective’ (Dwyer and Buckle 2009, p.59). Further to this, as they later comment, even though a practitioner-researcher might be considered subjective by some, in some cases they are they only people with enough experience to interpret specific phenomena, and access to specific groups would not be plausible without being a member of those groups (Ibid). Being aware of one’s own limitations as an insider is important to eliminate bias as much as possible, even though as the authors stressed, no one is completely immune to it. ‘Disciplined bracketing and detailed reflection on the subjective research process, with a close awareness of one’s own biases and perspectives, might well reduce the potential concerns associated with insider membership’ (Dwyer and Buckle 2009, p.59). My status as an insider influenced my perceptions on formative assessment and I was limited to the teaching and assessment methods introduced by the school, myself. Knowing the teachers also formed my expectations of what they would be able to contribute in advance of the interviews, however, being aware of this, I tried to be as open to the possibility of being surprised as possible.

‘The intimacy of qualitative research no longer allows us to remain true outsiders to the experience under study and, because of our role as researchers, it does not qualify us as complete insiders. We now occupy the space between with the costs and benefits this status affords.’ (Dwyer 2009, p.61).

Dwyer’s account is an accurate one, indeed. A qualitative researcher needs to find the skill to play two
very different roles. S/he needs to be intimate enough with others to derive all true information and objective enough to report what is meaningful.

In addition, the practitioner-researcher needs to have ‘…an ability to be open, authentic, honest, deeply interested in the experience of one’s research participants, and committed to accurately and adequately representing their experience’ (Dwyer and Buckle 2009, p.59). Because of my position in the school and my relationship with the teachers and students I was deeply committed to gaining an understanding of the problems and test as many solutions to those problems and I could. I believe that it is because of this (and not in spite of this) that I presented an honest account of my experiences in the school and classroom.

Robson (2002) describes a practitioner-researcher as ‘someone who holds down a job in some particular area and is, at the same time, involved in carrying out systematic enquiry which is of relevance to the job’ (Robson 2002). It was working in the research school for a number of years that prompted me to explore issues relating to assessment in general, and formative assessment in particular as I felt that this was an important topic, which had been overlooked by previous research. Special needs students, particularly those with severe learning difficulties who were non-verbal, could not perform tasks such as self-assessment or give direct verbal feedback to their teachers.

There is a further reason why any type of researcher can never be completely objective: ‘A researcher’s knowledge is therefore always partial, because his/her positionality (perspective shaped by his/her unique mix of race, class, gender, nationality, sexuality and other identifiers), as well as location in time and space will influence how the world is viewed and interpreted’ (Mullings 1999). Positionality plays an important role when observing, recording and analysing data. Firstly, since what a person can see is influenced by what they have been trained to observe and report what they have been taught to value more, no one can claim to be entirely objective. Potentially the best a researcher can do is to try and eliminate their subjectivity by trying to see things from the point of view of others.
There will never be a single ‘truth’ so reporting data even from one’s own perspective will always be valuable. My position was also one of power, judging the quality of the responses of others. My interviewees could not be certain about my motives and how judgmental I would have been even though I tried to make the motives and targets of my research transparent. The imbalance of power was potentially experienced by both sides and one cannot deny that it was naturally present.

Being an insider could also be considered an advantage according to Lincoln and Guba (1985), who recommend sustained interaction between the researcher and the research participants to gain a better understanding of the organisation and to gain the trust of the research participants. Having been part of the school for a considerable period of time and having worked with a number of those who I was going to interview I had gained a good understanding of the school and the ways people within it worked.

The aim of the research was to investigate the relationships between educational processes, individuals and their response to tasks and others. My role as a participant researcher meant that I brought a wide range of experience to the research which I could draw on while undertaking it. Using my experience and knowledge of the research environment, I was more able to observe subtle changes in the reactions of the students that might have been missed by those with less experience.

**Bias**

Researcher bias was risky for a researcher in my position. Teachers might have felt obliged to participate due to the fact that I was their colleague and also that my research was funded by the school. Secondly, their answers might have been affected by what they were told by members of the senior leadership team and they might have felt they needed to give ‘correct’ answers. It is also possible that they felt obliged to perform rather than be themselves, or read about the topic prior to their interview instead of basing their answers on their experience and expertise.
On my part, there was the danger of asking leading questions, based on my prior theoretical knowledge and the literature, something I tried to avoid by letting teachers speak freely and only interrupt and ask questions when there was something I needed to follow up. Only one teacher required further explanation of the questions leading me to draw on the more explicit version of the interview questions (see Appendix 2b). This might have been due to the inexperience of the teacher (she had only recently moved to the country and had only spent two terms in the school prior to her interview) as well as her lack of understanding of the specialist terminology, rather than my or her wish to lead or be led.

As discussed earlier, my familiarity with the setting could have been an advantage or a disadvantage: in this case it could have been a disadvantage because of the existing power relations, and the conflicting nature of my role as a colleague and a researcher. It could be the case that this double-ended role affected the teachers’ perception of who I was and what I was trying to achieve. Ultimately, by exposing my own vulnerabilities and expressing that I, too, am confused and I am looking to them for ideas could have balanced my position and made me more ‘familiar’ again, reducing teacher stress about the interviews and allowing them to express their true opinion of the situation. It is also possible that their participation alone was affected by my position of power rather than their eagerness to participate.

**Ethical issues**

Conforming to a code or a set of principles is what one means when referring to the term ‘ethics’ (Robson 2002). As a researcher I followed the BERA code of ethics and complied with it throughout the research (Institute of Education, Doctoral School Information Sheet 2003).
The fact that the school in which I completed my research was the school where I worked could have led to aspects of the school being viewed with prejudice. However, it was important that in this special needs environment I had an understanding of the methods of communication, teaching and learning to enable teachers to communicate easily with me. This is one of the reasons why ‘familiarity’ with the setting was an advantage. Nevertheless, I had to avoid prejudice and tried to remain objective during data collection and analysis.

Some interviewees indicated that they thought I was going to provide a ‘miracle solution’ relating to formative assessment. Several colleagues expressed eagerness and anticipation to see ‘results’ and easy to follow methodologies once the research was complete. Being viewed as an ‘expert’ and a ‘miracle worker’ was problematic and I had to explain that I would not be able to present them with a ‘manual’ of formative assessment once the research was completed and that I was only a researcher trying to find some answers to questions raised from my own professional practice, for which I did not possess any answers.

The issue of informed consent, and how ‘informed’ it was in different cases was another important ethical challenge. Even though informed, written consent was asked from all interviewees, it is possible they only agreed to take part in the interview process, because they felt obliged to assist a colleague. As part of my ethics research procedure, I informed them both verbally and in writing that they could withdraw at any point if they wished to do so and an analysis of the data gathering process was given to them in writing before the interviews commenced. I tried to be honest and open about the aims of my research and I was given both written and verbal permission to conduct the interviews. Furthermore, I explained to my interviewees that participation was voluntary and that they did not need to participate unless they wanted to. After transcribing the interviews, I informed my colleagues that their written transcripts were available to view if they wanted to review them, but none of my colleagues asked for the transcripts.
To further ensure that I would not be seen as an ‘expert’ but would be drawing on staff expertise as well as to reduce colleagues’ anxiety about how the information would be used I held an informal discussion about my interviewees’ ideas with regards to their own interview and whether they felt they were more knowledgeable than they initially thought. In the vast majority of cases, teachers spoke about how they felt they understood some concepts, but still felt unsure about self-assessment methods and their effectiveness with non-verbal students.

During teacher meetings in the months following the interviews, I gave updates on my research outcomes and the participants were informed about anticipated findings as well as the aims and purposes of my research. Following the interviews, I gave my interviewees a debrief to make sure that they felt confident about the experience and to reassure them that I would use the information to attempt to find ways to improve assessment practices. I explained to them that all of the information that they gave me would be anonymised.

The issue of anonymity was important since the school was small and teachers employed at the time had many distinctive characteristics (for example, ethnicity, level of experience). I protected the anonymity of the interviewees by using pseudonyms and giving as little personal information as possible. Even though a major effort was made to achieve anonymity, some identifying features may have remained, particularly where the interviewees were in a managerial position or held a specific post that had to do, for example, with curriculum development. As several years have passed since data collection and I am no longer employed at the school it should be the case that identification is less likely, especially for staff currently involved with the school.

Since my employers were funding my research, this could have led to interference with my work to meet institutional needs. However, even though senior staff were interested in the progress of my research and, occasionally, gave their opinions about my work, they did not interfere with the content. I kept them informed about my progress via general email updates, while at the same time keeping my
data and findings confidential. The school funds all teachers to complete Master’s degrees, hence it was not a surprise when they extended their funding to PhD level. It was often the case that teachers asked their colleagues for participation and assistance, hence I was not unique as most colleagues were used to participating in research and conducting research themselves.

The school assessment policy

Why mention or examine the school assessment policy one might ask? According to Shenton (2004), whenever possible, additional data can be collected from documents that are relevant or might have affected the interviewees’ attitudes. In this case, the assessment policy document reflected the attitudes and ideas of the senior leadership of the school, which, in turn, influenced teachers. The document suggested what formative assessment was and what type of formative assessment practices were considered outstanding.

The school’s assessment policy was put in place in 2009 and had not been updated prior the commencement of the research even though assessment for learning was identified as an area of improvement by Ofsted in the 2009 inspection, although not in the 2011 inspection. This is perhaps surprising as the understanding of assessment methods had not improved considerably in the meantime and teachers spoke about a variety of problems they were facing during their 2010 interviews. No formal ‘formative assessment bank’ was put in place and formative assessment practice remained vague and up to the individual teacher drawing on their expertise (a problem also identified by Lynda, whose interview is used as an example of how data were analysed in table 5.2).

The assessment policy document was expected to provide guidance to staff, but it lacked specific instructions and methods of how to assess non-verbal students on a day-to-day basis. For instance, the policy document instructs: ‘Assessment in lessons will focus on key objectives; it is important that
those objectives are clear, that the means of assessment is planned in advance, and that implementation is practicable.’

Some of the examples presented might have been considered irrelevant and unhelpful to teachers, for instance, ‘A teacher has developed a routine where she makes notes on the weekly plan each day. When planning next week’s lessons these notes enable her to decide whether to consolidate learning, to move on to the next step or to go back a step.’ As informative as this might be, keeping notes is not a formative assessment method in itself. It can be used to plan next steps or decide whether an objective has been met or not. However, it does not provide information on why an objective has not been met or how the outcomes can be improved in the next lesson. It also gives no information on how to help students improve.

Another example suggests that: ‘A teacher draws attention to the ‘pupil friendly IEPs’ (individual education plans) at the start of a lesson and reminds each pupil of one of their targets.’ This will be discussed in chapter 6 as a problematic concept mentioned by several teachers, as using individual education plans was considered pointless by most teachers with non-verbal students. Talking to students about their target might satisfy an observer but would not necessarily be understood or be useful to the child.

Teachers were expected to give feedback to all students at the end of the lesson (something pointed out on all Ofsted-style teacher observations). Feedback was mostly given verbally. The guidance stated: ‘At the end of a lesson the teacher…seeks feedback from the staff on what each pupil has achieved. As each pupil’s achievements are shared the staff join in a lively song ‘Well done, …you’ve worked hard today.’ This assumes that the student remembers what exactly it was they did well and that they understand what is being said to them verbally.
The examples in the policy document were not inclusive of all students and did not empower students to give their own feedback using their preferred mode of communication. The policy focused on recording progress and, as will become clear in chapter 6, had confused teachers, who did not believe that this was good formative assessment practice. The document also did not group age/level/type of special needs together to give examples and ideas for good practice within each class. In the school context the characteristics and needs of the students were so individual, a ‘fit all’ scenario could not be successful.

A study of the policy document, demonstrated where some of the teachers’ ideas on formative assessment methods came from (based on interview data), and while they did not help the student or the teacher implement formative assessment processes, they provided the basis for recording student progress (for example, via post-it notes or on the teachers’ planning sheets—refer to interviews for more examples).

**Summary**

The absence of research on the side of both exposing the problems related with applying formative assessment with students that have autism and severe learning difficulties and the absence of any formative assessment method guidelines with the same group of students made the need for a theoretical basis, significant. The use of semi-structured interviews with the teachers in the school who were both experts and insiders aimed to both present the related to formative assessment problems and provide a short list of formative assessment methods teachers used in their classes. This, filtered, will be used as part of the formative assessment ‘test methods,’ which will be used in Phase 2 of my research, the student video observations. Details of this will be provided in Chapter 7.
Chapter 6: The teacher interview findings

Introduction

By the time the teacher interviews commenced, formative assessment had become a central topic in teacher meetings. This was linked with the Ofsted recommendations during the school’s previous inspection report that advised reviewing the school’s assessment policy and practices. Formative assessment was in the educational zeitgeist because of the attention Black and Wiliam’s work had received (Yorke 2003; Popham 2006).

In this chapter I will be discussing the teacher interview findings. The themes explored included teachers’ perceptions on formative assessment as well as the differences between formative and summative assessment. The teacher interviews revealed what teachers thought were representative examples of formative assessment and how they used formative assessment, or rather what they considered to be formative assessment. They also spoke about recording methods they employed to inform their lesson planning. Problem areas of formative and self assessment were also discussed. Finally, some quantitate data relevant to the teachers’ background and responses were explored.

Themes emerging from the interviews

Definitions of formative assessment

Part of the interview process was to establish how teachers defined formative assessment, what they perceived as the school’s view of formative assessment and whether the school’s view of how it should be implemented had affected teachers’ perceptions. The context of the research revealed nuances in teachers views of assessment overall, and formative assessment in particular. Four sub-
themes emerged from the interviews in relation to the topic of formative assessment definition and a discussion on those themes follows. Example quotes from each are set out in table 6.1.

<table>
<thead>
<tr>
<th>Table 6.1: Definitions of Formative Assessment</th>
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<tbody>
<tr>
<td><strong>Formative assessment is on-going</strong> (12/14)</td>
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<tr>
<td><strong>Formative assessment is individualised</strong> (7/14)</td>
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<tr>
<td><strong>Formative assessment needs to be formally recorded</strong> (6/14)</td>
</tr>
<tr>
<td><strong>Formative Assessment informs planning</strong> (9/14)</td>
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</tbody>
</table>

**Formative Assessment is on-going**

Twelve out of fourteen teachers defined formative assessment as on-going and a day-to-day activity rather than a one-off assessment, a quality attributed to summative assessment. All teachers defined formative assessment as on-going, daily and systematic, and useful to the teacher as it informed planning. Furthermore, it was integrally linked to each teaching session and was perceived as benefitting the child (see table 6.1 for examples).
Formative Assessment is individualised

Seven out of fourteen teachers mentioned that formative assessment was tailored to the needs of the individual pupil and that the teacher needed to adjust their teaching to meet those needs. Formative assessment was used to keep detailed notes for each student and make future work more relevant for them. Students were not necessarily given any control over that assessment, but the teacher judged their attainment level and how their learning could be assisted. Differentiated learning goals, which were either linked to the curriculum or to the child him/herself were an everyday reality made possible by the small class sizes and the attention to the individual child (see table 6.1 for examples).

Formative assessment needs to be formally recorded

Part of the school policy on assessment related to recording on planning sheets, noting any student progress and what was needed to improve student performance. During Ofsted inspections evidence was also demanded of progress. Record keeping in part was to enable the school to supply such information, especially since many of the students were unable to provide the evidence themselves. For example, in a mainstream setting, drafting and redrafting work would provide practitioners with evidence of progress. A child with severe learning difficulties that was unable to write would not be able to provide practitioners with tangible evidence. Hence, the majority of the teachers had their own system of record-keeping.

Recording was mentioned as one of the most important methods of supporting formative assessment by all of the 14 teachers. Ofsted inspections and the school emphasis on detailed paperwork may have been why recording was embedded in teachers’ minds as the main support for formative assessment. Nevertheless, there was no common method of recording and every teacher seemed to base that recording on their own experiences (see table 6.1).
Formative Assessment informs planning

Planning was one of the main areas mentioned as being affected by formative assessment. Nine out of 14 teachers thought that formative equaled informative and that it was the responsibility of the teacher to make a note of the information that s/he was given during the lesson to improve their teaching practice. Teachers appeared to use the information a child had given them to plan for their next session. For example, if a child had met a target it would need to be generalised or become more challenging. In the specific context, consolidating knowledge before moving on to the next step was also important, hence teachers tried to present the same information and get the desired response more than once (see table 6.1 for examples).

Agreed definition on formative assessment

One could conclude from the teacher interview data that formative assessment in Highland school was defined by the majority of the teachers as a formally recorded, on-going assessment, purposely used to adjust teaching in order to address individual student needs through informed planning. A more thorough definition based on both the interview findings and my student video observation research has been presented and discussed in Chapter 2.

Table 6.1 sets out the themes and example quotes the teachers referred to during their interviews. The number of teachers (out of 14 in total) that referred to the specific theme are included in the first column.

Conclusions on the formative assessment definition

It is interesting that teacher views on formative assessment heavily focused on methods of recording and informing the teacher’s future planning. The definition lacked the student element and it appeared to be the case that students were considered as absent, mere observers of their own learning. This was
closely linked with the school’s views on formative assessment, which mostly included written records that could be used as evidence for Ofsted, which is why it was encouraged and reinforced by the senior leadership team.

Nevertheless, no formal recognition existed that students also needed to have a say as part of the formative assessment process, since otherwise the methods used would become a planning tool. The teachers shared these concerns later on in the interview as well as the fact that no guidance was provided on the subject.

**Teachers’ perceptions of the differences between formative and summative assessment**

Overall, formative assessment was portrayed by all of the teachers in a positive light, characterised as ‘useful’, ‘casual,’ ‘diagnostic.’ It was seen as a more useful teacher tool than summative assessment as it was regarded as the type of assessment that provided rigorous and individualised feedback. Teachers also seemed to value summative assessment, even though it was thought of as a ‘one-off’ assessment that only gave teachers a ‘starting point’. However, it was not seen as sufficiently individualised to address the needs of pupils. Table 6.2 sets out some illustrative quotes.

| How do formative and summative assessment differ? (14/14-main question) | ‘The methods are formative assessment methods because they’re not test situations summative assessment for day to day it’s more casual summative assessment they’re more aware they’re doing it.’ (Teacher KS2)  
‘Summative assessment is right at the beginning of the year you look at their P levels and you try and get an idea of what they’re like, it’s a starting point.’ (Teacher KS2)  
‘Well for me, assessment is without any doubt measuring, it’s a way of measuring knowledge and abilities. Formative assessment was always a tool to make basically my students to understand or to have a clear idea of their learning. Because I think formative and diagnostic they are quite linked.’ (Teacher and middle manager, KS2) |
|---|---|

Table 6.2: How did teachers perceive that formative and summative assessment differed?
Clearly, the two processes are separate in teachers’ minds. Summative assessment is linked with measuring and understanding what the students’ current position is, while formative assessment is linked with more everyday, casual situations and it helps students understand what they are being taught. Summative assessment is not seen as promoting learning, while formative assessment as something that students are not conscious of. As discussed in Chapter 2, such as distinction between summative and formative assessment is dangerous and deems both processes as unreliable. Summative assessment is not present to merely record an end result, information needs to be used on how to improve that result, linking summative with formative assessment. As mentioned earlier, the P level system might not be the most appropriate for this group of students because of the deviant learning pattern, however a more well-planed formative assessment approach, linked with summative assessment could also improve the P level system as it would become quickly obvious that students learn differently, hence there is a need to adjust he P levels and create a more reliable summative assessment tool for students with autism and severe learning difficulties.

**Formative assessment methods in a special needs setting**

A number of examples were provided by teachers explaining how formative assessment practice was applied in their day-to-day practice. The use of formative assessment depended on the teacher. There was no whole-school policy on formative assessment with the exception of teachers keeping formal notes with regards to how they gave feedback to pupils. Varied responses were given based on the type of students and the level of severity students each teacher taught had at the time of the interviews, as well as the teachers’ general professional experience. A number of examples related to direct feedback to students while others informed teacher practice. Example quotes are given in table 6.3.
### Table 6.3: Direct feedback to students

| **Verbal praise (5/14)** | ‘It’s instant and you praise them at that moment.’ (Teacher KS2)  
‘Sitting at the end of a group, it’s important to celebrate and praise and “So and so put their shoes on” but I don’t go along with all this banging a drum to “Yeah, I’ve understood it”, you know.’ (Teacher early years)  
‘So much depending on the staff, isn’t it and equally the children appreciating all the praise and receiving the praise.’ (Teacher and middle manager, KS2)  
‘in the end of the session we would all sit around the table and I would ask them, if they’re verbal give them raisins if they have achieved it.’ (Teacher early years) |
| **Tone of voice, Formative Assessment expressions, body language (3/14)** | ‘A bit of clapping, smiling, just kind of your body language, then also give them a toy or something that they really enjoy after they’ve finished those. Making them aware of the idea of reflecting upon something that you’ve done.’ (Teacher early years)  
‘...We’re all really quite over animated in our class. All the staff are like “Oooooh yeah” so they can see that we’re really, really happy or if we’re angry we go (deep noise) so they understand that there is a difference.’ (Teacher early years)  
‘Then one day they do, then you kind of show pleasure on your face and you see the response again.’ (Music specialist teacher) |
| **Smiley faces and use of charts (3/14)** | ‘Teacher assessment on the work would be the same smiley face, straight face, sad face and smiley face. Smiley face means yeah, you’ve managed to do it, straight face you haven’t quite got it and sad face you’re going to need to do more on this...’ (Teacher KS2)  
‘I’ve used colour coding. one side of the triangle is if they’ve still got quite a way to go towards achieving the target, two sides of the triangle is nearly there, nearly achieved and three sides, they’ve achieved the target, the objective on the plan. It’s either immediate or if we’re sitting in groups and someone’s done something really great. I would single them out and say “Wow, you’ve done really, really well. I’m very, very happy, have a smiley face” They all love it, they get quite excited. So at the moment it’s working.’ (Teacher KS1)  
‘I used to use triangles as well, like one side was “not really got it”, two sides is “they’re getting there” and three sides of the triangle means “yeah, they’ve got it, they’re ready to move on to the next thing”.’ (Teacher KS1) |
| **Tangible rewards(4/14)** | ‘We’d have a session and they’d tell you how they thought they did. Then I’ve got a sticker reward.’ (Teacher KS2)  
‘Immediate reward for the children. Last year I did it with raisins, but I’m not too keen on using food as an incentive so I’m trying to get away from that.’ (Teacher KS1)  
‘I would, you know, direct him to the PEC, to the computer. I would say  “Ok, you can have a computer after snack”’ (Teacher KS2) |
| **Modelling and prompting (5/14)** | ‘You can model it. If they were, for example, playing with a cause and effect toy and maybe they’ve just been focussing on pressing one button and then you can sit with them and then show them. But if it was concept based rather than physical that you can model. With the majority of the kids in my class we’re not there yet.’ (Teacher early years)  
‘I don’t, I try not to say “no” very often. I try to mainly just model and then prompt them to the correct thing and if they do whatever the objective might be, then probably have a little celebration.’ (Teacher KS2)  
‘Even if they don’t understand what we’re saying they understand from the sound that we make or the facial expressions and eventually yeah, they get through modelling.’ (Teachers and middle manager KS2) |
| **Peer assessment (1/14)** | ‘The typical reward ceremony we have at the end of the day with the things on the chair. They all clap each other and we sort of go “I want that one” the other children get excited ‘cos they’re sharing in each other’s achievements, they’re not assessing them.’ (Teacher KS1) |
| **Written feedback (2/14)** | ‘We tend to use annotating work.. you have their example of mark making and then you can have your annotation.in terms of keeping evidence it’s easy to slot into a folder and you have it all there dated.’ (Teacher early years)  
‘I personally don’t write on their work because they’re not at that level to read it. A couple of children who are a bit more able with reading, I might write well done.’ (Teacher KS1) |
Direct feedback to students

Seven different methods (sub-themes) of direct feedback to students emerged from the interviews. Those were verbal praise, body language, charts, modelling and prompting, written feedback and peer assessment. A description for each follows and specific examples are included in table 6.3. Reward systems were considered essential in this context and they were used in every class (14/14). The timing of the reward was crucial for some of the students to understand the simple concept of cause and effect (i.e. I did X hence I get Y’). It is important to note that feedback methods were considered to be the equivalent of reward systems, hence they are all included under the ‘Direct feedback to students’ heading in table 6.3.

Verbal praise

Praise was one of the main means of formative assessment that teachers used. Behaviourist approaches were closely linked with day-to-day teaching (i.e. good work = reward, no work = ignoring or no reward). Teachers were positive about using praise in the classroom. The immediacy of the reward and the use of communication means involving body language seemed to be easily interpreted by the students despite their disabilities. Even though spoken language might be an element of the praise, this was usually a single comment and was delivered using a positive tone of voice. Five out of the 14 teachers reported using verbal praise. Table 6.3 gives examples from the interviews.
Tone of voice, facial expressions, body language

Communication difficulties were mentioned as an inhibiting factor in using formative assessment in the classroom. Hence, three of the 14 teachers used their tone of voice, body language and expression as a means of showing the children that they were pleased with their achievements (see table 6.3 for examples).

Use of charts

In an effort to involve students with their own assessment, three teachers mentioned using charts on which smiley faces would be placed, even though there were doubts about whether the students understood them.

Tangible rewards

Four out of fourteen teachers mentioned tangible rewards as a form of feedback. This came as a surprise because tangible rewards were being consistently used as part of behaviour support systems and in a number of occasions during the school day. They appeared to be motivating for a number of students as their advantage was that they could be experienced through the senses. A toy, a small food item or even a small sticker could be used to explain to a student that they had worked well during the lesson or had given the desired response (see table 6.3 for examples).
**Modelling and prompting**

When a child was unable to complete an assignment or a task set an adult often stepped in and demonstrated what was expected. If the child still found the task challenging, the adult would step in and prompt the child to complete the task. Five out of fourteen teachers mentioned modelling and prompting (see table 6.3 for examples).

**Peer assessment**

Peer assessment for lower functioning students was mentioned by one of the teachers. Even though it was at a very basic level, it could be considered as a starting point for students to comment on each other’s work (see table 6.3 for examples).

**Written feedback**

Annotation involving a comment about whether the student had worked independently and how much adult help was needed to complete an assignment along with the date and teacher initials on students’ work was used to inform progress. Some teachers disagreed with this method as the students themselves were not able to read the comments. Two teachers used written feedback (see table 6.3 for examples).

**Formative feedback to students; analysis and conclusions**

The emphasis on most of these examples of formative feedback is on timing: the response needs to be instant so that the students can link their achievement with their reward of good feedback. It is also interesting that 4/14 teachers mentioned no methods of formative feedback used in their classroom,
while most teachers only mentioned a few of the examples. Does this necessarily mean they did not use any of those formative feedback methods? My understanding is that for most of the teachers this is not the case. My explanation would be that most teachers were not conscious of the methods they used, such as tone of voice (3/14 teachers mentioned it) as methods of formative teacher feedback. This could be linked with the fact that in the teacher meetings those were not viewed as formative feedback methods and they were not reinforced as such. This is problematic because unless these methods are defined as formative feedback and presented to Ofsted as such, they are unlikely to be considered to be formative assessment methods.

The dominance of behaviourism is also evident from the examples given by the teachers and the stimulus-response theory. Some teachers used the reward to acknowledge student performance, while the fact that it is all mostly adult-dependent was mentioned.

Even though one of the teachers talked about students ‘reflecting’ on their performance, in reality that was not the case. Giving them a toy, or any reward for performing well will not help them reflect on what they did, even though it will be positive feedback to what they did. Further to this, it is difficult for a student to isolate what it is that they did well and remember to repeat that in the future. Unless feedback is timely and instant, the student could think they did well because they sat down, or they did well because they chose a symbol or they did well because they mechanically reproduced a task they were told they should repeat. Either way, it is not possible to claim a student reflects on their work if at the end of an activity or a session a student is presented with a toy, unlinked to any specific activity, unless they had a rather broad objective such as sitting down throughout the session and attending and they achieved that.

The issues of timing, conscious use of methods, acknowledgement of student achievement, and the opportunity for the students to reciprocate feedback, even though not directly discussed as part of the
interview with the teachers are issues that deserve further exploration to make sure formative assessment is applied appropriately in this type of setting.

**Methods used to inform lesson planning**

Teachers provided a range of approaches that they adopted to inform future teaching. Those included video and recordings, team discussions, observation, records of observations, testing, use of post it notes, and IEP target setting. Example quotes are given in table 6.4.
<table>
<thead>
<tr>
<th>Table 6.4: Informing teaching</th>
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<tbody>
<tr>
<td><strong>Video and audio recordings</strong> (1/14)</td>
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<tr>
<td><strong>Team discussions</strong> (6/14)</td>
</tr>
<tr>
<td><strong>Observation</strong> (7/14)</td>
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<tr>
<td><strong>Records of observations</strong> (14/14)</td>
</tr>
<tr>
<td><strong>Testing</strong> (1/14)</td>
</tr>
<tr>
<td><strong>Post it notes</strong> (7/14)</td>
</tr>
<tr>
<td><strong>IEP target setting</strong> (4/14)</td>
</tr>
</tbody>
</table>
**Video and audio recordings**

One of the teachers mentioned the use of video and audio recordings as a formative assessment tool. The use of visual information appeared appropriate considering that many autistic students tended to use their visual skills (Grandin 1995). Example quotes are given in table 6.4. Further to this, videos may give students the opportunity to reflect on their own learning if they look back at isolated clips of what they did in a specific lesson.

**Team discussion**

Teachers and teaching assistants worked as a team in each class and observations were often noted by teaching assistants, which were fed back to the teacher, who informed his/her planning based on those comments. Six out of fourteen teachers mentioned this method (see table 6.4 for example quotes).

**Observation**

Student observation, at the time of the research, was considered as one of the main formative assessment tools. Since many students could not speak or write for themselves, adults would become their ‘advocates’. Seven out of fourteen teachers referred to this method (see table 6.4 for example quotes).

**Record of observations**

Keeping a record of observations was a formal way for teachers to demonstrate that they had observed student actions and that progress had been made. Since Ofsted had stressed the importance of written evidence, the school had been promoting the ‘recording method.’ This often created more work for teachers. Some found it extremely useful, but a number thought it was time-consuming. There was no
agreed method of recording and teachers tended to complete their assessments based on their personal judgement at the time of the interviews. All of the teachers referred to keeping records (see table 6.4 for examples) as a formative assessment method.

**Testing**

Practical tests were used to determine student progress. They provided evidence of students’ progress and were tailored to the individual student’s needs and abilities. Observing the student and identifying how they learned and responded to different stimuli was a valued approach in the context of special education, especially since the students could often not inform adults of their likes and dislikes, or their areas of difficulty (see table 6.4 for examples). Only one teacher referred to this method, possibly because of its connection to summative assessment and the fact that formal testing was only used for a small minority of students in the school.

**Post-it notes**

Post-it notes were used to quickly note student achievement from a number of different members of staff during the day. The teacher gathered all the information at the end of the day. Some teachers mentioned that this contributed to their weekly planning. Seven out of fourteen teachers mentioned this method (see table 6.4 for examples).

**Individual Education Plans target sharing**

IEPs were designed to promote personal student targets and address their needs. Teachers were advised to talk about one IEP student target at the beginning of every session and explain whether that
was achieved at the end of that session. Varied responses were given with regards to the effectiveness of this method. Four out of fourteen teachers referred to this method (see table 6.4 for example quotes).

**Conclusions on recording methods**

Teachers appeared a lot more confident when talking about recording methods and it appeared that they considered recording methods to be the equivalent of formative assessment, when in reality they are the result of formative assessment. Rightfully, they discussed recording methods as a means to provide valuable material to inform planning, however this is not formative assessment in its own right. The act of using the information to inform and adjust future lesson planning though, is, indeed, an important part of formative assessment.

**Problem areas**

The teacher interviews highlighted a number of problem areas related to assessment and its applications. Formative, summative and self-assessment were identified as having a few problematic aspects. With regards to formative assessment problem areas that were mentioned had to do with communication with students, lack of motivation, and students having different needs (see table 6.5 for examples).
### Table 6.5 Problem areas: issues relating directly to students

| **Communication with students** | ‘There’s a symbol and I might say ok, you’re gonna do good writing and they might understand that perfectly clear but if there’s no response I don’t know whether they understand.’ (Teacher KS2)  
‘It’s quite hard to make sure that you’re covering his needs, to assess how much he understands and what he can do, so it’s actually quite difficult really to know how to feedback to children like that (i.e. non-verbal/low-functioning children).’ (Teacher KS2)  
‘Mmm (assessment at a lower level is more difficult) ‘cos we’ve got to guess what they want. Do you want the apple, do you need a drink? Does that sound tell me that you’re in pain or does that sound tell me that you’re happy.’ (Teacher early years) |
| **Lack of student motivation** | ‘And you’ve got some children who aren’t obviously motivated by anything and so how do you get them to do what you want to do and how do you get them to understand why they’re doing things when really all they want to do is sit and stick a piece of paper.’ (Teacher KS2) |
| **Students have different needs** | ‘They’ve got big gaps in something else...and they can do something else that’s higher. So with our particular kids and maybe with special needs, it doesn’t really show a true reflection of their ability.’ (Teacher KS1)  
Teacher, early years: ‘Sometimes (people) don’t really appreciate that what we do, the small little things are just as important as learning to count to ten.’  
Teacher, KS2: ‘It’s difficult because each child is so different. You have to cater your assessment and everything you do to each specific child.’  
Specialist music teacher: ‘think it’s difficult when you’re working with seven children in a whole kind of variety of behaviours that might be going on at the summative assessment time.’  
‘Some of them aren’t even ready to sit down yet.’ (Middle manager KS1) |

## Formative assessment: issues relating directly to the students

### Communication with students

Eight out of fourteen interviewees found communication with non-verbal, low functioning children particularly challenging. Often, self-assessment and student feedback were implausible, as either students could not express themselves in a language the teacher could understand, or the teacher could not read the signals. Either way, this created a situation in which teachers felt insecure about the type of feedback they gave to their students and whether their students were able to interpret it correctly (see table 6.5 for examples).
**Lack of student motivation**

An important assumption made when adopting a behaviourist approach is that all children find something rewarding and are motivated by an object or an activity. Five teachers reported that some of the students were not motivated by the kinds of rewards that the teacher could offer (see table 6.5 for examples).

**Students have different needs**

Neither development nor needs were similar among students in the case study school. This created the need for more detailed planning to achieve targets, although curriculum pressures meant that personal needs were not catered for. Teachers sometimes had to follow a teaching schedule that they often disagreed with. Behavioural problems also inhibited student progress. Teachers could not focus on learning when there were challenging behaviours. Ten out of the fourteen teachers referred to the individual needs of the students (see table 6.5 for examples).

**The communication puzzle: problems of interaction, reciprocity and assessment**

The teachers highlighted a number of problems which hindered the formative assessment process with non-verbal students with autism and severe learning difficulties. However, the one that mostly puzzled teachers was the issue of communication: how do I know students understand what I am saying? How do I know I have covered their needs? How do I know they have made the most of my lesson? Most teachers felt helpless when it came to this. The problem is that when one cannot receive a direct verbal confirmation in response to what they have done or give an obvious sign of approval it is difficult to evaluate one is doing ‘the right thing.’ It is not only students that rely on teacher feedback to understand they have performed well, it is also teachers that rely on student feedback. And in a
situation as complex as the one described, receiving student feedback was neither simple nor straightforward.

An added problem is that students with autism have poor non-verbal conversation skills, closely linked with their lack of eye contact and issues in joint attention (discussed in Chapter 2). The lack of eye focus is an important problem as it inhibits students from looking towards a specific direction. This is an impediment to alternative forms of communication such as symbols, and it does not help with learning via observation.

As it has already been established in chapter 2, children with autism have no interest in social communication. Formative assessment requires communication with intent. If it is not naturally present, to create an environment in which students will be encouraged to communicate is a complicated and often unguided process.

So how do the problems with communication highlighted above inhibit interaction, reciprocity and formative assessment? As discussed in Chapter 2, formative assessment is, to an extent, an interactive process. Interaction can be difficult when one of the two parties lacks spoken language and has limited ability to engage with another person through eye gaze and conversational body language. It has been established through literature in Chapter 2 that formative assessment requires reciprocity, otherwise it is one-way communication and it can only count as formative teacher feedback. How is it then possible to engage a person that in naturally not engaged in a formative assessment dialogue?

The responsibility for this can only be in the hands of the one that is in control of the communication process and has got the skill to facilitate it. This will be explored as part of the student video observations, in order to extend the understanding of formative assessment in the specific
environment, alongside what Ruiz-Primo (2011) call ‘the unceremonious informal formative assessment practices that teachers employ every day’ (p.15).

**Problem areas: issues relating to teacher practice**

Teachers made a range of statements relating to their practices (see table 6.6 for example quotes). 
**Table 6.6 Formative assessment issues relating to teacher practice**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
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<tr>
<td><strong>Passing on information</strong></td>
<td>If you hadn’t got it written down from another teacher then it’s a massive gap because you just don’t know what they’ve been doing. (Teacher and middle manager KS2)</td>
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<tr>
<td></td>
<td>‘If you’re not there or when they move up to the next class, I don’t think all of that information goes up. Of course there’s the end of year reports. There’s a lot of information that’s stored in your own head that doesn’t get passed on.’ (Teacher early years)</td>
</tr>
<tr>
<td><strong>Limited time</strong></td>
<td>It’s timing as well because it’s all very well if you can, you know, just say to everyone “Oh give me a quick thumbs up if you understood that” and that’s a tick. But when you’re having to do this for that child and this for that child, that’s half the session gone.’ (Teacher KS2)</td>
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<tr>
<td></td>
<td>‘You kind of make the assessment that the school demands of you or the government demands of you. Whether it is done in a formal way, writing it down on a daily thing, I think it’s unrealistic. Writing on a piece of paper which I’m never going to look at again, no-one else is going to look at again, why am I doing it?’ (Teacher KS2)</td>
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<td></td>
<td>‘You’d have a huge book for each child, so you’re kind of using in an informal way. I then feed into my planning which would be probably a good thing to do, but just limited time.’ (Teacher early years)</td>
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<td></td>
<td>‘I think probably time and one to one support you may tend to want.’ (Teacher KS2)</td>
</tr>
<tr>
<td><strong>Formative assessment is subjective</strong></td>
<td>It is problematic because our guy may make eye contact for a minute and then he goes out next year and they want eye contact for five minutes and then...’ (Teacher early years)</td>
</tr>
<tr>
<td></td>
<td>‘If the person doesn’t know, can’t really pick up on the small steps, the small things that a child does, that is an achievement. If you miss those small little things. Then what’s the point.’ (Teacher early years)</td>
</tr>
<tr>
<td></td>
<td>‘It depends on the staff a lot, I think. Some staff are better paperwork keepers than others. A lot of teachers do keep an awful lot in their heads. Don’t, you know, write a lot down.’ (Teacher and middle manager, KS2)</td>
</tr>
<tr>
<td><strong>Formative assessment methods vary</strong></td>
<td>‘At the moment, I used to do my own thing for formative assessment and I think if every teacher is doing their own thing for formative assessment and then you’re all doing the same thing for summative, I don’t see how that would marry up so much.’ (Middle manager, KS1)</td>
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<td></td>
<td>‘No-one has said to me ‘oh, this is how you assess these children’ I feel like what I’m doing is experimental.’ (Teacher KS2)</td>
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<td></td>
<td>‘I haven’t really had any suggestions which I’ve heard, those people who I’ve thought, you know, “That would be great and my kids could do that”’. (Teacher KS2)</td>
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<td></td>
<td>‘I don’t think my formative assessment is perfect and I haven’t ever managed to get the time to go and sit down and talk to someone about it, so I guess it’s not, it’s certainly not at our fingertips.’ (Teacher KS1)</td>
</tr>
<tr>
<td></td>
<td>‘I’m sure others would like some more training or some more ideas on how to do that.’ (Teacher early years)</td>
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<td></td>
<td>‘I don’t think my formative assessment is perfect and I haven’t ever managed to get the time to go and sit down and talk to someone about it, so I guess it’s not, it’s certainly not at our fingertips.’ (Teacher early years)</td>
</tr>
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<td></td>
<td>‘I’m sure others would like some more training or some more ideas on how to do that.’ (Teacher and middle manager, KS2)</td>
</tr>
<tr>
<td><strong>Differences in practices between subjects</strong></td>
<td>‘I’d probably say the main subjects (are easier to assess) because the objectives are clearer. More specific.’ (Teacher early years)</td>
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<td></td>
<td>‘Which is why I actually think foundation stage should be moved up to at least seven which I think is the general consensus in the early years world, I think they’re just trying hard with all the MPs and things to move it up.’ (Middle manager KS1)</td>
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<td></td>
<td>‘Definitely (the subjects) where there are clear schemes of work and very discrete units of work. Knowledge and understanding of the world generally, history, geography, religion nearly impossible because that’s obviously tied up with a lot of things.’ (Teacher and middle manager KS2)</td>
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<td></td>
<td>‘More importance is given to ...core subjects.’ (Teacher KS2)</td>
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<tr>
<td></td>
<td>‘It’s easier in the main subjects like literacy and numeracy because the targets are a bit more specific.’ (Teacher KS1)</td>
</tr>
<tr>
<td><strong>Marginal information goes unnoticed</strong></td>
<td>‘In response to the question of whether the interviewee would note progress on other areas of learning-not the objectives of the lesson) It probably wouldn’t (be noted), to be honest. It should, but probably wouldn’t be. It’s not that I wouldn’t choose to, it’s just that I haven’t got a system which would, is flexible enough necessary to allow that.’ (Teacher KS2)</td>
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<td></td>
<td>‘So going to the toilet or something like that, it’s not going to be on my weekly plan. It was a bit of an issue where we’d record these things an issue I don’t think we’d ever resolve.’ (Teacher KS1)</td>
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<td></td>
<td>‘That is probably the biggest downside of working in special needs...the ones that you really want to celebrate, that they walked to the toilet by themselves. Those things aren’t really noted anywhere.’ (Teacher KS2)</td>
</tr>
<tr>
<td><strong>Lack of support</strong></td>
<td>‘There’s a lot of things you want to do with a child, but there’s other things stopping that happening. Maybe that they don’t understand or the kind of logistics of the situation, that you don’t have, you can’t offer a child one to one for a long time in the day that they might need to reach the target.’ (Teacher KS2)</td>
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</table>
Passing on information

At the time of research, students would change teacher every year or every two years. The information recorded by teachers in their weekly plans did not always move with the student as there was no formal system of recording formative data (see table 6.6). Two teachers referred to this.

Limited time

Annotating, recording, transferring information was time-consuming. Six teachers reported not having enough time to go through targets during a session and even though they were not always happy with the formative assessment methods available, they did not have extra time to research alternatives (see table 6.6 for example quotes).

Formative assessment is subjective

Three teachers highlighted the fact that formative assessment and its application could be subjective (see table 6.6 for examples). For instance, one teacher may think the objective of making eye contact has been met after a student has made eye contact twice, while another teacher may consider that the objective has been met once the student has been making eye contact consistently for a month. Such differences can create confusion.

A tick box culture (5/14)

‘Most people do find that some things that we have to do because of curriculum, because of inspections. If somebody could to me and said, “Well, yeah, we’ve shown that self-assessment achieved this result and progress went up like this” then I’d be like “Oh yeah, brilliant”.’ (Middle manager KS1)

‘If they’re not actually benefiting from it, then there’s no point doing it. Just the people observing “Look, aren’t they wonderful, come and look in this class, they’re doing this and this and this”.’ (Teacher KS2)

‘They’re at a baby stage, they’re at a very young age and we’re thinking “Oh yes, you’re going to do your good sitting” and you might say to them “Oh you’re good at sitting” and you might give them... their praise. But the whole showing of the symbol. I don’t think it’s really relevant in their world really.’ (Teacher KS2)
Formative assessment methods vary

Inconsistency between different teachers also caused confusion. In Highland school, formative assessment methods were highly experimental as there were no established formative assessment methods per se. Teachers felt that information on how to use formative assessment was not readily available. They identified a lack of training and guidance. In general, the teachers were faced with feelings of uncertainty and confusion. Six teachers referred to this (see table 6.6 for examples).

Differences in practices between subjects

The case study school had its own schemes of work and for some subjects Entitlement and Quality Education for Pupils with Learning Difficulties (EQUALS) (www.equals.co.uk) was used. EQUALS sets out curriculum ideas for teaching a number of subjects to students with learning difficulties. As identified by teachers, some of the subjects appeared to have broader targets than others, while the core subjects seemed to have more quantifiable outcomes. It was also pointed out that the curriculum taught in KS1 and KS2 to students with severe learning difficulties was not always relevant. While the curriculum in the foundation stage was concerned with self-help skills, the curriculum became more academic and abstract once the children progressed to KS2. Six teachers referred to this sub-theme (see table 6.6 for examples).

Marginal information goes unnoticed

Whenever progress was linked to lesson objectives, four teachers felt that they could record and follow progress. However, whenever a child did something that did not fit the lesson framework, teachers reported that this information should be carried through to the following session. There was no system to accommodate that (see table 6.6 for examples).
Lack of support

One of the teachers commented on the lack of resources to offer individualised assessment. When there was a need for one to one time to achieve a student target, it was not always possible due to staff shortages (see table 6.6 for example quotes).

A tick box culture

Five of the interviewees expressed their frustration about some of the formative assessment methods only being used to ‘tick boxes’ and satisfy the occasional observer (see table 6.6 for examples). The teachers highlighted how important it was to perform tasks in the classroom only in the case that they benefitted from it. Performing tasks solely for the satisfaction of the observers was not thought to have any direct benefit to the students themselves.

Subjectivity of formative assessment: interpretation, wishful thinking and expectations

If one looks beyond the surface in a setting like Highland school, they will be able to make two important observations: the first is that a lot of what happens is a performance, one that has been imposed because of the pressures of Ofsted and other outside observers. The disappointment in the teachers’ voices, the day-to-day frustration and anger cannot be expressed though a report on teacher interviews. It can be witnessed in the corridors, in the classrooms, in the change of facial expressions when an Ofsted inspector or an observer walks out. And the questions that echoes through the spoken and unspoken responses of the interviewees: ‘Why am I doing this?’

The second observation is that there is a sense of a lack of fulfilment among the staff. All the things that make a difference in a student’s life and promote their well-being (not to mention their family’s well-being, who are normally overworked and overtired from the constant pressure of responsibility)
are not recorded. As one of the teachers remarked, the things that should be most celebrated seem to go unnoticed. And the general feeling is that they are not valued and celebrated. If one considers that a lot of the children use nappies throughout their primary schooling (some beyond that), the immense sense of achievement when a child gets toilet trained becomes obvious. But where is it recorded? Who will praise for that achievement? And can a curriculum that does not celebrate this be relevant to these students?

The purpose of this thesis is not focused on curriculum issues, however it is impossible to fail to see there is an existing problem. Why is it more beneficial for a student to count from 1-5 than to be potty trained? Why is it not more important that students and teachers share enjoyable experiences, communicate and socialise (considering the great difficulties students face when it comes to communication) than to do religious education? These two areas are the ones that are policy and government based and they need to change. Teachers feel trapped, and children are helpless when it comes to this. One needs to go back to the drawing board and think: when it comes to these children, what should their educational priority be? How much time should be spent in different areas of learning and how much solely to communication? And for a child that is at the early P levels is it meaningful to focus on geography, or is the time better spent working on improving communication?

And why do the teachers need to meet the expectations and beliefs of the observers who often are oblivious to the context they are observing and not meet the needs of the children instead?

Also, in the ‘students have different needs’ section (table 6.2) teachers pointed out the weakness of the P levels to pick up on the deviant learning pattern students in this environment exhibit, and the fact that they might display more advanced skills in some areas rather than others. This can mean that some of the skills a student acquires could be at a higher P level, but because they have not achieved most of the tasks at a lower P level they are not allowed to move beyond that. This can be classed as a failure to record progress.
At a teacher level, there are other issues as discussed in the interviews such as the subjectivity of formative assessment in terms of the methods regarded to be part of formative assessment. Due to the lack of guidance as noted on the interviews (table 6.6), a lot of formative assessment methods used are experimental. Quite a few of the teachers would welcome some training or new ideas, however information was not readily available. One of the teachers commented on the fact that they haven’t had time to talk to someone about her formative assessment practice, and the fact that the information is not at the teachers’ fingertips. It would be irrational to expect teachers in their busy schedule to have theoretical conversations and find solutions to policy matters. Guidance needs to come from above: be it the senior leadership team or the government, guidance needs to be recorded, accessible and simple to apply. When all these parameters are not in place, it is less likely formative assessment can be applied successfully.

Further to this, if formative assessment is completely experimental as noted by one of the teachers, the issues of interpretation and wishful thinking become central. One of the teachers pointed out (table 6.6) that if a person is not familiar with the setting and the children they cannot notice the small (but significant) steps. Interpretation very much depends on noticing what the untrained eye does not. This can only happen with experience, support and guidance. Often, becoming too used to a setting could make a teacher complacent, hence training would have helped keep everyone alert and enthusiastic. Also, when one finds it so difficult to identify formative assessment methods and is focused on their own classroom it can easily be the case that they start seeing what they want to see instead of the reality: wishful thinking and interpreting actions and giving them the meaning the teacher intended is quite likely.

The fact that teachers are also asked to interpret non-verbal behaviour, which is subjective by nature exposes it to issues of interpretation: are the teachers interpreting non-verbal behaviour correctly? Are the children clapping each other because they understand what they are celebrating or do they do it because they are told to do so? These are questions that cannot be answered with certainty. However,
having a vigorous formative assessment system in place, and providing appropriate resources and training to teachers can maximize the chances that it will be successful. The issue of interpretation will be discussed in detail at a later chapter as an important part of the student video observation research.

**Issues of self-assessment with special needs children**

Teachers raised a number of issues relating to the ways in which special needs children could reflect on their work and communicate this to teachers. The sub-themes for this topic include reflection, adult discussion, student motivation, and meeting the needs of Ofsted (example quotes are given in table 6.7).

<table>
<thead>
<tr>
<th>Table 6.7 Problems with self-assessment methods</th>
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<tbody>
<tr>
<td><strong>Reflection</strong> <em>(13/14)</em></td>
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<tr>
<td>‘So a little boy of four comes in and he’s all happy, he’s done a wee in the toilet, how, you know, if I’d say to him “How d’you think that went, d’you think you did a good or a bad, why d’you think what you did was good” or any of these questions that in a higher level. I don’t think he’d understand and I think this reflective level is hard.’ (Teacher early years)</td>
</tr>
<tr>
<td>‘I think that for self-assessment, you need to kind of on some levels stop and reflect on what you’ve just done and lots of the children. They don’t.’ (Teacher early years)</td>
</tr>
<tr>
<td>‘It’s got something to do with concept of like “the self”, concept of me and somebody else. Me, if I was a specific child, for me to have the concept of someone else’s expectations of me, is quite a difficult thing to understand and then that they expect me to reflect upon what I’ve just done and then for me to then show them that I understand, that is quite a complicated.’ (Teacher KS2)</td>
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<tr>
<td><strong>Adult discussion</strong> <em>(3/14)</em></td>
</tr>
<tr>
<td>‘The rest of them are sitting in the circle doing so and so and it’s the adults saying what they’ve achieved. So they’re assessing it really, it is not self-assessment.’ (Teacher and middle manager, KS2)</td>
</tr>
<tr>
<td><strong>Student motivation</strong> <em>(3/14)</em></td>
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<tr>
<td>‘If they’ve got a target of good sitting they don’t care if they’re doing good sitting or not at that particular moment. It’s not going to be something inside them that’s really “I must get my target and I must sit here and I must be”.’ (Teacher KS2)</td>
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<tr>
<td><strong>Meeting the needs of Ofsted</strong> <em>(3/14)</em></td>
</tr>
<tr>
<td>‘I did think a lot of what was being done was for the sake of doing it. We were being asked of by the school and by Ofsted.’ (Teacher KS2)</td>
</tr>
<tr>
<td>‘It’s also changing our perceptions of what self-assessment is and it’s not necessarily to see things in terms of being able to say at the end of it “What did I do well and what can I do better?” You can self-assess and not know you’re self-assessing.’ (Specialist music teacher)</td>
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</table>

**Reflection**

Being able to reflect was highlighted as a major problem area for students during the interviews. This was raised by thirteen out of the fourteen teachers: self-assessment processes require a complex way
of establishing what students have done and how they can improve. As pointed out, this requires an understanding that others have expectations but also the desire to please adults, which is not necessarily inherent in autistic students (Siegel 2003). Example quotes follow in table 6.7.

**Adult discussion**

Three teachers indicated that adults discussing what students had achieved in the session was not direct self-assessment, although it might indicate that self-assessment had been taking place (example quotes follow in table 6.7).

**Student motivation**

Three teachers referred to student motivation and understanding as another factor which made self-assessment problematic. Without understanding the nature of their target, students might be confused and unsure about adult expectations (see table 6.7 for example quotes).

**Meeting the needs of Ofsted**

Three teachers found the procedures needed to meet Ofsted requirements frustrating (see table 6.7 for example quotes). Many teachers felt that they were giving a ‘performance’ for Ofsted whenever they asked non-verbal children to explain whether they thought they did well. A teacher thought there must be an alternative to explaining verbally whether you thought you had done well and whether you could improve as a student and suggested that this could be expressed in a different way (see table 6.7 for example quotes).
Problems with self-assessment methods conclusions

A number of problems have been highlighted in relation to formative assessment and the ways in which it is applied with non-verbal students. Some of them have to do with practical issues such as the fact that there is a lot of performing for Ofsted and other observers, which results into performing tasks teachers do not believe work. Other problems have to do with the students themselves who find reflecting on their prior actions difficult because of the nature of their disability. And there is the added problem of student motivation: even if a teacher uses rewards regularly as part of their teaching practice, it can be the case that students will not be interested in the rewards, and the use of stimuli will not be motivating. Some of these issues have been discussed in Chapter 3 and a lot will be discussed as part of the student video observation chapters.

Examples of self-assessment

Within Highland school, teachers reported that some students recognised success and were able to communicate this to their teachers. The means of doing this were formal and informal. Examples of self-assessment include use of symbols, signs or switches, verbal confirmation, praise/vocalisations/use of sound, questioning, smiley face charts, and listening to themselves or watching their own performance (table 6.8 sets out example quotes from the interviews).
Use of symbols/signs/switches

Due to the fact that the vast majority of the children in the school were either non-verbal or had communication difficulties it was necessary to use other means to allow students to express their thoughts. Symbols, signs and other methods such as VOCA were used to explore students’ self-assessment. Six teachers referred to this sub-theme (see table 6.8 for example quotes).
**Verbal confirmation**

For those children who had verbal skills it was easy for teachers to recognise when self-assessment was occurring, since the students could verbally confirm their thoughts. Eight teachers referred to this (see table 6.8 for examples).

**Praise/Vocalisations/Use of sound**

When teachers praised students about their achievements, they often received non-verbal confirmation that the pupil understood that s/he had done well. Some children vocalised loudly to express that they knew how well they had performed. Six teachers referred to this (see table 6.8 for examples).

**Questioning**

Three of the teachers emphasised the need for self and peer assessment, even though pupils might have problems expressing themselves. Asking questions and getting students to use the tambourine to answer them was one method adopted to assess this. Overall, three teachers thought that questioning was a valid method to help their student reach conclusions (see table 6.8 for example quotes).

**Smiley face charts**

Charts were used for self-assessment purposes. Instead of the adult assessing whether a child had done good work, the child would chose a particular face (smiley, neutral or sad) to indicate if they felt they had achieved their target. Two teachers referred to this (see table 6.8 for example quotes).
Listening to themselves/watching their performance

One teacher mentioned the use of audio-visual equipment as a means of helping students self-assess. Students indicating that they could understand who they were seeing and that it was their voice that they were hearing could be regarded as an initial stage of self-assessment (see table 6.8 for examples).

Self-assessment methods conclusions

From the methods mentioned, one cannot say that these are examples of self-assessment, but rather examples of formative feedback. The use of videos potentially offered students the opportunity to watch themselves perform certain actions, however they could not comment or reflect on those, so they cannot be regarded as self-assessment methods per se. Teachers mentioned there was little guidance and they were looking for answers on this topic, themselves. Generally, there was a feeling that sharing targets with pupils and asking them what they thought they did well was neither relevant nor appropriate for non-verbal students who lacked the cognitive ability to understand the question and reflect on the whole lesson, issues that have been discussed in Chapter 3.

Student involvement in formative assessment

One of the assumptions in one of the earlier definitions of formative assessment by Black and Wiliam (Assessment reform group 1999) was that students and teachers need to work together in order to achieve the full benefits of formative assessment and that it was only through that collaboration that the process becomes formative. The interviews in the case study school revealed that sharing information with students was often difficult, especially in the case of non-verbal students with low comprehension ability. The sub-themes emerging from the interviews relating to this shared responsibility are set out below and they include verbal students, non-verbal students with severe
learning difficulties, praise and using symbols to inform students. Example quotes for each of the themes are provided in table 6.9.

**Verbal students**

In the special education needs school context, five teachers expressed their views on how they shared information with autistic students in general and non-verbal students in particular. Teachers reported that it was easier to address the needs and receive feedback from students who had verbal capacity (see table 6.9 for example quotes).

**Non-verbal students with severe learning difficulties**

Some of the interviewees felt that due to the nature of students who had no verbal capacity, it would not be meaningful or appropriate to inform them of their targets or how they could improve their learning. Twelve of the teachers referred to this (see table 6.9 for example quotes).

**Praise**

Five teachers mentioned praise as a way of involving students with their own assessment. They stressed the important of the use of short, positive phrases to make the students aware that they were performing well and encouraging more of that positive performance in the future via the use of praise (see table 6.9 for examples).

**Using symbols to inform students**

Symbols and pictures were mentioned by five teachers as a means of informing students about their learning and the next steps involved with it. However, there was no specific method linked to the use of symbols (see table 6.9 for examples).
<table>
<thead>
<tr>
<th><strong>Table 6.9 Student involvement in formative assessment</strong></th>
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</table>
| **Verbal students** (5/14) | ‘In the classroom I get the children to write in each other’s books.’ (KS2 teacher)  
‘the verbal children it’s obviously that much more easy ‘cos you can say it. With the non-verbal children it’s probably something I don’t do often enough.’ (KS2 teacher)  
‘It can be through their work ‘cos some of our children can actually, you know, write.’ (KS2 teacher)  
‘With the child in my class who’s very verbal, then we’re able to talk to him a bit more about “Oh you’ve done really well with that. Now if you work on this next letter, then you’ll”.’ (Teacher early years) |
| **Non-verbal students with severe learning difficulties** (12/14) | ‘I don’t want to be too confusing, especially like tell them what they have to do today and then, you know, tomorrow. I may take the opportunity during the session to do it.’ (Teacher early years)  
‘It’s quite hard because you’re not sure how much they understand and I just feel I don’t want to feel like I’m just talking at them for the sake of saying “Oh yeah, I’ve told them what they’re doing”.’ (Teacher KS2)  
‘It’s pretty much just adult. not really involving the pupils. curriculum is a pretty abstract concept for a child to understand what the next step in their curriculum, is harder to understand and is a lot less motivating than knowing if I sit here for the next five minutes and do what Darren wants me to do, I’m actually going to be able to go and play with play dough.’ (Teacher KS2) |
| **Praise** (5/14) | ‘At the moment we’re really just trying good work, good boy. So we’re talking and addressing their level of understanding. Some of them will respond, they smile even the contact they’re enjoying. (Teacher KS2)  
‘Using their IEPs, you know, when they’ve done something towards their targets, shown them their IEPs and heaped loads of praise on them.’ (Teacher KS2)  
‘I’m praising for what they’ve done and making them aware of what they can do.’ (Teacher KS1) |
| **Using symbols to feedback to students** (5/14) | ‘We have the IEP, that’s maybe doing it with a little picture and you’re going to try to do these things. But then we are not always using those child friendly IEPs ‘cos the rest of the time we might just use a picture, and they might recognise that picture but the rest of the time we don’t really know more than what we understand.’ (Teacher KS2)  
‘If it’s non-verbal you could have a picture of something that they’d done. You could have a smiley face something that appeals to them or a favourite to say yes, I’ve achieved that when I was mainstream we did thumbs up, thumbs down but I think it’s just tricky having that reflectiveness. ’ (Teacher early years)  
‘Sometimes I think, during an observation you probably would have said things like that more (i.e. your target for tomorrow will be.’ (Teacher KS2) |
Is it possible to share learning goals with this group of students?

In this case one might want to state and try and comprehend the obvious: these students are non-verbal. However, this is not the primary problem. They also have communication difficulties deriving from their autism and severe learning difficulties, inhibiting their understanding of language (for details on this, refer to chapter 3). In a situation like this it is understandable that for students to state what they thought they did well and act on student feedback would be rather complex.

Let’s, in this context consider the situation discussed with the teachers: sharing IEP goals with students. Admittedly, IEPs are supposed to be written in student-friendly language. In the case of Highland school, those targets were accompanied with symbols. Potentially, if only few words were used and the students could look at the pictures it would be possible to even partially understand the requirements.

Now let’s consider the earlier points made in Chapter 3 about feedback being timely: when teachers share learning goals with pupils in the beginning of the lesson and revising and comment towards the end, it gets problematic. How can teachers know if students remembered their IEP targets during the lesson? Let’s even hypothesise that the teaching assistant kept reminding their target to them: how did they know what the connection between the IEP target and the lesson was? Often, IEP targets were too detached from the lesson targets or too broad for the students to achieve. At the same time, many other curriculum targets were involved in the lesson. This would be highly confusing and not particularly meaningful for the students. This practice, because it was easy to note and fitted the expectations of observers, was encouraged in spite of the teachers’ objections.

No one can underestimate the importance of sharing goals with pupils, even at a basic level. This type of practice can create more opportunities for formative assessment and open up the possibilities for self-assessment if a more sophisticated system is in place in the future. One of the main goals of this research is to open up the path and create those opportunities for students to give feedback. It was
obviously something that puzzled teachers and no one seemed confident that students were actually responding to the teachers’ lesson activities and feedback. This is what triggered the creation of my behaviour checklist as discussed in chapter 7. It was evident from the interviews that communication was an insuperable obstacle for most teachers when attempting to apply formative assessment. This was a central issue I aimed to address through my student video observations.

Who said what?

In the different tables throughout the chapter I included the number of teachers that mentioned the various problem areas, assessment methods and parts of the definition terminology. In tables 6.10-6.15 I present details of which teachers referred to which themes in their interviews, an approach that might demonstrate different teacher philosophies and ideas as well as popular themes emerging between teachers working within the same organisation. The specific number of teachers (out of fourteen) is mentioned within the first column of each subsection throughout the chapter (tables 6.1-6.9). A table with teacher details has been included for reference as the teachers’ background and experience are often relevant to their answers. The table with all the teacher details can be found in Appendix 6.

Formative assessment definition data analysis

Table 6.10 sets out the points that teachers made about their own formative assessment definition. Analysed quantitatively, counting the number of different references each teacher made suggests differences in each teacher’s experience and understanding of the formative assessment process. Joanna, Darren, Elizabeth, Mary, Sophie and Helen mentioned two out of the four sub-themes with
Laura, Alexandra, Sophie and Helen having mentioned that formative assessment was on-going and individualised.

Carol, Sarah and Lynda had the most all-encompassing conception with four different sub-themes relating to the definition of formative assessment being referred to. Gwen referred to three out of four concepts, suggesting that she was relatively knowledgeable about formative assessment. George and Sylvia on the other hand, appeared to have had a limited understanding of formative assessment and its possible uses as they referred to only one of the elements of formative assessment emerging from the interviews within the Highland school context. This is consistent with George’s background, as this was his first year teaching in special needs setting in England and his understanding of the context was not well developed. For Sylvia, who had four years of experience at Highland school, her lack of knowledge was surprising. Carol Sarah and Lynda all worked in an early years context and had prior experience with mainstream children and three years of experience in the Highland School setting. Lynda had a managerial role, while Sarah and Lynda were known for the outstanding levels of their lesson and were often observed by visitors.
Table 6.10 Formative assessment definition

<table>
<thead>
<tr>
<th>Teacher name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formative assessment is on-going</td>
</tr>
<tr>
<td>George</td>
<td>✓</td>
</tr>
<tr>
<td>Laura</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Joanna</td>
<td></td>
</tr>
<tr>
<td>Darren</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Elizabeth</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Gwen</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Carol</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Sarah</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Alexandra</td>
<td>✓ ✓</td>
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<tr>
<td>Mary</td>
<td>✓ ✓</td>
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<tr>
<td>Lynda</td>
<td>✓ ✓</td>
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<tr>
<td>Sylvia</td>
<td>✓ ✓</td>
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<tr>
<td>Sophie</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Helen</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>
Formative assessment methods from interview data analysis

Teachers had suggested a number of formative assessment methods. These are presented in Tables 6.11 and 6.12. Consistent with her four years of experience in the Highland school setting, Sylvia referred to nine different formative assessment methods she used in her classroom. This was the highest number of methods mentioned by a single interviewee. She was followed by Sophie, who mentioned eight different formative assessment methods. Even though Sophie was inexperienced and it was only her second year of teaching in Highland school and her third year of teaching in general, she appeared to have exceptional knowledge of formative assessment methods.

Alexandra and Laura mentioned six formative assessment methods. They had both worked at Highland school for five years and the number of methods they referred to was consistent with their level of experience. They both worked as Key Stage 2 teachers and had worked in mixed level classes. Carol referred to five formative assessment methods and she was in her third year in the school working with early years’ students.

Five out of 14 teachers referred to four formative assessment methods. Elizabeth and Joanna were in the beginning of their career in a special needs setting. Lynda was an experienced teacher, but also in the beginning of her career in a special needs school. Sarah had worked in this setting for three years as an early years’ teacher, while Mary was a specialist music teacher at the time of the interviews.

Consistent with his level of experience, George mentioned three formative assessment methods as did Darren and Helen. Darren had worked at Highland school for three years prior to the interviews and primarily worked with non-verbal students. He worked alongside other teachers in his first years in the school. Helen was particularly experienced and in middle management, but she mainly worked with
verbal students, which is probably why she referred to a limited number of methods because they were closely linked with verbal students (i.e. post-it notes, peer assessment, and smiley charts).

Gwen only referred to two formative assessment methods. She was one of the most inexperienced teachers in the school with no other background, since she was hired as a newly qualified teacher two years prior to the interview. She mostly worked with non-verbal students.

Remarkably, the use of post-it notes was the only method mentioned by all teachers. This may be related to the fact that post-it notes were referred to by members of the senior leadership team in a number of meetings and staff were recommended to use them during Ofsted inspections to explain that a certain child had mastered a new skill that day or that they had emotional or behavioural issues on that day.
<table>
<thead>
<tr>
<th>Teacher name</th>
<th>Formative assessment methods</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Written feedback</td>
</tr>
<tr>
<td>George</td>
<td></td>
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<tr>
<td>Laura</td>
<td></td>
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<tr>
<td>Joanna</td>
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<td>Darren</td>
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<td>Gwen</td>
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<td>Carol</td>
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<td>Sarah</td>
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<tr>
<td>Alexandra</td>
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<td>Mary</td>
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<tr>
<td>Lynda</td>
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<td>Sylvia</td>
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<td>Sophie</td>
<td>√</td>
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<tr>
<td>Helen</td>
<td></td>
</tr>
<tr>
<td>Teacher name</td>
<td>Formative assessment methods</td>
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<tr>
<td>--------------</td>
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</tr>
<tr>
<td></td>
<td>Observation</td>
</tr>
<tr>
<td>George</td>
<td>√</td>
</tr>
<tr>
<td>Laura</td>
<td>√</td>
</tr>
<tr>
<td>Joanna</td>
<td>√</td>
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<td>Darren</td>
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<td>Elizabeth</td>
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<td>Gwen</td>
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<td>Helen</td>
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</table>
Formative assessment problem areas interview data analysis

Laura, Elizabeth, Gwen and Helen mentioned six problem areas (the highest number mentioned amongst the interviewees) when it came to applying formative assessment with their students. Gwen was the least experienced of this group, so she was surprisingly perceptive after having only spent one complete year in teaching, in general and at Highland school in particular.

Darren and Sophie each mentioned five problem areas. Sophie was also inexperienced and Darren appeared to give more insightful answers than he did in the earlier stages of his interview, perhaps because he was aware of the problems of implementation and had few ways of overcoming them.

Sarah and Lynda mentioned four problem areas: they were both early years’ teachers, with a significant mainstream background, even though Lynda had only spent a short amount of time at Highland School as compared to Sarah.

Alexandra, Mary and Sylvia referred to three problem areas: they were all experienced teachers and Mary was a specialist music teacher. Carol and Joanna only mentioned two problem areas and George mentioned one, which is consistent with his general interview performance and it might have to do with the fact that he was new to the UK system in general and the special needs setting in particular. Joanna was also new to the UK education system as well as the special needs school establishment.
<table>
<thead>
<tr>
<th>Teacher name</th>
<th>Formative assessment problem areas</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Information not passed on</td>
</tr>
<tr>
<td>George</td>
<td>√</td>
</tr>
<tr>
<td>Laura</td>
<td>√</td>
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<tr>
<td>Joanna</td>
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<td>Darren</td>
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<td>Lynda</td>
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<td>Sylvia</td>
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<td>Sophie</td>
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<td>Helen</td>
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</table>
Self-assessment problem areas analysis

Laura and Gwen mentioned all four problem areas, while Helen mentioned three out of four. Lynda mentioned two and the rest of the teachers (with the exception of George who mentioned none) brought up the problem area of reflection. This is also related to the fact that reflection (the students is told what they did well and what they needed to do to improve) was stressed as a method to use in a number of meetings by the senior leadership team. Despite this, its application was not straightforward for 13 out of 14 of the teachers (George might have had a limited understanding of the question of self-assessment methods due to his lack of experience).

Laura and Helen, being experienced and insightful, mentioned a number of problem areas, potentially because they experimented with using self-assessment methods with their students. Many other teachers felt less confident and often did not wish to attempt self-assessment with non-verbal students, especially due to the lack of guidance on the subject. Gwen, was insightful and prepared to experiment with new ideas. She mentioned all four problem areas even though she was only a newly qualified teacher when she joined the school.
### 6.14 Self-assessment problem areas

<table>
<thead>
<tr>
<th>Teacher name</th>
<th>Self-assessment problem areas</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Reflection</td>
</tr>
<tr>
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<td>Joanna</td>
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<td>Helen</td>
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</table>
**Self-assessment methods with examples analysis**

Consistent with the rest of her interview performance, Laura referred to five self-assessment methods that she used in her classroom, while Gwen, Mary and Helen mentioned four. Sophie and Lynda mentioned three, while Carol, Sarah, and Sylvia mentioned two. George, Darren and Alexandra mentioned none, again potentially linked to the fact that self-assessment was a new area and there were no recommended methods. Considering that many students were non-verbal, it was harder to know how to help them self-assess.
### 6.15 Self-assessment methods with examples

<table>
<thead>
<tr>
<th>Teacher name</th>
<th>Use of symbols/VOCA</th>
<th>Verbal confirmation</th>
<th>Praise/sound/vocalisations</th>
<th>Questioning</th>
<th>Smiley formative assessment charts</th>
<th>Listening to/watching self</th>
</tr>
</thead>
<tbody>
<tr>
<td>George</td>
<td></td>
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<td>Laura</td>
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<td>Alexandra</td>
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<tr>
<td>Mary</td>
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<tr>
<td>Lynda</td>
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<td>√</td>
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<tr>
<td>Sylvia</td>
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<td>Sophie</td>
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<tr>
<td>Helen</td>
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</tbody>
</table>
Summary

Twelve out of 14 teachers agreed that formative assessment was on-going, and six said that it needed to be formally recorded. They each had their own definition of formative assessment, although there was some agreement that formative assessment was on-going and individualised. Nine teachers mentioned that formative assessment informed their planning and a variety of ways of recording assessment data were discussed. All teachers agreed that formative and summative assessment were different and most seemed to value formative assessment more as it was deemed more useful to the students.

Teachers spoke about using rewards, verbal praise, feedback, using their tone of voice, charts, written feedback, peer assessment and modelling and prompting. Post-it notes were the most popular of the methods mentioned perhaps because this had been supported by senior management, even though recording systems are not formative assessment methods when used in isolation. Corrective methods included the use of observations, video and audio recordings, team discussions and formal written records and those were used to inform future teacher planning, which is an important part of formative assessment.

Self-assessment, especially with non-verbal students was viewed as a problem area by all teachers because of the lack of student ability to reflect, while adult discussion on student achievement was not viewed as self-assessment by some (and it is true it was not, because the students were not reflecting on what they did in the lesson). Most teachers felt that self-assessment was possible with non-verbal students through the use of switches such as VOCA and verbal confirmation.
A number of problem areas were identified, related to students and the use of formative assessment including communication and personal student needs. Communication was problematic since students were non-verbal and their autism and severe learning difficulties made their communication with others difficult. Since the mode of communication also had to be altered and the students’ comprehension level was also affected by their severe learning difficulties, this was a central difficulty underlined as part of the formative assessment discussion.

There were some indications that teachers attempted self-assessment even if this was at an experimental stage. A general feeling of lack of guidance, training and information about formative assessment was evidenced in the interviews. There were also indications of strong sense of willingness to explore available methods as long as they were meaningful and encouraged student participation.

Day to day assessment was valued by all teachers. Teachers wanted a system that would allow them to celebrate student achievement and share information with their pupils in a meaningful way. For that to be successful, training seemed to be needed as it was often left to the individual to try and inform their planning with formative assessment methods. This gave an indication that more research and guidance in the field is needed to secure a better understanding of formative assessment and the way it works in an environment like the one explored.

Based on the results discussed in this chapter, I chose a number of formative assessment interventions, modified them and used them in my class. In the following chapter, the methodology is discussed and the way in which Phase 1 of the research informed Phase 2.
Chapter 7: The student video observations

Introduction

Following phase 1 of my case study research, which involved teacher interviews focusing on formative assessment, I proceeded with phase 2 that involved the student video observations. In the absence of spoken language, the next best option was to observe student body language which Ruiz-Primo (2011) suggested can form evidence of informal formative assessment and analyse it in detail.

Utilising the teacher interview data, I applied some of the modified formative assessment methods suggested by teachers as part of my student video observations. In addition to the methods proposed, I devised a behaviour checklist to aid students with producing their non-verbal formative feedback.

Recording student reactions was also rated as important in the interviews, but the recording methods adopted by the teachers required ‘time-out’ to be able to observe and take notes during lessons. Records kept after each lesson may be limited in terms of their reliability as they heavily depend on memory which may be disrupted so I chose to use video as my recording method, which could be revisited. This also meant that I would not be distracted from my teaching by trying to keep notes during the lesson.

Specifically, to explore whether non-verbal students could give feedback to their teacher and to explore what affected student attention and interest, I devised an 8-week research schedule, during which I used different types of resources and rewards. Interesting resources and rewards (details given later in the chapter) were referred to in the teacher interviews as a means of supporting learning providing the possibility for formative assessment interventions to be adopted and feedback to be received by the students.
In the autumn term of 2010 I was assigned a class of non-verbal students that performed at a P2-P3 level (refer to Appendix 1 for more details on the P scales). I observed their behaviours and interests in various lessons, and recorded their behaviour and learning, informally. Since verbal student feedback could not be given to the teacher, I believed that there must have been other modes of feedback used through which students expressed their likes and dislikes and understanding or lack of understanding of a lesson. Following exploration of the existing literature research, I concluded that there was no existing system which would enable assessment of student formative feedback and that I would need to devise one.

A research plan was developed alongside a recording system (details to follow later in the chapter) and the case study research commenced in spring 2011 and lasted for half a term. The case study research offered me an opportunity to observe the behaviour of the students providing the basis for establishing and recording student formative feedback, in line with informal formative assessment as reported by Ruiz-Primo (2011).

**Formative assessment and student feedback**

As discussed in Chapter 2, formative assessment is a reciprocal process and is heavily dependent upon student feedback. As students in the sample were non-verbal and could not use spoken language I had to find a way to understand their feedback, which they undoubtedly were giving, but not through conventional means.

To address this problem I used the ‘Affective Communication Assessment’ handbook (O’Kane and Goldbart 1998) that included tables with different types of behaviour and explained how they could be used to assess student behaviour. Interpreting feedback via body language was appropriate, since this was the way that the students mostly expressed themselves and it could be used as evidence of informal formative assessment as Ruiz-Primo (2011) suggested. This communication may have been
unintentional. The skill of a special needs teacher is to interpret that behaviour. Adjusting and using the checklist from the Affective Communication Handbook seemed to be a suitable tool for recording feedback.

During the autumn term of 2010 and while I was observing my students and preparing for the student video observations, I realised that students exhibited behaviours that could be described as positive (i.e. behaviours that demonstrated they were listening and were interested in the lesson) and negative (behaviours that distracted them and others and demonstrated they were not interested in the lesson). I then started closely observing my students and noting down any behaviours they exhibited when they were disengaged and any others they exhibited when interested in the content of the lesson.

The ‘Affective Communication Assessment’ scheme indicates that there are different body regions that one can observe to interpret behaviour. After having gained a general view of student reactions, I detailed the different body regions in a list (see Appendix 7), and identified behaviours based on that (for example, nodding belongs to the head region, while jumping relies mainly on feet and legs).

After half a term of informal observation, I developed a list that included the most representative behaviours incorporating all individual student reactions, ensuring that there was a balance between positive and negative behaviours. Types of behaviour that were similar were placed in the same category, to avoid repetition. For example, kicking legs and fidgeting were in the same category as they both had to do with lower body movement and indicated restlessness.

Once the checklist was complete, I had to decide how to use it. Initially, I randomly chose different time intervals within the lesson, and I recorded the frequency of certain behaviours every 15 seconds. This led to a high number of ticks per behaviour within the space of five minutes. For example, Susan, one of the students participating in this research was found to have gathered 20 ticks for vocalising on
and off during the five minutes observed in her maths lesson and, in reality vocalising was taking place for the duration of the activity.

It was also apparent that I was missing significant information about student performance and behaviour by isolating five minutes during each lesson. Often, a particular behaviour would take place during non-contact time (that is, when a student was an observer rather than a participant in a certain activity), but did not occur during contact time. Sometimes, one type of behaviour might have occurred throughout an activity, but would stop once the activity changed. Even though it took considerably longer to transcribe and interpret, I decided to transcribe information from the duration of each lesson for each student and compile data about student behaviour and feedback.

Specifically, contact time (i.e. the time during which a student was being directly taught or asked a question) was fully recorded and a tick given for a behaviour that occurred alongside a detailed description of the type of behaviour observed and student performance at that time. In relation to non-contact time, a general commentary of student behaviour provided enough information to know how interested the student might have been during that time and, hence, how much they would be likely to have learnt from others. For example, a student fidgeting and looking away throughout non-contact time was less likely to have observed how their classmates performed, making it less likely that the student learned from them (see Appendix 7 for the full checklist).

I also used the behaviour checklist to analyse student behaviour against achievement and confirm whether meeting or not meeting an objective was closely linked with positive or negative behaviours respectively, linking summative with formative assessment.

**Subject focus: maths and English**

As noted by a number of teachers through the interviews, it was easier to monitor progress in the core subjects since they had clear objectives and outcomes. Also, the school had developed its own scheme
of work, which linked P-levels with numeracy and literacy objectives, making it simpler for a teacher to compare student outcomes with objectives and P-levels, hence making assessment more individualised (refer to Appendix 1 for details on the P levels and objectives linked with those-the school’s scheme of work for the core subjects of literacy and numeracy).

I also took into account that literacy is more visual for these children as they need to observe, attend and comment using symbols, while numeracy is more practical as they can ‘experience’ numbers via physical means such as jumping, tapping computer screens or even touching and taking or placing several items. The two subjects covered a range of learning strategies providing contrast, which was expected to provoke different student reactions and provide a richer source of information about student feedback.

**Why the specific activities?**

The activities were designed to link closely with the objectives from the scheme of work (Appendix 8 offers a detailed list of objectives and examples) and the success descriptors were included alongside those objectives to decide whether an objective had been met. The objectives were chosen to match the students’ current attainment level and in some cases to challenge them to achieve more. For example, one of the objectives chosen was ‘To demonstrate an interest in number games, rhymes and songs,’ which was at level P4 in maths. All students were working towards that (some, like George, were working towards P3(ii)/P4 level. That was a challenging objective for him, but still obtainable). This objective falls under the general umbrella of the main objective ‘To show awareness of number activities and counting.’ Showing interest in numbers and songs is one of the objectives that needed to be met in order to achieve it (which would mean that once the student had achieved level P4/number they could then move on to level P5/number and the objectives relevant to that).
From my professional experience, I was familiar with the type of activities that could be used to meet the objectives chosen as a next step and I was mindful of what generally was considered irrelevant or interesting by students. I chose the activities to appeal to different sensory elements so as to provide a variety of actions that included movement, sound and the visual element.

**Why were interesting resources and rewards chosen as the main interventions in the student video observations?**

In the interviews, a number of teachers mentioned that they used some sort of praise/rewards during lessons as a kind of formative assessment for the students so that they would know whether they were succeeding. Examples included verbal praise, tone of voice, smiley charts, video/audio recordings, symbols, and written feedback. All teachers indicated that some type of system should be in place to reward good performance. The type of methods used varied based on age and ability. My class belonged to the lower P-level range for their age, with most being non-verbal and having little understanding of spoken language (Refer to table 7.1 and chapters 8 and 9 for student details). Taking account of this, tangible rewards such as verbal praise, tone of voice and positive facial expressions appeared to be relevant. Communication with the students was mentioned as a problem area by many members of staff in connection with formative assessment, and using rewards appeared to be a realistic way of communicating to students they had done well, while the removal of rewards would indicate they had not performed as expected.

A number of the teachers referred to lack of student motivation and varied student needs as a problem area with regards to the use of formative assessment in the classroom. From personal, professional experience, I was also aware that different resources had a different impact on students and could encourage them to participate depending on the nature of the resource. Therefore, I decided to include a variety of resources that could motivate different types of students. This would give me an opportunity to assess the students’ reactions which would be formative feedback to me, the teacher, as
to whether the resources were motivating or not. For example, when reading ‘My Presents,’ for the literacy lesson I included objects that appeared in the story such as a walking/talking cat toy, suitable for those enjoying movement and a shiny, glittery ball, for those drawn to visually appealing resources.

**Video research design**

It was not always possible to address the interests and needs of each individual student, but the resources and activities were targeted towards the majority and an attempt was made to include at least one interesting resource per student, per activity. It did seem to be the case that the type of data that I needed to gather required systematic observation, something that video observations could offer. As Ware (2004) remarks video is a great tool to use, especially in the case of students with profound (and I would add severe) learning difficulties as it offers the opportunity to observe even brief and minor reactions.

Observations have certain advantages over other methods of data gathering. Bailey (1978) commented that observation studies are superior to experiments and surveys in the case that data that is gathered is used to examine non-verbal behaviour. As observation studies take place over a period of time, the researcher is able to examine on-going behaviours and make notes on all its features.

One of the disadvantages of observations is that information might be missed or forgotten (Cohen, Manion and Morrison 2003). Especially in my case as I was the teacher and researcher at the same time, it would have been impossible to record all information and use the required amount of detail while, at the same time, teaching. Using video to complete my observations would resolve the issue of observing and teaching at the same time, which meant that I could focus on my teaching and observe details of the student interactions at a different time.
‘Video is an attractive medium for recording data for researchers who believe that the interactions between people, artefacts and their environment offer insights into learning.’ (Plowman and Stephen 2006, p.541). Furthermore, ‘…video is considered to provide more potentially illuminating data than questionnaires, interviews or field notes because it appears to represent the complexities of social life’ (Ibid).

As resources were limited, I needed to find a way to record student behaviours without needing an extra pair of hands. This had obvious advantages as an extra person in the classroom and a large video camera would potentially distract the students and affect the way the adults acted in the presence of an outsider. When considering what type of equipment I could use there were a number of advantages and disadvantages to consider. While doing a pilot study with two different cameras on a tripod placed in two different spots in the classroom, I noticed that it was not possible to record all of the action. Furthermore, I had to physically move the cameras when students were completing work in a different area in the classroom. When watching the videotape, I could not see the students’ faces and gestures clearly and as I was interested in their body language and the quality of their feedback in that respect, I needed to find a way to get a closer look if and when necessary.

To resolve this issue, I used a piece of equipment called a ‘gorrilapod,’ a tripod that one can bend and attach to other pieces of equipment. I also found a pocket size video camera that could be attached to the gorrilapod and then to a speaker facing the students during their groupwork. When I asked my assistants whether they could spot the camera, they did not manage to even after a whole session of trying to find it: this meant that it would probably not be noticed by the students. Hence, it would not affect the quality of their responses. When it came to the issue of the close-up shots, I tried to resolve the problem in a number of ways. Initially, I had one of my assistants using a small camera attached to a tripod when one of our lessons commenced. However, this was distracting for both students and adults and it meant that one of my assistants would not be able to support students during the sessions.
This issue was resolved through the use of an ‘action camera.’ Frequently these are attached to helmets so that their owner can use them while cycling or skating. However using a helmet in the classroom would have been particularly distracting as my students would have tried to get hold of it. Attaching it to a string and wearing it as a necklace was a possibility, however while filming it was not possible to point at faces and I had no control over it as it would swing from side to side and could have been grabbed by the students.

The final solution was to use a headband and attach the video camera to it. During the pilot study, most students did not notice it, while others touched it once at the beginning of the lesson and never looked at it again. Within 5 minutes it was no longer of interest and when used during another lesson it was not even noticed at the start of the session. This was important, as students in the class tend to touch things they are interested in and would certainly attempt to hold the camera if they liked it. It took a few attempts to get it to face at the right angle as well as the right height to record most of the student reactions (this was particularly tricky as the action camera did not offer the chance to check what was being recorded at the time of recording). This meant that I had to refer to my computer and check what had been recorded and adjust accordingly.

When it came to data analysis, having a ‘wide view’ helped me record student reactions during contact time (i.e. while I was actively teaching them) and non-contact time (while I was focusing on one of their classmates). Whenever I was unsure or needed more detail, I would look at the close-up view camera. The main disadvantage of this method of recording was that I could not get a close-up view of the students during non-contact time and because I would occasionally look around I would miss how the student reacted. Nevertheless, despite its limitations, it seemed to be the most effective recording method available.
Data analysis: A thematic approach

Since video observation offered the option to watch data over and over again, it enabled me to group data based on themes. As part of my student comparison I used a thematic approach, or ‘applied thematic analysis,’ a qualitative analysis method that encourages “locating meaning in the data” (Guest, McQueen and Namey 2012). Even though this approach is popular when analysing texts, other types of data can be included such as ‘images or artifacts’ (Ryan and Bernard 2003, p.85) or, in this case, videos.

Ryan and Bernard (2003) specify that ‘themes are abstract (and often fuzzy) constructs that link not only expressions found in texts but also expressions found in images, sounds and objects’ (p. 87) and they can be characterised as ‘the conceptual linking of expressions’ which can ‘be linked to abstract constructs’ (p.88). What helps us ‘discover’ a theme are its expressions (Ibid), or, in this research, types of student behaviour and their connection with student attainment. It was often the case that the same expression could link with a variety of themes (like, for example, change of behaviour can be linked with engagement or signaling intent: e.g. I like it, therefore I am sitting upright/I am sitting upright because I am engaged).

Themes can derive from the data itself, or from the researcher’s prior understanding of the phenomenon they are examining, and one cannot anticipate the themes prior to data analysis under this research method (Ibid). The themes identified and analysed in this research are linked to the data itself, but it needs to be noted that without my contextual engagement and understanding, little or no meaning could be given to the data. Hence, by analysing my context in detail, I have attempted to share my insight and perception of this unique context with the reader.

One knows they have identified a theme when they can answer the question, ‘What is this expression an example of?’ (p.87). This is a rather broad question, hence the further question I asked when
interrogating my findings was ‘Is this an example of formative assessment?’ and, if so, ‘How is it that this is an example of formative assessment in this context?’ Evidently, the themes identified are not exhaustive, but they are representative.

In a thematic approach, the context that the researchers are in plays a fundamental role (Ryan and Bernard 2003), which is even more so the case in this research. Exactly because a lot depends on the researcher’s interpretation, the boundaries between the imaginary and real might not always be clear: ‘The analyst is continually confronted with questions about where meaning begins and ends, and how meanings intersect and interact’ (Guest McQueen and Namey 2012, p.51). Attributing meaning to different expressions, especially in a context that verbal expression is not present or limited, is a delicate process since one does not wish to imagine there is meaning where there is not, but it is equally important to not miss valuable cues, crucial for the interpretation of different student expressions.

Guest, McQueen and Namey (2012) speak of segmentation, a way of coding and categorising the text that is produced as part of the data collection process (like, for example, interviews). In this research, and since text was not present per se, but rather my interpretation of the behaviour checklist, I looked for patterns in behaviour and categorised data based on the meaning I gave to student actions. In this case, I have characterised ‘segments’ (Guest, McQueen and Namey 2012 p.52) as time intervals in which certain behaviours take place. For example, if as part of activity 1 the student vocalised, looked away and covered their ears, I considered that as a segment and I analysed it as such while making connections between behaviour, attainment and use of stimuli. There is also the scope of ‘smaller segments’ (Guest, McQueen and Namey 2012, p.52) (in this case behaviours embedded within the broader behavioural context). For example, while the student is excitable, vocalises and jumps out of his/her chair, they suddenly make eye contact and look carefully at a symbol, before going back to their original behaviour. Those smaller segments (i.e. making eye contact and briefly looking
carefully) are ‘embedded within larger ones’ (Ibid, p.52). This gives the opportunity for a ‘highly nuanced analysis of the text’ (Ibid, p.52) or, in this case, the video data.

As Guest McQueen and Namey (2012) note, segmenting text, identifying themes and content coding are not distinct processes, but they are all part of the segmenting process. The process includes the researcher identifying an instance of meaning in the text (video transcript), note where it was identified and describe it. As a second phase, the following question needs to be answered: ‘What meaning is conveyed or signified as you read the text?’ (p.52), which leads to the identification of themes. Finally, ‘How much of the text is critical to the meaning?’ (p.52) (or, how much of this behaviour is significant and how is it linked with student attainment?). This identifies the segment boundaries. And, finally, ‘What are the specific meaningful elements in the text?’ (p.52) or, in this research, what are the significant behaviours students tend to display? This identifies the codes and their relationship and how those can be defined as part of the analysis of the themes.

The distinction between the identification of themes and the specification of codes is significant. As the authors note ‘codes represent a greater level of abstraction than themes, and a single theme can engender multiple codes’ (p. 52). As defined in my thesis, themes such as ‘Dialogue and reciprocation of feedback’ could entail codes such as making eye contact, choosing the correct symbol and handing it to the teacher in response (multiple codes). As discussed, the codes and their combination as they interact with student attainment (Appendix 10) can carry different meaning and be linked with different themes depending on how they are analysed.

Since layers of meaning can be identified through deeper reading when following the applied thematic approach, it is crucial to look beyond the surface as far as student reactions are concerned. ‘Breadth and depth of knowledge and experience with the research setting and topic will influence what the reader perceives’ (p.70). It is through my experience and familiarity with the setting that I attempted to
focus in the deeper meanings of the video data and guide the reader through the various themes I identified through examining the manifestations of formative assessment with students with autism and severe learning difficulties. Detailed student thematic analysis based on this follows in Chapters 8 and 9.

**Ethical issues**

Central to my ethical considerations is that my students could not give their direct consent because their understanding of written and spoken language was limited. They are considered a vulnerable group of the population and special attention was needed with the research methods used and student participation within the classroom. Respect for my students as individuals and key research participants played an integral part when it came to my ethical considerations.

Vorhaus (2006) underlines that when doing research it is important to respect people with profound disabilities. This mainly includes active efforts to try and understand the world from their point of view and understand how their communication impairment can prevent them from fully expressing their view. The central aim of this case study has been to understand how students give feedback and how their views are expressed through their use of body language. In doing this it is important to respect them.

As Vorhaus explains, it is easy for a profoundly disabled person to be ignored or overlooked. By putting children with severe learning difficulties at the heart of my study, I have acknowledged them as individuals, including extensive descriptions of each individual child in chapters 8 and 9. More importantly, I feel that I gave my students a chance to live in a more inclusive environment and, potentially, to other students like them improve the quality of their learning. As Hallett and Hallett (2012) point out ‘…the inclusive teacher would see research as an integral part of their role- a means
by which they can question their own practice in order to enhance teaching and learning for all,’ (p.110) which, concisely encapsulates my teaching and research ethics.

Often, in my busy schedule working as a practitioner-researcher, I may have forgotten that my students needed me to have a sense of humour, to be relaxed and to allow for personal interaction and communication. Being on a schedule and trying to achieve goals can make a person less sensitive to others, but being in the habit of self-evaluating after every lesson I noticed this early on and tried to allow my students to also be children and not just the subjects of my research. As Vorhaus (2006) argues,

‘It is not only the duration of conduct that helps reveal how we see others; it is also that the interpretation we put upon that perception rests on the context in which it takes place. Suppose I rush to make amends having pushed you aside, or that, nature having run her course, I now re-engage with you in a process of teaching and learning. The succeeding engagement then suggests that my recent behaviour is less a sign of failure to acknowledge you as a person and more a sign of a temporary cessation of just such an acknowledgement’ (Vorhaus, p.319).

It has been my personal attempt to engage with my students within this study and to try and see the world through their eyes. This study is my attempt to give them voice and by giving them voice being respectful of them as individuals.

Finally, as Vorhaus reports, making an effort to see a profoundly disabled person for who they really are is about seeing them as individuals, knowing their personality traits and the ways they use to express themselves, so as to truly recognise them as people we know and respect. Kellett and Nind (2001) stress that at a time that an attempt is made to make disabled people research partners, there is the danger that individuals with profound intellectual impairments or individuals that are non-verbal could be left out. As they remark, ‘this leaves us with the (non)option of being tokenistic or with a
dilemma. Do we compromise with whom we do our research or do we compromise the ideal of dialogue in our methods?’ (Ibid, p.52). By using my method of recording my students’ views, I attempted to make my own students participants in my research, although they could not choose what was being observed or reported.

At a formal level, and as it was not possible to get the students’ informed consent to film them due to their communication difficulties, I had to ask for written permission from their parents. I made it clear to parents that the data would not be widely distributed and I would only potentially share information with other teachers if I needed help, such as validating my analysis via inter-rater reliability. Parents were given a letter, stating my intentions and they were informed that they could opt their child out at any point during my research. A permission slip was signed and returned to me prior to commencing my research. Obviously, this does raise the question of whether informed consent has been really obtained.

Hallett and Hallett (2012) point out that ‘it might be more useful to consider a capability approach…In this situation, all pupils would be considered capable of giving informed consent, to a greater or lesser degree, and it is this that needs exploring… to ensure that informed consent exists’ (p.116). They consider important that one tries to obtain a response from a student with limited communication ability, than dismissing it for the easy option of gaining parental permission. As an experienced practitioner that knew my students’ communication ability, I could not get their consent in the conventional way. As part of their informed consent, I observed my students closely to assess whether they were in distress due to the presence of cameras in the classroom or research methods used within the 8-week period. I did not witness any evidence of objecting to being observed or of me using the camera. I used a small camera that I attached to the whiteboard to get a general view of the class and a small action camera, that I attached to a headband to get a close-up view of the students to enable me to interpret their actions accurately. Interestingly, none of my students reacted to the presence of either
camera. They did not even attempt to touch the action camera during any of the lessons, something I interpreted as being unaware or not troubled by its presence. This method of obtaining consent (or, rather, reporting no non-consent) is not the perfect option and Hallett and Hallett (2012) raise an important point about practitioners making an effort when seeking consent, rather than dismissing it for the easy option. However, in this case, I am confident my approach to consent was the best available option at the time for the specific group of students at the time.

I also did my best to protect the identity of all my students and the results of my research were never discussed outside the classroom: to date, no material from this thesis has been published either. If such action takes place in the future, I will strive to follow Hallett and Hallett’s (2012) advice that ‘…the most ethical response is likely to be to only release material that continues to safeguard the child concerned’ (p.117)

Part of being respectful of one’s case studies is what Nind (2011) refers to as ‘participatory research’ (p.349) and refers to the concept of participants also being researchers, a concept only recently explored. As ideal as this might be, in the case of students with severe learning difficulties, it is doubtful whether one could include them in that way. One of the possible reasons why not much research has been identified could have to do with the fact that, to date, there have been no identified methods of active research participation when the participants have severe learning difficulties and most assumptions rely on researcher interpretation.

As the researcher (and even more so as a teacher-researcher), one can say that I had power over a vulnerable group that constituted my case studies, however, as Kellett and Nind (2001) successfully address the matter,

‘In experimental as well as interpretative research, there is potential power to do good, even to empower, as well as potential to do harm. Ethics committees and procedures should perhaps
ask whether there are alternative designs in which the researched individuals can more actively
become the researchers, but not rule out studies where this is not possible’ (p.54).

I am hoping that through my research design and aims, I allowed my students to express their views
indirectly, even if they were not able to be active researchers. And it is my hope that this type of
research will potentially empower students with severe learning difficulties to be active participants
and learners that can give feedback to teachers and assess in their own preferred mode of
communication and within the context of a classroom. I am also confident that my research reflected
my values as a teacher and practitioner in the field of special needs. Hallett and Hallett (2012) stress
that ‘when conducting research about any aspect of teaching and learning, integrity, open-mindedness
and clarity of purpose enable us to approach classroom enquiry with a view to raising thoughtful
questions about what it is that we do and why we make certain choices’ (p.110). All of these were my
central values while conducting my research and, hopefully, my research has raised as many questions
as it attempted to answer, a step necessary in the process of improving the educational experience of
children with severe learning difficulties.

Using and storing sensitive video data was an issue of major consideration, especially since I was
dealing with a vulnerable group. Once I had the video data, I made sure it was stored on a separate
hard drive, which was kept in a locked cupboard. The videos were only viewed by me at my home
setting. When I took the video clips in school for a colleague to watch, I saved them on the hard drive
of my password-protected laptop and they were deleted as soon as my colleague had finished watching
(part of my inter-rater reliability process).

Another important topic arising from this was the ownership of data. My video recordings obviously
are personal as they report student activity in great detail, hence student identity needs protecting. It is
an important dilemma when one considers who should store this data as it could be argued that it
belongs to the students, their parents, the organisation in which the research took place, the teachers
participating in my research, the teaching assistants in my class, or even my sponsors. Kellett and Nind (2001) also faced this type of dilemma and decided that the researcher should keep the data safe and provide access to the participants or their families should they want to view that material. I kept the data stored in a safe place but also explained to the parents that they can access the data in the future should they so wish. I provided my contact details if they had any further questions. This seemed to be the most appropriate approach to keeping the students’ personal data and their identities as safe as possible, without claiming that I ‘owned’ the data. A further consideration with regards to the data related to student anonymity. For this reason, I assigned a pseudonym to each of my students.

Ultimately, the main question is whether the nature of my research was worth the ‘disturbance’ of this type of research. Hallett and Hallett (2015), when commenting about single subject designs (admittedly, different to my type of research, but still quite relevant) explained that research can be deemed useful, depending on two factors: ‘the first is accepting that equity rather than equality should underpin the way we work in promoting inclusion...The second is to show that the application of small-scale interventions of this type is possible within the parameters of the classroom’ (p.3). As underlined before, single subject designs are not directly relevant to the type of research I conducted. However, I like to believe that the interventions were beneficial to all my students and the type of applications I used are indeed transferable. Based on this, I feel that the research I conducted was ethically sound and a positive experience to my students.

**Bias**

An important consideration was that of my role as a teacher-researcher, doing research in my own classroom. Bias is an issue of major importance in this case. Nind (1997) mentions that it is possible that teachers avoid their classrooms as their main research domain, possibly due to fear of being scrutinized and they might not wish to address issues of researcher ‘subjectivity and reflexivity’ (p.
I attempted to avoid bias in my interpretation of the data, although inevitably it was subjective. I attempted to report data and interpret student behaviour as objectively as possible. The video assisted me with this, especially since I could watch a recording multiple times on different occasions to ensure that I reported everything that needed to be reported also viewing myself as a practitioner from an outsider’s point of view and drawing conclusions with regards to my own practice.

**Participants**

My sample was limited to five students. The reason why I focused on the specific five students was because they were my students and they were attending formal day-to-day lessons I led; hence they were familiar and accessible to me. Since they were part of my own class, it was possible for me to control parameters such as timescale of the intervention, part of the day the lessons were going to take place and type of interventions I was going to implement. Further to this, I had a team of teaching assistants whom I could train and give specific instructions to with regards to the ways they should handle situations occurring in the lesson and how much input they should give to the students during the research. My assistants were also familiar with the students and they were following a routine that was also led by me. These five students fitted the profile of the type of students teacher interviews revealed teachers had a problem applying formative assessment principles with: non-verbal, with autism and severe learning difficulties, and at the lower P scales. For these reasons, the five students appeared to be representative participants.

The uniqueness of the students related both to the way their difficulties were displayed and the fact that the same behaviours could be interpreted in different ways in connection to formative assessment depending on how they manifested themselves with each of the students, made me conceive the students as five separate case studies. Also, as noted in Chapter 3, students that have autism and severe learning difficulties tend to be particularly different to one another. Further to this, their reaction to
different interventions, as it will be discussed in the next two chapters, how unique their reactions were to the formative assessment interventions used in the classroom. The five students were 8-9 years of age. Three of them were boys and two girls. Details on the nature of their disability as well as their individual characteristics and performance will be discussed in Chapter 7.

**Procedure**

During the autumn 2010 term I observed my students to establish what types of resources and activities might be more interesting and relevant to them. After looking into the objectives that had to be met and devising relevant activities, I carefully planned what types of resources could be used during the mathematics and literacy lessons, based on the students’ likes and dislikes.

Once resources and activities were planned, I developed a schedule. After considering a number of options, I decided that the research would take place within the period of eight weeks. This way, weeks 2 and 3 would include interesting resources, weeks 1 and 4 would include less interesting resources, weeks 6 and 7 would include interesting resources and rewards and weeks 5 and 8 would include interesting resources without rewards. The mathematics sessions took place every Tuesday afternoon and the literacy sessions took place every Wednesday morning. As student mood frequently changed between the morning and afternoon, it was important that sessions took place both in the morning and in the afternoon to avoid biased results. However, sessions needed to consistently take place at the same time to avoid external factors affecting student performance. I also assumed that sessions that took place in the middle of the week would produce more consistent results as Monday tended to be a ‘readjustment day’ while on Friday students tended to feel tired after a whole week of lessons. Setting up took place before the lesson commenced, so that students could focus on the lesson content.
It needs to be noted that the same lesson plan with subtle adjustments had to be applied over the period of half a term as this was the way a class of this type would function normally due to the repetition and depth of teaching these students require as discussed in Chapter 3.

**Why this research plan and time frame?**

Table 7.1 sets out the research plan and the way it was organised to take place within the period of one term. Different combinations of approaches were considered with regards to grouping together methods such as interesting resources/no resources and rewards/no rewards, but the final research schedule operated over eight weeks (see table 7.1).

Using unmotivating resources to begin with, then having two lessons with interesting resources and another one with unmotivating resources was considered to present an interesting contrast between the weeks that motivating and unmotivating resources were used. This could also show whether performance changed once motivating resources were removed and whether using unmotivating resources in the first lesson, which was still new and exciting, made any difference to when motivating resources were used in weeks 2 and 3. By using two sessions in which each type of resources were ‘coincidental data’ were avoided as sometimes performance was mood-dependent and had nothing to do with the content of the lesson.

At a second stage, rewards were introduced and the same pattern was used (i.e. no rewards-rewards-rewards-no rewards). This gave the opportunity to examine whether introducing or removing rewards made any difference to student performance.

The research process took place within the period of a term to avoid any long breaks (such as Christmas or Easter) interfering with student performance. Having one week half-term break was not avoidable and the final ‘no rewards’ session took place in the second half of the term. A single week
break normally does not affect student focus and performance dramatically, since things are still fresh in their minds and the lessons were familiar by the time week eight of the research plan was reached.
Table 7.1 Research Plan

1st half of term

<table>
<thead>
<tr>
<th>Time</th>
<th>Maths</th>
<th>Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(every Tuesday at 14.00)</td>
<td>(every Wednesday at 11.00)</td>
</tr>
<tr>
<td>Week 1</td>
<td>Unmotivating resources</td>
<td>Unmotivating resources</td>
</tr>
<tr>
<td>(05/01/2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>Motivating resources</td>
<td>Motivating resources</td>
</tr>
<tr>
<td>(10/01/2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td>Motivating resources</td>
<td>Motivating resources</td>
</tr>
<tr>
<td>(17/01/2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 4</td>
<td>Unmotivating resources</td>
<td>Unmotivating resources</td>
</tr>
<tr>
<td>(24/01/2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 5</td>
<td>No rewards</td>
<td>No rewards</td>
</tr>
<tr>
<td>(31/01/2011)</td>
<td>Motivating resources</td>
<td>Motivating resources</td>
</tr>
<tr>
<td>Week 6</td>
<td>Rewards</td>
<td>Rewards</td>
</tr>
<tr>
<td>(07/02/2011)</td>
<td>Motivating resources</td>
<td>Motivating resources</td>
</tr>
<tr>
<td>Week 7</td>
<td>Rewards</td>
<td>Rewards</td>
</tr>
<tr>
<td>(14/02/2011)</td>
<td>Motivating resources</td>
<td>Motivating resources</td>
</tr>
</tbody>
</table>

2nd half of the term

<table>
<thead>
<tr>
<th>Time</th>
<th>Maths</th>
<th>Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(every Tuesday at 14.00)</td>
<td>(every Wednesday at 11.00)</td>
</tr>
<tr>
<td>Week 8</td>
<td>No rewards</td>
<td>No rewards</td>
</tr>
<tr>
<td>(28/02/2011)</td>
<td>Motivating resources</td>
<td>Motivating resources</td>
</tr>
</tbody>
</table>
**Which objectives were to be assessed?**

After careful consideration of the nature and current attainment levels of the students as well as the fact that they were all making their first steps towards level P4 (with the exception of one student who was working towards level P3(i)) a number of objectives and activities were chosen to enable the students to make their first steps towards the next level and focus on more specific areas of learning (most of the students up to that point had been following general schemes of work entitled ‘Exploring and Ordering the World’ rather than ‘Mathematics and Communication Language and Literacy as a broad area of learning’ (i.e. instead of focusing on areas such as reading, speaking and listening or reading). All the objectives used were taken from the school’s scheme of work (refer to Appendix 8 for details on the schemes of work and objectives).

**Literacy and Numeracy**

Detailed lesson plans can be found in Appendix 8 lesson plans section. More detailed analysis of literacy introduction and mathematics, activity 1 follows, which establishes how different the activities were set up, when interesting resources or rewards were used as opposed to when neither were present.

*Description of Literacy introduction and Maths activity 1, song 1*

**Literacy-Interesting/no interesting resources**

In this activity, during the introduction, students had to play ‘pass the parcel’ and find all the objects included in the book ‘My presents’ by Rod Campbell (1989). Students had to match the correct symbol with each object depicted in the book. The students had to pass the parcel when the music was playing as their objective was to take turns. When it stopped, they would open the parcel and find the
object or picture in the box. At this stage, attention was needed to learn the symbols for the next stage. Eye-focus, tapping and pointing seemed to be indicators of attention and interest. Watching others and paying attention was also important as students could only meet this objective if they could take the box and pass it on to others and, equally, receive it when it was being passed on to them.

For the unmotivating version of the lesson, students could only find a laminated picture of the object once they opened the box. In the motivating version of the activity, they found the actual objects depicted which could be matched with symbols. At this stage, the teacher would match the symbol with the picture or object and present them to the student, to help them learn how to differentiate between symbols and prepare them for the commenting stage that followed during activity 1.

**Maths-Activity 1, song 1: Interesting/no interesting resources**

*‘Five little monkeys’ song:*

One of the number rhyme songs chosen for the first interesting activity in mathematics was the ‘Five little monkeys’ song. For the motivating version of the song, a small trampoline that students could jump on was added and the teacher used two cushions to perform the action of the students bumping their heads at the time the class could hear the ‘bumped his head’ lyrics. Then, the student would get off the trampoline, take a number down and go back to his/her seat.

For the unmotivating version of the song, five numbered laminated sheets of paper with a laminated monkey attached to them using Velcro were affixed to the 5 designated spaces on the wall. Every time we sang ‘...one fell off and banged its head...’ a student had to get up, pull the laminated sheet with the correct number, place it on the floor and hand the monkey to the teacher. There also was the visual aid
of a ‘flash’ version of five monkeys jumping on the interactive whiteboard, which the students had to activate by using the computer touch screen. Every time, the number of monkeys was reduced, until one was reached in which case all numbers would have been taken down. Most students needed some prompting to understand what they were supposed to do, but this was eliminated after the first two lessons.

**Math and Literacy Sessions-Rewards week(s)**

During the ‘rewards’ weeks, students would be given tangible rewards along with verbal praise at least every two minutes during the lesson. In order to maintain the correct timings, a mobile phone timer was set to go off every two minutes. When the noise was audible, I would make sure that the last student’s turn was completed and I would then offer a tangible reward to every student that performed well. Where students were not doing their work they would be ignored. If students carried on underperforming after a few reward cycles, they would be reminded that ‘no work means no rewards.’ If a student misbehaved but followed the lesson activities, normal behaviour support procedures were followed. These usually involved either taking the student for a break outside the classroom or sitting on the side with an adult until they calmed down. Behaviour support plans were in place for every student and were followed by members of staff every time it was considered necessary. The rest of the class would continue their lessons as normal.

**How video data was analysed**

Video data provides access to detail, such as body language and talk (Heath and Hindmarsh 2002). It allows the examination of gesture or where people might be looking and is a broad enough medium that does not have to be tied with specific approaches or interests (Ibid). Heath and Hinmarsh (2002) also suggest that fieldwork needs to precede video recording as it is essential to first understand the
environment. In my case, I had familiarised myself with the students having observed them for a term enabling me to understand how they acted and reacted. I decided to record their actions, to enable detailed analysis to be undertaken.

The type of observation I completed in class could be classed as semi-structured:

‘Analog tasks or semi-structured observations, involving controlled simulations or analog situations, are observational tasks designed to mimic naturalistic conditions’ (Ostrov and Hart 2012) which were similar conditions to the ones I set in my everyday classroom, with the added elements of specific interventions and the use of videos. ‘…analog observational paradigms permit a great deal of experimental control/standardization of procedures, and with the use of videotapes, observers are able to objectively code the session using the same recording rules as permitted in other contexts. A clear advantage of these procedures is that they are efficient and require less cost and time spent observing participants.’ (Ostrov and Hart 2012, p.290-291).

Such an observation normally ‘will have an agenda of issues but will gather data to illuminate these issues in a far less pre-determined…manner’ (Cohen, Manion and Morrison 2003, p.305). This meant, that I had a specific observation schedule that included set activities, but which was flexible and could take into account minor changes a set schedule was not adequate to deal with. For example, I added or deleted certain behaviours from my behaviour checklist (Appendix 7) if they seemed to be significant or not significant enough to be included, or, in some cases, I grouped behaviours together that seemed to have a similar source. For instance, behaviours such as clapping and touching others were grouped together as they both had as their target distraction caused by touching or making sound with hands. Behaviours such as nodding and indicating approval, which were rarely or never seen during the lesson were
excluded and specific behaviours such as ‘looking up when stimulus product is finished or looking at stimulus product until it dissolves’ (for example, looking at soap bubbles until they disappear) were also excluded from the table as they could be described within a more general section if they took place (for instance in the ‘staring at stimulus’ section). Also, if a specific activity seemed to be difficult when students had to physically move within the classroom, the activity would be transferred to a different part of the classroom in which it would be more manageable (for example, sitting students around a table to take a specific number of objects and place them on a number mat proved to be more disruptive than doing the equivalent while the students sat in a semi-circle).

Once the research was finished, I watched a number of the videos to decide on the specific negative and positive behaviours that I could observe that had to do with the students’ body language and included them on my checklist, something Heath and Hindmarsh (2002) refer to as ‘transcription of aspects of the interaction’ (p.19), which potentially meant that I could concentrate on specific, chosen details rather than try and transcribe everything. I watched the videos a number of times and then decided what behaviours to include. As soon as the checklist was devised, I had to decide how to analyse and transcribe the video data gathered. According to Flewitt et al. (2009), transcriptions are ‘…reduced versions of observer reality…’ (p.45), in which case some details are focused on, while others are left out.

Flewitt et al. (2009), comment on the fact that there is no commonly accepted way of transcribing multimodal data and there is no way to ‘combine the spatial, the visual and the temporal within one system’ (p.46). As Cohen, Manion and Morrison (2003) point out, ‘Significance rather than frequency is a hallmark of case studies, offering the researcher an insight into the real dynamics of situations and people’ (p.185).
As a result, it seemed better to note that a specific type of behaviour occurred and then explicitly
describe how long it lasted for, which would indicate how interested the student was in the specific
activity. Positive and negative behaviours were coded using green and red respectively making it
visually obvious whether a student had behaved in a positive, or negative manner during the lesson.
As I wanted to observe behaviours throughout the lesson, I ticked the behaviours occurring during
contact time (i.e. when students were being asked to participate) and I used an extra comment box to
describe student behaviour during non-contact time (i.e. when the student was not actively
participating in the lesson). This gave a clearer picture about what might motivate the student and how
possible it might be to get them to participate when there was no direct ‘benefit’ from the participation
(e.g. touching an object or jumping on the trampoline). An example of the coding I used during math
lesson 1, Activity 1a follows in table 7.2 (refer to Appendix 9 for a more detailed table with examples
relating to the case of Susan).
**Table 7.2 Susan lesson observation Math lesson 1, part 1 of objective 1a**

*Formative assessment observation (recording sheet)*

**POSITIVE BEHAVIOURS** - green

**NEGATIVE BEHAVIOURS** - red

**Date:** 06.08.11

<table>
<thead>
<tr>
<th>Time</th>
<th>FA observation sheet</th>
<th>Contact time Activity 1</th>
<th>NON-CONTACT time/ General observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Nursery rhymes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name: Susan</td>
<td>5 little monkeys</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotating towards stimulus ✔</td>
<td>Consistently facing the interactive whiteboard while the song was playing</td>
<td>Susan was very sleepy during the lesson. She kept looking blankly in space and trying to fall asleep on the table at different times. She spent most of her trying lying on her hand and attempting to lie down. She needed physical prompting to perform all tasks, however she was not in a bad mood while attempting to complete all those. She tended to lie on the table and stretch while others were performing tasks and she kept looking away. We needed to move her away from the table during the ‘setting the table’ task and she attempted to fall asleep while others were completed the same task.</td>
</tr>
<tr>
<td>Head</td>
<td>Head down/turning away</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glance at object briefly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eyes</td>
<td>Glance at object repeatedly</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I also watched the videos and decided whether the students had met specific objectives. In the instances that students had performed a certain task in the majority of the cases (e.g. three out of 4) or in all cases, I considered that they had met the objective linked with the specific task. In the case that they had only half met the objectives, I would consider the objective partially met and when the objective would be met in only, for example, one out of 4 cases or in none of the tasks, I would consider the objective as ‘not met.’ An example of such coding is in table 7.3.

Table 7.3 Maths lesson 1 - objectives

<table>
<thead>
<tr>
<th>Week</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR*</td>
<td>R**</td>
<td>R</td>
<td>NR</td>
<td></td>
</tr>
<tr>
<td>Objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of objectives met

| | 0 | 0 | 1 | 0 |

Total number of objectives partially met

| | 0 | 4 | 4 | 0 |

* NR = no resources, ** R = resources
At a third stage, I combined the information from the behaviour checklist and objectives table. For example, my analysis of Maths lesson 1, objective 1, was as follows:

**LESSON 1**

*Five little monkeys lesson 1:*

Susan paid attention to the interactive whiteboard, glanced at objects repeatedly and remained alert for the duration of the song. She did not meet her objective, as she needed physical prompting to complete the task. Still, her body language was positive and she remained focused for the duration of the song.

*A tall silver rocket lesson 1:*

Her behaviour changed quickly when we went on to the next nursery rhyme. She kept looking up passively, avoiding eye-contact and sitting sideways while supporting her head with her hand.

*Five currant buns lesson 1:*

She kept looking up while supporting her head and leaning sideways and vocalising without responding to any adult cues. She needed physical support to get up and perform the task and she smiled while being physically prompted, which was a possible sign that she was pleased with her performance when she took the laminated number down with support or a sign of absent-mindedness.

Initially, I completed a detailed analysis for all the lesson objectives, but this seemed to be long and unnecessary, especially when there was no significant information or information was repeated from one lesson to the next. Hence, I chose specific information to analyse, whenever it was significant or there was a change in student behaviour (examples of my analysis are included in chapters 8 and 9).
Summary

In this chapter I have explained that, in line with the informal formative assessment criteria, I conducted student video observations during which I used a communication checklist to interpret student reactions (perceived as formative feedback) to formative assessment interventions, as suggested by teachers during Phase 1 of my research. I used interesting resources and rewards as those appeared to be valued and considered effective by teachers.

As part of my analysis, I used a thematic approach, grouping student reactions under several meanings. Those were based on my observations of performance as combined with behaviour. As explained in this chapter, it was important to note how students performed summatively (whether they achieved an objective or not) and formatively (whether their reaction to a certain activity was positive or negative and what the specific expressions in terms of behaviour were in this case) in order to draw conclusions about the quality of their formative feedback.

Finally, I explained how my choice of the subjects of numeracy and literacy were based on the fact that the curriculum was more developed on those subjects and the objectives were broken down into smaller steps, which made it easier to evaluate student progress. The use of a behaviour checklist and recording behaviours both during contact and non-contact time helped me draw conclusions about how students gave indirect feedback and assisted me with interpreting student reactions in order to understand how those affected level of interest and student attainment.
Chapter 8: Student Case studies video observations (Part 1)

Introduction

Chapters 8 and 9 provide the analysis of the five student reactions that were the vehicle through which different types of formative assessment, as suggested by the teachers in chapter 6, were explored. The aim in these two chapters is to explore the relationship between formative assessment and the use of external stimuli to reinforce student interest, engagement and participation.

To make the analysis pertinent it was decided to split the pupils into two groups. It proved difficult to find common elements between the pupils, as while there were similarities there were also marked differences, as expected in such a diverse student population. What did distinguish between the children was that Ben, Susan and Steve had all been in the educational system since their early years, while George and Natalie had only recently started to attend the school on a regular basis. This meant that the first three students had at least four years’ experience in the school, while George and Natalie had only attended for a year and a term.

Evidence suggests that early intervention and education can help a child develop a better understanding of social and language skills especially since they are more likely to be given the help and attention needed. If this is delayed, it becomes difficult to develop essential language and social skills (Johnson et al. 2007). Several studies support the importance of routine and clear expectations, familiarity with the environment and staff, and structured teaching for students with autism (Stephens 2008; Mesibov and Howley 2003; Prizant 1983; Schopler et al. 1980). Lesson structures and routines need to be taken into account as positive factors that can affect student participation and interest, aside from the external stimuli being used simultaneously as part of this study.
This chapter will be divided in two parts. The first part will endeavour to contextualise the research (and will form the basis for both Chapters 8 and 9) and in the second part I will follow a thematic approach to analyse my video data. As argued by Gibson and Brown (2009) ‘The contexts in which people speak are fundamental to the meaning which they are creating. By removing that context from the analysis, researchers remove the resources that would enable them to understand why the speakers said what they did or, perhaps more accurately, ‘why they said it how they did” (p. 189).

In the second part of the chapter I identified themes that link with formative assessment and examined student reactions to external stimuli such as interesting resources and rewards. I linked those reactions with student performance (Tables 8.1-8.14 Appendix 10) and made my interpretations based on a number of factors such as type of behaviours exhibited (positive or negative) as well as subtypes of behaviour within those broad categories and how those linked with student attainment. I also explored how student behaviour and attainment can link with formative assessment in this environment. I analysed the theme of ‘body language and attainment’ first as a general guideline to what types of behaviour each student tended to display when presented with interesting resources and rewards. I then proceeded discussing the theme of ‘change of behaviour’ (or lack of change in behaviour) and what that shift indicated with regards to formative feedback from student to teacher. Dialogue and reciprocation of feedback was also discussed and how this interaction can encourage the notion of self-reflection and self-assessment at a basic level was analysed.

Further to this, I explained how my behaviour checklist and attainment tables need to interact and how this forms evidence that summative and formative assessment need to coexist. I proceeded with the themes of evidence of interest, evidence of engagement and signaling intent, and I explained how these three themes differ. I also explained how they can interact to give a better understanding of how interesting resources and rewards can affect student reactions and level of interest and engagement in the lesson as well as the significance of those for formative assessment.
Finally, I included two sections that discuss two general issues I came across that can affect the formative as well as summative assessment process: those had to do with P-levels and how those might fail to record progress and address all student needs as well as the students’ general state of alertness and how that can affect their performance, regardless of their interest in the lesson or stimuli presented. In the final section, I presented my conclusions related to best formative assessment practices. A similar process followed in Chapter 9, detailing student reactions and how those are related to the themes presented and formative assessment.

**How were the student video observation data analysed? A thematic approach.**

**Using the behaviour checklist:**

I observed student behaviour over the period of a term and noted behaviours related to different body regions in terms of the communication checklist, which is concerned with pre intentional behaviour (i.e. communication without intention). Even though communication with intent is an important aspect of communication as related to formative assessment and reciprocal feedback, since a number of the students were exhibiting communication behaviour equivalent to that of a newborn as discussed in Chapter 3 (i.e. unintentional reactions, which needed teacher response) it was important to examine and respond to those with the view that the students would learn that they can affect their environment and their teacher’s responses. It has been observed through research between mothers and their infants that preintentional communication, which takes place when children are on the prelinguistic stage is focused on objects being communicated about rather than the mother herself. The child learns shift their communication to the mother (instead of the object) if the mum teaches them that their behaviour carries meaning (Yorke and Warren 1998), an important observation in the context concerned, indicating that a child in the prelinguistic stage will only realise their behaviour carries meaning if the
teacher responds to their preintentional behaviours. The importance of interesting resources and rewards becomes more obvious through this observation as individuals in the prelinguistic stage focus on objects (such as the resources and rewards offered) and if those are of interest, there is a greater chance they will attempt to communicate with a person in order to attain those.

Behaviours were analysed for each student, subject and activity. I noted each behaviour occurring during student contact time (i.e. when the student was actively participating in an activity) in each lesson. Where necessary, I added comments about the duration of the behaviour and anything else I thought was significant. The behaviours were then matched with the performance tables (described in the previous section), setting out any relationship between behaviour and performance. In this way, I could identify whether and how students were providing me with formative feedback through their behaviour and whether negative behaviour was linked with negative outcomes or positive behaviour was linked with positive outcomes. I also noted general remarks about student behaviour during non-contact time and related that to the general attitude of the student towards the lesson.

**Analysis of objectives**

The contents of the outcomes’ tasks were then analysed in terms of the behaviour checklist. Links have been made between achievement of objectives and behaviour and how much of that behaviour indicated interest or engagement when different interventions were introduced (i.e. interesting resources or rewards). For example, using interesting resources and rewards as opposed to using neither could affect student behaviour positively or negatively, giving feedback to the teacher about what type of resources were preferred or whether rewards were indicating success to the student and perhaps enhancing motivation for future work.
**Comparison of Susan, Steve and Ben**

**Background: Susan, Steve and Ben’s behaviour prior to the research**

**Communication and behaviour**

Since this group of students forms a part of a rather heterogeneous group, it is important to establish what their own mannerisms, general behaviours and personalities were like alongside what type of needs they all had so that the reader gains a better understanding of the context. A number of these difficulties are of particular relevance to the thematic analysis that follows. Their P levels are included in Appendix 1.

Susan was diagnosed with autistic spectrum disorder, the same as all the student participants. She had social and communication difficulties as well as severe learning difficulties and delay in self-help skills. Similarly to Susan, Steve and Ben had social and communication difficulties such as lack of eye-contact (i.e. they did not look at the person that was trying to communicate with them or they looked away when someone tried to present something to them, typical of Susan’s behaviour), with the added complication of ‘bilateral pseudophakia’ in the case of Ben, a condition that affected his ability to see, severely. Ben had had a number of corrective operations and was prescribed bifocal glasses, which he tolerated wearing, but would not look through.

All three lacked spoken language. They could vocalise to express a variety of feelings, but could not make any combination of sounds that formed a word.

Susan would try to communicate with adults through touch and asked for adult help by pulling an adult’s arm. She could be affectionate and would seek adult company when she desired it (teacher observations). According to Part 2 of her statement, ‘She has extremely limited interaction skills with others and did not understand situations and language.’
All three were interested in interacting with adults, however they had not developed the skills to play with their peers (related to their autism), but they played alongside their peers. Steve’s communication skills appeared to be more advanced, as he had started developing the ability to use a number of symbols to request things and he consistently succeeded in his attempts. Susan on the other had only just started to use symbols and her concentration level prevented her from using them correctly, consistently. This was also the case for Ben. Potentially, Ben’s eye condition also affected his ability to see the symbols clearly, hence preventing him from differentiating between symbols.

Ben had low tolerance for highly sensory substances such as sand and jelly and would only use pencils and scissors with adult assistance. He was unmotivated when it came to classroom activities, and he preferred to play chasing games in the playground. Susan and Steve, on the other hand, would play with sensory substances when they were available, but they both needed help in using scissors and pencils, possibly because they were not as motivating as other classroom resources.

**Self-help skills**

Even though this is not directly relevant to the research, it is important to understand how these students’ self-help skills were closer to that of an infant than children their age. Susan needed to be reminded to use the toilet with assistance and even though she was capable of helping herself to water and dressing independently, she needed adult encouragement. Steve and Ben also needed to be taken to the toilet during the day and had to use nappies for part of the day. Even though Steve’s communication skills were advanced, he needed prompting to use the toilet.

Susan’s diet was limited and she tended to overeat unhealthy food. As a result, she was overweight for her age. She tended to be sleepy during the day, since her night sleep would normally be disturbed. In class she would be offered healthy food, although small amounts of her preferred snacks would be given as part of her reward scheme. Ben was also particular with his food. During his time in the class
at the time of the research he had started eating rice cooked with chicken and vegetables and he would have cheesy puffs as a snack. He also had a tendency to refuse water and any fruit or other snacks offered during the day.

In contrast to Susan and Ben’s restrictive diet, Steve was more interested in healthy eating, however, he would not drink water and his unwillingness to drink had created a chronic constipation problem, which did not help him with his toilet training and often meant that his abdomen was swollen and painful. This sometimes led him to be challenging or uncooperative. The lack of fluid intake may also have affected his attention and concentration.

*What was their behaviour like when they first joined their new class?*

When Susan first joined the class in September 2010 she was frequently disinterested and needed prompting to perform any type of task including standing up or looking at and choosing symbols. At the time the research took place, when focused, Susan could be successful at differentiating between at least six symbols (personal observation).

Steve had made considerable progress in the class, as initially he was only able to differentiate between two symbols with adult assistance. By the time of the research he could use a communication book to find the symbol he wanted. At the beginning of the academic year he would constantly get out of his chair for the duration of a lesson unless physically supported to remain seated, while at the time of the research the physical presence of an adult next to him would normally encourage him to stay on his chair. By the time that the research commenced, he had made considerable progress and he had started making sentences using PECS.

Ben’s eye focus created difficulties for him and he enjoyed flicking his hand in front of his eyes to produce a certain ‘effect’. During lessons he frequently preferred to do this rather than concentrate on learning. This affected his ability to recognise symbols and meant that his performance would often be
poor.

Susan, alongside the rest of her peers, had to learn to adapt to a more subject-based curriculum at the beginning of the study in the new class after having worked with a general curriculum that primarily involved her reacting to activities that she found appealing. This was a major transition, during which she needed prompting and support from classroom staff. This also applied to the other participants who needed varying degrees of support to adjust to the new curriculum.

**Susan Steve and Ben’s objectives in maths and literacy**

The objectives that the children were striving to achieve in maths were:

1. To demonstrate an interest in number games, rhymes and songs (P4).

2. To join in and indicate at least one number in a familiar rhyme or song (P5).

3. To give one object on request (P4).

4. To follow a sequence of pictures or numbers as indicated by an adult during number activities (P4).

5. To assist with a 1:1 matching activity (P4).

6. To pick up and put down a single object (P4).

The objectives in literacy that the children were trying to achieve were as follows:

1. a) To listen to stories from books containing pictures and text (P5).
   
   b) To sit calmly to listen to a story in 1:1 and group (P4).

2. To watch an adult point to pictures (P4).

3. To match objects to pictures & symbols (P5).
4. To show recognition of the names of key objects used to support familiar texts (P4).

5. To take turns (P4).

Some of these objectives have been categorised as passive objectives (i.e. not requiring active participation other than sitting down and attending like for example objective 2 in literacy ‘to watch an adult point to pictures (P4)) and some of them as active objectives (requiring active participation such as objective 4 in literacy, ‘to show recognition of the names of key objects used to support familiar texts (P4)). This distinction plays an important part in the thematic analysis that follows.

**Thematic analysis**

*Student behaviour and autism: a general remark*

While examining student behaviour as evidence of formative assessment in this chapter, it is imperative to bear in mind that students with severe and profound learning difficulties present a variety of behavioural states in which they experience extremely varied levels of alertness that can change within minutes (Mattie and Kozen 2007). This is inherent to their condition (autism), which can further complicate understanding student behaviour, since it can also be interpreted as lack of interest and engagement. Two factors can help identify a formative assessment intervention as successful: a. if the student’s state of alertness is high and they focus on the lesson and perform or b. if in spite of their low state of alertness, students work ‘against their mood’ and they still produce good work even though their natural state of alertness dictates otherwise.

Further to this, it is important to explain that formative assessment for this group of students is a process of slowly increasing student interest and involvement, so much so that their participation is a
result of inherent interest (refer to the example of Steve in this chapter) in the lesson as opposed to a stimulus-response situation.

At the earlier P-level stages and when children are introduced to attending a lesson, the stimulus-response element is crucial to engage students and encourage them to start participating. Even though the role of stimulus-response is important as part of their general education, especially when students are first introduced to sitting down and attending a lesson (something that has been explored through the interesting resources and rewards interventions discussed in this chapter) it is essential to understand that they cannot be deemed as formative assessment interventions on their own, regardless of what teachers suggested during Phase 1 of the case study research.

One needs to be mindful of the fact that restrictions on the successful interpretation of student behaviour as linked with formative assessment cannot be completely eliminated and an element of guesswork will always be present. However, just because the formative assessment process in this context is different to mainstream, it does not mean that it should not be pursued or it cannot be named ‘formative assessment.’ It only signifies that it is a different approach of applying formative assessment and substantial interpreter insight and skill are required, which can be developed with time and experience.

**Body language and attainment**

In this section I will discuss representative manifestations and teacher interpretations of student behaviour, based on student reactions to lesson interventions. Even though my behaviour checklist was a useful tool to use in terms of recording behaviour, it needs to be noted that often student behaviours did not have a consistent meaning and identical behaviours could be interpreted differently if applied to different students or even lessons for the same students. Crucial to this interpretation was
the use of the objectives tables, which specified attainment (Appendix 10). Examples of positive and negative behaviour will be discussed.

Susan’s behaviour in literacy and numeracy varied and she appeared to have been affected by the interesting resources and rewards interventions. Her (and Ben’s) negative behaviours were also a good predictor of her performance. This is something not always valid for all students, especially if one looks closely at the example of Steve, who could have displayed negative behaviours, but also achieved his objectives.

In lesson 1 in literacy for example, she kept rubbing her eyes and fiddling with her clothes, and she needed physical support to sit up and choose symbols. Interestingly, some of her positive behaviours were displayed when she thought there might be something more on offer: for example, when she chose a type of food symbol, she expected food to be given to her rather than a picture of that food. As a result, her disappointment and disengagement with the lesson became apparent in her body language as described above.

When it came to ‘pass the parcel,’ she kept looking at the box being passed on, only to express how puzzled she was when she opened it and only found a picture. She expressed her surprise by scratching her head while staring at the symbol and she started flapping it. This was closely followed by looking away when the parcel was being passed on, vocalising loudly and leaning on different directions, her behaviour indicative of her disappointment as well as her disengagement with the lesson. Her mixed behaviour messages were closely linked with her performance since she only partially achieved four of her objectives and she did not achieve the first objective that was linked with attention to the story. She partially achieved some of the objectives that were linked with demonstrating interest for the lesson because she expressed her interest when she expected more interesting resources to follow (like, for example, a ball).
Lesson 2 in literacy was a remarkable contrast to lesson 1 for Susan. She was sitting upright, looking around the classroom, following the resources with her eyes, and having a remarkably good eye focus. She needed limited support to pass the parcel on, which was linked with the fact that she was interested in opening it, rather than the fact that she did not wish to participate in the lesson. The positive behaviours she displayed included turning towards the resources, watching while other students were having a turn, being alert and sitting upright during both contact and non-contact time, following all the resources with her eyes, and reaching for the resources with her hands. The contrast between lesson 1 and lesson 2 in literacy can also be linked with the ‘surprise element’ of lesson 2, since the resources presented were interesting to Susan, who was often sensory motivated (and the resources were sensory in order to address that need), something closely linked with her autism.

Ben was distracted and often inattentive, possibly due to having been newly introduced to sitting down and attending as opposed to following an individual timetable. Also, his bad eyesight and the lack of eye-focus associated with autism could have been an obstruction to learning. However, two contrasting examples of bad versus good performance that indicated he was also motivated with interesting/sensory resources were lessons 3 and 4 in literacy. In lesson 3 Ben achieved two of the objectives and partially achieved one. The objectives Ben achieved were linked with passive participation and interest (which was also observed with Susan), such as listening and attending to storytelling and recognising key objects, relevant to the story. However, he did not manage to comment using symbols successfully or to take turns (active objectives). His positive behaviours included turning towards the symbols, as well as following and trying to get hold of the resources. His negative behaviours, linked with active objectives included trying to get hold of the wrong symbol as a means to attract adult attention, an action possibly accentuated by his bad eyesight. He needed physical support to pass the parcel on because he wanted to explore it by shaking it and looking inside before the music had stopped (active participation).
One of the negative, self-stimulatory behaviours Ben often displayed and prevented him from meeting his objectives involved flicking objects in front of his eyes and looking at the lights while shaking his head, as observed in lesson 4 in literacy.

Generally, passive objectives were met when interesting resources were present, but his general performance did not improve as he did not meet his active objectives. This indicates success when broader or more passive objectives are involved such as sitting down and attending, a prerequisite for learning, but the presence of interesting resources does not guarantee achievement.

With Steve the results were somewhat more confusing as he did not appear to be affected by the absence or presence of interesting resources or rewards and there was little connection between his behaviour and achievement. For example, in lessons 1, 5, 7 and 8 in numeracy he met all of his objectives. His worst performance was observed in week 3, when interesting resources were present. Rewards had no obvious effect on him as he only partially met one objective in week 6. In literacy on the other hand, Steve’s best performance was during weeks 7 and 8, when he met four of the objectives and partially met one. Interestingly, during the no resources/interesting resources phase, Steve displayed his best performance on week 1 when he met three objectives and partially met another two, while his performance deteriorated and by week 4 he had partially met two objectives, preceded by week 3 when he had partially met three.

What is characteristic about Steve’s behaviour and how it is linked with his performance? During session 1 in literacy, when his performance was strong, he kept vocalising loudly, he appeared to be absent-minded and he kept staring into space. He jumped out of his chair and screamed, and at times was shaking his head in order to get dizzy (self-stimulatory behaviour), however when it was his turn to comment he would suddenly go silent and turn towards the symbols. Even though he needed physical support and prompting at different times, he was successful when commenting, leading him to achieve three objectives and partially achieve another two. His performance was unaffected by his
behaviour and what appeared to be a lack of interest did not affect his performance. As discussed earlier, many of these behaviours are inherent to autism and it is unlikely they could be fully eliminated even if Steve carried on improving at a similar pace. However, Steve’s ability to suppress those behaviours momentarily was remarkable, just for enough time to allow him to give the correct answer and achieve his objective. Steve’s case was an example of how, through persistent support and boosting motivation, a child with autism and severe learning difficulties can reach a stage that their behaviour does not affect their performance or engagement with the lesson (except for during non-contact time or when passive attention was required).

On the other hand it is important to note that when all or most of Steve’s behaviours were positive, he was likely to present immaculate performance, achieving all of his objectives. In maths lessons 7, he sat upright, paying close attention even when it was not his turn, looking at the resources carefully, thinking, participating and having a serious facial expression. Lesson 8 was similar, with Steve being extremely focused even when it was not his turn (non-contact time), and in lesson 5 he had the same behaviour, while he also stood up and signed ‘me’ indicating active interest in the lesson. Perfect behaviour in Steve’s case appears to be linked with perfect performance, however his performance and attention do not appear to be affected by sensory resources or rewards, which negates the effectiveness of the stimulus-response theory in his case, suggesting that it becomes redundant once a student has learned to be engaged with the learning process. It appears that Steve was intrinsically interested in the lesson.

Important to note is that Steve was my student two years before for two consecutive years, however his performance was significantly lower. Like his current classmates, Steve tended to get distracted and was more interested in self-stimulatory behaviours than the lesson itself. When I took him on again, he had not progressed much since the last time I taught him, however he seemed to be ready to learn. This change suggests that there might be a correlation between getting students in a ‘ready’ state
for learning, and marked, improved performance. The use of incentives to get Steve to pay attention used to be effective when I first taught him, however he did not necessarily appear to learn. There is a chance that being part of the education system and reaching maturity with time might be linked with better focus and achievement, however this would be an area to explore within a different study.

**Change of behaviour and the relationship with formative assessment**

Change of behaviour (or lack of any change in negative behaviour) may signal that the lesson or resources need to be modified or that the student needs additional support. At times, it might indicate disapproval of the new activity introduced, or change of student mood for a different reason that needs to be addressed, the student’s desire to prolong a previous activity, or maybe even the need for a break. The way it is interpreted depends on the experience of the teacher and student performance alongside student behaviour.

In this section I will discuss significant (in terms of importance, not magnitude) changes in student behaviour and how those can be interpreted as student feedback. Ben’s formative feedback in mathematics involved turning away, looking at other adults in the classroom and playing with resources for the duration of the first four weeks when the ‘no interesting resources versus interesting resources’ intervention was taking place. He partially met objectives 3 and 4 during weeks 2 and 4, indicating no connection between presenting interesting resources and positive or negative behaviour. But what did Ben’s continuous negative feedback indicate?

The lack of change in negative behaviour regardless of the intervention applied makes it challenging for the teacher to interpret what the student might be (intentionally or unintentionally) trying to say. It is possible that Ben was not interested in the lesson, or he found it too difficult to follow, or even that he felt it was not easy to access because of his eyesight. The only option in a case like this (and under ordinary, everyday classroom teaching) is to keep changing variables until a change in behaviour is
observed. For example, changing the lesson time, or moving the student closer to the interactive whiteboard could have given a clearer indication as to whether Ben found the resources hard to see or the lesson challenging. In other words, when negative/indifferent behaviour is present it is important that various changes are made to address that in the everyday classroom, when the effectiveness of other variables (such as interesting resources or rewards) is not being put to the test, under research conditions.

Another significant example in terms of change of behaviour is that of Steve’s performance, which appeared to be getting gradually better from lesson 1 to lesson 8 in literacy. This was closely linked with his behaviour, gradually changing from overexcited and overstimulated to controlled and focused. By lesson 8, signs were present, indicating that Steve still felt overstimulated as he was smiling, giggling, touching the assistant repeatedly and being in need for physical prompting to encourage him to focus. Interestingly, even though he had managed to control his behaviour and was able to respond appropriately to the tasks, he did not appear to be naturally focused. In this instance, the support Steve received alongside his own understanding of how he should be behaving in class led him to focus and meet his objectives against his natural instinct to make noise and play during the lesson.

This hinted that he was interested in the lesson and he went against his natural instinct of displaying negative behaviour and he re-focused and achieved his objectives. Interest in the lesson was evidently present from the beginning, otherwise Steve would have lost focus and he would not have performed well as a result. So, what did this change of behaviour indicate? It is possible that even though Steve was interested in the activities he was also finding it hard to control himself when feeling excitable. However, his level of interest was higher than his interest in displaying his excitable behaviour, which he gradually managed to contain, with support.
Susan’s behaviour in lesson 1 in maths was excitable and she needed a lot of physical prompting to stop jumping up, leaning forward and vocalising loudly. Her performance improved considerably by lesson 2, when she partially met four of the objectives (she had met none during weeks 1 and 4). Her change of behaviour was noted as she demonstrated a number of positive behaviours such as signing ‘me’ and leaning forward with interest, while she also looked carefully and picked up the correct number of items requested in activity 2. Concurrently, she needed physical support to perform the tasks, which led to partially meeting the objectives. In lesson 3 a number of negative behaviours were noted such as laughing out loud, closing her eyes and covering her ears, and she needed physical prompting to stay in her chair. However, it appears that even though her behaviour was excitable, she demonstrated positive body language signals, linked with interest such as leaning forward, trying to get hold of resources and symbols and looking at the resources carefully. It could be the case that in spite of her excitable mood, her interest in the resources managed to get some of her attention back, resulting into meeting one objective and partially meeting another four. Some of those objectives required active participation (objectives 5 and 6), while some others some demonstration of interest (objective 1-fully met). This change of behaviour potentially signalled interest in the resources introduced, hence making them an effective tool against excitable behaviour.

**Dialogue and reciprocation of feedback**

Dialogue is a complex concept and as discussed in Chapter 2 when non-verbal students with autism and severe learning difficulties are involved. Dialogue in a setting like this can take place as reciprocal feedback. Teacher feedback in this context needs to be concise: a word, facial expression or reaction is sufficient. However, what happens with students? Do they give feedback to their teacher? And if so, how?
Representative examples of reciprocation of feedback would involve the activities that require exchange of symbols, like activity 3 in literacy. This type of activity requires teachers to ask questions, offer the symbols in a suitable manner (the distance between the student and the symbols board for example can be often significant, with higher distance discouraging picking random symbols) and adjust to each student’s current state of alertness (for example encouraging a student to sit upright and look when they are less alert before asking them a question can make a difference, prompting a successful as opposed to unsuccessful response).

Ben in lesson 3, literacy, kept smiling and looking for attention by tapping the incorrect symbols on the board during his first turn. As his teacher I pulled the board away from him and responded with repeating the question: ‘What do you see?’ Ben kept staring at me and waiting for a reaction, while he carried on touching the incorrect symbol. After having repeated this process twice, I moved on to the next student. When Ben was given a second turn, he carried on staring at me, but he had a serious look on his face. I asked the question ‘What do you see?’ with a serious facial expression. Ben responded by using the correct symbol to answer the question. This type of short exchange of feedback can be explained as follows: Ben wanted to get a reaction from me, his teacher, since regardless of whether this reaction was positive or negative, he thrived on it. Since he did not receive a negative reaction after touching the wrong symbol, he attempted to provoke a positive reaction by choosing the correct symbol. He carried on staring to check for hints of negative attention, but through his change of facial expression he indicated that he was taking the activity seriously. His decision was to give the correct symbol, which provoked the positive reaction of praise, smiles and eye contact.

Steve presented another interesting example during non-contact time in lesson 6 in literacy: he was focused on the assistant sitting next to him, rather than his classmates commenting on the story. He attempted to get the assistant’s attention by repeatedly hitting her when I asked him to answer a question. I moved on, ignoring his negative behaviour, and Steve went silent. In her second attempt, I
used short phrases like, ‘Look,’ and ‘What do you see?’ and, in response, Steve turned towards the symbols and he looked at the resources carefully. He was alert, sitting upright, made eye contact, leaned forward, and chose the correct symbol in his second attempt. I responded with high praise and positive facial expressions and eye contact.

There was a clear reciprocation of feedback in this case: disapproving of Steve’s behaviour on his first attempt, I ignored what he was doing and moved on, not giving him the opportunity to comment or get hold of the resources. Steve noticed that as he went quiet after having displayed challenging behaviour such as hitting and trying to attract the teaching assistant’s attention. When his second turn came, Steve immediately changed his body language. He engaged with me through eye contact and he responded positively to all the questions. He appeared to understand this was an approved behaviour, even before he received smiles and positive feedback.

Susan presented an interesting example in week 8 in literacy. Her overall performance during the rewards/no rewards phase was negative, with most objectives not achieved. In week 8 though she achieved two objectives related to commenting through symbols, without the presence of any rewards. Susan appeared to be alert and sitting upright while listening to the story, to begin with. When asked to comment, she leaned forward, and she chose the correct symbol on her first attempt. Her successful commenting was greeted with a positive reaction, smiling and using positive language. On her second attempt I had to keep pulling the board away to encourage her to look closely at the symbols presented, but Susan’s eye focus was poor and she kept randomly choosing incorrect symbols. I moved on to the next student, and Susan started laughing loudly possibly indicating she wanted the negative attention or that she was getting too excitable to focus on the task. Regardless, Susan displayed recognition of the change of teacher feedback from positive to negative and reacted differently each time.
To what extent these examples of direct interaction between teacher and students can be considered a dialogue or reciprocation of feedback could be questionable. However, there are clear indications of change of behaviour in response to teacher feedback. Excitable behaviour was met with teacher disapproval, displayed by ignoring, pulling resources away and moving on to the next student. Focused behaviour on the other hand, was met with smiles, positive tone of voice, eye contact and short, positive phrases. Students responded by being serious, focusing and looking for the correct symbol to comment with. This appears to be a clear reciprocation of feedback, which might not have to do with commenting on one’s personal performance as one would expect in self-assessment, but it is clear that self-reflection at a basic level is part of this.

Could one claim that this is also a dialogue, albeit non-verbal? Perhaps not in its conventional sense, since it is rather short, basic, limited, and teacher-led. However, there is definitely interaction, which can be regarded to be a basic form of dialogue. The main element to be isolated from this account is that interaction is present regardless of the students’ autism and learning difficulties, something that suggests that formative assessment is not an alien concept in the world of special needs, if modified.

**Summative and formative assessment**

The need for the two to coexist as discussed in Chapter 2 has become obvious through the student findings. Student behaviour is regarded as formative feedback (examined through the behaviour checklist) and the objectives tables (Appendix 10) indicate whether each student has met each of the objectives (summative assessment). In isolation, the formative or summative data cannot provide as much input with regards to the various themes discussed in this chapter such as interest, intent, or engagement. This is because, at times, negative behaviour can be interpreted as ‘I do not enjoy this/I am not interested in it,’ but it can also be the case that ‘I cannot help it behaving like this, but I am still
learning.’ Unless a teacher knows the outcomes of the lesson and whether the student has actually learnt what they are being taught, it is difficult to judge whether it is better to interpret certain types of behaviour one way or another. The combination of summative and formative evidence can provide the teacher with more accurate information.

For example, Susan’s excitable mood was evident throughout weeks 1-4 in numeracy, however her performance differed during weeks 2 and 3. This prompted a closer look into Susan’s behaviour and the observation that it differed in the sense that Susan tried to resist her negative behaviours and perform well. If one looked at her behaviour in isolation, they would probably have thought she achieved none of her objectives, given the false picture her negative behaviour exhibited. Often, my observation when discussing outcomes with my teaching assistants at the end of the lesson (as seen in the videos) was that students had not performed well exactly because of their negative behaviour, only to discover how inaccurate my instant observation was when looking back at the videos. This is important as my formative feedback to my students was probably confusing as I was providing them with false information (i.e. ‘you did not meet your objectives,’ when they actually had done).

A further example of how the display of behaviour can be misleading and often contradictory to student achievement was Steve’s behaviour. Steve often displayed negative behaviours, however his performance was not affected as severely as one would expect. An example of that was in literacy week 1, when his behaviour was excitable, he vocalised, and often got out of his chair. He still met three of his objectives and partially met another two, which were passive objectives and required attention even during non-contact time, something Steve could not fully achieve while he was excitable. All the objectives that required his active participation were fully met, and Steve displayed his ability to ‘snap out of his behaviour’ when he needed to, in order to respond correctly to my questions, leading him to success with his summative assessment targets.
Ben’s behaviour and achievement were closely linked and both his behaviour and achievement appeared to be often a matter of choice rather than ability. For example, during week 5 in maths he achieved all of his objectives and his behaviour was exemplary throughout: he sat upright on his chair, looked carefully at the whiteboard and the resources and observed all students having a turn. He appeared alert and quiet and there were a couple of instances in which I redirected him, but he mostly focused without support. By lesson 7, it was obvious that his behaviour affected his performance, especially when he performed self-stimulatory behaviours like flicking his hand and kicking his leg. This led him to only meet the first two objectives, but none of the other four that required good focus and thinking to achieve. Generally, there was a direct link between behaviour and performance in the case of Ben, indicating a strong link between formative feedback and summative assessment. Nevertheless, negative behaviours were not linked with his inability to meet the objectives, but a difficulty controlling his own behaviour.

Overall, there appears to be a close relationship between formative feedback and summative assessment, which suggests that the two processes need to coexist, which agrees with the literature findings in Chapter 2.

**Evidence of interest**

One of the most significant factors that encourage learning is the presence of interest. If a student is interested in the lesson it is more likely they will learn and progress rather than when interest is lacking. This is the case even more so for students with autism as they do not aim to please their teacher (refer to impaired theory of mind as discussed in Chapter 3).

The lack of presence of interest was often evident during the research. For example, Susan’s behaviour was mostly negative during lessons 1 and 4 in numeracy: she kept looking away from the resources,
trying to sleep and put pebbles (resources used as part of the lesson) in her mouth. She avoided eye
contact with me and she needed physical support and prompting to stay in her chair or sit up. Her body
was turning away from the lesson and resources, almost trying to shut down and have no connection to
what was happening in the classroom. She also vocalised loudly, potentially using her voice to block
sound, stating her lack of interested in the lesson. Her general negative behaviour also led to poor
summative results as table 8.1 (Appendix 10) indicates.

It is evident interesting resources were appealing to Susan since she leaned forward in anticipation
and looked at them carefully in lessons 2 and 3 in literacy. Even though she was not engaged with the
lesson because of her mood she still managed to focus for parts of it which led her to move from not
meeting any of the objectives in weeks 1 and 4 to meeting and partially meeting a number of
objectives during weeks 2 and 3. Susan indicated that she could re-focus when interesting resources
were on offer and she could fight her negative mood as a result of interest in the resources.

On-going interest, regardless of interventions can be present with the more advanced students that
understand classroom expectations. Steve’s performance was positive and stable throughout the
duration of the 4 weeks with his best behaviour demonstrated in lesson 1, when he met all of his
objectives. Steve demonstrated his interest in the lesson activities by his continuous participation even
in week 3 when he was evidently excitable. Even then, his interest was present but he was partially
focused because he was overexcited. Behaviours such as looking at the resources, smiling and
approaching the interactive whiteboard independently were positive and clearly demonstrated his
interest in the lesson. The presence or absence of interesting resources did not appear to make a
significant difference for Steve’s level of interest.

Student level of interest is a good predictor of performance. In the case of Susan, even though she was
not in the mood to learn, when she found the lesson interesting she would focus and achieve some of
the objectives, while when she did not she would not meet any of the objectives at all. Steve on the
other hand, gradually improved his performance in each session because he was interested, regardless of how excitable he was feeling. The two students’ formative feedback to their teacher would be that they enjoy their tasks and they are learning, however Susan needs more interesting resources to improve her level of interest.

Even though Ben did not engage in any extreme or persistent behaviours, he only managed to partially achieve two of the objectives in lesson 1 in literacy. His lack of interest was indicated by behaviours such as not passing the parcel on and occupying himself with repetitive behaviours such as shaking his hand in front of his eyes. He tried to open the parcel and reach over and take other students’ resources, too, while he would not look at the symbols board when his turn came. By lesson 8, even though his behaviour indicated he was even less interested in the first two activities, he managed to meet his objectives when it came to commenting and exchanging symbols with me during activities 3 and 4. During those activities his positive behaviour was exhibited through eye contact, signing to indicate he wanted a turn, sitting upright and leaning forward to show his interest. It appears that half-interested behaviour like the one Ben demonstrated can lead to meeting some of the lesson objectives, however when positive body language occurs and active interest is present, students are more likely to meet their objectives.

Evidence of engagement

What is the difference between interest and engagement? Interest indicates one or more aspects of the lesson are attractive to the student. Engagement on the other hand, indicates there is a connection between the teacher and the student alongside active participation in the lesson. In other words, it is a deeper involvement in their learning.

Susan was clearly indicating her lack of engagement though her behaviour in lessons 1 and 4 in mathematics. Her overall body language was clearly indicating she had no intention of participating in
the lesson. Susan vocalised loudly, turned away from the resources and needed physical support and prompting to stay in her chair, while in spite of any attempts to prompt her and engage her, she resisted taking part in the lesson.

Steve’s behaviour was mixed during week 5 in mathematics. There were clear indications he was partially focused as he managed to use correct symbols in response to questions. He generally performed better in the parts of the lesson that required him to be a more active learner and interact with me, than the parts that he was meant to be passively interested. In other words, interacting and engaging with me produced more positive outcomes.

One could suggest that through this evidence, there appears to be a significant difference between evidence of interest and evidence of engagement: evidence of interest was present with all students between weeks 4 and 8. They all turned towards the whiteboard and they all established their interest in elements of the classroom performance. However, when it came to engagement, Steve demonstrated it through his eye gaze and using symbols, which indicated communication with intent, too. Ben demonstrated the same during week 5, however even though he exhibited partial interest by turning towards the resources, in week 6 he was lacking engagement as he kept looking away. Susan also demonstrated interest, which again did not translate into good performance since engagement was absent: she appeared focused, however she needed physical prompting to perform tasks, potentially because her interest was linked with the rewards themselves (and she was looking in the right direction, sitting upright), instead of the rewards being a motivation for full and focused lesson participation (in which case she would have been thinking and actively answering questions).
**Signalling intent (I like it/I don’t like it)**

Intent often requires complex thinking, however not always: for example, wanting to encourage the teacher to offer more tangible rewards is something that the students could easily signal because the relationship between the stimulus (reward) and good behaviour is relatively simple once the student understands what is acceptable classroom behaviour. However, for the student to understand they can influence their teacher’s actions in terms of their future choice of lesson resources and activities they need to follow a more complex thought process which might not be easy to access for students with such complex needs as discussed in Chapter 3.

Susan demonstrated her positive reaction to the reward stimuli by turning towards the interactive whiteboard, eagerly looking at the other students while they were having a turn and anticipating her own, looking at the right direction and signing ‘me’ to indicate she wanted a turn, which could be interpreted as enjoying the activity. However, it was interesting that her positive behaviour did not grant good performance. Susan’s positive communication with intent was evident in the sense that she was signalling she wanted a turn. But what was it that she liked and why did she want to participate? It appears that her eagerness and focus was related to acquiring rewards rather than taking part in the lesson. In order to acquire a reward, she exhibited appropriate behaviour, since she understood classroom expectations. Also, she was familiar with this type of exchange during snack time (i.e. getting up, approaching me and giving a symbol to receive a reward): this was also a time of the day that required communication with intent.

Further to this, it was potentially Susan’s intention that I carried on offering rewards. However, the fact that she focused on getting the reward as a means to an end indicates that Susan had not connected achieving the lesson objective as a pathway to getting a reward and she had not linked the use of the rewards as a means to meeting the objectives I intended her to achieve, making the rewards a distraction.
Some interesting differences in terms of intent can be observed between Susan and Steve. His behaviour was also positive between weeks 5 and 8, but, in contrast to Susan, he met his objectives. If one looks closely though, the quality of positive behaviours he exhibited differ to the ones Susan did: behaviours linked with his eye focus, such as looking at the resources and symbols repeatedly and looking at the whiteboard were positive behaviours not observed with Susan. Further to this, reaching for resources and attempting to give answers without requiring any prompting was another positive behaviour that Steve demonstrated, but Susan did not. These positive behaviours indicate a more active involvement and interest in the lesson, expressing Steve’s intent to have more of those activities and enjoying participating, which are linked with achievement. Unlike Susan, Steve’s focus was on the outcome of the activities as opposed to the rewards he could receive.

In the case of Ben, his withdrawal from the lesson in week 4 in literacy was obvious and appeared to be intentional, especially since the negative behaviours would continue regardless of my numerous attempts to redirect and reconnect with him, therefore one could draw the conclusion he was signalling intent. For example, he kept flicking his hand in front of his eyes or looking at the lights and shaking his head instead of focusing on the lesson and commenting with symbols. It is still possible though that this is one of the behaviours Ben could not help but display as discussed in the beginning of this section.

Did Ben’s negative behaviour indicate that he was also trying to ask me to change the activity to a more interesting one for him? According to the Theory of Mind as discussed in Chapter 3, this could be a far-fetched claim to make. Autism inhibits understanding on how these students’ actions affect others or that they can manipulate others through their behaviour (especially when it comes to the bigger picture of the actions of an individual and how those affect the actions of others) as they cannot relate with people at that level.
**P-levels and recording progress**

A general observation made during the course of the research was that the P-levels do not appear to be sensitive enough to record progress, particularly since progress for this group of students is not linear, something pointed out as a problem in everyday discussions with teachers, too (discussed in Chapter 3). Further to this, as discussed in this chapter, sitting down and attending is different to being interested or even engaged with the lesson. These are steps that would ideally be monitored and mastered before any attempt towards formal curriculum learning is made. In theory, earlier P levels (P1-P3) tend to monitor that, but since they are too generic, they do not provide a clear indication of how to get a student ready or how to recognise they are ready. That, combined with the Ofsted pressures to record ‘progress’ (something requested at teacher meetings) often means students are rushed through the P levels, not given the opportunity to consolidate some of the objectives before they move on to the next ones. Focusing on curriculum objectives when a student is not inherently motivated in the lesson can prove problematic and positive behaviour and achievement can easily be confused when passive objectives are involved such as objective 2 in literacy ‘to watch an adult point to pictures’ (P4).

Generally, it is possible to interpret this objective in different ways. For example, one teacher might consider that since a student is sitting down and vaguely looking around the classroom they have achieved this objective. However, what meaning does one give to the word ‘watch’? Especially considering the students’ difficulty in their eye focus related to autism, a teacher can hardly expect the type of focus a mainstream child would demonstrate. But when can one consider the student is successfully ‘watching’? Would gazing be enough? Or would momentarily setting their eyes on one of the pictures mean they have met or even mastered the objective? Perhaps this is where the different standards by different teachers as pointed out in the teacher interviews apply. This variety of interpretation, however, I would suggest is not the teachers’ fault. When an objective is phrased in a
vague manner and this type of assessment system applies to students that have completely different needs (from profound to mild) one can appreciate that covering the range with a single recording system is not possible.

Further to this, the distinction between P4 and P5 objectives does not appear to be clear. ‘To match objects to pictures and symbols (P5) does not appear distinctly different to the objective ‘to show recognition of the names of key objects used to support familiar texts (P4).’ Whether it is involving objects alongside pictures that makes a difference between P4 and P5, it remains unclear (for example, ‘showing recognition of the names of key objects’ might have to do with pointing at the picture of the object when hearing the object name, while matching symbols to pictures might insinuate the object is absent and only the picture of the object is included). For example, Steve did not need the tangible objects to comment, while students at a lower level were better at commenting when objects were involved alongside the pictures. Regardless, this lack of clarity makes the assessment system also subject to teacher interpretation, which makes summative assessment a less reliable tool, jeopardising the position of formative assessment too, as a result. If teachers are expected to record progress, they need a robust, clear, individualised system with explicit notes to be able to do so. Since formative assessment is often based on summative assessment, it is important that the summative assessment system is not flawed, failing to record student progress correctly, otherwise the formative assessment based on it will be flawed, too.

Best formative assessment practices summary and conclusions

One of the obvious limitations of the formative assessment recommendations as they derived from the teacher interviews is that they all stem from behaviourist principles. It also needs to be acknowledged that both rewards and interesting/sensory resources are stimuli that can encourage the formative assessment dialogue, however they are not formative assessment methods per se (even though they were classed as such in the teacher interviews).
In this research and while those interventions were put in place it initially appeared that the students were responding to rewards and interesting resources. However, when looking closely into attainment, it became obvious that good classroom behaviour does not equal learning. On the contrary, a lot of the time rewards inhibited progress since they became the focus of the lesson as opposed to achieving the learning objectives. Interesting resources on the other hand appeared to be more effective in attracting student interest, however they did not guarantee engagement with the teacher and the lesson, which is the only way one can guarantee achieving both passive and active objectives.

In addition, it appears that passive objectives can be achieved more easily if a student is focused on something like rewards, however evaluating passive listening is difficult when students have communication difficulties, since confirming they are actually listening is not straightforward (like it would have been through questioning with mainstream students). Passive objectives become increasingly trickier to achieve if a student is overstimulated and cannot control their reactions (and it is perceived as not listening since students do not appear to be paying attention even if somehow they can make noise and listen at the same time). Active objectives on the other hand, require thinking and involvement in the lesson, something that requires a higher level of focus and understanding of the learning process.

Overall, even though formative assessment can be possible, it takes the form of basic reciprocation of feedback (for example commenting on questions such as ‘what do you see?’ with one symbol and adjusting the answer when the symbol is removed and the question is repeated); or, it is often behavioural and focused on encouraging a certain type of behaviour that indicates engagement (for example, positive body language, facial expression and praise used when the correct answer is given through symbols) and discouraging disengagement or self-stimulating behaviour (for example, no eye contact or input, removing the symbols board from one student and moving on to the next student).
Further to this, external stimulants do not appear to have positive outcomes when it comes to reaching lesson objectives (summative assessment), however specific feedback within well-structured lessons does. Even though not explicitly examined in this study, the lesson structure was carefully prepared and the tasks varied to encourage both passive and active participation. Feedback such as positive body language and short phrases and symbols used within a well-structured lesson appear to often be best practices when it comes to students with autism and severe learning difficulties. Interesting resources can make the lesson more appealing, however even those need to be carefully integrated into the lesson so as not to cause disruption or over-stimulation, or even detract from the lesson aims by distracting students instead of encouraging them to meet their lesson objectives.

Nevertheless, it would be unwise to ignore the role of rewards and interesting resources for students who are not yet engaged with classroom learning. If interesting resources and rewards can attract interest, they can bring students one step closer to being able to access formative assessment. And, at a lower level, students can express their likes or dislikes, which can be the predecessor to signalling intent. Possibly, once they have overcome the prelinguistic stage in which they focus on objects as opposed to people as discussed earlier, they could express to their teacher how they learn best.
Chapter 9: Student case studies video observations (Part 2)

Introduction

Similarly to the previous chapter, a thematic approach has been chosen to analyse my data. As explained earlier, the themes I focused on were those of communication and behaviour, change of behaviour and formative assessment, dialogue and reciprocation of feedback as well as self-reflection. All these themes were analysed in connection to student attainment and the behaviour checklist and what those might have signaled in terms of formative feedback from the students to their teacher.

Comparison of George and Natalie

Background: George and Natalie’s behaviour prior to the research

Communication and behaviour

The reason for considering these two case studies together was that both Natalie and George had joined the school in the year prior to the commencement of the research. Both had missed a few years of schooling, which meant that they were not as familiar with school routine as their peers, something that could have affected their ability to focus in the classroom.

Natalie and George had both been diagnosed with autistic spectrum disorder. According to Natalie’s statement, she had ‘global delay and disorder in her development in language, social interaction and play skills’ (Part II SEN Statement). Her and George’s social and communication difficulties included limited eye-contact and spoken language, which would be expressed with vocalisations in the case of George and mostly echolalic (i.e. repetitive) language in the case of Natalie. Both were more interested in interacting with adults but not as much with their peers.

Natalie enjoyed humming to herself and she was able to use symbols when motivated to do so.
However, there was considerable variability in her willingness to speak, use symbols, communicate or take part in activities. As her statement indicated, ‘she is responding to routine instructions and her responses are consistent, however these responses are still dependent on her mood’ (Part II SEN Statement).

George would communicate with adults through pointing and vocalising. Both of these methods of communication were mostly used as a means of attracting attention. He also tended to behave in ways that were unacceptable for the classroom (e.g. throwing objects, pinching, leaning against an adult or child) in order to receive negative adult attention: this would make him smile and vocalise loudly or cry if ignored.

**Self-help skills**

Natalie was wearing nappies during the night and during her school journey, but she was making progress during the day and used the toilet at regular times. She could also ask for the toilet when she was sufficiently motivated to do so. Natalie was able to feed herself with a spoon or fork.

George could use the toilet, dress and undress himself and eat independently. During the course of the autumn 2010 term, he learned how to use a knife and fork.

**What was their behaviour like when they joined the class?**

At the time of the research, Natalie had begun to show more interest in the activities taking place in the classroom. George had one of the lowest academic scores as compared to his classmates at the beginning of the intervention. His problems with learning seemed to stem from his attention-seeking behaviour (personal observation), which led to a lack of focus. This might have stemmed from the fact that he had not adjusted to school life.

Natalie and George had to learn to adapt to a subject-based curriculum at the beginning of the study
after having briefly worked with a general curriculum that primarily involved reacting to activities that they found appealing. This was a major transition, during which they both needed prompting and support by classroom staff.

Natalie and George only started participating actively and following the KS2 curriculum in spring 2011 when the study commenced. Prior to that, Natalie was only interested in sand and water play or playing with some cause and effect toys. George enjoyed playing with water and running. Natalie would spend most of her day holding onto an adult’s arm rather than participate in school life.

**Thematic analysis**

**Behaviour and attainment**

In the case of Natalie, her general mood as discussed in Chapter 7 influenced her performance heavily and was often related to external to the lesson factors which I could not control. During weeks 1-4 in maths for example Natalie’s best performance was observed in week 2 (she achieved five objectives and partially achieved one) and her worst in week 3 (she achieved two objectives). Natalie’s behaviour was withdrawn a lot of the time, and in week 1 she kept smiling to herself and looking around the classroom and playing with her hands, while she also tapped her chin and fidgeted (self-stimulatory behaviour). She rarely focused during non-contact time, and that was valid for the duration of the study. Due to being passive and indifferent during the first activity, that led her to not meeting her objectives that had to do with demonstrating interest in rhymes and songs. She needed physical support to perform the relevant tasks and she avoided eye contact with me.

This type of behaviour was representative of Natalie’s general state of mind and when she was distant and withdrawn, getting her to focus was difficult. Often, her behaviour would get negative, refusing to participate in the lesson. An example of that was observed in lesson 2 in literacy: she kept pushing the resources and symbols away and she chose the incorrect symbols in an attempt to perform the task.
quickly and be left alone. This makes it obvious that she knew what was required as part of the task even though she did not wish to perform it.

With regards to Natalie’s general positive behaviours it was observed that even in the days that her performance was positive, her behaviour during non-contact time was equally distracted and indifferent as it was in the days that she refused to participate. Nevertheless, when her turn came, she displayed positive behaviours like turning towards the board, smiling in response to the activity, following the resources with her eyes, making eye contact with me, reaching for resources and symbols independently, leaning forward, and signing ‘me’ to indicate she wanted a turn. An example of such positive behaviour was lesson 2 in maths. Her behaviour matched her attainment since she met five of the objectives and partially met one. Generally, Natalie would often lack interest in the lesson and she would meet none of the objectives due to her mood rather than her ability.

George’s main impediment to learning was his attention-seeking behaviour. This type of behaviour was not unusual amongst the students, however in the case of George it was his main obstacle. Negative behaviours such as turning away, staring at his teaching assistant, refusing to look at the objects or pictures presented to him, searching the environment, avoiding looking at me when asked a question and looking at the assistant and vocalising instead was not unusual. Clapping, touching resources and not selecting the correct symbol, standing up, kicking his legs and fidgeting also were negative behaviours displayed by George. He seemed to thrive on adult attention, so much so, that he vaguely participated in lessons. One example of a lesson in which all these negative behaviours occurred was lesson 1 in literacy. In this lesson, George kept turning away from the activity and staring at the assistant that was helping him. He kept seeking adult attention and he would refuse to look at the right place in order to respond to questions appropriately. Since he was so focused on gaining adult attention, he could not focus on the resources or symbols and comment correctly, as requested.
George’s best performance was observed in lesson 7 in maths (rewards week) in which he met four of the objectives and partially met another two. In that lesson, he turned towards the board to indicate he wanted a turn, and he smiled while he was on the trampoline. He had a pleased facial expression and he looked at the board and resources with interest. He made eye contact to indicate he wanted a turn and he signed ‘me.’ He reached for the touchscreen independently and he leaned forward in anticipation when his turn came. Even in that lesson, a number of negative behaviours took place such as needing physical prompting to perform tasks and he rarely managed to meet active objectives without full adult support. Generally, George expressed enthusiasm for lessons at times, but in general he did not seem to be particularly ‘present’ in the classroom. Whether it was the fact that he joined the school recently and he needed to get used to the processes it remains unknown, however his performance was inconsistent.

**Change of behaviour**

In the first phase of the research in maths, George’s performance went from meeting no objectives in week 1 to partially meeting all his objectives in week 2. This was linked with a marked change in his behaviour. In the first part of lesson 1 his behaviour was passive and even though he was sitting upright he appeared disinterested and he needed physical support to stand up and approach the interactive whiteboard and physical prompting to perform any of the activities. The only time he demonstrated interest was when I approached him, however that was linked with attention from me rather than any of the activities performed.

A shift in his behaviour and level of interest in lesson 2 might have indicated that interesting resources encouraged George to pay attention and learn. Even though he was excitable, vocalised and jumped out of his chair at several instances, he also smiled, followed the resources with his eyes and signed ‘me’ to indicate he wanted a turn. He needed some physical prompting to get up and perform tasks,
but he was mostly able to pay attention and partially complete all tasks. George indicated his preference for interesting resources through his change of behaviour and even though he did not fully meet all of his objectives, this appears to be mostly a result of his attention-seeking behaviour rather than lack of interest in the lesson itself.

Natalie’s change of behaviour and performance is less linked with the presence or absence of interesting resources or rewards and more linked with her personal mood. If one looks at how her performance changes from week to week (Appendix 10) there is no clear pattern to indicate she enjoys certain things more than others. At times, she would perform better during reward weeks (week 6, literacy) and other times during no rewards weeks (week 8, maths, she met 6/6 objectives). Also, there was a marked difference in weeks 2 and 3 in maths even though interesting resources were present in both lessons.

The fact that her performance was mood-dependent was demonstrated in lesson 6, activity 3 in literacy. Even though in her first and third attempt to comment by using symbols she was sitting upright, leaning forward and reaching for the resources willingly, in her second attempt she pushed the symbols board away and avoided eye contact. This was clear feedback to me that she did not wish to have a turn. The reasons why this was the case remains unknown, however her change of behaviour was feedback to me even if links with lesson interventions cannot be made.

**Dialogue and reciprocation of feedback**

In lesson 2 in literacy, George’s feedback shifted from positive to negative by the time he made his second attempt to comment with symbols. In his first attempt to answer my question in activity 3, he looked at the object he was asked to comment on, made eye contact and used the correct symbol to
respond to my question: his response was met with praise and positive body language. In his second attempt however, he looked away, was indifferent and kept tapping the board, giving no indication which symbol he thought corresponded to the right answer. His second attempt gave a clear indication that he did not wish to participate any longer. Even though I tried different techniques such as removing the board, repeating the question and pointing at the corresponding to the symbols objects, George was insistent and made it clear he did not wish to participate.

In week 4 in maths, during the symbol exchange phase of the lesson (activity 3), Natalie appeared to be alert, sitting upright, making eye contact and exchanging symbols with me. Her positive feedback to me, her teacher, and clearly stating she wanted to participate and she knew what she wanted was preceded by being reluctant to participate in the previous activity and refusing to get up to perform it. Natalie was expressing a number of choices in this example: she indicated that this activity was interesting to her and she was explaining to me exactly what it was that she wanted. I responded with praise, positive body language and tone of voice and handing her the object of her choice.

Interestingly, even though Natalie’s feedback was complex, it was present. Expecting her responses to always be the same is perhaps naïve. Like most individuals, she was probably expressing she wanted different things at different times and regardless of what was on offer she was often naturally interested or disinterested in a lesson or activity (as discussed in the literature review in Chapter 2, a person’s likes and dislikes change over time). The clarity of her feedback cannot be negated: she had a strong opinion and she was happy to share it with me.

In the case of both George and Natalie it is obvious that they tended to not change their opinion once they had made their mind up. However, this does not mean there was no dialogue. Often, in a dialogic situation, the one party may decide they do not wish to change their opinion, regardless of the other person’s feedback. Potentially, both Natalie and George were not used to conforming to classroom
rules exactly because they were new to the school and they had spent a long time out of the classroom context acting based on their own wishes.

**Summative and formative assessment**

In George’s case lesson 5 in maths was a good example of how negative behaviour can affect performance. For example, George got out of his chair as soon as activity 1 started and kept swinging his leg while he passively sat on his chair. He also jumped out of his chair at the end of the activity. Further to this, he appeared to be indifferent, until he heard the sound of the popper. At that point he listened and paid attention to what was happening in the classroom. Even though he seemed distracted, he also demonstrated some positive behaviours during activity 1, when he made eye contact with me and he reached for the touchscreen independently. He also performed tasks such as taking the laminated number down independently and he signed ‘me’ to indicate he wanted a turn. Even though he successfully completed some of the tasks though he also needed physical prompting. This mixed behaviour led him to partially achieve four objectives and even though he appeared to be willing to participate, his lack of focus affected his attainment leading him to partially meet four of the objectives.

In the case of Natalie week 8 in literacy was a representative example of how negative behaviour can lead to bad performance, linking formative with summative assessment. Natalie kept laughing and trying to hit and kick everyone, therefore she had to be held facing away from the group to keep everyone safe. She kept tapping her chin, and she still tried to hit out during activity 2. By the last activity, even though Natalie needed physical prompting to stay on her chair, she generally looked calmer and stopped trying to hit out. This extremely negative behaviour had an obvious impact on her
performance as she only partially met one of her objectives, establishing a link between summative and formative assessment.

Natalie’s attainment was affected by her lack of focus during non-contact time. Passive objectives could not be met when she was not focused throughout the lesson. This became obvious in literacy week 1, when, even though Natalie met two active objectives she met none of the passive objectives. And even though she was ready to receive the box and pass it on, she never actually looked at the box (however, she did meet the objective of taking turns). She was distracted when I was reading the book and pointed at pictures and she would often push the book away when it was presented to her. She was passive and indifferent during story reading. All these behaviours led her to not achieve any of her passive objectives. However, when it came to the active objectives, her body language was completely different: in activity 3 she sat upright, turned towards the resources, looked at and reached for the resources independently and chose the correct symbols. Natalie’s behaviour affected her attainment, establishing that even though ability might be present, performance can be affected by autism.

Evidence of interest

George demonstrated his interest in lesson 7, activity 1 in literacy by displaying behaviours such as turning towards the board, and indicating he wanted a turn by making eye contact and signing ‘me.’ He smiled and he looked pleased while he was on the trampoline, both strong evidence of interest. He looked at the board while jumping and he kept staring at the resources with interest. Even though he was interested in the activity and appeared to enjoy it, it became obvious he was not engaged because he needed prompting to take the laminated number down.

During lesson 4 in literacy and after she had not met her first two objectives Natalie demonstrated her interest in activity 3 by changing her behaviour. While she was turning away from the resources to
begin with, she suddenly turned towards the board when her turn in activity 3 came. She smiled and glanced at the resources a number of times. Natalie leaned forward and chose a symbol to communicate what she wanted. All these behaviours indicated she was interested as they were a contrast to her previous, indifferent behaviour within the same lesson. Before indicating her level of interest in activity 3, Natalie kept trying to push the box away during ‘pass the parcel.’ She also kept tapping her chin during story reading and she looked passive and indifferent. Her performance changed from not meeting her first objectives to fully meeting the final ones linked with activity 3, indicating that student level of interest can affect performance.

Evidence of engagement

George was often interested in parts of lessons, however it was rare he would be truly engaged, something that reflected on his performance. His best performance was observed in lesson 7 in maths, when he met five and partially met two of his objectives. One of the primary reasons why George would rarely show any signs of engagement is because he was so interested in attracting adult attention that it interfered with his ability to focus on the lesson. One of the primary distinctive factors to other lessons was that he reached for resources independently and he was anticipating actions, indicating focus. He needed some support, however he was not distracted. By the final task, his level of engagement had changed and he needed physical support to stop touching his face, and he covered his ears as he approached the table, possibly indicating he did not wish to perform the task.

Natalie was engaged with her tasks in lesson 7 in maths. This became obvious through her enthusiastic reactions rather than passive/blind cooperation she demonstrated in other lessons. For example, she started shaking her hands with excitement and smiling when presented with a party popper during the second nursery rhyme. She also got up, approached and touched the screen and took the laminated symbol down with little verbal encouragement during the ‘five naughty monkeys’ nursery rhyme. She was alert and sitting upright during her turn and she kept smiling throughout activity 1. In that lesson,
she met all of her objectives and she performed most of the tasks independently or with little encouragement. Her engagement with the lesson was obvious through her relaxed and positive body language and by the fact that she performed tasks with little or no assistance.

*Signalling intent (I like it/I don’t like it)*

In addition to expressing his engagement, George signalled whether he liked or did not like activities in maths, week 7. The shift in his positive behaviour from smiling, reaching for resources independently and anticipating actions related to the activity linked with the first four objectives to the negative behaviour of covering his ears, touching his face and vocalising in the last activity, indicated that he liked the first three activities, but not the last one. It is likely he did not want the final activity to be repeated, as his reactions were negative in all numeracy lessons whenever it was the time for that task. This does not mean that he was trying to influence my future decisions, however he consistently did not enjoy this task as indicated by his negative behaviour throughout.

In terms of signalling intent, my observation was that Natalie’s responses were clearer than her classmates. She indicated when she was interested and when she wanted me to stop. As with the rest of the students, it is not possible to claim that she wanted to influence my future lesson content choices, firstly because her reaction to activities were not consistent (she would react positively the one time and negatively the next) and secondly because of her autism it was not possible to understand how she could influence my future choices. For example, she clearly indicated she enjoyed activity 3 in lesson 4 in literacy through her change of behaviour from positive to negative, clearly stating that even though she did not enjoy the first two activities, she enjoyed and wanted to participate in the third activity.
Best formative assessment practices summary and conclusions

In the case of Ben and Natalie it soon became obvious that they were both not integrated fully into school life, which could have affected their responses to rewards and interesting resources. None of their reactions were consistent or clearly positive or negative while interesting resources and rewards did not appear to have an obvious impact on their behaviour.

George was somewhat more affected by interesting resources since his performance was better during weeks 2 and 3 in maths than it was in weeks 1 and 4 (table 9.2, Appendix 10). The same was observed in literacy, but the contrast was not as glaring (table 9.6, Appendix 10). Natalie’s performance however, was closely linked with her mood. Her formative feedback was clear and whenever she wished to participate she made it obvious through her body language, while the same held when she did not wish to participate. Her autism seemed to be affecting her more than others and her excitable mood could lead to hitting out and trying to hurt others, which was counter-productive to learning and formative assessment. Nevertheless, she did demonstrate feelings like pleasure when completing tasks.

With Natalie, if staffing and the timetable allowed, it would probably have been more productive if she had time to calm down or do a calming activity and later on access the lesson when she was in a more ‘ready’ state for learning. As mentioned in Chapter 8, a lot of those moods are not controllable, so the use of stimuli cannot have any impact as the students’ behaviour in these instances is hardly a choice. Again though, there were signs that Natalie was giving feedback to me about enjoying the activities and wishing to participate and she appeared to show recognition of the fact that she did well in the lesson. Providing opportunities that reinforce this type of communication can lead to better formative assessment opportunities and possibly a form of self-assessment.

George appeared to be governed by his wish to attract adult attention. Whether that was because he found accessing the lesson difficult or because his focus was poor due to having been in school for a short period of time is difficult to judge. However, his ability to perform was present and whenever his
Focus was good, he managed to achieve objectives, proving that being ready to learn had to be the main initial target for George.

Passive objectives were more difficult to achieve for these students as compared to the previous group, because once the resources were not near them, they ignored them. This was particularly true for Natalie who did not meet any of the passive objectives during literacy, since she tended to sing to herself, tap her chin and look around the classroom. Especially the fact that neither interesting resources nor rewards had an impact on her made it less likely she would be interested to look, observe and anticipate her turn.

Nevertheless, it is the case that both students gave their teacher feedback, and even though their behaviour did not necessarily get altered because of their teacher’s feedback, nevertheless they made their likes and dislikes clear, something that could inform future teaching practice and make lessons more engaging. Again, it appears that interesting resources could have more of an impact than rewards in lessons, however changing the type of rewards could have had a stronger impact on these students. They did need something to get them to that ‘ready’ state for learning, hence it would be a good idea to continue exploring possible interesting rewards that can improve their interest and engagement.
Chapter 10: Discussion and conclusions

Introduction

The aim of this case study has been to highlight the problem areas related to applying formative assessment with non-verbal students that have autism and severe learning difficulties. Another aim was to investigate if and how formative assessment practices the teachers discussed were effective in the specific environment. Adopting the case study approach enabled me to explore the complexity of formative assessment in this context, in depth. In this thesis I highlighted some of the issues and challenges related to receiving student feedback via student behaviour through my behaviour checklist: adjusted to specific students, it could offer a valuable tool enabling teachers to receive and analyse student non-verbal feedback, which is part of informal formative assessment as highlighted by Ruiz-Primo (2011). I also explored how the specific context can fit within the general formative assessment literature framework. Further to this, through expanding the definition to include less rigid versions of formative assessment, I explored how it can be more inclusive for a variety of student groups and encourage teachers to experiment with different methods, without the fear of being criticised.

Further to this, my research aimed to answer the following research questions, which will be discussed in this chapter and are related to the two phases of my research. Specifically, the first two questions related to the teacher interviews were:

1. What are teacher perceptions of what constitutes ‘formative assessment’ in the context of children with autism and severe learning difficulties?

2. How is formative assessment applied in the context of children with autism and severe learning difficulties and what strategies do teachers use?
The second part of this chapter will be focusing on the student video observations findings and those will be discussed in relation to the following research questions:

3. Is the form of feedback given by teachers to non-verbal children with autism and severe learning difficulties effective?

4. How do non-verbal students with autism and severe learning difficulties give feedback to teachers about their progress?

In this chapter, I will discuss the problem areas related to applying formative assessment with students that have autism and severe learning difficulties alongside the themes of student learning, behaviour and attainment, dialogue and reciprocation of feedback, communication and feedback, and I will explore the questions that these themes raise about formative assessment in this environment.

I will then discuss the implications and practical application of the study, which are related to ways in which formative assessment can be applied in similar settings. I will also explain how some of my preconceptions were challenged. Finally, I will interrogate the results in relation to already existing formative assessment literature and I will discuss the limitations of this study. I will explain what my contribution to knowledge is and I will make recommendations for future research.

The research questions: summary of the teacher interviews

What are teacher perceptions of what constitutes ‘formative assessment’ in the context of children with autism and severe learning difficulties?

Teachers differentiated between formative and summative assessment stating that the latter was a measure of performance, while the former assisted day-to-day learning. This supports the findings of earlier research set out in the literature review. Trumbull and Lash (2013)
confirmed that tests, linked with summative assessment ‘do not identify why students are not proficient; the tests are not linked closely enough to classroom instruction and curriculum to identify what misconceptions students hold or what skills they are missing’ (p.1). However, most of the teachers missed the important link between formative and summative assessment: even though there is a danger that formative assessment will become a slave to summative assessment if both assessments are used as part of the same process, formative assessment loses credibility and is detached from the curriculum if it is a separate process. As Black (2003) pointed out, it is better for formative and summative assessment to coexist ‘no matter what the tensions between the two might be’ (p. 16).

The teachers were positive about the role of formative assessment indicating that it was a useful diagnostic tool, which could be used in the context of everyday teaching. It was seen as more useful than summative assessment, which was not considered to be giving useful information to the teacher or assisting student learning. Popham (2007) describes the learning progression as a set of building blocks that students need to learn how to use in order to reach their ultimate goal. Heritage (2010) points out that many curricula don’t offer the teachers that useful breakdown of smaller goals and that makes the formative assessment process less possible to implement by teachers. As discussed earlier, even though the P-levels offer this useful ‘breaking down’ of the blocks that lead to the ultimate summative assessment goal, they are often not sensitive enough and they do not address the non-linear learning pattern that these students often display.

According to the comments made in the teacher interviews, formative assessment displays the following characteristics:

- it is on-going;

- it is individualised;
- it needs to be formally recorded; and

- it informs planning.

Even though the teachers pointed out these elements as an essential part of formative assessment, they did not specify any consistent methods they use in their classrooms that link all these elements together. Interestingly, and possibly because of the way the senior leadership team approached formative assessment there was a lot of focus on methods of recording student progress, which is not formative assessment per se, even though it informs future planning. This is another misconception that needs to be addressed with better research and training. The teachers expressed their concern over not being able to reliably apply formative assessment with non-verbal students and they appeared eager for further guidance on the matter as they often felt that what they did with their students was highly experimental. More research and dissemination of information across special needs schools would be needed in order to adequately address this.

**How is formative assessment applied in the context of children with autism and severe learning difficulties and what strategies do teachers use?**

**Formative assessment methods**

The formative assessment methods reported by the teachers included:

- direct feedback to students;

- verbal praise;

- tangible rewards;

- use of charts;
- modelling and prompting;

- adult/team discussion;

- peer assessment;

- written feedback; and

- tone of voice/facial expressions.

Some of these methods derive from behaviourism (e.g. tangible rewards, use of charts), while a number of these were used with more advanced, verbal students (for example, written feedback and direct feedback to students). It was agreed among a number of teachers that the team discussion was not relevant to non-verbal students, even though it was reinforced as an appropriate formative assessment method by the school. Tone of voice and facial expressions as well as modelling and prompting were relevant, everyday methods of teacher feedback and they were mostly successful in their role as long as the students were willing to engage with their teacher. The main problem with all these methods was the lack of a communication system, enabling the teachers to receive non-verbal student feedback, which many teachers found difficult, as they were not sure that what they were doing was effective. That is something I aimed to address through the use of my behaviour checklist, used in the second part of my research. As Ruiz-Primo (2011) pointed out, body language can form and important part of informal formative assessment as it can be interpreted as student formative feedback. This could be the solution to the problem of student-teacher communication as body language would be interpreted, as opposed to spoken language.

In terms or recording systems, teachers mentioned video and audio recordings, team discussion, student observations, keeping records of observation, post-it notes, testing and reference to IEPs as the main methods of formative assessment record keeping. Even though recording systems can be useful in terms of informing teaching practice, it appeared that in many cases they were regarded as the main
formative assessment methods without looking into what students are assessed on and how they are assessed. Also, as pointed out earlier, too much emphasis was put on recording rather than the effectiveness of formative assessment methods used. Eliciting evidence from student performance and feedback can be used to improve learning (Popham 2006), however the act of recording in itself is not a formative assessment method, unless used to inform planning. Recording student reactions also does not address the issue of timely feedback as reported by Wiliam and Leahy (2015). In order to be effective, feedback needs to be timely and preferably instant, particularly since these students have autism and severe learning difficulties, which results into their long-term memory being impaired (Schopler et al. 1980).

Furthermore, a number of problem areas when it comes to applying formative assessment in the context of Highland school were highlighted. Those problem areas had to do with the fact that the mode of communication between student and teacher varied depending on the student’s level of understanding of spoken language and the ability of the teacher to interpret non-verbal student feedback. A further problem was the lack of student motivation and the fact that students had different, individual needs, which were often difficult to address through conventional teaching methods.

Problem areas also included practical difficulties within the specific educational context. For example, information being passed from one teacher to the next to ensure continuity, lack of teacher time to carry out formative assessment appropriately, the fact that formative assessment depended on subjective teacher views, the lack of support from the senior leadership team and the fact that formative assessment was often used in a ‘tick box’ approach to satisfy observers rather than assist the individual student. Although these comments were made in the context of teachers’ understanding of formative assessment in many ways they indicate that more effort needs to be made if formative
assessment is to be applied in the specific environment. Research and teacher and senior leadership team training is needed in order to address some of the problems reported by teachers.

**The research questions: student video observations**

The final two research questions posed have been addressed through the student video observations. Some of the interventions suggested by teachers were put to the test as part of my research, while I added the student communication element by using the behaviour checklist. Specifically, the research questions were the following:

3. *Is the form of feedback given by teachers to non-verbal children with autism and severe learning difficulties effective?*

4. *How do non-verbal students with autism and severe learning difficulties give feedback to teachers about their progress?*

**Applying the formative assessment principles with my students**

In this section I will aim to explain how my research questions related to the student video observations (i.e. questions 3 and 4) were answered through phase 2 of my research. Admittedly, they did pose more questions that they answered, however the formative assessment promise cannot materialise in a setting like this if the approach used is not suitable. The problems associated with formative assessment as it is applied presently will be exposed and discussed in an attempt to scrutinise all the evidence that suggests how students communicate and what helps them learn in general and access formative assessment in particular.
Formative assessment problem areas

The interviews identified two types of problems when it comes to assessment: problems of a practical nature, like information not being passed on from one person to the next, a type of problem that affects continuity, and problems linked with applying formative assessment with non-verbal students that have autism and severe learning difficulties. These problems deserve an extended discussion as they have formed part of the incidental findings in this study. Those include the issues of communication, understanding, interaction, reciprocation of feedback, response, behaviour, dialogue, body language and communication. These themes will be discussed in the following sections in an attempt to explain how they answered the research questions related teacher and student feedback as it is displayed in this context.

Student learning pace

This is not precisely a problem in itself, however student learning pace can affect how formative assessment in relation to this group of students is viewed. Imray and Hinchcliffe (2012) pointed out that teaching needs to happen in a different timescale, and the depth of teaching and repetition of concepts required for students with autism and severe learning difficulties are completely different to that of mainstream students. As one can observe from the teaching timescale and the type of objectives in this research, repetition of the same concepts was required to consolidate knowledge and subtle tweaks in each lesson were used to challenge students. This, perhaps, makes it more difficult for researchers to make big claims about generalisations and may have contributed to the lack of research in the area, since students do not make big leaps in their learning, but small, baby steps. Further to this, because teaching and learning is so restricted, formative assessment needs to take a different form so as to accommodate the students’ learning pace.
**Behaviour and attainment**

Behaviour can carry different meaning depending on the individual and as part of this research I explored how students give feedback through their behaviour. One of the interesting findings was that negative behaviour did not always equal low performance. Some students, like Steve and Natalie, could achieve their objectives even when their behaviour would be labelled as negative (i.e. vocalising loudly, jumping up, closing eyes, tapping chin, looking around the classroom, trying to attract the teaching assistant’s attention). This was less so the case with students like Ben, Susan and George who tended to meet none or less of their objectives when displaying negative behaviours.

A lot of the time negative behaviour was also closely linked to the students’ autism. Sometimes their behaviour was extreme (for example Natalie hitting out and laughing for the duration of the lesson or Ben flicking his hand and trying to stimulate his eyes by looking at lights while shaking his head), it would normally start before the lesson and carry on for extended amounts of time, preventing them from accessing the lesson. This is linked with sensory overarousal or underarousal which results into students engaging in self-stimulatory or self-injurious behaviours (Cohen and Volkmar 1997; Dawson et al. 2004). This type of behaviour cannot be deemed to be feedback, as it was often uncontrollable and it had no connection to the lesson, since this would be the mood they would come to school in. This is closely linked with students not being in a ‘ready state for learning,’ a well documented area of difficulty by research as reported by Lewis and Norwich (2001, p. 8) since it meant students could not access their lesson or meet their objectives.

Immaculate behaviour, however, could guarantee perfect performance. Being actively involved through sitting forward, making good eye contact and having good eye focus, alongside independently reaching for resources and completing tasks were acts that signified engagement with the lesson and led students to meet their objectives. Whenever students were in this ready state for learning they
would be more communicative with their teacher and they would give feedback through actions as they were mentally present and interested in the lesson.

**Dialogue and reciprocation of feedback**

One of the main aspects of formative assessment discussed in most definitions of the term is the aspect of reciprocation of feedback. In order to answer both research questions in terms of feedback effectiveness on the part of the teacher and ways in which students give feedback, it was essential to explore how teachers and students responded to each other. A dialogic encounter with non-verbal students that have autism and severe learning difficulties is by no means straightforward or conventional. Since students lack a theory of mind (Kana et al. 2015) and they have impaired communication and language skills (Kroncke, Willard and Huckabee 2016), it becomes evident why a conventional dialogue, even though desirable, could not materialise under the specific circumstances.

Within the limitations of a symbol exchange session between teacher and students in literacy and numeracy, reciprocation of feedback was explored. In those sessions it was possible for the teacher to express her pleasure or disappointment through facial expressions and actions, approving or disapproving the students’ responses. This, in many cases attracted a student response: for example, in Ben’s case, even though he kept staring at me and choosing the wrong symbol, when I moved on and gave him a second opportunity later, he carried on staring at me trying to ‘read’ my reaction and decided to give the correct answer and trigger a positive response. This was an example of positive reciprocation of feedback. A lot of the time, no meant no, like in Natalie’s case who, even though chose to answer correctly twice, the one time she did not wish to answer she pushed the board away and did not respond to my encouragement and requests to participate. This was her second attempt,
which was rather interesting as it did not indicate she lost interest in the lesson, because in her third attempt she answered correctly.

One may question whether this organised interaction constitutes a dialogue, however if exchange of feedback is regarded as a form of dialogue/meaningful interaction, then dialogue is possible between non-verbal students with autism and severe learning difficulties and their teacher in the context of a specific activity. Since this dialogue is always initiated by the teacher, it can be limited as it does not give both sides an equal say, however if students are encouraged to engage in their learning process, this does not matter. One needs to start from somewhere when exploring dialogue and reciprocation of feedback and it is possible that this is only a starting point and further ways of exchanging feedback can be explored through future research.

In the case of children that might learn how to use verbal language in the future, this type of activity could form the basis for a verbal communicative exchange as it teaches children turn taking, taking the other person’s opinion into account and responding to it. It also enhances the students’ theory of mind by establishing that others have their own opinions and it encourages behaviour linked with communication with others rather than being isolated in one’s own thoughts which is often the students’ default position due to their autism.

**Communication**

A lot can be said about communication through body language and speech, however reading non-verbal behaviour in an environment that students do not often intentionally communicate their thoughts to others, claiming that their behaviour equals communication with intent can be challenging. Even though Ruiz-Primo (2011) specified that non-verbal behaviour can be used as informal formative
assessment, they did not specify whether intent needs to be present or not for behaviour to form part of the informal formative assessment process.

Expressions such as vocalisations are not the equivalent of speech. However, are they part of communication? In most cases, when vocalisations were used, it was because students wished to block sound out due to not wanting to participate in the lesson or because they were in an excitable (and not ready to learn) mood. Even though it was not speech, vocalising established that students did not wish to participate in the lesson and it was an attempt to block further information being communicated to the student.

Facial expressions were also part of the communication process. A relaxed, smiley face and good eye focus often established willingness to participate, excitement about the lesson and the student being pleased with their performance. An indifferent facial expression and avoiding eye contact often resulted into bad performance and indicated the student did not wish to participate in the lesson.

Teacher facial expressions could communicate that the teacher is pleased (or not pleased) and signal whether change of behaviour and focus is needed on the part of the student. Whether the students’ facial expressions were intentional or not, it remains unknown and all that can be done in the part of the teacher is taking all forms of communication as intentional and meaningful in order to encourage learning and enable formative assessment practice (something that often takes place in parent/infant interactions as discussed earlier).

**Feedback/response**

Feedback, as examined by literature is an important part of formative assessment. Specifically, formative feedback is defined as ‘information communicated to the learner that is intended to modify his or her thinking or behaviour to improve learning’ (Shute 2008, p.154). As explored in the student
video observations, formative feedback was used by the teacher throughout the lesson through the use of a tone of voice, facial expression and the use of stimuli. However when it was more interactive like in the case of symbol exchange, it became obvious that some of the students (like Ben) adjusted their behaviour and gave the teacher the correct answer after a brief formative feedback encounter. Often, the students would respond to teacher feedback by adjusting their behaviour or refusing to adjust as discussed in the previous section. Based on Wiliam and Leahy’s (2015) formative assessment definition, instruction can be modified to assist student learning and it can be used as a corrective strategy. So long as the student can successfully receive teacher feedback, it does not matter if this type of formative assessment practice improves learning as it does not always have to do so (Ibid).

What is a response and how does it differ to feedback though? The term ‘feedback’ implies intent. One person gives feedback to another because they would like them to change their behaviour as a result. However, a response is simply a statement to answer a previous statement coming from another person with no intent to do anything about it. Could it be that the students were simply responding and not giving feedback? With reference to the symbol exchange activity, in the case of Natalie it is likely she was only responding to my demands by saying ‘no, I am not interested,’ but having no intention to influence my response or reaction. In the case of Ben, however, it was obvious he was looking at me to identify signs he was doing the right thing (i.e. picking the correct symbol in response to my question). He was engaged and interested, wanting to achieve, which is why this encounter could be regarded as feedback.
What questions do the themes of dialogue, feedback, communication and behaviour raise about formative assessment in this research environment?

It is understandable that when a concept has been consolidated as factual, it is difficult to think flexibly and differently. It is challenging when one attempts to accept the concept of a non-verbal dialogue, behaviour as a form of communication, communication solely through body language and feedback as a short exchange of actions with limited vocabulary involved. If one also tries to combine all these concepts and connect them with formative assessment, it becomes even more complicated. When it is all subject to teacher interpretation and teacher-led how is it possible to even speak of formative assessment?

It all becomes clearer once the concept of ‘informal formative assessment’ is considered. According to Ruiz-Primo (2011) body language can be used as a form of informal formative assessment. Evidently, Ruiz-Primo did not answer the ‘how’ question, however, and as discussed in Chapter 2 interpreting other people’s actions or even words can be challenging and problematic since the one person cannot know what the other one is thinking (Taras 2013). This is the case for both students and teachers, regardless of the presence of absence of a theory of mind.

So, if one revisits my definition of formative assessment definition, several of the keywords discussed in this section have been included:

Formative assessment in a non-verbal setting with students that have autism and severe learning difficulties requires a variety of flexible and rigorous interpretative tools that will examine and interpret student behaviour in an attempt to give students a voice. It is a day-to-day, on-going dialogue that heavily involves teacher perceptiveness that can encourage teacher responsiveness which will enable reciprocation of feedback between the student and the teacher, and it may be partially non-verbal. It requires the teacher to be observant and
perceptive to maximize the chances of the interpretative tools created being successful. More importantly, any action that is likely to improve a students’ current position and enforce further learning, can be considered formative assessment.

Dialogue can obviously not be verbal, but a form of communication exchange. Strictly speaking, formative assessment gives a student the opportunity to express their opinion about what they learned or needed help with, however when in the specific context students are not able to do this both because of their speech and their cognitive ability. This does not mean they cannot participate in the formative assessment process. Facilitating communication to enable student learning and formative assessment, even if the two parties do not hold the same ability to communicate has got an important value in an inclusive education system.

Further to this there was evidence of reciprocation of feedback and student response to the teacher’s formative feedback during the symbol exchange activity (discussed in chapters 8 and 9), even if that was basic. In an organised session with clear aims, students can agree to participate or refuse to participate in a task. When the teacher’s aim is to encourage student participation in the lesson, then student’s response or refusal to participate become part of formative assessment. The teacher needs to be actively engaging with students and interpret their actions as feedback in order for their feedback to count as formative assessment. Teacher intent and taking student reactions into account to inform future lesson planning can make exchange of feedback part of formative assessment.

In addition to this, what is the relationship between communication, feedback and formative assessment? And when does a sensitively observed teacher response become part of the process of giving feedback? Also, when does feedback become part of formative assessment? Communication in the context of formative assessment is the intentional exchange of feedback. Sometimes communication with non-verbal students that have autism and severe learning difficulties can be unintentional, but if the student responds to it, then it can carry meaning. Or, the student can be taught
that their attempt to express frustration or pleasure can be communicated to another person, who will
sensitively respond to it, which can transform their unintentional communication into feedback. In
other words, formative assessment in this context needs to be a taught concept. Regardless of whether
students learn that they can affect their teacher’s response, reacting sensitively to students, if done
consistently, can teach them that their opinions are valued and they can have and express ideas and
opinions about their learning.

Finally, since any action that can improve student learning can be regarded as formative assessment,
and responding to students in different ways can improve their learning, should this not be regarded as
formative assessment? Regardless, naming the type of communication as formative assessment is less
significant than attempting to open those channels and encourage further interaction and learning.
With all these observations and assumptions, my definition of formative assessment in the specific
context can prove a valuable tool to practitioners, provided they are open-minded on their views of
well-established concepts such as dialogue, feedback, communication and formative assessment.

Limitations

As part of this research I attempted to involve students in the formative assessment process and the
way my research was designed was specifically to actively involve them in their own learning. One of
my main targets was to represent their perspective, but also give them a ‘voice.’ This is obviously a
problematic claim, exactly because of these students’ communication needs. However, as Baker
(1999) explained, a voice is not ‘audible articulations alone’ (p. 380) and silence and voice are not
antithetical notions. Obviously, these students cannot elaborate on their formative assessment
experience or explain if they understand it or not, however this is linked to the fact that in addition to
being non-verbal they also have a cognitive impairment.
It is also the case that the students’ voice depends on my interpretation, and this, as highlighted by Grove et al. (1999) is problematic exactly because interpreting another person’s communication attempts cannot be objective. Further to this, it is possible that my students did not wish to participate in the formative assessment process, however they were given no choice. As Sigelman et al. (1981) noted, when there is an imbalance in two people’s communication ability the student is more likely to passively agree. It is possible that the voice I attempted to give them was enforced on them even though they were not interested in participating.

It also needs to be stressed that, whilst I had the skill and background to interpret certain behaviours, I could never be certain that my interpretations were correct: rather than that, they always were a ‘best guess’ exactly because it is difficult to confirm what the student is trying to communicate. Can one say that this was a reliable interpretation of student behaviour or a second hand testimony? Even though objectivity is not easy or straightforward to achieve and interpretation depends on a person’s perspective, I believe that my background and experience helped me interpret student behaviour with relative accuracy. As discussed earlier, the only option is to keep attempting to give my students a voice and interpret their behaviour rather than completely give up. With continuous attempts there is a possibility that more reliable methods of interpretation will be figured in the future and there will be more certainty that teacher and researcher interpretation is accurate. Even if one agrees that this is a second hand testimony, is it not better to have an advocate than to be ignored and marginalised?

In addition to this, a number of interactive teaching practices have been discussed as part of this research which, even if they cannot be named formative assessment in the more traditional sense of the word, they are still part of formative assessment since they improve student learning. If one takes formative assessment as something that encourages a better learning experience, then it becomes a less strict concept that can apply to different situations and individuals. Regardless, offering opportunities to students, trying to read their body language and respond to them while also encouraging them to
complete tasks are all good teaching practices and they need to be encouraged as they appear to benefit students.

The students’ ability to reflect on their own learning and understand that what I was attempting to do is to get them to participate in the formative assessment process was not present. So, reflecting on what they did in the previous lesson and attempting to improve their performance in the present lesson is not something that can be expected from this group of students. Therefore, it is a limitation with regards to student personal improvement as they cannot be engaged in a self-assessment process and understand what they should aim to improve. Rather than that, the teacher devises activities to guide students through a specific learning path and students are led to meet goals set by the teacher. Strictly speaking the notion of formative assessment is meant to be involving students being active with their learning experience and being led is perhaps considered to not be doing this. Nevertheless, when students lack the ability to follow their own path, this can be considered inclusive practice rather than a failed formative assessment process.

All formative assessment interventions suggested by teachers stem from behaviourist principles. This has proven to be a limitation as stimuli do not work with all groups of students (for example, Steve was operating at a level that stimuli seemed redundant) and often they proved to be an impediment to learning (for example, tangible rewards seemed to be a distraction even for students that found them motivating). This is an important limitation as it exhibits how limited the view of formative assessment in special schools can be. In order to be successful, more imaginative views might need to be employed in the future so as to achieve better levels of engagement and learning.

Further to this, P-levels are not a good measure of achievement. In the absence of a reliable measure of achievement it is hard to evaluate student progress. As noted in the case study chapters, since the type of students participating in the study learn in a non-linear fashion and a lot of the P-levels are subject to interpretation puts the P-levels in a position of a non-reliable assessment tool. As Jordan (2001)
pointed out, children with autism and severe learning difficulties have both a deviant and delayed learning pattern. The P scales could address the delayed part, however not the deviant part of student learning. In this sense, if summative assessment tools are not reliable, how can there be progress with formative assessment, which is an even more complex process than summative assessment?

Generalising from this study would be challenging as it is the nature of autism that makes every student different. However, the communication challenges and engaging and interacting with students are the same and, if addressed, they could make a difference in other students’ learning experience. Generalising can come from sharing good teaching and assessment practices for non-verbal students with autism and severe learning difficulties with other practitioners and helping them identify and evaluate which ones of their own practices help their students learn. For example, it appears that verbal praise, tone of voice and facial expressions can be good methods of giving positive feedback and ignoring and moving on a good method of negative feedback from the teacher, while behaviourism does not work with all students. Further to this, the behaviour checklist can be used and modified by teachers to observe and interpret their students’ feedback. Collaborative work and comparison between a variety of students in different schools can potentially identify more about the nature of formative assessment when it is applied with non-verbal students that have autism and severe learning difficulties.

Implications and practical applications of the study

Assumptions about formative feedback:

A lot can be said about the ways in which formative assessment can be applied with this group of students, which is identified and interpreted through my teacher/researcher lens. A number of assumptions have been made and challenged which can be useful to practitioners when attempting to
apply formative assessment with non-verbal students that have autism and severe learning difficulties. The discussion that follows carries important implications for teaching practice.

**Student involvement in formative assessment**

It is difficult to claim that students participate in formative assessment when they cannot express an opinion about the methods a teacher uses in the classroom. And especially when the whole formative assessment process is teacher-led, students cannot do much to influence it. Nevertheless, they can participate in formative assessment through their responses. They also have the option to deny participation, like Natalie did when she was asked to comment with symbols (discussed in Chapter 9) and she decided to push the symbols away and not respond to her teacher.

**Body language and attainment**

Negative and positive behaviour can implicate different things between students. Some students like Steve could achieve even when their behaviour would be labelled as negative. This was less so the case with students like Ben and Susan who tended to meet none or less of their objectives when distracted. In some cases, like Ben, he would use negative behaviour to attract adult attention, which he found fascinating.

Steve’s negative behaviour was inherent to his autism so he often could not help it, however he worked against his mood and achieved his objectives even when he was overstimulated. Susan also managed to meet or partially meet some of her objectives even when her behaviour was excitable, but not when she was acting disinterested (for example, turning away from the board, fiddling with her clothes, trying to ‘escape’ what she was being asked).
A general remark in terms of behaviour is that when behaviour was immaculate, students would meet most or all of their objectives and extremely positive behaviour appeared to guarantee good performance. The same did not hold for negative behaviour.

**General assumptions related to communication, cognitive ability and teaching**

A few assumptions were made before the case study research commenced. A number of those were challenged and some were confirmed. Specifically:

With regards to dialogue and reciprocation of feedback, it was possible, at a basic level and within the limits of a specific task. Students could not fluently express their opinions, first of all because they were non-verbal and secondly because of their cognitive level. However, dialogue, as a form of response to each other’s feedback was possible within the limitations of an organised, bounded activity.

Self-reflection is possible to an extent: for example, students could modify their behaviour to meet teacher expectations and answer questions correctly. The example of Ben as discussed in Chapter 8 was a representative one, since he managed to stop his prior behaviour and answer his teacher’s question correctly after a failed attempt, because his teacher ignored his initial attention-seeking behaviour and moved on to the next student when he tried to choose the wrong symbol. This does not mean that the students can evaluate their overall performance, however it is a starting point and it opens up the possibility for self-assessment under controlled circumstances with non-verbal students that have autism and severe learning difficulties.

Newness of resources/interventions/stimuli and the surprise element had a positive effect on student interest: this was the case for a number of students. Susan for example reacted positively in lesson 2 in literacy once the interesting resources were introduced (detailed discussion in Chapter 8). Her level of
interest was not sustained, but when new interventions were introduced they appeared to attract her attention and, in the case of interesting resources, boost her performance. Once the surprise element was gone, however, her performance and interest would drop in subsequent lessons.

Generally, interesting resources do not guarantee achievement, but they attract student interest. This was the case for most students who appeared to be more motivated with interesting resources present. Steve and Natalie were the ones that appeared to be unaffected and their level of interest was a matter of mood.

Instant reciprocation of formative feedback encourages positive outcomes. For example, in the case of George and Steve there were examples (as discussed in Chapters 8 and 9) that the two students changed their behaviour, focused and gave the correct response even though their behaviour was initially negative. Their teacher’s instant feedback encouraged their positive response, which involved giving the correct answer. The timing of the feedback is extremely important for this group of students, since it can affect their performance.

Student mood, affected by the fact that they had autism, was a strong element linked with achievement for students like Ben, Natalie and George. Mostly Steve was the one that could control his behaviour in order to complete an activity, undistracted by his level of excitement. Most students could not disengage from their negative behaviour in order to learn (for example, Ben, Natalie and George).

Further to this, it appears that in the early stages of learning and for students in the early P scales who are less integrated into the day-to-day teaching, using external stimuli like rewards and interesting resources is more effective as those attract attention. At later stages of learning though, there is an inherent interest in the lesson which is not affected by the presence or absence of stimuli (such an example was that of Steve and, occasionally, Natalie). This demonstrates that the dominance of
behaviourism is not justified based on the results it produces or, perhaps, that some students are more motivated by different things, which have not yet been established.

Rewards did not end up being a predictor of good performance. One of the particularly surprising results of this research was that rewards have a negative impact on learning for this group of students. This is an important observation, since using rewards was one of the most popular methods suggested in the teacher interviews. However, it turned out that because the focus shifts on the reward rather than the aim of the lesson (potentially linked with preintentional communication being directed to the object as opposed to the teacher as discussed in an earlier chapter), students get distracted and, as a result, they do not perform the task required or fulfil the aim of the lesson. When rewards become a means to an end, the lesson objectives take a secondary role. Rewards still have a place in special needs education as they can be used to encourage passive participation (such as sitting down or waiting), which is one of the primary goals when students first attend the school.

**Coincidental learning**

Even though formative assessment is closely linked with objectives and often there is an obsession with targets and attainment so as to prove to Ofsted learning is taking place, one cannot underestimate the value of coincidental learning, especially in a setting like Highland school. Imray et al. (2010) stressed the importance of process-based rather than target-based learning and explained that learning is not just about an end outcome. Coincidental learning that happens as part of the lesson can be equally if not more important: social interaction, the joy of coincidental learning and satisfaction of merely being part of the learning process (ibid) are some of the important parts of learning that are often ignored. In this study, students demonstrated they were pleased with themselves because of getting things ‘right.’ Sitting closely to each other and sometimes observing what other students do
might be the only opportunity to socialise with other children for some of these students. This type of coincidental learning is not celebrated enough, but it is undeniable that it took place during the research and it had an important role to play, exactly because students felt included and enjoyed a shared learning experience with others, something that the nature of their disability often prevented them from doing. Even though it is not measurable, this type of learning has got an extended impact on the students’ education.

**Practitioner researcher conclusions**

Being a teacher, researcher and the secondary subject of one’s own research can create immense pressure to perform in each of the different roles simultaneously. Furthermore, performing as a teacher and being an effective researcher at the same time can present a great challenge, especially in a context as demanding as that of a special needs school.

One of the challenges of being a practitioner researcher is avoiding bias. Conscious effort is required to be as objective as possible. However, the role of the practitioner researcher is also exciting as one can re-discover or notice for the first time biases and challenge assumptions leading to making changes in their teaching practice. Including video as part of my research enabled me to look back and realise, for example, that at times I would label students as ‘not performing well’ because of the behaviours they displayed such as vocalising and being loud, even though in reality their performance was excellent.

In a culture obsessed with league-tables and exam results being a practitioner researcher is important as being an advocate for students that do not display remarkable progress within short periods of time is often avoided by researchers. Even though their progress is not impressive in quantitative terms, it is impressive in an ipsative way (relative to their current position) with the right interventions in place.
These are easier to access if a researcher is also a practitioner as they understand the students’ needs and the problems associated with teaching and learning in this environment.

As a teacher I found it frustrating that little or no guidance existed in relation to formative assessment with non-verbal children with autism and severe learning difficulties while at the same time Ofsted demanded to see evidence of good formative assessment practice when evaluating lessons. It was this that prompted me to undertake this research. The interviews with the teachers indicated that I was not alone in feeling frustrated and unsupported. It was clear that teachers of special needs children needed guidance and support and, even more so, some ideas that could be used at a practical level in the classroom.

I believed that utilising some of those ideas and using some other ideas that derived from my personal research to create a consistent student communication and feedback tool (the behaviour checklist) could provide a starting point for the formative assessment dialogue in special needs settings to begin and to attract more practitioner interest in research that is necessary for questions to be answered in such a specialised context as Highland school.

**An examination of the results in relation to existing research**

The results of this study are broadly consistent with Black and Wiliam’s (1998a) definition, who described formative assessment as ‘encompassing all those activities undertaken by teachers, and/or their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged’ (p.7-8). In the present study, a number of student actions were used as feedback, since non-verbal evidence can form part of informal formative assessment as used in the teachers’ day-to-day practice (Ruiz-Primo 2011). Even though that feedback was only used as a part of a planned by the teacher activity and was teacher-led, it gave valuable information about the
students’ current position and in some cases helped them focus and achieve their objectives. Even though the student initiative is absent in such an exchange, one needs to understand that without modification, formative assessment cannot be suitably used with this group of students, especially since student communication can be preintentional (i.e. spontaneous and with no intention to influence their teacher’s actions).

Furthermore, as Black (2003) pointed out, the main priority of formative assessment is to enhance student learning. Regardless of whether rewards and interesting resources had a particular influence on students, the tight structure of the lessons and the formative feedback between the teacher and students clearly enabled all of them to access their activities and meet their objectives. They all met or partially met their objectives in a few instances and there were lessons that they were successful in meeting all of their objectives (Appendix 10). Even if this type of formative assessment would not have taken place in the same form in a mainstream school, if it is accessible to students and creates the structured environment they need in order to learn, does it matter that it is applied differently? And if all practices that improve learning are considered to be formative assessment is there any reason one would exclude these practices for the sole reason that they are not conventional?

More specifically, Wiliam and Leahy (2015), suggested that the following principles need to apply in order to be able to claim that formative assessment is being used in the classroom and I have attempted to explain how those principles applied to my students:

- Teachers, students and peers can be involved, but the participation of all is not obligatory.

This opens up formative assessment and makes it more of a possibility for the specific setting. At this stage, formative assessment was primarily teacher-led, and set within the planned framework of the teacher’s lesson. The fact that it is facilitated does not make it less important or ‘less of a formative assessment.’ There have been signs that students can reflect on what they just did (for example, not
answering a question and choosing the wrong symbol deliberately) and they can adjust their behaviour accordingly. Reflecting on one’s own work is a prerequisite to self-assessment and this is potentially a sign that this area needs to be explored further in order to establish whether self-assessment is possible for this group of students, if adjusted to their needs. Once that has been established, peer assessment might also be accessible, but this would be something to explore in the more future, since self-assessment would need to be established first and the students’ impaired theory of mind would make peer assessment more difficult to access.

Furthermore, Imray and Hichcliffe (2012) pointed out that achieving peer assessment requires problem-solving and theory of mind skills which are not possible if distinct types of teaching are employed. This indicates that it would not be an easy process for this group of students, however not an impossible one. Future research could focus on identifying all these distinct types of teaching that will help students learn all these skills, leading them to successful self and peer assessment.

- The intention is to improve learning.

The intention was indeed to improve learning and all the practices, from the teacher interviews, to the lesson planning, the feedback and the interventions planned were designed to assist students with accessing the lesson. The fact that all students managed to achieve their objectives in more than one instances is a testament to the fact that when a well planned lesson can be made accessible to all and experimenting with different means to attract attention can involve all students in the learning process.

- Instruction can be modified to assist student learning and it can be used as a corrective learning strategy (but it does not always have to).

A number of variables were adjusted to experiment with the theory that different interventions and types of instruction can be used to assist student learning, some of which proved more successful for some students and less successful for others. A further step to this would be to create a more
individualised system (as much as possible within the framework of teaching one concept to all) and differentiate among the students based on the effectiveness of different interventions for each. For example, if introducing new resources every time makes the lesson more attractive to a student, attempting to include a variety of resources might boost that student’s attainment levels, while including different rewards such as an interesting flicker to play with for ten minutes as a result of focusing on a specific activity might help another student access the lesson and make the most of it each time.

- A decision prior to the assessment episode needs to be made with regards to what will be assessed.

This is something that was carefully planned as part of this research. Without clarity in what it is that researchers are looking for (in this case successfully meeting the objectives and student formative feedback examined through the behaviour checklist), it is impossible to understand how successful students have been. Especially when a field is challenging, other parameters need to be planned to the detail to prevent any external factors affecting student attainment and paving the way to a more reliable interpretation of student behaviour.

- Formative assessment practice does not always have to improve learning as long as the teacher does not give up trying to apply it as part of his/her day-to-day teaching.

Even though I tried my best to give effective feedback and influence student behaviour there were days that I simply could not get through to the students. This was the case for all students in different instances and it is something that will always be a risk due to the nature of these students’ disabilities. Still, I persevered and results improved, there were fluctuations in their performance, but mostly students stayed with me and achieved a lot of their objectives. In some cases, they appeared pleased
with themselves, which potentially means they could recognise they were successfully completing 
tasks.

- Formative feedback needs to be timely, and it preferably needs to be given within the same lesson

As discussed earlier in the thesis, it is of utmost importance that feedback needs to be instant in order to be effective. Even in the teacher interviews a lot of the teachers recognised that discussing IEPs in the beginning and end of the lesson was ineffective as it was both wordy and untimely. When my feedback was instant, the students responded by giving me their feedback and often performing the task I was asking them to perform even if they did not feel like it. When there is no understanding of complex language, untimely feedback can have no effect since the students will have forgotten what had happened and they could not understand through the teacher’s explanations what the problem was or what they were supposed to respond to.

Since the formative assessment literature moved on from prescriptive definitions, a path to a more flexible, varied and wide-spread use of formative assessment in a variety of contexts has been opened up. When formative assessment is defined as any action that can promote learning, it becomes less intimidating to practitioners who will be more willing to experiment with it.

**Contribution to knowledge**

This is the first study to my knowledge to examine teacher views on formative assessment for non-verbal students with autism and severe learning difficulties and explore ways in which formative assessment can be applied with this group of students. This research has aimed to inform how students give feedback to their teachers in a non-verbal manner and how teachers can give effective feedback to
their students as well as test different formative assessment interventions suggested by the teachers with a small group of non-verbal students with autism and severe learning difficulties.

This study reinforces the idea that formative assessment can be applicable with this group of students, and it makes recommendations for good formative assessment practice. The results are of direct practical relevance, as the behaviour checklist can be modified and used by practitioners in a similar context, while it warns of the common pitfalls teachers might come across. The findings can contribute considerably to the development of a formative assessment method, appropriate for this group of students, especially if further research on the subject is carried out. It is also possible that it has opened up the possibility that more practitioner researchers will be interested in doing research in the field, promoting the idea that better teaching and assessment practices can be devised for this group of students.

**Implications for future research**

Even though this piece of research aimed to highlight some of the problem areas related to the applications of formative assessment with non-verbal students with autism and severe learning difficulties, there is a long way to go before one can confidently claim that the needs of these students have been covered and everything that could be done to involve them in their learning has been done. Considering the nature of formative assessment and the level of specialism interpretation of student behaviour requires, more in-service research will need to be encouraged and promoted. As Imray and Hinchcliffe (2012) noted, ideas and interventions should be ‘…openly discussed, tried out, tested, shaped, changed, incorporated, discussed… more action research needs to be done in schools and more good practice disseminated; even humble ideas need exposure with special schools working
more collaboratively’ (p.154). Since statistical generalisations and research involving big numbers of students can only offer a superficial picture of how teaching and learning happens with this group of students, small, qualitative, specialist research needs to be carried out and shared in different schools and building up the ideas can start from this collaboration. Also, understanding the context is central to the success of this type of research, therefore in-service researchers will need to be encouraged to pursue academic research.

One of the subjects to do research on and central to the application of self and peer assessment with this group of students has to do with exploring how problem-solving and theory of mind can be taught to students with autism and severe learning difficulties. This will form the basis for self and peer assessment in the future and also (perhaps more importantly) promote the students’ social well-being and independence.

In general, it is important to explore more ways to motivate students that promote more positive outcomes by moving away from the idea of behaviourism. The simplistic idea that it is possible to train students to make strong associations between stimulus and response that will be ‘made, strengthened and maintained’ (Ertmer and Newby 2013) is old-fashioned and potentially limits special needs teachers’ creative thinking.

This does not mean that behaviourism does not have a role to play in the early stages of education, however it is far too dominant a theory and it evidently affects the way teachers think and act (refer to teacher interviews). In order to think outside the box, it is important to free everyone from dominant theories and test a variety of methods, which might suit individual pupils better. One should not forget that because of the distinct nature of each of these students, it is unlikely that the one method will be appropriate and effective and even if it is, it might not be for a long period of time.
Conclusions

Traditionally and for many years prescriptive definitions of formative assessment excluded some groups of students from the possibility of participating in the formative assessment process and created a climate of hesitation amongst teachers when trying to plan for formative assessment. Simplifying the process and accepting that any action can be regarded as formative assessment has opened up the possibilities for a larger group of students to become part of the formative assessment process, making it a more inclusive. Now, what remains to happen is establish ways in which this type of process can become useful for student minorities and disseminate information and share good practice among teachers. By openly discussing the problem areas and suggesting ways of overcoming those it is possible to make formative assessment accessible to all.

More importantly, non-verbal students with autism and severe learning difficulties are a group of students often ignored by research, however they are capable of participating in well-planned research and it is our moral responsibility to conduct research amongst this group of students even if there are a number of ethical considerations to take into account prior to any research and difficulties confirming findings. This, a primary aim of this study, will hopefully materialise and research in the field will be encouraged and increased.
References


Entitlement and quality education for pupils with learning difficulties (EQUALS) (www.equals.co.uk)


Lewis, A. and Norwich, B. (2001) ‘Do pupils with learning difficulties need teaching strategies that are different from those used with other pupils?’ NFER bulletin, Issue 2 Slough: NFER.


Norwich, B. and Lewis, A. (2005) ‘How specialized is teaching pupils with disabilities and


Salvador-Carulla, L., Reed, G.M., Vaez-Azizi, L.M., Cooper, S.A., Martinez-Leal, R., Bertelli, M.,


Sigelman C.K., Budd E.C., Spanhel C.L. and Schoenrock C.J. (1981) ‘When in doubt, say yes:


Appendices

Appendix 1

P level descriptors

P-levels- An introduction

The P levels are used to describe and record the attainment of students that are working towards National Curriculum level 1, however they have not yet achieved that level (http://www.education.gov.uk/popularquestions/childrenandfamilies/specialeducationalneeds/a005395/what-are-p-scales-and-how-do-i-get-hold-of-a-copy). P levels vary from P1-P8 scale, with P1 being the lowest and P8 being the highest. Levels P1(i), P1(ii), P2(i), P2(ii) and P3(i), P3(ii) are not subject specific and they focus on ‘early learning and conceptual development’ (Ibid). Levels P4-P8 include all national curriculum subjects and they are designed to lead towards the National Curriculum (Ibid).

Within the context of the present research, P-scales have been used to choose targets that are appropriate for the students’ ability level. All students were able to access the lessons at different levels, which are going to be specified within each student section. The general objectives are common for all, however not all students were expected to access the lesson in the same way. More specifically, the following table includes the levels for each subject and each student (these are levels already attained):

<table>
<thead>
<tr>
<th>Student</th>
<th>Level in maths-number</th>
<th>Level in literacy-reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben</td>
<td>P3(ii)-working towards P4</td>
<td>P3(ii)-working towards P4</td>
</tr>
<tr>
<td>Susan</td>
<td>P3(ii)-working towards P4</td>
<td>P3(ii)-working towards P4</td>
</tr>
<tr>
<td>Steve</td>
<td>P3(ii)-working towards P4</td>
<td>P3(ii)-working towards P4</td>
</tr>
<tr>
<td>Natalie</td>
<td>P3(ii)-working towards P4</td>
<td>P3(ii)-working towards P4</td>
</tr>
<tr>
<td>George</td>
<td>P2(ii)-working towards P3(i)</td>
<td>P2(ii)-working towards P3(i)</td>
</tr>
</tbody>
</table>
Even though it appears from the levels stated above that most students are at a similar level, it would be rather simplistic to assume that they are all of the same ability. The nature of their special needs and the skills that they have acquired, which cannot be described through the P scales as well as their personalities can affect their performance and progress during a series of lessons. Also, different types of rewards or resources might affect performance based on the student’s preferences. A more detailed approach follows, based on day-to-day experiences in the classroom as well as a detailed description from their Special Educational Needs Statement. The following tables include P level descriptors as used in the Highland school’s scheme of work, varying from P(ii)-P5 and including the subjects of mathematics (number) and literacy (reading) to cover all students and their ability levels.
### P level description

**Student assessment criteria-Maths (number)**

**Table 1.1**

<table>
<thead>
<tr>
<th>Level: P3(i) assessment objectives</th>
<th>P3(i) success descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To hold an object in one hand and explore with the other hand</strong></td>
<td>Pupil holds object independently and uses the other hand to explore for 15-20 seconds</td>
</tr>
<tr>
<td><strong>To repeat and action which has brought about a physical change</strong></td>
<td>Pupil repeats and action without physical support</td>
</tr>
<tr>
<td><strong>To use switches independently to control toys and other equipment</strong></td>
<td>Pupil presses (or otherwise activates) switch without adult assistance</td>
</tr>
<tr>
<td><strong>To use objects appropriately within a familiar routine</strong></td>
<td>Pupil completes an appropriate action when given an object e.g. shakes the puppet’s hand, bangs a drum</td>
</tr>
<tr>
<td><strong>To be involved in preparing for activities by setting out the relevant objects</strong></td>
<td>Pupil co-operates actively by, for example, holding the objects, releasing them on cue, passing them to the adult</td>
</tr>
<tr>
<td><strong>To request an activity by moving to (or towards) the appropriate place</strong></td>
<td>Pupil moves independently towards the place where a favourite activity happens</td>
</tr>
<tr>
<td><strong>To request an activity by selecting an appropriate equipment or materials</strong></td>
<td>Pupil selects the appropriate equipment from a choice of 2 or 3 items in or out of context</td>
</tr>
<tr>
<td><strong>To respond appropriately to object cues</strong></td>
<td>Pupil shows awareness of the link between cue and activity e.g. by moving to the correct place or showing that they do or do not want the activity to take place</td>
</tr>
<tr>
<td><strong>To respond to objects on the basis of their properties</strong></td>
<td>Pupil uses the objects appropriately and specifically e.g. puts the mouthpiece of an instrument to their lips, stacks bricks but pushes a car</td>
</tr>
<tr>
<td><strong>To respond appropriately to specific objects</strong></td>
<td>Pupil uses the objects appropriately and independently in a way which distinguishes them from other objects e.g. taps a drum but shakes a shaker</td>
</tr>
<tr>
<td><strong>To discriminate between adults</strong></td>
<td>Pupil anticipates specific cues e.g. feel the adult’s arms for a watch</td>
</tr>
<tr>
<td>As above</td>
<td>Pupil recognises adults visually</td>
</tr>
<tr>
<td>As above</td>
<td>Pupil recognises adults by their voices</td>
</tr>
<tr>
<td>P4 assessment objectives</td>
<td>P4 success descriptors</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>To show an awareness of number activities and counting</strong></td>
<td>To join in &amp; indicate at least 1 of the numbers in a familiar number rhyme</td>
</tr>
<tr>
<td>To pick up &amp; put down a single object</td>
<td>To join in number rhymes using actions</td>
</tr>
<tr>
<td>To put down an object in order to pick up another</td>
<td>To indicate some understanding of the sequence of numbers when joining in familiar songs etc.</td>
</tr>
<tr>
<td>To demonstrate understanding of “gone”</td>
<td>To show awareness of number names in everyday situations</td>
</tr>
<tr>
<td>To demonstrate interest in number rhymes, songs &amp; games</td>
<td><strong>To indicate one or two</strong></td>
</tr>
<tr>
<td>To give 1 object on request</td>
<td>To recognise the numbers 1 or 2 in a familiar rhyme</td>
</tr>
<tr>
<td>To use 1 finger to indicate “one”</td>
<td>To experience 1:1 correspondence in a practical situation (1, 2)</td>
</tr>
<tr>
<td>To assist with a 1:1 matching activity</td>
<td>To pick up 1 object or 2 objects on request</td>
</tr>
<tr>
<td></td>
<td><strong>To demonstrate awareness of contrasting quantities by making groups of objects</strong></td>
</tr>
<tr>
<td></td>
<td>To indicate “1” &amp; “lots”</td>
</tr>
<tr>
<td></td>
<td>To make a group of one and/or two and/or ‘lots’</td>
</tr>
</tbody>
</table>

**Key skills/General success criteria**

<table>
<thead>
<tr>
<th>Key skills/General success criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>To show an awareness of number activities and counting</td>
</tr>
</tbody>
</table>

To be aware of contrasting quantities – e.g. one or lots
Appendix 2(a)

Interview Questions

1. Could you give me a general description of the students in your class? (e.g. P level ability, verbal/non-verbal, behaviour, attention span, key stage, age, gender)

2. I am interested to know what your views are on assessment in general and formative assessment in particular. Do you think assessment is valuable as a tool? Is it valuable in a special needs setting? What type of information does it give practitioners in the field?

3. What is assessment? What would you define as formative assessment?

4. Can you give me some examples of formative assessment used in your class?

5. What is it that makes the methods of assessment you describe formative?

6. How do you communicate to the student what they need to do next in order to improve?

7. Do you think there are any gaps in the way formative assessment is used in special schools?

8. Can formative assessment be regarded problematic in your opinion? What is it that might make it problematic?

9. Do you find that in some subjects formative assessment is easier to use than in others? Why do you think that is the case?

10. Have you helped your students use any self-assessment methods? What were they? Do you think self-assessment is possible for non-verbal students? How?
Appendix 2(b)

Interview Questions with examples

1. Could you give me a general description of the students in your class? (e.g. P level ability, verbal/non-verbal, behaviour, attention span, key stage, age, gender)

2. I am interested to know what your views are on assessment in general and formative assessment in particular. Do you think assessment is valuable as a tool? Is it valuable in a special needs setting? What type of information does it give practitioners in the field?
   - For example, does it inform your teaching?
   - Does it benefit students by explaining what they are doing right? Does it inform them of what they do wrong and why they do it ‘wrong’?
   - Does FA inform them of why they did something ‘wrong’?

3. What is assessment? What would you define as formative assessment?
   - For example, self assessment, peer assessment, teacher feedback?

4. Can you give me some examples of formative assessment used in your class?
   - For example, how do you give feedback to students about what they did right and what they might need to do to improve?

5. What is it that makes the methods of assessment you describe formative?
   - In other words, how do you know it is informing students of where they stand and what they need to do to improve?

6. How do you communicate to the student what they need to do next in order to improve?
   - e.g. do you use symbols?
   - Do you use video?
   - What mode of communication do you use and how do you give your feedback?

7. Do you think there are any gaps in the way formative assessment is used in special schools?
   - e.g. It is thought that self-assessment has not yet been enormously developed in special schools

8. Can formative assessment in a special needs setting be regarded as problematic in your opinion? What is it that might make it problematic?
   - e.g. think of non-verbal students and self-assessment.

9. Do you find that in some subjects formative assessment is easier to use than in others? Why do you think that is the case?
   - e.g. music might be regarded to be easier as it is more practical and more practical feedback can be given.
10. Have you helped your students use any self-assessment methods? What were they? Do you think self-assessment is possible for non-verbal students? How?
Appendix 3: Letter to the teachers

Tereza Aidonopoulou

Re: Research

Dear colleague,

As a few of you might be aware, I am presently doing research towards obtaining a PhD at the Institute of Education. In any research, the participants’ contribution is the most crucial part for a successful outcome. For that reason, I am writing to inform you of the aims of my research and to kindly request for your participation.

Formative assessment (FA) has been a ‘hot’ topic in all talks about education and many views have been expressed on the research and education world about what FA is and how it should translate into practice. Nevertheless, not many of these ideas have been relevant to a special needs context, like ours, which has resulted in teacher frustration over ‘what to do in order to really benefit all students.’ In the case of non-verbal students in particular, many of us try different methods, some of which have proven to be very successful, however no consistent ‘whole school’ approach has yet been established.

Considering the above, my research will be loosely divided into two parts:

Part 1

On the first part of the research an attempt will be made to establish teacher perceptions on Formative Assessment.

A set of teacher interviews (lasting between 45 mins-1 hour) will take place in CIP. These interviews will be followed by video observations (kept to the bare minimum and of a non-intrusive nature), which will provide useful examples of your use of formative assessment in class.

Part 2

The second part of the research will involve action research. This involves doing research on FA practices and then piloting them with my class. Following that, the methods established will be given to teachers of four primary school classes, who will then report back with their own views on the effectiveness of the FA methods. A second set of interviews and observations (or video recording observations) will take place to establish whether there have been any improvements on the students' formative assessment experience. These will only take place with the teachers of the four classes participating in the piloting of the established approaches.
Your rights

You have the right to opt out or withdraw from my research at any stage of the process you wish to do so, which will not be held against you or any members of your class.

Any data gathered from teachers will remain anonymous and at no stage will members of the senior leadership team or any other external body have access to your views or practices. Whenever video is used, your consent will be asked for that data to be processed, always making sure your team members (including your students who are considered vulnerable) remain anonymous and the data confidential.

Very rightfully, a few of you might be concerned that I might share my data with individuals and I might discuss my findings with other members of the school. I want to seize the opportunity to reassure you that there is going to be NO public or private conversations of your work: I comply with the British Educational Research Association (BERA) code of ethics (http://www.bera.ac.uk/blog/category/publications/guidelines/) which means that I am liable to any violations of that code. Hence, I want to underline that confidentiality and anonymity as well as protection of your students will be reassured at all stages of my research.

I want to thank you for your time and consideration and I hope that you will be willing to participate in my research, which will be used to improve formative assessment experience for both teachers and students in our school. Finally, I would like to ask you to complete and return the consent slip, using a box that will be placed in the Whitefield staffroom. If you have any questions or comments on my research, please don’t hesitate to contact me on my school email address.

My warmest regards,

Tereza Aidonopoulou

........................................................................................................................................................................

Circle as appropriate:

I want to opt out from your research on formative assessment.

I would like to participate in your research and I do wish to remain anonymous.

..................................................(Name) ..........................(signature)...........(date)
Appendix 4: Validity and Reliability

Table 5.1: Validity and Reliability criteria

<table>
<thead>
<tr>
<th>Quality Criterion</th>
<th>Possible provisions made by researcher</th>
</tr>
</thead>
</table>
| Credibility       | Adoption of appropriate, well recognised research methods (both semi-structured interviews and case studies used in this piece of research are well-established).  
Development of early familiarity with culture of participating organisations (as a teacher within the school, I had developed familiarity with the setting and with the colleagues I interviewed, as well as the children that later on took part in my research as my case studies).  
- Random sampling of individuals serving as informants (even though random sampling was not possible as my interviews required expertise, equally I did not choose who to interview out of the teachers within the school, which helped me include different levels of expertise and knowledge. In the future, a larger scale research that would include more special needs schools, could offer a better variety of opinions and views as different organisations can have different attitudes towards assessment. Since the school was a training school and the biggest special needs school in Europe at the time, its teachers can be considered representative).  
- Tactics to help ensure honesty in informants (Creating a relaxed environment and a friendly atmosphere and making sure the recorder is ‘forgotten about’ by placing it further away from the interviewee, as well as avoiding writing too many notes and looking at the interviewee and making approving noises, might have helped my interviewees relax and provide me with their own, honest opinions, rather than the ones they thought I wanted to hear).  
- Use of ‘reflective commentary’ (while interviewing, I would refer back to terms and concepts my interviewees referred to, to ensure they could mention anything additional they wished to comment on and to make sure their ideas/attitudes hadn’t changed within the duration of the interview).  
- Description of background, qualifications and experience of the researcher (this was something my colleagues were familiar with, but was also discussed before the interview to help them feel comfortable that, even though I had experience in the field, equally I was looking into their expert opinion and I was not the one that had all the answers. I would clarify that I was acting as a researcher, even if as a teacher I had certain ideas and used certain methods in my classroom. I would also inform them of my studies and interests, so that they know what my background was as a researcher). |
rather than a colleague).

- Member checks of data collected and interpretations formed (Inter-rater reliability is an important factor, and I attempted to get my interpretations confirmed by an experienced colleague that examined my case study videos and explained whether they thought certain objectives were met/not met. That would be part of my Phase II/case study methodology).

- Thick description of phenomenon under scrutiny (within chapter 2, I am describing formative assessment and its current definitions. I had examined current views prior to the interviews to make sure I was aware of formative assessment as it stood at the time).

- Examination of previous research to frame findings (even though I did detailed research and tried to find out what others have done in the field of formative assessment, very little was found when it comes to children with severe learning difficulties that are non-verbal and the use of formative assessment in the specific cases. I used formative assessment views and definitions to form my own definition of what constitutes formative assessment and to guide my research).

<table>
<thead>
<tr>
<th>Transferability</th>
<th>- Provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made (I have included a detailed description of the teachers and as detailed description of the organisation as possible, to avoid it being easily identified as well as a detailed description of the case studies during phase 2 of my research, which all have been included to allow comparisons and transferability in the future).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependability</td>
<td>- Employment of ‘overlapping methods’ (I have included both interview and case study research as part of my study).</td>
</tr>
<tr>
<td></td>
<td>- In-depth methodological description to allow study to be repeated (two separate, detailed methodology chapters have been included to ensure adequate detail has been incorporated in this paper since, even though interlinked, the two phases of the research are quite individual and different).</td>
</tr>
<tr>
<td>Confirmability</td>
<td>- Triangulation to reduce effect of investigator bias (two different qualitative methods have been used in this research, combined with elements of quantitative research).</td>
</tr>
<tr>
<td></td>
<td>- Admission of researcher’s beliefs and assumptions (within my limitations/ethics sections, I have mentioned a variety of limitations and biases that might be affecting the way I interpret and analyse data).</td>
</tr>
<tr>
<td></td>
<td>- Recognition of shortcomings in study’s methods and their potential effects (within my limitations section, I have explained what the shortcomings of my study might be)</td>
</tr>
<tr>
<td></td>
<td>- In-depth methodological description to allow integrity of research results to be scrutinised (as mentioned above, I attempted to include a detailed analysis of my research methodology, which has been broken into two different parts to ensure they are as clear and as detailed as possible).</td>
</tr>
</tbody>
</table>
Appendix 5: Sample interview transcript

Tereza  A lot for you. I’m now going to ask what your views are on assessment in general and formative assessment in particular. So the question basically is do you think assessment is valuable as a tool in general?

Sarah  Yes, I do ‘cos you need to track improvements or achievements or making progress. If you don’t assess how d’you know they’re being successful, so yes (general assessment category).

Tereza  So something basically to build up.

Sarah  Oh yeah because if you’re going to set a programme, also, you know, you want some, if you set up a programme to do something, then you have to have something to measure it from to see whether they’ve reached it or it’s been successful. So your assessment allows you to set a programme, you know, so it kind of makes teaching simple and using the assessment you can then make it more specific to the children, make it more difficult or more easy, more accessible, yeah (general assessment category).

Tereza  Is assessment valuable in a special needs setting, d’you think?

Sarah  Yeah, I do, I think assessment is valuable in whatever setting you do, whether it be a workplace setting, a school setting or just in your own life. You need to be able to assess and then reassess to see, you know, changes and say that you’ve acknowledged that things are happening (formative assessment in special needs school versus mainstream schools).

Tereza  Mmm hmm, good answer.

Sarah  Everybody wants to achieve, no matter who they are, don’t they, everyone wants to be successful. I think people do, even if it’s the smallest thing (formative assessment in special needs school versus mainstream schools).

Tereza  Definitely, definitely, good, thank you. What type of information does assessment give to the practitioners?

Sarah  It tells me whether children have been able to access the curriculum, access what I’m telling them. It tells me whether I am gauging my work at the right level (general assessment category).
Tereza  Mmm hmm.

Sarah  It tells me whether they can and can’t do something. It tells you whether they’re interested in certain things or not. It gives me a better picture. For my guys, ‘cos they’re all non-verbal, if I don’t assess, how do I know what they’re doing, how do I know they like what they’re doing? I have to even if it’s just “she smiled” or “she reached out to me”, that in itself is an assessment, isn’t it? (general assessment category).

Tereza  Ok, brilliant. What is assessment, now I’m looking more for a definition, what would you define as formative assessment, what would you say assessment is in general?

Sarah  I’d definitely define a base level which someone’s working at. So if you actually write what they’re doing now, so yeah, that is what assessment is. It’s you set a baseline for your assessment, different fields, different things that we want them to do depending on what the environment is, so you can, yeah, just so you’ve got a level of who they are, what they are, what they can do, not who they are, that’s not what assessment is (formative assessment definition category).

Tereza  Basically I’m not looking for a dictionary definition.

Sarah  For my guys it’s difficult.

Tereza  To you to say what d’you think, is there anything, you know, who they are?

Sarah  Yeah I can assess, not say who they are, but maybe what their needs are and what their wants are, yeah (formative assessment definition category).

Tereza  Mmm hmm and what would you think of formative assessment?

Sarah  If it’s formative it tells me what I need to be doing (formative assessment definition category).

Tereza  Can you elaborate on that? What you need to be doing in terms of your lessons or in terms of your?

Sarah  In terms of my lesson, I’d set my objective, I’d set what I want them to do, what goals I want them to reach and then I’d assess if they’d met that and if they haven’t
then I’d change and then we move forward (formative assessment definition category).
### Appendix 6: Teacher backgrounds

<table>
<thead>
<tr>
<th>Teacher name</th>
<th>Teacher details</th>
<th>Current class details</th>
</tr>
</thead>
<tbody>
<tr>
<td>George</td>
<td><strong>Background:</strong> from a Mediterranean country, worked previously with SEN children in a mainstream context. Second year in the school. First experience with SEN children in the UK. Full time member of staff.</td>
<td><strong>Age:</strong> Six KS2 year 5 and 6 students; severe learning difficulties and a number with autism. Two boys and four girls. <strong>Curriculum:</strong> semi-formal curriculum. <strong>Ability levels:</strong> P3-National curriculum level 2e. <strong>Communication:</strong> two non-verbal, two semi-verbal, and two verbal. Non-verbal children used gesture and PECS to communicate.</td>
</tr>
<tr>
<td>Laura</td>
<td><strong>Background:</strong> British origin, initially worked in a special needs school. Worked in the specific school for five years prior to the interviews. She had been working as a KS2 teacher. Her students’ ability levels varied.</td>
<td><strong>Age:</strong> Seven students overall, 6 in years 3 and 4. One year 2 student with challenging behaviour. <strong>Ability:</strong> P3-National curriculum level 2. <strong>Communication:</strong> three verbal, two non-verbal, three semi-verbal.</td>
</tr>
<tr>
<td>Joanna</td>
<td><strong>Background:</strong> From a Mediterranean country, worked with some mainstream school pupils sporadically in her country of origin. That was her first full-time job and her first job as a special needs school teacher in early years.</td>
<td><strong>Age/gender:</strong> Six students overall, five boys one girl. All in KS1, three in year 1 and three in year 2 (6 and 7 years old). <strong>Ability:</strong> P3-P5 <strong>Communication:</strong> Four verbal and two non-verbal, whose preferred communication method was signing.</td>
</tr>
<tr>
<td>Darren</td>
<td><strong>Background:</strong> Mainstream school background. He had been in the school for three years prior to the interviews. He had been working with KS2 students and it was his first time in a special needs school.</td>
<td><strong>Age/Gender:</strong> Seven children, six boys and one girl. All in KS2 <strong>Ability:</strong> P4-P8 <strong>Communication:</strong> two non-verbal, two semi-verbal, three verbal. Children could use gestures, signing and/or PECS.</td>
</tr>
<tr>
<td>Elizabeth</td>
<td><strong>Background:</strong> A young, mainstream-trained teacher. This was the beginning of her second year teaching children with special needs and she had primarily experienced teaching verbal and semi-verbal children.</td>
<td><strong>Age/Gender:</strong> six children, one girl and six boys. All in KS2, year 3 and 4 (7-9 years old). <strong>Ability:</strong> P3-NC2e <strong>Communication:</strong> three verbal, two semi-verbal, one non-verbal. Preferred method of communication was speech and the non-verbal child would use symbols/signs to communicate.</td>
</tr>
<tr>
<td>Gwen</td>
<td><strong>Background:</strong> Gwen completed her training in mainstream schools and when she got hired in the special needs school she was on her NQT (newly qualified teacher) year. This was her second year in the specific</td>
<td><strong>Age/Gender:</strong> KS2, Year 3 and 4 (7-9 years old), five boys and one girl. <strong>Ability:</strong> P1-P5, pre-formal 1 curriculum, sensory orientated class (biting and other sensory experiences searched for by the students). <strong>Communication:</strong> All non-verbal, some use</td>
</tr>
<tr>
<td>Carol</td>
<td><strong>Background:</strong> A mainstream trained teacher, who was in her third year in the specific setting and she had been working with early years (nursery level) children. The curriculum they had been following had to do primarily with learning through play, basic communication and self-help skills.</td>
<td><strong>Age/Gender:</strong> six children altogether at the foundation stage (3-5 years old) and for most of them, this is their first formal schooling experience. They are all boys. <strong>Ability:</strong> P2-P3 for five of the children. One of the children is in P7. <strong>Communication:</strong> five semi-verbal and one non-verbal. The five semi-verbal students could use some signing as their communication method.</td>
</tr>
<tr>
<td>Sarah</td>
<td><strong>Background:</strong> An experienced mainstream school teacher, she had been with the school for three years and she had been working with early years children. The curriculum they had been following had to do primarily with learning through play, basic communication and self-help skills.</td>
<td><strong>Age/Gender:</strong> six children altogether, five boys and one girl. KS1, Year 1 children (5-7 year olds), pre-formal level. <strong>Ability:</strong> P2-P3 <strong>Communication:</strong> Text, VOCA, signing, gesture. Children tend to be sensory orientated and they could demonstrate behaviours such as biting, fighting, slapping, and dropping on the floor.</td>
</tr>
<tr>
<td>Alexandra</td>
<td><strong>Background:</strong> Previously an experienced mainstream school teacher working with primary students, Alexandra had been in the specific school for five years prior to the interview. <strong>Additional role:</strong> She had been primarily working with KS2 students and she had got an additional role as a middle manager. Her main role was behaviour support and curriculum coordinator.</td>
<td><strong>Age/gender:</strong> seven children, KS2, Year 3 and 4 (7-9 years old), five boys and two girls. <strong>Ability:</strong> P2-P8, bordering national curriculum. <strong>Communication:</strong> Two semi-verbal, four non-verbal. Most of the children would use gesture to communicate and some used PECS. Behaviours could range from physical behaviours such as kicking, biting or pulling when children were upset or they could not express their needs.</td>
</tr>
<tr>
<td>Mary</td>
<td><strong>Background:</strong> A mainstream-trained teacher she used to work as a full time teacher in the present school. At the time of the interviews she was a part-time music teacher. She could work with a variety of classes throughout the term as a specialist teacher. Sometimes, Mary would cover teachers during their planning and preparation time (PPA) and she would teach subjects other than music.</td>
<td><strong>Age/gender:</strong> A variety of classes ranging from foundation stage to KS2. <strong>Ability:</strong> P1-National curriculum. <strong>Communication:</strong> Mary had been working with non-verbal, semi-verbal and verbal students across the school, primarily teaching the subject of music.</td>
</tr>
<tr>
<td>Lynda</td>
<td><strong>Background:</strong> Lynda was an experienced teacher, who came from a mainstream setting and she was first working in the specific</td>
<td><strong>Age/gender:</strong> Lynda covers a number of classes in early years, foundation and KS1. She primarily taught the pre-formal curriculum, because of the stage children were at.</td>
</tr>
<tr>
<td><strong>School</strong></td>
<td><strong>Sylvia</strong></td>
<td><strong>Sophie</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Background:</strong> A mainstream-trained teacher she moved to this school to work as an early years teacher. She had been in the school for four years prior to the interview.</td>
<td><strong>Age/gender:</strong> five children, KS1, years 1 and 2 (5-7 years old). All of the children are boys. <strong>Level:</strong> P2-P3 <strong>Communication:</strong> Verbally, using gestures.</td>
<td><strong>Age/gender:</strong> seven boys, KS1, years 1 and 2 (5-7 years old). <strong>Level:</strong> P4-P8 <strong>Communication:</strong> Semi-verbal, or non-verbal with some emerging speech. Most children preferred speech to communicate and one was a proficient signer.</td>
</tr>
<tr>
<td><strong>Current role:</strong> She had, at the time, moved out of the classroom and her role involved teacher support, covering teachers’ PPA time. She worked with early years foundation stage and KS1. Her role also involved being a Family support teacher for the parents of early years, foundation and KS1 children. <strong>Ability:</strong> P2-P7 <strong>Communication:</strong> Children can be non-verbal, semi-verbal or verbal, however she would more often work with non-verbal children, whose ability was around P4.</td>
<td><strong>Age/gender:</strong> five children, KS1, years 1 and 2 (5-7 years old). All of the children are boys. <strong>Level:</strong> P2-P3 <strong>Communication:</strong> Verbally, using gestures.</td>
<td><strong>Age/gender:</strong> seven boys, KS1, years 1 and 2 (5-7 years old). <strong>Level:</strong> P4-P8 <strong>Communication:</strong> Semi-verbal, or non-verbal with some emerging speech. Most children preferred speech to communicate and one was a proficient signer.</td>
</tr>
</tbody>
</table>
## Appendix 7: behaviour checklist example

<table>
<thead>
<tr>
<th>POSITIVE BEHAVIOURS- green</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEGATIVE BEHAVIOURS-red</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lesson</th>
<th>FA observation</th>
<th>FA observation sheet</th>
<th>Contact time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Body part

- **Name:** FC

### Activity

#### Head

- Rotating towards stimulus
- Head down/turning away
- Smiling/laughing

#### Face

- Sad/downcast
- Frowning/twitching
- Pleased/glowing
- Glance at object briefly

#### Eyes

- Glance at object repeatedly
- Following/staring* at stimulus/product
- Closing
- Looking up/down/searching environment
- Making eye contact
- Sustaining eye contact
- Breaking eye contact
- Avoiding eye contact
- Looking at person addressing student
- Looking at other person
- Reaching for stimulus/stimulus product

### Introduction of the symbols

- Activity
- Activity
- Activity
- STIMULUS

### General observations
<table>
<thead>
<tr>
<th>Hands</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signing more/me</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clapping/touching others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pushing away</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reaching over while another student’s turn/choosing the incorrect symbol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covering ears/eyes/supporting head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signing/using symbol in response to question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trying to reach/touch symbols/resources/pointing at symbols.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaning forward (out of interest for the stimulus)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needing physical support/prompting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving away from stimulus/standing up/sitting on a different chair</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kicking legs/fidgeting/touching body parts/leaning backwards or sideways/fiddling with clothes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alert/sitting upright</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passive/Indifferent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chewing tongue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singing/vocalising to self</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocalisations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous(excited sound/giggling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complaining sound/crying</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making noise in response to stimulus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 8: lesson plans

Unmotivating resources:

‘My presents’ book- Rob Campbell

Theme: Presents

Un-motivating version

Activity 1 (group):

Using the interactive whiteboard and showing book images to students and getting them to comment on what they can ‘see’ through the use of symbols.

Literacy (reading)

Motivating resources:

Activity 1:

While reading the book students were shown the book images, and they would be given the opportunity to hold the corresponding object if they commented on what they could see’ correctly. Again, students were given 2,3,4... symbols to differentiate between in each corresponding week (as above).

Maths-Number

Lesson plans

Activity 1-description-No resources

During the ‘no resources’ weeks the following activities took place:

‘Five little monkeys’² song:

²Five little monkeys jumping on a bed, one fell of and banged his head, mother phoned the doctor, the doctor said: ‘No more monkeys jumping on the bed!’
Five laminated sheets of paper with a laminated monkey attached to them using Velcro were affixed to the 5 designated spaces on the wall. Every time we sang ‘...one fell off and banged its head...’ a student had to get up, pull the laminated sheet with the correct number and place it on the floor and hand the monkey to the teacher. The same actions followed with the rest of the group. There also was the visual aid of a flash version of five monkeys jumping up and down on the interactive whiteboard, which the students had to activate by using the computer touchscreen. Every time the number of monkeys would get reduced, until we reached one in which case all numbers would have been taken down. Most students needed some prompting to understand what they are supposed to do, but this got eliminated after a few lessons.

**Activity 1 description-with interesting resources**

*‘Five little monkeys’*

The laminated 1-5 number sheets along with the interactive song were in place as described above. A small trampoline was added, so that students could jump on it while they would listen to ‘Five little monkeys, jumping on the bed...’ and once we could hear ‘one fell off and bumped his head’ the teacher would use one or two cushions to perform the ‘bumped’ action. Then, the student would get off the trampoline, take a number down and go back to his/her seat.

**Activity 2 description-no resources/with interesting resources:**

The general objective of this activity was to get familiar with numbers and quantities for numbers 1 and 2.

During the ‘interesting resources’ week, students could ask for what they wanted out of the choice of four items available through pointing. After identifying what they wanted they would get to the next stage that involved numbers ‘1’ and ‘2.’ Both numbers included dots underneath (i.e. one dot under number ‘1’ and two dots under number ‘2’). Students would then be required to place one or two of the items they asked for on the dots and count with their teacher’s help. Every time they got the concept right they could have the item of their choice to eat.
During the ‘no resources’ week, students would only be offered pebbles to place on either number. No tangible rewards were offered. During the ‘interesting resources’ week, students would be offered food items that the members of the team knew they would be interested in eating and they were also asked to choose how many they wanted (1 or 2) and they would have to first place the items they chose on the dots and then have the items if they seem to understand the concept. To choose how many they wanted they would have to form a sentence using two symbols. For example they could put symbols together to say ‘I want…one,’ in which case they would have to take one or two items of their choice and place them on the dots of the number symbols given.

**Math and Literacy Sessions-Rewards week(s)**

As mentioned earlier, during the ‘rewards’ week, students would be given tangible rewards along with verbal praise at least every two minutes during the lesson, while the ones that wouldn’t do their work would be mostly ignored. If students carried on underperforming after a few reward cycles, then they would be reminded that ‘no work means no rewards.’ If a student misbehaved and could follow the lesson, normal behaviour support procedures would be followed, which usually involved either taking the student for a break outside the classroom or sit on the side with an adult until they calmed down. Behaviour support plans were in place for every student and they would be followed by members of staff every time it was considered necessary. The rest of the class would continue their lessons as normal.
Appendix 9: The behaviour checklist- Susan example

Table 9.6, lesson 6, mathematics

<table>
<thead>
<tr>
<th>Body region</th>
<th>FA observation sheet</th>
<th>Lesson 6 Maths (number)</th>
<th>Student: Susan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contact time Activity 1</td>
<td>Nursery rhymes</td>
<td>Nursery rhymes</td>
</tr>
<tr>
<td></td>
<td>Contact time Activity 1</td>
<td>Nursery Rhymes</td>
<td>Nursery Rhymes</td>
</tr>
<tr>
<td></td>
<td>Activit y 2</td>
<td>Numbe rs 1 and 2</td>
<td>Activity 3</td>
</tr>
<tr>
<td></td>
<td>1:1 correlation</td>
<td></td>
<td>NON ACTIVE</td>
</tr>
<tr>
<td></td>
<td>General observations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head</td>
<td>Rotating towards stimulus</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>She rotated towards the interactive whiteboard after her name was called a few times,</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>She was alert and turned her head towards the resources.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>She looked at the board eagerly, possibly because she wanted to get up and get her currant bun.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Her attentio n to the stimulu s was very good and she immedia tely turned her head</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Five naughty monkeys:

In the beginning of the activity she is fiddling with her clothes while looking down. She is sitting upright and quiet. Vocalising and rubbing her hands on her trousers and placing her hands over her ears. She looks up while another student is jumping on the trampoline and she vocalises. She carries on looking up and observing her classmates and vocalising intermittently. She signs ‘me’ and takes her reward at
indicating it was her turn.

When it was her turn, since she was following the rest of the students and she was aware of the fact that it was her turn.

The end of the two minutes for good sitting. She chews on her tongue and needs some verbal and minor physical prompting to get up when her name is called and it is her turn.

Once her turn was finishes, she sat upright, looked up and smiled. She shook her hands with excitement when she was offered her reward for good work. She then sat on her chair, she leaned sideways and supported her had with her hand while fiddling with her clothes. She briefly closed her eyes and she then sat upright, possibly realising it would be time for a reward soon. She signed ‘me’ when the time for rewards came. After reward time she started chewing on her tongue and fiddling with her hands.

**A tall silver rocket:**

She vocalised, however she did carry on sitting upright and followed the teacher with her eyes, possibly expecting a reward. She sat upright and kept chewing her tongue and looking around, observing what activity was taking place and the classroom. She briefly vocalised and smiled when she received a reward for good sitting. She carried on sitting upright and observing and she was alert when her turn came.

She kept sitting upright when her turn was finished and she played with the confetti that came out of the party poppers while chewing her tongue. She vocalised and carried on playing until the teacher removed the confetti. She then sat upright, chewed her tongue and managed to find some more confetti, which was removed from her. She then looked towards the direction of another student that was having a turn, and she kept looking intermittently while
chewing her tongue. She remained upright and kept looking with interest for the next activity to start.

<table>
<thead>
<tr>
<th>Head down or up/ turning away</th>
<th>✓ Head was turned away, a clear sign she did not wish to complete the work.</th>
</tr>
</thead>
</table>

**Five currant buns:**

She carried on sitting upright and she followed the adult that was giving out the rewards. She was not given one this time, because she kept trying to pick up the confetti during the second part of the previous activity. She shook her hands and vocalised in protest when she did not get a reward. She carried on sitting upright and the protest was very brief. She followed other students and she got up at the right time (even though it was a bit early in the song).

After her turn was finished, she sat upright and had her currant bun while looking around the classroom. She also vocalised and briefly played with her plate before handing it to one of the adults in the classroom.

<table>
<thead>
<tr>
<th>Face</th>
<th>Offering one or two items:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smiling/ laughing</td>
<td>Sitting upright and looking at the symbols board intermittently. She briefly vocalised, shook her hands and looked around the classroom. She then redirected her attention towards the board and the activity. She remained sitting upright and looked at the board and the items on offer. She fiddled with her hands, however her eyes remained on the board and the student next to her, completing the activity. Briefly scratched her head, made a noise,</td>
</tr>
</tbody>
</table>
played with her hand, chewed her tongue and shook her hands with anticipation.

After she had her turn, she sat upright and placed her hand over her eye for a few seconds. She then looked at the symbols and the snacks and started chewing her tongue. Her eyes wandered around the classroom, however she kept re-focusing and looking at the resources. She carried on chewing her tongue for some time, but she stopped when she was offered a reward for good work. She carried on sitting upright and looking at around the classroom and the resources intermittently.

| Sad/dow ncast | | | |
| Frowning /twitching | | | |
| Pleased/ glowing | | | |
| Glance at object briefly | ✓ | | |
| Glance at object repeatedly | | | |

She glanced at the cutlery briefly, however she did not pay attention when the teacher was setting the table up.

Setting the table up:

Sitting upright, chewing her tongue and looking around the classroom. Resources were relatively further from her; hence her visual attention
was not as good. She did carry on sitting upright and chewing her tongue and at some point she stretched backwards. She very quickly sat upright and got up when her name was called, a sign that she was really alert and expecting to be asked to come forward.

After her turn, she went and sat on her leg, moved sideways and vocalised. She was also looking away, a possibly sign that she was not happy as she was told that she did not complete her activity the way she should have. She carried on sitting that way for quite a while, while other students were having their turn. She sat upright after about 3 minutes and she vocalised. She carried on looking around the classroom, however she did get up when her name was called and she was given a second chance to complete the activity.

After her second attempt she sat on her leg again and turned sideways while playing with her tongue and she kept looking away during reward time, possibly realising she was not going to get a reward, because she did not complete her work. She carried on chewing her tongue, while she rested her head on her hand and she looked up. She gradually turned and faced forward, even though she was still leaning on the table and she kept sitting cross-legged.

The third time she was called, she did not seem to be as alert as it took her some time and a bit of physical encouragement to get up. She went and sat on her leg making a complaining sound that lasted for a few seconds, possibly understanding that she did not complete the work, so she would not get rewarded or annoyed that
She was asked to complete work she did not wish to complete. She sat leaning backwards and chewing her tongue, while looking around the classroom. She carried on like this until the rest of the students were finished with the activity.

<table>
<thead>
<tr>
<th>Following/staring * at stimulus/product</th>
<th>✓ She looked at the screen carefully and she tapped it independently.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓ She looked towards the right direction during her turn, however she kept rubbing her eye.</td>
</tr>
<tr>
<td></td>
<td>✓ She kept starting at the board and the other students, waiting for them to get up so that she can go and pick up her currant bun.</td>
</tr>
<tr>
<td></td>
<td>✓ She looked at the symbols and the snacks and completed all the correct actions.</td>
</tr>
<tr>
<td></td>
<td>She found it a bit hard when she was asked to indicate ‘1’ using her finger, which is a new objective, but she did cooperate.</td>
</tr>
</tbody>
</table>

| Closing | |
|---------| |

<table>
<thead>
<tr>
<th>Looking up/down/se</th>
<th>✓ In the</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓ She kept</td>
</tr>
<tr>
<td>arching environment</td>
<td>beginnin\ng she was looking \ndown and fiddling with her hands and her name needed to be called a few times.</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Making eye contact</td>
<td></td>
</tr>
<tr>
<td>Sustaining eye contact</td>
<td></td>
</tr>
<tr>
<td>Breaking eye contact</td>
<td></td>
</tr>
<tr>
<td>Avoiding eye contact</td>
<td></td>
</tr>
<tr>
<td>Looking at person addressing student</td>
<td></td>
</tr>
<tr>
<td>Looking at other person</td>
<td></td>
</tr>
<tr>
<td><strong>Hands</strong></td>
<td>✓ She reached for the touchscreen independently.</td>
</tr>
</tbody>
</table>
She also started jumping and performing the task independently.

She picked up a number independently, but had to be stopped because she was taking more than one laminate number sheets.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Sign</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signing more/me</td>
<td>✓</td>
<td>After her name was called a few times and she realised it was her turn she signed ‘me’.</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>She signed me when she was physically supported to sit down and wait for the exact right point in the song to get up.</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>She signed ‘me’ twice during her turn.</td>
</tr>
<tr>
<td>Clapping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pushing away/playing</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>She</td>
</tr>
<tr>
<td>with stimulus inappropriately/ fiddling with clothes or other items/Shaking</td>
<td>Reachin(g over while another student’s turn/ touching others</td>
<td>Coverin(g ears/ eyes/supporting head</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td>She was covering her ears in the beginning of the activity and she did not seem to be paying attention when her name was called.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>She covered her ears during the song and after I said she</td>
</tr>
<tr>
<td>Body</td>
<td>‘banged’ her head and used cushions to indicate that.</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Signing/using symbol in response to question</td>
<td>✓</td>
<td>She used symbols to indicate what she wanted.</td>
</tr>
<tr>
<td>Trying to reach/touch symbols/resources</td>
<td>✓</td>
<td>She reached over and touched the symbols and resources independently.</td>
</tr>
<tr>
<td>Leaning forward</td>
<td>✓</td>
<td>She was leaning forward and sitting at the edge of her seat expecting to get up and come and collect her ‘currant bun.’</td>
</tr>
<tr>
<td>Needing physical support/prompting</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>She needed a minor push to realise that she needs to get up and that it was her turn.</td>
<td>She needed physical support to sit down and wait for the exact right point in the song to get up, however she was following the song and she did get up at the vaguely the right time. She also needed some physical support to take the laminate number down.</td>
<td>She needed some physical prompting to get up for a third attempt and she needed it to look towards the right direction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rocking</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Moving away from stimulus/standing up/sitting on a different chair</th>
<th></th>
<th></th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>She kept trying to move away from the table, possibly because she did</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kicking legs/fidgeting/touching body parts/leaning backwards or sideways</td>
<td>not enjoy the activity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alert/sitting upright</td>
<td>✓ She was sitting upright from the beginning of the lesson and she seemed a lot less excitable in this lesson.</td>
<td>✓ She kept sitting upright throughout her turn. No fiddling or getting distracted.</td>
<td>✓ She was sitting upright waiting for her turn eagerly.</td>
</tr>
<tr>
<td>Passive/indifferent</td>
<td>✓ She passively stood and looked away during the activity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocalisations</td>
<td>✓ She vocalised to herself in the beginning of the activity.</td>
<td>✓ She vocalised in the beginning of the activity</td>
<td>✓ She vocalised while looking away, possibly avoiding listening</td>
</tr>
</tbody>
</table>
However she stopped and focused herself independently.

<table>
<thead>
<tr>
<th>Continuous/excited sound/giggling</th>
<th></th>
<th></th>
<th></th>
<th>to instructions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complaining sound/crying</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making noise in response to stimulus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chewing tongue ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

- She chewed her tongue while looking at her hand absent-mindedly in the beginning of the activity.
- She briefly chewed her tongue while on the trampoline.
- She chewed her tongue during her second and third attempt another sign she was not interested in completing the task.
ne and after I used cushions indicating that she ‘banged’ her head.

She was chewing her tongue while jumping, a possible sign of excitement.

* ✓-behaviour occurred during contact/active time
### Table 8.1: Susan’s responses to the presentation of interesting mathematical resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NR*</td>
<td>R**</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

*No resources **Resources

<table>
<thead>
<tr>
<th>Objective achieved</th>
<th>Objective partially achieved</th>
<th>Objective not achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>Week</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td>NR</td>
<td>R**</td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*No resources **Resources
Table 8.3: Ben’s responses to the presentation of interesting mathematical resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td>NR</td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td>R*</td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td>R</td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td>R</td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td>R</td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td>R</td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>0</td>
</tr>
</tbody>
</table>

*No resources **Resources

<table>
<thead>
<tr>
<th>Objective</th>
<th>Color</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective achieved</td>
<td>Green</td>
<td>Objective partially achieved</td>
</tr>
</tbody>
</table>
**Table 8.4: Susan’s responses to rewards for completion of mathematical tasks**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>NRE*</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

*No rewards **Rewards
Table 8.5: Steve's responses to rewards for completion of mathematical tasks

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>NRE*</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
</tr>
</tbody>
</table>

| Total number of objectives met                                           | 6    | 4    | 6    | 6    |
| Total number of objectives partially met                                 | 0    | 1    | 0    | 0    |

*Rewards **Rewards
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>NRE*</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td>green</td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td>green</td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td>green</td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td>green</td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td>green</td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td>green</td>
</tr>
<tr>
<td>Total number of objectives met</td>
<td>6</td>
</tr>
<tr>
<td>Total number of objectives partially met</td>
<td>0</td>
</tr>
</tbody>
</table>

*No rewards **Rewards
Table 8.7: Ben’s responses to the presentation of interesting literacy resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NR*</td>
</tr>
<tr>
<td>1.a) To listen to stories from books containing pictures and text. (P5)</td>
<td></td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>0</td>
</tr>
</tbody>
</table>

*No resources **Resources
### Table 8.8: Susan’s responses to the presentation of interesting literacy resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NR*</td>
</tr>
<tr>
<td>1.a) To listen to stories from books containing pictures and text. (P5)</td>
<td></td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support</td>
<td></td>
</tr>
<tr>
<td>familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>4</td>
</tr>
</tbody>
</table>

*No resources **Resources
Table 8.9: Steve’s responses to the presentation of interesting literacy resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NR*</td>
</tr>
<tr>
<td>1. a) To listen to stories from books containing pictures and text. (P5)</td>
<td></td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

*No Resources **Resources
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>NRE*</td>
</tr>
<tr>
<td>1.a) To listen to stories from books containing pictures and text. (P5)</td>
<td></td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

*No rewards **Rewards
Table 8.11: Ben’s responses to rewards for completion of literacy tasks

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td>1. a) To listen to stories from books containing pictures and text. (P5)</td>
<td>NRE*</td>
</tr>
<tr>
<td></td>
<td>RE**</td>
</tr>
<tr>
<td></td>
<td>RE</td>
</tr>
<tr>
<td></td>
<td>NRE</td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

*Rewards **No rewards

Objective achieved
Objective partially achieved
Objective not achieved
Table 8.12: Steve’s responses to rewards for completion of literacy tasks

<table>
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<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
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<td>6</td>
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<td></td>
<td>7</td>
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<td></td>
<td>8</td>
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<tr>
<td>NRE*</td>
<td>NRE*</td>
</tr>
<tr>
<td>RE**</td>
<td>RE**</td>
</tr>
<tr>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

1.a) To listen to stories from books containing pictures and text. (P5)
   b) To sit calmly to listen to a story in 1:1 and group. (P4)
2. To watch an adult point to pictures. (P4)
3. To match objects to pictures and symbols. (P5)
4. To show recognition of the names of key objects used to support familiar texts. (P4)
5. To take turns. (P4)

Total number of objectives met

<table>
<thead>
<tr>
<th>Total number of objectives met</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

Total number of objectives partially met

<table>
<thead>
<tr>
<th>Total number of objectives partially met</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
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<tr>
<td>2</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
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</tbody>
</table>

*No rewards **Rewards
<table>
<thead>
<tr>
<th>Objectives</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td>NR*</td>
<td>R**</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td>R</td>
<td>NR</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td>R</td>
<td>NR</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td>R</td>
<td>NR</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td>R</td>
<td>NR</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td>R</td>
<td>NR</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>Total number of objectives met</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total number of objectives partially met</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

*No resources **Resources
### Table 9.2: George’s responses to the presentation of interesting mathematical resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td>NR*</td>
</tr>
<tr>
<td></td>
<td>R**</td>
</tr>
<tr>
<td></td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>NR</td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

*No resources **Resources

<table>
<thead>
<tr>
<th>Objective achieved</th>
<th>Objective partially achieved</th>
<th>Objective not achieved</th>
</tr>
</thead>
</table>
Table 9.3: Natalie’s responses to rewards for completion of mathematical tasks

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td>NRE*</td>
<td></td>
</tr>
<tr>
<td>RE**</td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td></td>
</tr>
<tr>
<td>NRE</td>
<td></td>
</tr>
</tbody>
</table>

1. To demonstrate an interest in number games, rhymes and songs. (P4)  
2. To join in and indicate at least one number in a familiar rhyme or song. (P5)  
3. To give 1 object on request. (P4)  
4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)  
5. To assist with a 1:1 matching activity. (P4)  
6. To pick up and put down a single object. (P4)

Total number of objectives met: 0 4 4 6
Total number of objectives partially met: 0 2 0 0

*No rewards **Rewards

<table>
<thead>
<tr>
<th>Objective achieved</th>
<th>Objective partially achieved</th>
<th>Objective not achieved</th>
<th>Student was absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>Week 5</td>
<td>Week 6</td>
<td>Week 7</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>1. To demonstrate an interest in number games, rhymes and songs. (P4)</td>
<td>NRE</td>
<td>RE**</td>
<td>RE</td>
</tr>
<tr>
<td>2. To join in and indicate at least one number in a familiar rhyme or song. (P5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To give 1 object on request. (P4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. To follow a sequence of pictures or numbers as indicated by adult during number activities. (P4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. To assist with a 1:1 matching activity. (P4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. To pick up and put down a single object. (P4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

*No rewards **Rewards
Table 9.5: Natalie’s responses to the presentation of interesting literacy resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1. a) To listen to stories from books containing pictures and text. (P5)</td>
<td>NR* R** R</td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
</tbody>
</table>

Total number of objectives met

| Total number of objectives met | 2 | 1 | 2 | 2 |

Total number of objectives partially met

| Total number of objectives partially met | 0 | 0 | 0 | 1 |

*No resources **Resources
Table 9.6: George’s responses to the presentation of interesting literacy resources

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NR*</td>
</tr>
<tr>
<td>1. a) To listen to stories from books containing pictures and text. (P5)</td>
<td></td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of objectives met</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of objectives partially met</strong></td>
<td>4</td>
</tr>
</tbody>
</table>

*No resources **Resources

| Objective achieved | Objective partially achieved | Objective not achieved |
Table 9.7: Natalie’s responses to rewards for completion of literacy tasks

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) To listen to stories from books containing pictures and text. (P5)</td>
<td>RE</td>
<td>RE</td>
<td>NRE</td>
<td>NRE</td>
</tr>
<tr>
<td>1.b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of objectives met |

| Total number of objectives met | 1 | 4 | 1 | 0 |

Total number of objectives partially met |

| Total number of objectives partially met | 0 | 0 | 0 | 1 |

*No rewards **Rewards
Table 9.8: George’s responses to rewards for completion of literacy tasks

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>NRE*</td>
</tr>
<tr>
<td>1.a) To listen to stories from books containing pictures and text. (P5)</td>
<td></td>
</tr>
<tr>
<td>b) To sit calmly to listen to a story in 1:1 and group. (P4)</td>
<td></td>
</tr>
<tr>
<td>2. To watch an adult point to pictures. (P4)</td>
<td></td>
</tr>
<tr>
<td>3. To match objects to pictures and symbols. (P5)</td>
<td></td>
</tr>
<tr>
<td>4. To show recognition of the names of key objects used to support familiar texts. (P4)</td>
<td></td>
</tr>
<tr>
<td>5. To take turns. (P4)</td>
<td></td>
</tr>
<tr>
<td>Total number of objectives met</td>
<td>0</td>
</tr>
<tr>
<td>Total number of objectives partially met</td>
<td>3</td>
</tr>
</tbody>
</table>

*No rewards **Rewards