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Structured Teaching and Eclectic Classroom Practice for Children with Autism in Special Schools: A Case of Mindful Blending

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Abstract

This study, conducted in one local authority in England, set out to investigate how and why 'Structured Teaching' is implemented for children with autism and learning difficulties who are educated in special schools in one local authority in England. Structured Teaching is the educational component of the comprehensive approach 'Treatment and Education for Autistic and Related Communication handicapped CHildren', better known as the TEACCH approach. Structured Teaching aims to promote independence and self-esteem, manage behaviours and, in so doing, facilitate learning. Despite its popularity, there has been little research in relation to the approach as it is implemented in the United Kingdom. In addition, the need for eclectic educational practice is widely documented, given the wide range of individual needs and strengths of learners with autism. Yet despite schools implementing a diverse range of approaches, knowledge of how and why teachers select combinations of approaches is limited. This investigation aimed therefore to:

1. Identify which Structured Teaching strategies are implemented, in what ways and for what purposes.
2. Identify which other approaches are used in combination with Structured Teaching and for what purposes.
3. Explore factors which underpin teachers' decisions in selecting and combining approaches.

An early literature review established key principles, purposes, definitions and concepts associated with Structured Teaching, as determined by those who developed the TEACCH approach to autism. This enabled the researcher to evaluate whether Structured Teaching was being implemented in the ways intended by those who developed the approach. A further literature review explored the existing research evidence-base for Structured Teaching and revealed gaps in that evidence, both methodologically and in relation to outcomes for children. A positivist approach which measures children's behaviours has resulted in Structured Teaching being identified as an 'evidence-based approach'. However, that evidence neglects to consider the perceptions of those who implement the approach and does not consider in depth other outcomes for children such as the effect upon their wellbeing and readiness to learn. This investigation was therefore designed to explore the gaps in the existing research evidence in order to better understand how and why the approach is implemented.

An initial survey questionnaire, distributed to five special schools in one local authority in England, found that all components of Structured Teaching were being implemented. The results revealed that a predominant perception of outcomes for children was linked to their wellbeing. A variety of other classroom approaches were also identified by respondents and again linked to children's wellbeing.

Subsequently, an interpretative case study approach was designed to gather qualitative insights into classroom practices in relation to Structured Teaching combined with other approaches. Multiple case studies included: two key stage two classes in one special school; one key stage two class, together with one contrasting class for children in their early years, in another special school in a neighbouring town. Fieldwork took place over four school terms. Iterative analysis of interviews and classroom observations revealed that Structured Teaching is implemented as a flexible framework, responsive to individual needs and strengths. Within this framework, a combination of other approaches is implemented. Decision-making is underpinned by knowing each child as an individual and with a priority focus upon children's wellbeing. The analysis and synthesis of the case studies result in a new model, which reflects the 'mindful blending' of approaches within a framework of Structured Teaching.

The results of this investigation complement the existing research evidence-base. Future research might best be conducted by adopting a mixed-methods approach, combining positivist with interpretivist methodology. This would enhance the research evidence. Measurable behaviours would reveal *what* children do as a result of classroom practices, whilst insights of practitioners may shed light on potential reasons for *why*. In addition, an interpretive approach might also usefully gather the insights of those who are at the receiving end of a blend of approaches, that is, the children and their families. Finally, future research might test the usefulness of the 'mindful blending' model in order to inform and enhance educational approaches for children with autism.

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Terminology

Whilst the approach under investigation is that of 'TEACCH Structured Teaching', consideration of other approaches is a part of that investigation. Thus a summary of those approaches is provided for the reader. In addition, whilst definitions and terminology relating to TEACCH and Structured Teaching are documented in detail in the thesis, these are summarised here for ease of access.

Intensive Interaction Developed by Phoebe Caldwell, Intensive interaction is an interaction approach which aims to develop relationships between adults and children with severe autism. The approach is child-led, with adults responding to a child's sounds, movements and activities.

Jigs Visual template which provides instructions as part of 'visual information', which is a component of TEACCH Structured Teaching.

Physical structure A component of Structured Teaching, which includes: organisation of the learning environment; specific spaces for designated purposes; strategies to minimise distractions

Picture Exchange Communication System (PECS) Developed by Bondy & Frost, PECS is a visually-based alternative communication system. Children are taught to communicate using pictures and symbols.

Social Communication, Emotional Regulation and Transactional Supports (SCERTS) Developed by Prizant, Wetherby, Rubin & Laurent this approach aims to help a child become a social communicator and to develop relationships. SCERTS also promotes professionals and parents working collaboratively.

Schedules A component of Structured Teaching, schedules visually present sequences of activities, showing what, when and where. Visual information is presented according to understanding and includes: objects to denote activities, picture schedules, symbols and words, written. 'First... the' denotes sequence of two activities. Symbols may be part and full day. Schedules are presented following reading direction.

Sensory circuits were developed by Horwood and aim to address sensory processing differences in children with autism. A circuit of activities are provided to 'alert' the senses, help the child to 'organise' their responses and finally to 'calm' the child.

Sherborne movement Developed by Veronica Sherborne, this is a movement-based approach which aims to build trusting relationships between child and adult.

Social Stories Developed by Carol Gray, this approach aims to develop social understanding by presenting specific sentence types in a story or article, which provides information about social situations.

Structured Teaching is the educational intervention which is part of the TEACCH approach. Structured Teaching provides structure in the form of physical structure, schedules, work systems and visual information. The approach aims to teach independence and new skills to learners with autism spectrum disorder.

TEACCH (Treatment and Education for Autistic and related Communication Handicapped Children) Developed by Eric Schopler, the approach promotes collaboration between professionals and families and includes a wide range of services for people with autism in North Carolina, United States of America. This includes an educational approach, known as Structured Teaching. The TEACCH acronym has recently been used to reflect the core values of: **T**eaching; **E**xpanding; **A**ppreciating; **C**ollaborating and **C**o-operating.

True object-based icons (TOBI) TOBIs are used as part of Structured Teaching and are presented on schedules. A photograph of an object, linked to an activity, is cut out following the outline of the object and placed on a schedule to represent the activity.

Work systems are a component of Structured Teaching which teach organisational strategies to enable learners to locate work, complete tasks and know where to put finished work. Work systems are differentiated according to individual understanding, including: left-to-right organisational system where a child locates work which is placed on his or her left and places in finished container on child's right; matching sequenced 'to do' lists, sometimes called mini activity schedules; written organisers, more recently using personal digital devices.

Visual information is a component of Structured Teaching and includes: visual organisation of tasks so children can look at a task and know what to do, e.g., posting task – all materials to post are contained on the left of a work tray, posting container placed on right of work tray, child can see what to do to complete task, working left to right; picture and/or symbol instructions; visual 'jigs' which provide a visual template for instructions; written instructions. Visual clarification is incorporated to highlight important parts of a task, e.g., visually highlighting which activities to complete on a work sheet.

Chapter One: Introduction

In this chapter I introduce the aims and rationale of my investigation and explain the factors which contributed to my decision to research classroom practices in special school classrooms for children with autism and severe learning difficulties. Firstly I outline the focus and context of the investigation. Secondly I present my rationale for undertaking this investigation, which includes an explanation of my professional background, and my rationale in relation to current understanding and practices in educational approaches to autism education. Finally, I outline the overall aims and research questions central to this investigation.

1.1 Introduction

This multiple case study investigation sought to explore how one particular approach to educating children with autism spectrum disorders (ASD) and learning difficulties was implemented in special schools. The approach at the core of the investigation was that of 'Structured Teaching', an educational approach developed during the 1970s (Schopler and Reichler, 1971) as part of a broad approach to the 'Treatment and Education for Autistic and related Communication handicapped CHildren', better known as the TEACCH approach. Structured Teaching has been adopted across the United Kingdom (UK) as one approach to teaching children with autism (Jordan and Jones, 1999; Jones, English, Jordan, Richardson and Waltz, 2008). However, it has been recognised that no single approach meets the needs of all children and therefore schools adopt an eclectic, or 'toolbox' approach, to teaching children with autism (Charman, Pellicano, Peacey, Peacey, Forward and Dockrell, 2011). Despite the popularity of Structured Teaching as one educational approach, there has been little research exploring how and why the approach is implemented, both as an approach in its own right and as one approach amongst many. For these reasons, this investigation explored: how and why Structured Teaching is implemented in special school classroom practice; factors which determined teachers' decisions regarding how it is used in combination with other approaches; educators' perceptions of outcomes for children. This introduction presents the underpinning rationale for the study before outlining the research aims and questions.

1.2 Rationale: autism education

The rationale for this research is rooted in a context of current understanding of autism and educational approaches. This includes understanding of the nature of autism and the impact this understanding has had in relation to developing classroom practices, including Structured Teaching.

1.2.1 *The nature of autism*

The education of children with an ASD is fundamentally related to the characteristics and impairments associated with the disorder. Kanner (1943) identified groups of children with autism who displayed a number of characteristics including: profound withdrawal; obsessive desire for preservation of sameness, good rote memory, mutism or language without communicative intent, echolalia and literal language; preoccupation with objects (cited in Jordan, 1999a, pp. 8 -10). Whilst Asperger (1944, cited in Jordan, 1999, p.23) identified groups of young boys with similar characteristics, key difference between these groups were identified in relation to language development and levels of intelligence. Since this work, it has been widely recognised that the characteristics associated with the autism spectrum fall into three main areas, identified as the triad of impairments in social communication, social interaction and social imagination (Wing and Gould, 1979). Later, Wing (1981) coined the term 'Asperger syndrome' to capture those more able individuals. Autism has long been known as a spectrum disorder with huge variation between individuals (Frith, 2008). Jordan's (1999) 'definition for practice' captures this range of differences, summarised in table 1.1.

Table 1.1 Definition for practice (from Jordan, 1999, p.25)

- Difficulties interacting with adults and peers – ranging from the 'aloof' to those who respond but do not initiate, and to those who seek interaction but are socially naïve.
- Difficulties in all aspects of communication – ranging from the non-verbal who have no other compensatory system, to those with good grammar and fluent speech but with difficulties in holding conversations, understanding and using non-verbal communication.
- Difficulties in flexible thinking and behaviour – ranging from repetitive and stereotyped behaviour, extreme reactions to change, lack of socially creative or symbolic play to those who develop obsessive interests, pursued at the expense of everything else.

Children with ASD face challenges, to a greater or lesser degree, in all three of the following areas: reciprocal communication; social interaction; inflexibility in behaviour and thinking. More recent diagnostic criteria for autism spectrum disorders identify two sets of criteria: i) social communication and interaction ii) restricted, repetitive patterns of behaviours, interests or activities, with the addition of sensory processing differences in some individuals (American Psychiatric Association (APA), 2013). Importantly these criteria make distinctions in terms of levels of severity and support which reflect differences in severity across the spectrum (level 1 requiring support, level 2 requiring substantial support and level 3 requiring very substantial support).

Core difficulties in the 'triad' areas impact upon both teaching and learning as traditional teaching methods rely upon social and communication skills and as such may exclude children with an ASD (Powell, 2000). For those with autism and severe learning difficulties (Jordan, 2001, the nature of their difficulties creates significant barriers to learning. In order for teachers to meet the needs of children with ASD it is essential to address these areas in any educational approach (Department for Education and Skills/Department of Health (DfES/DoH), 2002; Jones *et al.,* 2008). In an attempt to develop classroom practices to meet the needs of children with ASD, a plethora of strategies and interventions have evolved (e.g., Dempsey and Foreman, 2001; Heflin and Simpson, 1998; Jordan and Jones, 1999; Charman *et al.,* 2011). Research relating to such strategies is limited and a consistent theme emerges, notably the challenges in conducting research that seeks to evaluate effectiveness of specific approaches (Hess, Morrier, Heflin, and Ivey 2008; Jordan, 1999; Schreibman, 2000). Teachers are urged to be eclectic in their approach, no single approach being identified as better than another (DfES/DH, 2002; Humphrey and Parkinson, 2006; Jones and Jordan, 2008; Charman *et al.,* 2011). However, there is little guidance for teachers in relation to how to develop the right eclectic mix for each child. Tentative suggestions have been offered in relation to how strategies may complement one another (Howley and Rose, 2003; Howley and Arnold, 2005; Rose and Howley, 2007) although much remains to be discovered.

1.2.2 *Autism education and Structured Teaching*

This investigation is linked directly to the development of an approach to teaching children with autism and learning difficulties. In recent years, significant resources have been deployed to develop expertise in approaches to teaching children with ASDs, both locally and nationally. This has resulted in some strategies becoming commonplace in mainstream and special school contexts; in particular this includes the use of 'Structured Teaching' (Schopler, Mesibov and Hearsey, 1995; Mesibov and Howley, 2003; Mesibov, Shea and Schopler, 2005). It should be noted here that the TEACCH approach and 'Structured Teaching' are often used interchangeably by practitioners, although TEACCH comprises a wide range of 'cradle to grave' services for people with ASDs, Structured Teaching being one component of the approach (Mesibov, Shea and Schopler, 2005). This is reflected in literature and research, some of which refer to elements of 'Structured Teaching', whilst others refer to the TEACCH programme yet in reality investigate different components of 'Structured Teaching'.

Structured Teaching, developed in North Carolina, United States of America (USA), was introduced into the United Kingdom (UK) in one local authority (LA) in 1990 (Preece,

Lovett, Lovett and Burke, 2000) and subsequently around the UK, with large numbers of teachers, teaching assistants and professionals from other disciplines having access to various levels of training. In 2002 the approach was identified as one which demonstrates good practice by the Autism Working Group. Principles of the approach are consistent with a developing consensus that approaches to educating children with ASDs should include: assessment to inform intervention; involvement of parents; focus upon social interaction and communication; structured interventions with visual supports (DfES/DoH, 2002; Jones *et al.,* 2008). However, these are sometimes misunderstood or forgotten amidst the paraphernalia commonly associated with the approach and may be used in limited ways due to lack of understanding of key principles (Howley, 2006).

Many schools have had access to TEACCH and 'Structured Teaching' training. However, as schools have increasingly become aware of a range of possible interventions and teaching strategies, there remain questions for teachers with regard to how to decide which strategies to use with which learners. As Jones (2006) points out '…decision-making about educational interventions and provision in ASD is often based on beliefs, tradition and assumptions, rather than on empirical evidence' (p. 543). Issues relating to decision-making are discussed further in relation to the research approach adopted for this investigation (see 4.3.3, p. 60).

1.3 Rationale: researcher's background

This research was prompted by a number of areas of interest to me as the researcher, both in relation to previous work as a teacher of children with autism, as a university lecturer working with schools to inform and develop approaches to teaching and learning and as a researcher interested in educational practices and autism. As a former teacher of children with autism in special schools, I have extensive experience in implementing Structured Teaching and other educational approaches. The difficulties experienced by children with autism and severe learning difficulties, and the many barriers they faced due to their autism, has had a marked impact, both professionally and personally. A number of difficulties which children experienced left a particular impression including: high levels of anxiety and fear; significant difficulties understanding the demands made of them in a classroom; behaviours which were challenging and sometimes distressing, for example self-injurious behaviours. In my professional practice, the introduction of Structured Teaching was observed as having a significant impact upon individual children and several years of implementing the approach led to a desire to learn more about how others implemented the approach in similar classrooms.

In addition to teaching experience, development of in-depth knowledge of the approach as a 'TEACCH trainer' and later as a University lecturer meant I had developed particular expertise in the field when embarking upon this investigation. Previous work as a practitioner and researcher resulted in publications which aimed to inform and enhance Structured Teaching practices (Howley, 2006; Howley and Preece, 2003; Howley and Rose, 2003; Mesibov and Howley, 2003). Thus, my professional experience and knowledge in many ways drove the investigation, providing the impetus to explore how and why the approach was being implemented. Furthermore, my professional experiences had firmed my beliefs about the rights and entitlements of children who are marginalised by the severity of their autism and influenced what Cresswell (2014, p.64) refers to as a 'theoretical lens' through which this research was constructed and viewed. In particular, Marks (2011) argues that special education ought to be about 'social justice', ensuring that schools 'focus on teaching students how to have a life of quality' (p. 2). Beliefs in entitlement to a life of quality are reflected in my aim to determine those classroom pedagogical practices which contribute to that entitlement. Furthermore the views of educators, who are also committed to similar beliefs in relation to entitlement, are fundamental in selecting, implementing and evaluating pedagogical practices, yet there is a distinct lack of 'social validation of potentially effective autism interventions' (Callahan, Henson and Cowen, 2008, p. 678). The perceptions of the participants in this study were intended to be at the core of the investigation and had the potential to contribute to the social validation of Structured Teaching and eclectic classroom practices and which therefore established a clear focus upon social validity in this investigation.

Whilst my background informed the rationale for this investigation, at the same time this clearly raised the potential for bias and this aspect is discussed in more depth in chapter four. Nevertheless, whilst knowing before the investigation even began that there was a risk of previous experience influencing the research, the desire to find ways to enhance practices for groups of children who are excluded by the very nature and severity of their autism prevailed. My passion for teaching and supporting children with severe autism, their families and the professionals who work with them sustained the momentum for this research.

1.4 Overall aims

The overall aims of this research were to investigate how Structured Teaching strategies were being implemented special schools classrooms. The focus of the investigation was timely in that whilst Structured Teaching had become an integral part of classroom practice, limited

research had been conducted in classrooms to identify how the approach was being implemented. Moreover, increasing research was demonstrating that no one approach was proven to be more effective than another. For example, Jones *et al.,* (2008, p. 14) state:

> Given the diversity within the spectrum and between individuals, there is no single educational intervention that is useful for all children on the autism spectrum, and there is no single intervention that would on its own be sufficient to meet all the needs of a particular child on the autism spectrum.

Consequently this investigation also sought to determine how Structured Teaching was being combined with other approaches. Initial research questions were identified, stemming from the researcher's previous experiences (Table 1.2); revisions to these questions were made following the literature reviews (chapters two and three) and are indicated in Table 2.2 (p. 25).

Table 1.2 Initial research questions

1. What Structured Teaching strategies are being implemented for children with autism in special schools?
2. In what ways and for what purposes are Structured Teaching strategies being implemented in special schools?
3. What other approaches are combined with Structured Teaching?

It is important to note here that the purpose of the research was not to evaluate the strategy *per se,* nor to 'test' or 'prove' its effectiveness in teaching children with autism. Rather, the research aimed to explore, analyse and interpret ways in which the approach was being implemented through a multiple case study, interpretative approach.

1.5 Overall structure of the thesis

The way this thesis is structured reflects the structure and approach to the research. The research timeline (Appendix 1) illustrates the research journey and processes. An initial literature review explored the historical context of the development of TEACCH and Structured Teaching. This review was undertaken in order to identify key concepts, terminology, principles and purpose of the approach and is presented in chapter two. This was a crucial first step in guarding against making assumptions based upon professional

experience; in order to investigate the approach, making sure that what I was exploring was true to the integrity of the approach was essential. In chapter three, I present the results of the in-depth review of the literature which sought to explore the research evidence-base for Structured Teaching. This review identified key themes which were then explored through a variety of data collection methods.

In chapter four I outline and justify the research approach and methods, justifying an interpretative and qualitative approach through multiple case studies. Consideration of ethics, potential ethical issues and how these were addressed threads through this and subsequent chapters. An initial survey was designed, piloted, revised and finally distributed to five special schools in one LA which catered for children with autism and severe learning difficulties. The survey design and results are presented in chapter five. Analysis of the survey informed the subsequent design of interview schedules and classroom observations and is presented in chapter six.

Fieldwork took place in four classrooms in two primary special schools (identified herein as School A and School B). Each school had a similar number of children on role and catered for children aged three to eleven. The schools were located in two neighbouring towns and catered for children with a wide range of special educational needs, including children with severe learning difficulties and profound and multiple learning difficulties. Children also had complex needs, sensory and medical needs. Both schools had a significant number of children on the autism spectrum, some throughout classes across the school whilst others were placed in classes catering specifically for children on the spectrum. At the start of the research both schools had been awarded 'outstanding' in recent inspections by the Office for Standards in Education, Children's Services and Skills (Ofsted).

A case study was conducted for each of the four classes, all of which were specialist autism classes: two Key Stage Two classes in School A; one Key Stage Two class and one Early Years class in School B. Classroom observations and interviews of the class teachers and teaching assistants (TAs) were analysed throughout the fieldwork and the resultant case studies are presented in chapters eight to eleven. In chapter twelve I discuss the key themes which emerged from the case studies. This discussion contributes to knowledge by developing a model which reflects how Structured Teaching is implemented as a flexible framework within which other approaches are combined. Teachers' decisions in selecting approaches relate to the key themes and reflect what I propose is 'mindful blending', with key aims to promote wellbeing and to enable children to be ready to learn. The proposed model of

mindful blending has the potential to be useful in supporting schools and teachers to determine best eclectic practice for individual children with autism. I conclude the thesis in chapter thirteen with a critical evaluation of the research which addresses limitations and also identifies ways in which this investigation makes a contribution to the existing knowledge and research evidence in this field. I also in this chapter critically reflect upon my learning journey, highlighting 'significant moments' which enhanced my critical thinking. Finally, I conclude with proposed dissemination of the research findings and make suggestions for further research.

Having established the rationale for this investigation, introduced the topic and outlined the aims, questions and process, in the next chapter I present a historical literature review which establishes principles, purposes, definitions and concepts of Structured Teaching as an educational intervention for children with autism.

Chapter Two: Historical Literature Review

In this chapter I present a historical review of the development of the TEACCH approach and the programme's educational approach 'Structured Teaching'. The review establishes a context for this investigation by reviewing the development of the approach, including the introduction of Structured Teaching into the local authority where this research is conducted. The review then focuses upon establishing key principles, purposes, definitions and concepts of Structured Teaching, as advocated by the originators of the approach, in order to establish key terms and definitions for this investigation. The following chapter then reviews the research evidence base for Structured Teaching and its' components.

2.1 Literature review: scope and purpose

The scope of this literature review is determined by the research focus and is primarily concerned with reviewing the literature in relation to the development of the TEACCH programme's 'Structured Teaching' for individuals on the autism spectrum. The literature review scrutinised in this chapter has two key purposes. Firstly it establishes the historical context and locates this study in 'the context of what has already been done, allowing comparisons to be made and providing a framework for further research' (Blaxter, Hughes and Tight, 2006, p.22). In addition, Silverman (2010, p.319) identifies purposes of reviewing existing literature (adapted from Strauss and Corbin, 1990) including 'providing concepts' and to 'stimulate questions during data gathering and data analysis'. Thus this review determines key concepts, terms and definitions which informed subsequent literature searches and data gathering.

This literature review establishes the existing knowledge base in relation to Structured Teaching and contextualises this investigation. Importantly, reviewing the literature guards against making assumptions based upon professional experiences about how the approach is being used in classrooms and is an important factor in relation to reducing potential researcher bias from the outset of the research. In order to reduce the potential for researcher bias, this first phase of the literature review was considered essential in determining the principles, purposes and concepts of the approach as advocated by the originators of the approach.

The first phase of the literature review for this investigation focused upon exploring literature that provided a historical context for this research. The development of the approach and its' early rationale is important in gaining insight into, and understanding of, the early beliefs and rationale which drove the development of the approach. Historic beliefs are relevant to current

beliefs and rationale and drawing comparisons allowed me to examine how the approach has evolved and informs current interpretations in practice. Secondly, this phase of the review included consideration of sources that identified key principles, purposes and concepts relating to the approach and which add to my knowledge and understanding gained previously through professional training and experience.

Researching particular approaches and interventions requires judgements to be made regarding "treatment integrity", asking "Is intervention x being carried out in the way the originators intended?" (Jordan, 1999b, p. 412). In a review of research into educational interventions and programmes for children with autism in the UK, Jordan and Jones (1999) recorded "any measures taken to ensure that the programme was delivered in the way intended" (p. 106). In order for similar steps to be taken in this study it was clearly essential to have a thorough understanding of the principles, purposes and concepts of Structured Teaching as defined by the originators of the approach, i.e., the co-founder of Division TEACCH Eric Schopler and the Director (at the time of the research) Gary Mesibov. The first phase of the literature review identified concepts and key words in order to search the research evidence-base pertaining to use of the approach (see chapter three).

Reading of abstracts, chapters and research articles informed early organisation of principles, purposes and concepts drawn from theoretical, practice-based and research literature. Findings were organised in a tabular format (appendices 2 and 3) in order to determine and to compare and contrast key principles, purposes and concepts since the inception of the approach and subsequent development of early ideas. This comparative approach facilitated the identification of key words which informed subsequent literature searches reported in chapter three.

2.2 Structured Teaching: historical context

This section of the review identifies the principles, purposes and concepts of the approach as articulated by the originators of TEACCH; definitions of Structured Teaching and the component parts are identified. In order to contextualise the development of Structured Teaching, it is necessary to briefly review the origins of the TEACCH programme. Schopler *et al.,* (2005, p.1 - 12) provide a succinct, but authoritative account in their discussion of 'the origins and history of the TEACCH program'. These authors refer to Schopler's first study in 1966 which aimed to demonstrate that autism was not an emotional disorder resultant from poor parenting, a prevalent view at the time. Schopler's early studies provided some of the

first accounts of autism as 'a disorder of processing sensory information' (Schopler et al., 1995, p. 2) and later studies went on to explore problems with social interaction and 'human relatedness' (p. 2), now acknowledged as core components of the 'triad of impairments' (Wing and Gould, 1979) and which underpin international diagnosis and classification of autism (APA, 2013; World Health Organisation (WHO), 1994). Other studies by Schopler (1965) explored disorders related to sensory processing and a later study (Reichler and Schopler, 1971) investigated possible links between sensory perceptual processing and 'problems with human and social relationships' (Schopler et al., 2005, p.2). This period of research and consequent research studies are described by Schopler et al. as 'pivotal' for developing the TEACCH programme, as the researchers presented three key conclusions: i) social impairment in autism may be due to 'perceptual peculiarities'; ii) inappropriate maternal behaviour is a response to these peculiarities; iii) education could improve and modify both of the above (Schopler et al., 2005, p.3). Conclusions led to a focus upon '... a highly misunderstood and underserved group via education' (Schopler et al., 2005, p.3) and indicates an early emphasis upon education as a strategy for addressing difficulties identified in autism. In addition, informal observations led to a conclusion that people on the autism spectrum 'learned much better using their visual modality than their auditory modality' (Schopler et al., 2005, p.3); this was to be a crucial factor which led directly to the subsequent development of Structured Teaching which relies upon using visual strengths to teach new skills.

Schopler et al., (2005) argue that in the early 1970s, educational practice for children with autism was based on Freudian theory and linked closely with emotional disturbance; they go on to argue that psychotherapeutic approaches gave children 'a maximum amount of freedom in how they wished to use their educational experience' resulting in 'a very chaotic environment for learning' (Schopler et al., 2005, p.3). Schopler and his colleagues conducted studies to explore their early ideas by alternating groups of children with autism between structured and unstructured sessions over 2 week cycles (Schopler et al., 1971). During this period, others were also exploring the impact of structure upon children with autism, including Rutter and Bartak (1973) who compared outcomes for children in relation to skills and behaviour when educated in three types of provision: psychotherapeutic, permissive and structured. They concluded that children educated in a more structured environment achieved more, and were more on-task, than children in the alternative educational environments.

These conclusions were central to the subsequent development of Structured Teaching. Schopler *et al.*, (1971) concluded from their study that children with autism 'responded better' to structured teaching sessions than unstructured and that 'children with lower developmental functions became more disorganized the less structure they had' (Schopler *et al.*, 2005, p. 4). In relation to the current study, this idea has particular relevance as the research was conducted in special schools in classes of children autism and severe learning difficulties. One area of focus for the current investigation emerged from this early idea and the links between structure, level of learning difficulty and organisation were further explored in the second phase of the review (see chapter three). Schopler and colleagues subsequently developed diagnostic tools (Childhood Autism rating Scale, CARS, Schopler, *et al.*, 1988) and a developmental assessment tool (Psycho-educational Profile, PEP, Schopler and Reichler, 1979) in order to identify levels of structure required by each child and also to establish individual learning patterns and styles (Schopler *et al.*, 2005, p. 4).

Schopler and his colleagues also studied the role and understanding of parents of children with autism. Schopler *et al.*, (2005) reflect upon Bettelheim's 'antagonism towards mothers' (p. 5). They argue that negative attitudes towards parents resulted in mistrust between parents and professionals. They conducted a number of studies to explore parents' experience of their children's developmental problems (Schopler and Loftin, 1969; Schopler and Reichler, 1972 and parents' ability to work as co-therapists (Schopler and Reichler, 1971), concluding that mistrust of parental reports stemmed from a culture of blame and which studies conducted outside a Freudian therapy context revealed accurate understanding of and reporting by parents of children's developmental difficulties.

Schopler *et al.*, (2005) indicate that these early studies were 'instrumental in formulating the direction of our program and established the major working principles that have guided it for more than three decades' (p. 7). The authors summarise key principles related to children and parents:

i)   moving away from emotional causes for autism to establishing theories relating to perception and cognition;
ii)   links between 'perceptual styles' and 'social relationships';
iii)   identification of educational needs for structure.
iv)   parents were 'erroneously scapegoated by professionals using Freudian assumptions' (p. 7);
v)   there is no impairment of thought in parents;
vi)   parents understand children's developmental levels.

The early identification of *education* as an intervention method for children with autism led to the development of 'Structured Teaching', the approach which is under investigation in this study. In summary, the development of TEACCH included an emphasis upon education, structure and visual skills as interventions for children with autism, resulting in the development of Structured Teaching as the TEACCH approach to educating children with autism.

2.2.1 *Structured Teaching: programme development*
As a result of this early work, Schopler and Reichler (1971) began a 'Child Research Project' (from 1966 – 1972) during which children with autism were observed, alongside their parents, with a view that parents could work as co-therapists instead of being viewed as a cause of the child's difficulties. This reflected a radical shift from existing thinking regarding potential causes of autism and resulted in involvement of parents in the education of their children.

Research and observations during this stage of programme development resulted in conclusions that there was variation between children in degree of autism, behaviour, learning styles and problems, language and social relationships, leading to the conclusion that individualised assessment would be required to support any educational intervention. It was concluded that whilst studying perceptual differences, it was also necessary to investigate cognitive and behavioural problems and to explore use of visual and auditory senses 'since we observed in the clinic a preference for visual rather than auditory processing' (Schopler *et al*., 2005, p.8). Others have subsequently reported upon this visual processing preference including, for example, O'Riordan, Plaisted, Driver and Baron-Cohen (2001) and O'Riordan (2004). Further, the rationale for use of visual strengths in the form of visual instructions is justified by Quill (1997) and other approaches are underpinned by the use of visual cues, for example the Picture Exchange Communication System (PECS) (Bondy and Frost, 1994). Importantly, individuals who are on the autism spectrum frequently report visual strengths and skills, including Grandin (1995) who explains:

> I think in pictures. Words are like a second language to me. I translate both spoken and written words into full-color movies, complete with sound, which runs like a VCR tape in my head. When somebody speaks to me, his words are instantly translated into pictures. (p. 19)

The second phase of programme development led to the establishing of TEACCH in three regional centres in North Carolina. During this period, 1972 – 1978, a number of initiatives were developed including language and communication teaching strategies and behaviour management techniques which became known as Structured Teaching (Schopler, 1995; Schopler *et al*., 1995). Later, the third stage (1978 – 1983) saw interventions developed for services for adolescents and adults. Training in the TEACCH approach was established in North Carolina and soon after spread to an international network which included the UK.

2.2.2 *International development of TEACCH and Structured Teaching*

Since its inception the TEACCH approach has continued to develop and is recognised world-wide as a collaborative model which provides services for children and adults with autism and their families. International adoption of TEACCH, and Structured Teaching in particular, has become a popular way of delivering education and services for children and families. Many initiatives were inspired by parents and developed with the intention of supporting collaboration between parents and professionals (e.g., Al Saad, 2000; Fuentes, Barinaga and Gallano, 2000; Preece *et al*., 2000; Tsang, Shek, Lam, Tang and Cheung, 2007), indicating that the early principles related to parents established by Schopler and his colleagues underpinned development of the approach around the world.

Whilst it became clear during the review that a number of countries profess to have introduced TEACCH, in reality most of the initiatives reported focused upon the adoption of Structured Teaching. Moreover, the terms 'TEACCH' and 'Structured Teaching' are frequently used synonymously and with use of TEACCH being claimed when Structured Teaching is the strategy adopted, reflecting perhaps some confusion of terms and definitions. Limited understanding of Structured Teaching has led to Peeters' (2000) suggestion that 'many Europeans continue to see it strictly as a set of prescriptions, to view it somewhat narrowly' (p. 57). Jordan (in Mesibov and Howley, 2003) indicates that there are 'misunderstandings' about the approach that lead professionals to 'associate TEACCH with paraphernalia rather than an approach based on individual assessment and tailored strategies' (p. v).

A number of further claims and reports have significance for the current study, in particular in relation to the implementation of Structured Teaching for children with autism and learning difficulties and use of Structured Teaching as an educational approach to learning and behaviour. For example, Sasaki (2000) reported that introduction of Structured Teaching

training in Japan from 1983 led to improvements for children with autism and behaviour disorders defined as self-injury, violent destruction and severe panic. A project in Belgium introduced the approach with the purpose of improving quality of education for children with autism and 'major behaviour disorders' being educated in special schools (Magerotte, 2000, p. 64); this project also focused upon developing communication and generalisation of learning. Further examples of international use of TEACCH and Structured Teaching are included in chapter three.

2.2.3 *Introduction of TEACCH and Structured Teaching to the UK*

Adoption of TEACCH and use of Structured Teaching in one LA in the UK was the result of an interagency collaboration (education, social services and health) with a parent voluntary organisation, which formed a working party to explore services for children with autism. The working group made a number of recommendations including that a specific approach should be adopted across the county 'to facilitate the development of consistency and continuity in services...' (Preece *et al.*, 2000, p. 20). According to these authors, TEACCH was selected due to the programme's reputation for quality of research and its validation (p. 20). Preece *et al*., (2000) indicate that as a result, the introduction of TEACCH training led to rapid development of services beginning with introducing Structured Teaching for children aged three to eleven in special schools. Subsequently development of social care services included the establishment of a group home for children who had previously been placed out of county, respite care, play schemes and eventually development into adult services. As training was established on a regular basis, and expanded across the UK, professionals from mainstream schools began to introduce Structured Teaching strategies to promote access to the curriculum (Mesibov and Howley 2003). Structured Teaching strategies were increasingly seen as examples of 'quality first teaching' (Department for Children, Schools and Families, DCSF. 2008) and good practice in inclusive settings with benefits for all learners (Rose and Howley, 2007). However, despite the introduction of regular training, misconceptions about TEACCH persist and professionals frequently report that "we use TEACCH" when in reality they are using Structured Teaching strategies. As Preece *et al.,* (2000) indicate:

> Nationally, there seems to be a rather entrenched and limited perception of the TEACCH model. It is considered primarily in terms of its classroom aspects of work stations and "jigs" and has been criticized as providing experience-limiting training rather than life-enhancing education' (p. 26)

This commentary echoes the views of Peeters (2000) and Jordan (in Mesibov and Howley, 2003). Confusion of terminology and limited understanding of the approach is an important focus in this study and indeed provided the impetus for conducting this research in order to ascertain current levels of understanding and practice in a sample of special schools. This review turns now to identifying the key principles, purposes, concepts and definitions which underpin Structured Teaching.

2.3 Structured Teaching principles, purposes, definitions and concepts

This part of the review focuses on identifying key principles, purposes, concepts and definitions as determined by the originators of the approach. Comparisons and developments of Structured Teaching (Appendix 2), and also of the components of Structured Teaching (Appendix 3), were reviewed in order to determine definitions for this investigation and to inform the design of the questionnaire schedule (chapter five). This was also important in relation to integrity of the approach when conducting this research.

2.3.1 *TEACCH and Structured Teaching*

Schopler (1994) identified TEACCH concepts and principles as: improved adaptation; recognition of parents as co-therapists; assessment for individualised treatment; teaching structures; skill enhancement and in particular 'that education is based on structured teaching' (p. 72). He highlights that this principle was determined by earlier research (Schopler *et al*., 1971) concluding that:

> ... autistic children functioned better under structured conditions than they did under unstructured conditions, and that individual variations in response to structure correlated with developmental levels. Children of lower levels of developmental function benefited more from structure than did children at higher levels. (Schopler, 1994, p.72).

The link between the need for structure and levels of developmental ability is relevant to this investigation which focused upon children with autism and severe learning difficulties as Schopler's conclusions might indicate that the children in this sample would benefit from structure as defined by TEACCH. As all the schools in the sample have been involved with TEACCH training initiatives, it would not be surprising to find highly structured classrooms which incorporate a range of strategies as defined by Structured Teaching. These principles are further defined by Schopler *et al*., (1995) who indicate that two of the above principles

have direct relevance to Structured Teaching. Firstly, they indicate that the 'primary purpose' is to improve an individual's adaptation through improvement of individual skills using special interests, and by modifying or structuring the environment to accommodate autism deficits, arguing that both are 'essential components for teaching optimum development in autism' (p.245). Secondly, they identify a key principle related to 'providing Structured Teaching adjusted for the developmental level...' (p. 246) indicating that Structured Teaching is 'individualized according to particular patterns of emerging skills and relative deficits' (p. 246). In addition, two key purposes of the approach are identified and relate to increasing independence and to managing behaviour. Four components of Structured Teaching were identified by Schopler *et al.,* (1995) as physical structure, schedules, work systems and task organisation which includes visual information. In addition to their articulation of Structured Teaching principles and purposes, Schopler *et al.,* (1995) also identify concepts which work with Structured Teaching including the use of directions, prompts and reinforcers, concepts which are traditionally found in behaviour modification techniques.

An important definition provides an explanation of what Structured Teaching is *not* as well as what it actually is: 'Structured Teaching offers learning opportunities not otherwise available. It is not a curriculum.... but it is the framework in which ... skills are taught." (Schopler *et al.,* p.246). This is pertinent to this investigation as professional experience indicated that during the introduction of Structured Teaching to special schools, some educators interpreted the strategy more as curriculum, with individual children completing 'TEACCH baskets' as a discrete part of the school day, reflecting the misconceptions identified by Preece *et al.*, (2000).

In response to misinterpretations, Mesibov and Howley (2003) published detailed guidance and examples of how the approach should be used as a framework for delivering the curriculum, and not as curriculum content, thus reiterating and expanding upon purposes of the approach with the intentions of reducing earlier misconceptions. Their definition suggests that: 'Structured Teaching evolved as a way of matching educational practices to the different ways that people with ASD understand, think and learn' (p. 8) and that:

> Pupils with ASD who use this approach are calmer, more self-assured and are able to work productively and independently for longer periods of time. The use of Structured Teaching, as a method of delivering the curriculum, can enhance and facilitate the

teaching and learning process and can improve access to the curriculum for many pupils with ASD. (p. 14).

Mesibov and Howley (2003) refer to the same four components of Structured Teaching as Schopler *et al.,* (1995) with task organisation defined in more detail to include visual clarity, visual organisation and visual instructions (p. 13). Both Schopler *et al*., (1995) and Mesibov and Howley (2003) include an emphasis upon improving *organisation* through the use of the components of Structured Teaching, reflecting earlier ideas of Schopler *et al.,* (1971) who linked disorganisation to lack of structure, particularly for those children who have autism and developmental delay. Appendix 3 outlines definitions of the components of Structured Teaching with key concepts appearing in both Schopler *et al.,* (1995) and Mesibov and Howley (2003) which include: organisation, individualisation, independence, transitions, routines, visual information and cues.

More recent explanation and analysis of Structured Teaching is provided by Mesibov *et al.,* (2005) who provide further detail and clarification of earlier key concepts. Appendix 3 outlines principles, purposes, concepts and definitions which reflect developments within the approach. Links are made between development of the notion of a 'culture of autism' which emphasises characteristics and behaviours that people on the autism spectrum have in common, 'which are the foundation for the TEACCH program's Structured Teaching approach.' (p. 29). Mesibov *et al.,* (2005) define Structured Teaching as 'an array of teaching or treatment principles and strategies, based on understanding of and respect for the 'Culture of Autism' that can be applied on an individual basis to each person's particular situation.' (p. 33). As in Schopler *et al.,* (1995) and Mesibov and Howley (2003) key concepts continue to form an essential feature of the approach, Mesibov *et al.,* (2005) emphasise further key concepts including observation and assessment, generalisation of learning, problem-solving approach to behaviour management and a particular emphasis upon understanding and meaning:

> The most fundamental component of the individualized approach is the assessment of how people with ASD understand the meaning of their experiences. Difficulty with understanding meaning is seen as the most central problem of ASD. (p. 30)

The approach is described as one which is a 'competency based' model, building upon positive interactions, strengths and interests. Earlier commitment of Schopler to collaboration

with families echoes in the statement that 'parent-professional collaboration is one of the most important goals' (Mesibov *et al.*, 2005, p. 31), together with goals relating to increasing skills and adjusting the environment to make it more comprehensible and meaningful to the individual. Furthermore, goals of Structured Teaching are identified as: 'learning that situations have meaning and predictability' (p. 36); skills for adult life; spontaneous communication and independence. TEACCH, and specifically Structured Teaching, is no longer seen to have relevance only to services for children but also for teaching skills necessary for adult life. In addition, the emphasis upon understanding and meaning is argued as essential in order to go beyond teaching rote compliance, as Mesibov *et al.,* (2005) argue that developing understanding, meaning, making connections and generalising are aspects of teaching that enable individuals to function independently.

Components of Structured Teaching are further elaborated as Mesibov *et al.,* (2005) identify six elements: organisation of the physical environment; predictable sequence of activities; visual schedules; routines and flexibility; structured work/activity systems; visually structured activities, which include visual instructions, visual organisation and visual clarity (pp. 39 – 47). They conclude that:

> Structured environments with strong visual cues meet the needs of individuals with ASD more effectively than typical language-based educational settings, because organized, visually clear environments and cues are more closely related to the ways individuals with ASD process their environments. Structured Teaching helps people with ASD to organize themselves and to function more appropriately, independently and successfully. (p. 47 – 48)

This definition highlights a number of concepts that have been developed since the inception of the approach including: structure, visual cues, organisation, independence, a teaching strategy matched to 'culture of autism' and developing appropriate behaviour. The visual component of Structured Teaching developed during earlier studies of Schopler *et al.,* (1971) is strengthened by Mesibov *et al.*, (2005) who argue that there are 'multiple reasons for the use of visual means to communicate the sequence of upcoming activities or events' (p. 41) identifying these reasons as: 'visual communication is more likely to be comprehensible and can remain accessible'; 'visual schedules can facilitate the transitions that often are so difficult... and result in many behavioral difficulties'; 'help to achieve primary goal of becoming as independent as possible' (p. 41)

Appendix 3 defines the key features and purposes of each of the six Structured Teaching components as defined by Mesibov *et al.,* (2005), with additional key words emerging including: choice, flexibility, accepting change, cooperation, self-control, pleasure, less anxiety, consistency, generalisation, engaging in learning. Whilst the earlier foci upon independence and behaviour are still evident in the writing of Mesibov *et al.*, (*Op. Cit.*) there appears to be an increasing emphasis upon associated concepts which relate to personal autonomy such as the ability to make choices and upon concepts relating to understanding, meaning and learning.

Consideration of the TEACCH programme and 'evidence-based practice' is explored by Mesibov and Shea (2010) who again link the approach to the 'culture of autism', identifying strengths and problems which underpin the programme (p. 571). The authors indicate four 'essential mechanisms' which they suggest require further research investigation: structure of environment and tasks to make them understandable to individuals; using strengths in visual skills; using special interests 'to engage them in learning'; supporting self-initiated, meaningful communication (572 – 574). In addition to these mechanisms, Mesibov and Shea describe four kinds of structure which replicate the earlier concepts of physical structure, schedules, organisation of tasks and work/activity systems. Research evidence relating to these types of structure is reviewed and discussed in further detail in chapter three.

2.3.2 *Structured Teaching components*

A review of key terms and definitions of the components of Structured Teaching was also undertaken in order to develop definitions and keywords for this investigation. Appendix 3 includes key terms used in the literature. This review resulted in clarification of the components of Structured Teaching, summarised as:

Physical structure and organisation

A review of definitions and key concepts relating to 'physical structure' reveal key terms and components of 'physical structure' beginning with boundaries, classroom layouts and transition areas (Schopler *et al*., 1995), with additional links to learning styles and sensory issues (Mesibov and Howley, 2003) who argue that:

> The physical layout of the classroom is an important first step in assuring that a programme will be conducive to the learning styles, needs and sensory peculiarities of pupils with ASD. (p. 9)

Mesibov *et al.,* (2005) also assert that the physical environment needs to be interesting in addition to being clear and meaningful, whilst Mesibov and Shea (2010) reinforce clarification of purposes of space and reduction of distractions or overstimulation (p. 572).

Schedules

Schopler *et al.,* (1995) indicate that:

> ... schedules accommodate difficulties with the concept of when and what the activity will be. Schedules explain to each student which activities will occur and in what sequence. Schedules also help students anticipate and predict activities. (p.251)

They argue that, as with other Structured Teaching components, schedules are underpinned by assessment, understanding and meaning, asserting that 'each individual schedule needs balance, alternating new or difficult tasks with more enjoyable or easier tasks. Physically demanding activities are alternated with less active ones' (p.255). Mesibov and Howley (2003) expand upon this, linking schedules to providing order, predictability and organisation which they argue reduce anxiety and increase calmer more cooperative behaviour. Later, Mesibov *et al.,* (2005) indicate that schedules include 'predictable sequence of activities', arguing that 'predictability helps the person understand his environment and also reduces the anxiety that can be caused by uncertainty and surprise...' (p. 41). Schedules are the tool that Structured Teaching employs to communicate the sequence of activities to the individual, however, Mesibov *et al.,* (2005) insist that 'we do *not* want people with ASD to become attached to a routine; we want them to understand the schedule so that they can rely on it.' (p. 42). They also explain that free choice should be incorporated on schedules to strengthen communication skills, increase cooperation, self control and pleasure and to make choices more meaningful. Routines and flexibility are identified by these authors as another element of Structured Teaching, linking these to supporting individuals to make transitions and to develop flexibility 'because this reflects the reality of our culture.' (p. 43).

Work systems

The work system 'informs students of what to do while in their independent work areas' (Schopler *et al*., 1995, p. 255), providing information visually about what work is to be completed, how much work is to be completed and providing a means by which individuals know when they have finished. These concepts have changed very little over time, although Mesibov and Howley (2003) suggest that work systems can be used for activities in a variety of places (not restricted to an independent work area). They also link the use of a work system

to the development of study and organisational skills as a key skill across the curriculum. Building upon these concepts, Mesibov *et al.,* (2005) define work systems:

> Work/activity systems provide organized strategies for approaching a variety of tasks and situations in a way that makes them meaningful. They address the confusion people with ASD often have with 'beginning', 'middle' and 'end' by allowing them to see that they are making progress while involved in activities, and by making the concept of 'finished' concrete and meaningful, which helps people experience a feeling of satisfaction and closure when a specific activity is done. (p. 45)

As the approach has developed, so the concepts have evolved with growing emphasis upon flexibility, variety, meaning and to include development of autonomy, in the above extract identifying 'feelings of satisfaction' upon completion of activities.

Visual Information

This element is identified by Schopler *et al.,* (1995) as 'task organisation' which they define as 'mechanisms for teaching our students to look for instructions rather than follow the general tendency to complete a task the way they think it should be done.' (p. 259). The use of 'jigs' are described as providing visual instructions which 'clarify task requirements, sequences, relevant concepts' and the authors provide examples of colour, picture and word instructions to enable individuals to complete tasks. This element of Structured Teaching is explained by Mesibov and Howley (2003) who identify three components of visual information: visual clarity which clarifies components of tasks, expectations and aids task completion with minimal anxiety; visual organisation which is concerned with the distribution and stability of materials so individuals are not distracted or disrupted, orders materials in 'attractive, orderly & minimally stimulating' way; visual instructions which include jigs, visual representations and written expectations (p.13). These authors argue that visual instructions 'allow for a degree of flexibility that is often not seen' (p. 13) and which are 'essential for effective learning' (p. 14).

Mesibov and Shea (2010) include visual information as a mechanism of Structured Teaching, justifying this by arguing that 'many aspects of the visual skills of individuals with autism are preserved or even superior to same-age peers' (p. 573). Links between the use of visual information to promote engagement and to reduce distress are explained and they suggest that visual information underpins all components of Structured Teaching. It is clear that the emphasis on utilising children's visual skills has persisted during the development of

Structured Teaching as an educational intervention. Whilst some terminology has changed, the principles remain consistent.

2.4 Conclusion

The purpose of this literature review was to focus primarily on establishing a conceptual framework for the development of Structured Teaching as determined by the TEACCH approach. As a result of scrutinising literature from the originators of the approach, a number of conclusions are drawn which identify key purposes, principles and concepts of the approach.

The development of the TEACCH programme in North Carolina emerged with a focus upon collaboration with families and resulted in subsequent design of Structured Teaching as an educational strategy. Of particular importance to this investigation are the identification and development of key principles, purposes and concepts of Structured Teaching in order to make comparisons between professionals' perceptions of the approach and the intended purposes as advocated by the originators of the approach. Purposes of Structured Teaching (Appendix 2) and components of the approach (Appendix 3) have changed little over time. Purposes of the approach originally focused upon developing skills and improving individual adaptation, with an emphasis on the use of visual strategies differentiated according to individual developmental level. An early focus on developing behaviour management strategies and increasing independence were linked to the use of behavioural strategies including prompts, reinforcers and the development of positive routines (Schopler *et al.*, 1995). In addition, these authors stated clearly that Structured Teaching is not curriculum content, but a framework for delivering the curriculum. These key purposes were found in later descriptions of Structured Teaching but are expanded upon to include links with the notion of a 'culture of autism' with Mesibov and Howley (2003) and Mesibov *et al.* (2005) making explicit links between Structured Teaching strategies and individual visual learning styles, strengths and deficits. Also emphasised is assessment of individuals to inform structure with: 'Two complementary goals: 1) increasing the individual's skills and 2) making the environment more comprehensible and more suited to the individual's needs.' (Mesibov *et al.*, 2005, p. 34). In addition, themes which are strengthened include purposes linked to learning and engagement, with Mesibov and Howley (2003) emphasising use of the approach to facilitate access to the curriculum and echoing Schopler *et al.*, (1995) who advocate the approach as a framework for learning. Whilst there is some variation in explanation of Structured Teaching and its components, i.e. Schopler *et al.*, (2005) identify six 'elements' of

Structured Teaching whilst Mesibov and Shea, (2010) describe four mechanisms and four types of structure, nevertheless the underpinning principles and purposes remain consistent.

Following identification of principles, purposes and concepts in relation to Structured Teaching, a similar process was followed in order to determine any additional themes, purposes and key words in relation to the *components* of Structured Teaching. Whilst there are some differences in descriptions of the components of the approach, the underlying principles and purposes again remain constant. Four main components were identified by Schopler *et al.*, (1995) which later become six 'elements' (Mesibov *et al.*, 2005, p. 39), whilst Mesibov and Shea (2010) identify four 'essential mechanisms' (pp. 572 – 574), but essentially the concepts remain consistent. Physical structure, visual schedules and work/activity systems are frequently described as strategies which provide organisational support for individuals in relation to space, time and sequence. Task organisation, described by Schopler *et al*., (1995) including visual organisation, clarity and instructions is later expanded to visually structured activities (Mesibov *et al.*, 2005) and visual information (Mesibov and Howley, 2003; Mesibov and Shea, 2010). In addition, Mesibov *et al.,* (2005) include routines and flexibility as part of the six elements of Structured Teaching, although again this is not a new concept but rather emphasises earlier descriptions of constructive routines (Schopler *et al.*, 1995). As a result of reviewing Structured Teaching as determined by originators of the approach, a number of themes, purposes and concepts/key words emerged (see Table 2.1).

Table 2.1 Structured Teaching: Themes, Purposes and Key Words

Theme	Purpose	Concepts/Key words
Behaviour	Reduce and prevent behaviour problems Reduce anxiety, calmer	Structure, visual, sensory, organisation, environment, predictability, generalisation, routines, transitions, consistency, flexibility, assessment, motivation, strengths, interests, communication, engagement, meaning, physical structure, visual schedules, tasks, work/activity system, visual information, choices
Independence	Promote independence: organisation, making choices, problem solving	
Learning	Promote understanding and meaning Promote engagement in learning and access to the curriculum Develop key skills: communication, working with others, problem solving	

Reviewing the literature authored by originators of the TEACCH approach and Structured Teaching has enabled an objective analysis of the principles, purposes and concepts of the approach and was an important step towards reducing any preconceptions based upon previous professional experiences. As a result of this review, a definition of Structured Teaching for the purpose of this investigation was developed as:

> *Structured Teaching is a set of classroom strategies which provide visual structure and organisation for children with autism and severe learning difficulties. Such strategies include physical structure, schedules, work systems and visual information which includes task organisation, visual clarity and instructions. Structured Teaching strategies are used to reduce confusion, anxiety, and distractions and promote independence, engagement and learning.*

Key themes which emerged from this stage of the literature review centre upon behaviour, independence and learning and are reflected in the aims of this research, i.e. to investigate how the approach is being used in special schools and for what purposes. Moreover, this stage of the review led to refined research questions designed to explore the impact of the approach upon behaviour and learning Table 2.2).

Table 2.2 Refined research questions

1. What Structured Teaching strategies are being implemented for children with autism in special schools?

2. In what ways and for what purposes are Structured Teaching strategies being implemented in special schools?

3. What do teachers perceive the outcomes are for children in relation to behaviour and learning?

4. What other approaches are combined with Structured Teaching?

5. What influences teachers' decisions to combine Structured Teaching with other strategies?

This stage of the review also informed questionnaire design in order to elicit educators' perceptions of the approach. The review produced initial key words (table 2.1) which were searched for in questionnaire responses (see chapter 3). Key words during analysis of the

questionnaire were not limited to those identified in this first stage of the literature review, but were essential to include in order to investigate whether the approach being researched is implemented as the originators intended (integrity) and with the outcomes claimed by the originators of the approach.

Key words identified in the first phase of the literature review were used in the second phase of the review to search literature and research relating to the evidence- base for Structured Teaching and its components. This enabled comparisons between, and analysis of, theoretical perspectives and practice as articulated by originators of the approach and those research findings which provide evidence of the use and impact of the approach. Findings from this detailed review are reported in chapter four.

2.4.1 *Summary*

Whilst this first phase of the literature review was limited to sources from the originators of the TEACCH programme and Structured Teaching, this was an essential first step in order to establish a clear account of what the approach is, what it is not, what the components of the approach are and to determine key principles, purposes, definitions and concepts as determined by Division TEACCH. This investigation aimed to explore uses of the approach in special schools and must therefore focus, in part, upon comparisons and contrasts between the descriptions, explanations and rationale of those who developed the approach and the perceptions of educators in the special schools who implement the approach. This first phase of the review was therefore extremely helpful in establishing the parameters of the approach as articulated by Division TEACCH authors and researchers in order to clarify what to look for when investigating this particular approach. In addition, reviewing terms, purposes and definitions was important in order to reduce risks of bias arising from previous professional experiences of the approach in special schools. Finally, the identification of key words and terms informed the subsequent review of the research evidence-base, providing key words and phrases to use as search terms. Chapter three presents findings of the literature review in relation to the research evidence-base for Structured Teaching.

Chapter Three: Review of Structured Teaching Research Evidence-Base

In this chapter I present a narrative literature review which explores the research evidence-base related to the use of Structured Teaching components. The purpose of this review was to establish existing knowledge and research claims regarding impact of the use of the approach in educational settings. A thematic approach involved interrogation of research claims relating to impact of Structured Teaching on behaviour and learning and use of the approach in combination with other educational interventions. These themes emerged from the first phase review and from professional experience and link directly to the research questions. Consequently this review identifies areas where further research studies have the potential to: firstly, add to the existing knowledge base in relation to Structured Teaching; secondly, provide a sound argument for developing a research approach and methods which better reflect the reality of classroom practice in autism education.

3.1 Introduction

The primary purpose of this review was to identify existing evidence in relation to the implementation of 'Structured Teaching' strategies for teaching children on the autism spectrum. Interrogation of the existing research evidence-base for Structured Teaching components was guided by the research questions (Table 2.2). Themes identified in the first phase literature review identified two key areas of focus in relation to impact of the approach, these being impact on behaviour and learning. Key words identified in the earlier review were used to inform the literature search reported in this chapter (appendices 2 and 3).

The need for an open mind, not to make assumptions, and an honest approach to exploring perceptions of the impact of Structured Teaching was considered essential, particularly in the light of previous professional experience of implementing Structured Teaching, experience which presented risks in relation to bias. Torgerson, Hall and Light (2012) indicate that 'narrative' reviews are 'generally based on expert substantive knowledge' (p. 217), but criticise this approach suggesting that lack of clarity in selection of studies is often not made explicit and therefore raises questions around a 'biased sample' (p. 217). Others also highlight the potential risk for bias in reviewing the literature (e.g., Bell, 2005; Randolph, 2009). Acknowledging the risk of bias in reviewing the literature was essential given my substantive professional experience, hence a number of steps were taken to minimise this risk. Randolph (2009, p. 4) identifies key components of literature reviews which mirror components of primary research, including clear rationale, research questions, explicit plan for collecting (literature) and analysing (literature) data. Citing Cooper's 'Taxonomy of Literature Reviews'

(1988, p. 109), Randolph reiterates the key characteristics of reviews including focus, goals, perspective, coverage, organisation and audience. Drawing upon this taxonomy it was possible to establish the key characteristics and purposes of this literature review (Table 3.1). Multiple purposes were identified in relation to each characteristic and these underpinned the interpretation of the literature evidence in relation to Structured Teaching. Integration and interpretation of existing research evidence was considered essential to be able to present what Randolph calls the 'big picture' (p.3). The big picture in the context of this research includes firstly the historical picture i.e., the development of TEACCH Structured Teaching (chapter two) and secondly the research evidence which has the potential to identify commonalities, anomalies, gaps and weaknesses in the research evidence.

Table 3.1 Characteristics of the evidence-based literature review

Characteristic	Purposes
Focus	Practice and application: how are Structured Teaching components applied? Research outcomes: Identification and analyses of research findings and claims. Methodological: what research approaches and methods have been used to produce research outcomes?
Goals	Integration; comparisons and contrasts of research findings. Critical analysis: to identify gaps in research evidence and to identify methodological weaknesses.
Perspective	Espousal of position: risks of bias acknowledged in light of professional experience in the field.
Coverage	Purposive: identifying research which is central or pivotal to the research topic, with clear inclusion/exclusion criteria.
Organisation	Historical: for historical coverage see chapter two which reviews the development of TEACCH Structured Teaching Conceptual: focusing upon behaviour and learning outcomes; combinations of Structured Teaching with other approaches. Methodological: identification of methodology and research methods.
Audience	Supervisors and assessors. Scholarly audience: through submission of journal articles. Practitioners: findings of the review are intended to be of interest and useful to practitioners, albeit published in a different form than a scholarly journal article.

3.2 Selecting the literature

Establishing inclusion and exclusion criteria proved fruitful in determining a rigorous approach to selecting research literature for the purpose of this review. Mindful that narrative reviews have the potential for bias, steps associated with scientific systematic reviews (Torgerson *et al.,* 2012) were taken to strengthen the quality of the review and to provide an

open and honest account of the research evidence. Inclusion and exclusion criteria were established based upon the exemplar of Torgerson (2012, p. 223) (see Table 3.2). A decision was made early on to reject a systematic review which might preclude much of the existing evidence which is predominantly based on very small sample sizes (reporting upon the use of Structured Teaching or its components with samples of between 1 and 4 children) and single subject design; hence a narrative review, with steps to assure rigour, was undertaken and research evidence included regardless of how small a sample that evidence was based upon.

Table 3.2 Inclusion and exclusion criteria

Inclusion criteria
1. **Topic:** Studies which focused on Structured Teaching and its components.
2. **Participants:** Children of all ages being educated using at least 1 component of Structured Teaching; adults in residential settings using at least 1 component of Structured Teaching; diagnosis of autism.
3. **Study design:** Studies using quantitative and qualitative designs; small sample sizes included; case studies; single subject design; studies with no control groups.
4. **Interventions:** Studies evaluating outcomes for individuals and groups which implemented Structured Teaching and/or its components, namely physical structure, schedules, work systems, visual information; studies which included Structured Teaching components in combination with other approaches. Studies which evaluated interventions which have clear overlaps with Structured Teaching components, e.g., behavioural interventions.
5. **Outcomes:** Outcomes relating to behaviour and learning.

Exclusion criteria
1. **Topic:** Descriptive, anecdotal accounts with no evidence relating to outcomes.
2. **Participants:** Children and adults with learning needs and difficulties not associated with autism.
3. **Outcomes:** outcomes unrelated to the topic.

A number of variables were taken into consideration including:

1. Research claims regarding components of Structured Teaching

2. Research claims which had origins in approaches other then Structured Teaching, predominantly behavioural strategies associated with applied behaviour analysis, but which had particular relevance to Structured Teaching components (notably research claims regarding the use of schedules).

3. Research claims regarding use of Structured Teaching components and combination with other approaches.

Due to the small scale nature of the majority of studies a decision was taken to include articles which fulfilled the inclusion criteria, appearing in peer reviewed journals and which included key words and terms used in the search, regardless of sample size. Whilst small samples limit any generalisations which can be made, nevertheless research findings based upon small samples might inform what Bassey (1999) refers to as statements of 'fuzzy generalisations' in that findings from small samples may identify '... that something has happened in one place and that it may happen elsewhere' (p. 52). With this in mind, the inclusion of small-scale studies offered opportunities to make comparisons across the research evidence and to interrogate findings in order to identify issues which could be related to other investigations and which in turn informed the development of this investigation.

3.3 Search strategy

Key word searches were conducted using a number of data bases including: Education Research Complete (EBSCO); Ingentia; Swetswise; Web of Science; ZETOC; Autism data (National Autistic Society's data base) and were also used to set up online alerts. Key words were identified from the earlier literature search; in addition, as the review progressed further keywords were added (see Table 3.3).

Table 3.3 Literature search: key words

Key words
Structure, visual, sensory, organisation, environment, predictability, generalisation, routines, transitions, consistency, flexibility, assessment, family, strengths, interests, self-initiated communication, engagement, meaning, physical structure, visual schedules, tasks, work/activity system, visual information, visual organisation, visual clarity, choices, learning, behaviour, independence, autonomy
Additional key words which emerged as the review progressed
Key words relating to Structured Teaching: Activity schedules, picture schedules, picture timetables, line drawings, video, classroom/school environment, classroom organisation, classroom/school design, anxiety behaviours, transition behaviours, , play behaviours, wellbeing, learning behaviours, self-regulation *Key words relating to educators' perspectives*: social validity, happiness, wellbeing

Reading of abstracts identified key issues and themes at an early stage and was followed by consideration of the development of a literature map to organise the review in terms of keywords, themes and initial findings. The use of literature maps to organise literature reviews is described by Creswell (2009) as 'a visual summary of the research that has been conducted by others' (p. 34) and which provides an overview of the existing literature related to the focus of the study. Initially a literature map was developed using a web-based mapping

tool which enabled organisation of the review in a coherent structure, indicating citation presented in accordance with Harvard referencing conventions, key words and key findings (see Appendix 4). It was intended that the literature map would enable thematic organisation and to make links between articles through colour coding for visual clarification, however as the review progressed the literature map became increasingly complex and was not found to be the most helpful way of organising the review. Instead, more detailed consideration of key issues and themes was recorded in a tabular format, similar to Randolph's (2009, p. 6) notion of a 'coding book' incorporating written commentary which identified, for each study: citation/reference; key words; methodology including research design, sample and methods; limitations of methodology. In addition, notes identified: commonalities between studies, e.g., focus upon reducing challenging behaviour; anomalies, e.g., identifying 'schedules' as the focus of an investigation when descriptions matched definitions of 'work system'; combinations of approaches; newly emerging issues or themes. This tabular 'literature map' (see extract in Appendix 5) enabled a coherent record-keeping process for each individual study, together with the total number of studies reviewed. In addition, the record included identification of studies which focused on outcomes relating to learning and/or behaviour, together with any combinations with other approaches.

From the overview of existing literature, it was possible to identify new ground to which this study could contribute, including gaps relating to key themes as well as gaps and weaknesses in methodological approaches. Whilst many of the studies involved very small samples, reviewed together they provided a rich picture which enabled comparisons and contrasts across the research evidence base.

3.4 Structured Teaching evidence-base: physical structure, schedules, work systems and visual information

As a result of the first phase literature review, a definition of Structured Teaching for the purpose of this investigation was developed by the researcher:

> *Structured Teaching is a set of classroom strategies which provide visual structure and organisation for children with autism and severe learning difficulties. Such strategies include physical structure, schedules, work systems and visual information which includes task organisation, visual clarity and instructions. Structured Teaching strategies are used to reduce confusion, anxiety, and distractions and promote independence, engagement and learning.*

This definition identified the components of Structured Teaching which were used as keyword search terms for the second phase of the review: physical structure, schedules, work systems, visual information, guided also by Mesibov and Shea's (2010) call for research focusing on the 'individual components' and 'mechanisms' of the approach (p. 575). The review of Structured Teaching and its components was subsequently undertaken with a thematic approach in order to explore research evidence relating to outcomes for children in terms of firstly improved behaviour and secondly learning, both key purposes of Structured Teaching.

3.4.1 *Behaviour*

The most commonly reported research evidence relates to the use of schedules and work systems. Studies focused primarily on behaviours defined as challenging or problematic and sets of behaviours defined as on-schedule, off-schedule, on-task, off-task and engagement which were categorised in this study as 'learning behaviours' (see 3.4.2, p. 34). Whilst studies were small-scale which may, if reviewed in isolation, limit the usefulness of the findings, collectively they offer a valid contribution to knowledge of those variables which affect behaviours in children with ASD. In addition to small-scale research, systematic reviews have also been undertaken, two reviews focused upon the impact of Structured Teaching in reducing challenging behaviours (Banda and Brimmett, 2008; Lequia, Machalicek and Rispoli, 2012). A review of research relating to the use of schedules by Mesibov, Browder and Kirkland (2002) identifies the use of individualised schedules for the support of positive behaviours, with schedules providing a 'predictor strategy' (p. 78) as part of an antecedent approach. They suggest that:

> … much of the research on scheduling has focused on teaching individuals with developmental disabilities to complete a specific daily living activity (sometimes called an *activity schedule*) or to complete series of these tasks. This series of tasks is usually a "to do" list... (p. 78)

The term 'activity schedule' is one which arose in many of the small-scale studies reviewed and thus this term was added to the keyword search. This particular terminology typically was found to be referred to in research published in those journals which report on applied behaviour analysis (ABA) studies. Whilst distinctions are made between TEACCH and ABA philosophy and practice (e.g., Mesibov, 2001) nevertheless both approaches included the use

of schedules and so it was decided not to preclude from this review the use of schedules investigated as part of an ABA approach (see 3.4.2, p. 34; 3.6.2, p. 44).

Reducing and managing behaviours is identified as a key purpose of Structured Teaching (Mesibov and Howley, 2003; Mesibov *et al.,* 2005) so it was not surprising that the focus of many studies was to identity the impact of Structured Teaching strategies upon problem or challenging behaviours such as self-injury, aggression and self-stimulatory behaviours. A review of thirteen studies by Banda and Brimmett (2008) explores implementation of 'activity schedules' and outcomes for children relating to social and transition behaviours, concluding that activity schedules decrease 'problem' behaviours. Lequia *et al.,* (2012), building on Banda and Brimmett's (2008) review, conducted a systematic review of the use of 'activity schedules' with the purpose of reducing challenging behaviour, identifying 18 studies based on clear inclusion criteria which they classified into four categories determined by the intended purpose of the schedule: self-regulation, independence, transitions and play. The researchers define:

> Those studies targeting behaviors including self-injury, stereotypy, or disruptive behavior were classified as self-regulation. Studies were categorized as independence if targeted behaviors included on-task, on-schedule or engagement. We classified a study as transition if behaviors were targeted specifically while a student was transitioning between activities or settings. A study was categorized as play if targeted behaviors were related to play, either independent play or collaborative play with a peer. (p. 482)

This systematic review was particularly helpful as clear definitions and variables are identified by the authors. These included: variables identified as ASD diagnosis and severity, communication abilities, intervention setting and the form and intended purpose of the activity schedule. Moreover, definitions of activity schedules are clear, e.g., 'a sequence of visual supports… indicating an order of activities to be completed' (p. 482) and forms of schedule reviewed included photographs, line drawings and video. Conclusions of this review report improved appropriate behaviours and reduction in challenging behaviours, regardless of the form and intended purpose of the schedules, with the greater effects identified in 'segregated' settings (p. 489).

The predominant components of Structured Teaching under small-scale investigation were found to be in relation to the use of schedules and work systems and their effects on problem

behaviours. Dettmer, Simpson, Smith Myles and Ganz (2000) report aggression and tantrums in two boys during the withdrawal phases of schedule use, raising potential ethical issues of intervention – withdrawal design (typically A-B-A-B) (see 3.6.3, p. 46), whilst Dooley, Wilczenski and Torem (2001) observed decreased problem behaviours including dangerous, disruptive, kicking, biting, crying and screaming behaviours in one three year old boy when using an activity schedule to make transitions between activities. They also reported changes in behaviour were maintained throughout the school year and also transferred to the home setting. Similar findings are reported by O'Reilly, Sigafoos, Lancioni, Edrisinha and Andrews (2005) and Schmit, Alper, Raschke and Ryndak, (2000) who investigated the effects of activity schedules as an antecedent intervention on challenging behaviours and levels of self-injury. Both report decreases in problem behaviours and O'Reilly *et al.*, report significantly less self-injury when their 12 year old participant had use of an activity schedule and correspondingly increased engagement when he was observed 'actively and appropriately involved with instructors or items' (p. 306). The researcher also includes anecdotal feedback from an assistant that described the child as happier and seeking more interaction and communication; this is notable as the perceptions of educators were rarely reported. Studies focus on varying age groups, for example Massey and Wheeler (2000) reported decreased challenging behaviour in a four year old, while Watanabe and Sturmey (2003) introduced visual choices of tasks to three adults who demonstrated challenging and self-stimulatory behaviour which reduced when choices were available.

Findings from the above studies are limited due to the small-scale nature of the investigations, nevertheless given the inevitability of challenging behaviours at times for those with autism and severe learning difficulties (Jordan, 2001) the importance of small-scale studies cannot be overlooked if educational practitioners are to develop effective classroom interventions for this group of learners. A notable correlation emerged between decreased problem behaviours and increased on-task behaviours such as work, daily living and play behaviours (e.g., Dooley *et al.*, 2001; Machalicek, Shogren, Lang, Rispoli, O'Reilly, Hertlinger Franco and Sigafoos, 2009; Massey and Wheeler, 2000; Pierce and Schreibman, 1994; Watanabe and Sturmey, 2003). Reducing and managing problem behaviours is a precursor to developing effective teaching and learning and it is this key purpose which Mesibov and Howley (2003) indicate that, together with raising independence and self-esteem, is essential in order to facilitate teaching and learning and in particular "meaningful access to all aspects of the curriculum" (p. 16). It is to this aspect that this literature review now turns.

3.4.2 *Learning*

Two aspects related to learning were explored, firstly in relation to 'learning behaviours' and secondly consideration of claims regarding learning and the curriculum. Each aspect is discussed in order to inform this investigation.

Learning behaviours

Much of the research explores the impact of components of Structured Teaching on observable behaviours, which I categorised as 'learning behaviours', i.e., those sets of behaviours necessary for learning to take place. These included engagement, on-task/off-task behaviour, independence, transitions and reductions in adult prompting. The focus on observable behaviours and measuring of behaviour outcomes represents a behavioural perspective to learning commonly found in the education of learners with developmental disabilities. In particular, the use of ABA interventions is frequently reported as effective for individuals on the autism spectrum, particularly in relation to early intervention; for example Early Intensive Behavioural Intervention (EIBI) (Perry, Cummings, Geier, Freeman, Hughes, and Managhan, 2011) and the Early Start Denver Model (Dawson, Rodgers, Munson, Smith and Winter, 2010).

TEACCH and Structured Teaching clearly derive some practices from behavioural approaches as can be seen in the use of schedules, work systems and visual instructions which use visual images to represent necessary steps in a sequence identified through task analysis. However, Mesibov (2001) claims that there remain persistent differences in both philosophy and practice and in particular indicates one of the main differences:

> ... is that the major concept behind ABA and discrete trial training is that reinforcement is the main trigger for development and learning. They believe that, if something positive follows a behaviour which is very systematically and precisely taught, then that behaviour is going to increase. Whereas I think that the TEACCH approach comes more out of the Gestalt tradition, which focuses on meaningfulness and understanding. My argument is that, if a thing makes sense to someone, if they understand it, then it is going to promote their learning more effectively. [online]

Despite Mesibov's view, most of the studies which have investigated Structured Teaching and its components focus on observable behaviours (e.g., Betz, Higby and Reagon, 2008; Bryan and Gast, 2000; Chiak and Ayres, 2010; Dauphin, Kinney and Stromer, 2004; Dettmer *et al.,*

2000; Hall, McClannahan & Krantz, 1995; Hume and Odom, 2007; Krantz, MacDuff, and McClannahan*.,* 1993; MacDuff, Krantz, and McClannahan*,* 1993; Panerai, Ferrante, Caputo and Impellizzeri, 1998; Schilling and Schwartz, 2004; Siaperas and Beadle-Brown, 2006; Watanabe and Sturmeny, 2003). Studies focus on measuring observable behaviours such as engagement, on-task/off-task, on-schedule behaviour, independence, transitions, independently locating activities, attending to activities for example by looking at materials, organising tasks and materials and completing tasks. Thus the review found that much of the evidence in relation to the impact of Structured Teaching focused primarily upon learning behaviours. Learning behaviours are observable and measurable, therefore perhaps lend themselves more easily to small-scale, empirical research. For example, Odom, Brown, Frey, Karasu, Smith-Canter and Strain (2003) identify strengths of single-subject design studies which provide 'rigorously controlled experimental evidence of effective practices', with 'experimental controls' (p. 172) and which measure effectiveness by quantifying behaviours. However, far less attention has been paid to exploring Mesibov's concepts of meaningfulness and understanding; this issue is returned to (see 3.6, p. 43) in an analysis of methodological considerations.

Earlier small-scale studies focused on the use of schedules in family contexts, concentrating on daily living, self-care and leisure (Clarke, Dunlap and Vaughn, 1999; Krantz *et al.,* 1993; MacDuff *et al.*, 1993), concluding that the use of schedules result in increased engagement and 'on-task' behaviour in these contexts. Mesibov *et al.,* (2002) make a clear distinction between the purposes of using schedules for daily living tasks and those used in schools and classrooms which require a balance between required activities and individual choice and preferences. They also offer guidance on teaching schedule use as a positive behaviour intervention and identify key purposes of schedule use relating to transitions, independent performance of tasks, following routines and self-management of leisure activities, themes which are repeated within small-scale classroom-based studies (e.g., Bryan & Gast, 2000; Dettmer, Simpson, Smith Myles & Ganz, 2000; Dooley & Wilczenski, 2001) and adult services contexts (e.g., Watanabe & Sturmey, 2003). An additional component of choice-making was included in Watanabe and Sturmey's (*Op Cit*.) study in which giving individuals a choice of tasks was measured as a variable affecting on-task/off-task behaviour. A more recent review (Lequia, Wilkerson, Kim and Lyons, 2014) of fourteen studies which investigated interventions designed to support transition behaviours concludes that the use of activity schedules were 'most prominently used and most successful to ease transition difficulties' (p.1).

A number of frequently occurring key words across small-scale studies are evident, these include: engagement, on-task/off-task, prompts, independence, generalisation. Bryan and Gast (2000), for example, used an A-B-A-B design to investigate the impact of schedule use upon on-task and off-task behaviours, reporting "immediate and abrupt changes in level of performance" (p. 559) when four 'high-functioning' children made use of line-drawing/symbol schedules. Others have investigated the use of work systems and their impact on task engagement, behaviour and independence (e.g., Bennett, Reichow and Wolery (2011; Hume, Loftin and Lantz, 2009; Hume and Reynolds, 2010). To illustrate further, Hume and Odom (2007), again using an A-B-A-B design, report increased on-task behaviours and reduction in adult prompts for two children and one adult when using a work system, whilst Hume, Plavnick and Odom (2012) investigated the use of a work system for three children and the resultant effects of reductions in adult prompting. Engagement with peers, interaction and peer play between dyads of children are reported by Betx et al., (2008) as increasing with the implementation of 'joint attention activity schedules' and written scripts, although the 'precise mechanisms for increased engagement' were reported as unclear (p. 237).

Further to investigations into the use of schedules and work systems, others have explored the effects of visual structure and information upon transitions, on-task behaviour and adult prompting. A recent evaluation of interventions to improve transitions reports that 'activity schedules were most prominently used and most successful to ease transition difficulties' (Lequia, Wilkerson, Kim and Lyons (2014, online). In 2000, Dettmer et al., used multiple visual supports which included schedules, sub-schedules (which could be described as work systems) a finished box and visual information to teach independent activity transitions to two children, whilst Mavropoulou, Papadopoulou and Kakana (2011) investigated the effects of visual structure and task organisation upon on-task behaviour, prompting and independence. Both studies used an A-B-A-B design incorporating behavioural observations, reporting reductions in prompting, reductions in off-task behaviour, increases in on-task behaviour, less time needed to respond to transitions and increased task completion. The study by Mavropoulou et al., (2011) focused on the impact of multiple components of visual structure upon play behaviours. They report a 'mixed picture' in terms of outcomes, with variability in responses between the two children in the study and suggest that further research is needed to identify which components of visual structure are effective for different 'sub-groups' of autism and learning disability. Ganz and Flores (2008) likewise investigated the use of visual components upon on-task and off-task play behaviours. They report increased play behaviours between children with autism and their peers with the use of visually-based scripts to promote

play-related language within play themes and based on children's preferred interests and familiar activities. Whilst the study makes no explicit link to the TEACCH approach, nor to Structured Teaching, the use of visual strategies is related; more importantly, and perhaps interesting, is the link between 'interests' of the children in this research and the 'special interests' described by Mesibov and Shea (2010) as one of the 'four essential mechanisms' of Structured Teaching (p. 572).

Recent developments in the use of technology-based visual supports have reported success in relation to transitions during the school day. For example, Hume, Sreckovic, Snyder and Carnahan (2014) identify a number of visual applications which support successful transition behaviours (p. 4). In another study, Campillo, Herrera, Remírez de Ganuza, Cuesta, Abellán, Campos, Navarro, Sevilla, Pardo and Amati (2014) report that the use of visually-based software 'Tic-Tac' alleviated anxiety in three adults with autism by visually clarifying time concepts. They conclude that this 'may be an effective technology for helping people with autism with organisation and predictability during waiting periods' (p. 264). Whilst both studies present limited evidence of the impact of visually-based software, they provide early indications of how the use of visual structure and supports may develop in the future.

Curriculum

In addition to learning behaviours, other aspects of learning emerged from the review although far less attention is paid to what individuals are learning and why. Learning content or curricular investigated include: functional skills (Krantz *et al.,* 1993; MacDuff *et al*., 1993; Kurt and Parsons, 2009*);* peer engagement, interaction and play (Betz *et al.,* 2008; Ganz and Flores, 2008; Mavropoulou *et al.,* 2011) and social skills involving teaching two children to make 'play bids' to peers using 'video enhanced activity schedules' incorporated into a computer-based schedule (Kimball and Kinney, 2004, p. 280). Curriculum subjects represented in the research are physical education (PE) (Zimbelman, Paschal, Hawley, Molgaard and Romain, 2007), language, literacy and art (Bryan and Gast, 2000) and accuracy in completing academic (language and literacy) tasks (Hume, Plavnick and Odom*,* 2012), although the focus of these studies is again on learning behaviours within the curriculum context and not on what children learned in relation to the subject nor why. There is a marked scarcity of research relating to the nature of learning in autism, other than that which can be counted and measured, i.e., learning behaviours; little attention is paid to investigating the precise nature of what individuals learn and why, thus neglecting Mesibov's (2001) perspective on a Gestalt approach and an emphasis on meaningfulness and understanding.

Physical structure

Whilst predominantly small-scale, it is clear that a number of studies have investigated three of the four components of Structured Teaching, i.e., schedules, work systems and visual information. Physical structure however is neglected in the research evidence and no particular studies were identified which focused on this component. This may be due to the more easily observable effects of schedules, work systems and visual information but importantly may also be due to the difficulty in isolating 'physical structure' as an independent variable within such studies. Bryan and Gast (2000) allude to this component in that they describe the physical environment and set-up of the resource classroom in which their research took place. In particular they refer to 'literacy centers' which had distinct purposes and which were clearly demarcated. Panerai, Ferrante and Zingale (2002) briefly mention physical organisation to include 'place-activity correspondence' and a 'clear and predictable' environment (p. 322), although no specific reference to this aspect is referred to in any of their findings. Physical structure is mentioned in Hume and Odom's (2007) research which, whilst focusing on the effects of a work system, identifies components of work systems including the minimising of visual and auditory distractions, a feature of physical structure (Schopler *et al.,* 1995; Mesibov *et al.,* 2005). More recently, Welterlin, Turner-Brown, Harris, Mesibov and Delmolino (2012) reported 'improvement in children's work skills' (p. 1833) when furniture was arranged to define boundaries in home settings, identifying physical structure as an important factor to promoting skills and engagement in toddlers with autism.

As it became apparent that consideration of physical structure was less evident in the research, new keywords were introduced to the search in order to identify any other possibly related studies; these included classroom/school environment, classroom organisation, classroom/school design. This resulted in the identification of a small number of studies that reflect a growing interest in architecture, classroom design and autism which, whilst not specifically referring to Structured Teaching's physical structure, nevertheless focus on environment design that is clearly related to this component of the approach. Scott (2009) and Whitehurst (2006) report on the design of environments which may be considered 'autism friendly', whilst Beaver (2011) presents a discussion paper on such design arguing that one of the factors that may be affected by classroom design is engagement. He indicates key features of the classroom environment including 'an easily understood geography with no threatening or over-stimulating features' (p. 11). Growing interest in classroom design is also reflected in

McAllister and Maguire (2012) who involved teachers in designing ideal classrooms and Scott (2011) who reports on a project which involved secondary school children with autism and architecture students in a bid to discover if children with autism could participate in planning their 'ideal classroom'. The views of the children were analysed through personal construct psychology using picture-based assessment and drawing and model-making analysis. McAllister and Maguire (*Op. Cit.*) identify 16 features of autism friendly Key Stage One classrooms including many features associated with Structured Teaching, whilst Scott (2011) reports that the children identified a number of design criteria including 'ordered and comprehensible spatial structure' and clarity. Whilst none of the above report research relating to actual impact of physical structure on individuals with autism, it is clear that some of the key features they discuss relate to the features of physical structure as described in Structured Teaching, namely classroom organisation and minimising distractions (Schopler *et al.,*1995; Mesibov *et al.,* 2005*;* Mesibov and Shea, 2010). One further study which arguably could be related to physical structure is that of Schilling and Schwartz (2004) whose research explores the effectiveness of 'alternative seating' in the form of gym balls. Four young children were provided with gym balls to sit on during intervention phases to investigate the effects on in-seat behaviour and engagement; observations and a social validity survey of teachers and assistants concludes that use of this alternative seating increased positive classroom behaviour, sitting independence, self-correction, attending to and completing tasks. The researchers acknowledge limitations of the study, concluding that:

> ...it is important to note that this study was conducted at a setting in which high quality instructional strategies for children with ASD were employed. Sitting on therapy balls does not replace those, but may provide increased opportunities for teaching. (p. 431)

This is a good example which illustrates that invariably many strategies are being used simultaneously with individuals, thus isolating single independent variables (as empirical researchers aim to do) does not reflect the reality of classroom practice. This review now considers research which focuses on the use of Structured Teaching in combination with other interventions.

3.5 Structured Teaching combined with other approaches

In addition to the focus on research evidence relating to Structured Teaching components, a further focus for this review linked directly to the research aim to analyse how Structured Teaching is used within a context of developing eclectic classroom practices. Hence the literature was also explored in order to identify any evidence of combining strategies with other approaches. The urge for an eclectic approach is illustrated in a report for the Autism Education Trust (AET) which states:

> Given the diversity within the spectrum and between individuals, there is no single educational intervention that is useful for all children on the autism spectrum, and there is no single intervention that would on its own be sufficient to meet all the needs of a particular child on the autism spectrum. (Jones *et al.,* 2008, p. 14).

The review found that Structured Teaching and its components were rarely used in isolation and indeed this was frequently acknowledged as a limitation of studies which fail to identify which components were effective for which participants. Invariably it is impossible to isolate interventions as independent variables as usually a number of interventions and strategies are being used by teachers. For example Charman *et al.,* (2011) found that UK schools implement multiple approaches as part of a 'toolbox' including: Picture Exchange Communication System (PECS); Structured Teaching; Social Communication, Emotional Regulation, Transactional Supports (SCERTS); ABA; Social Stories; intensive interaction; sensory integration (p. 24). Given this account it is of no surprise that Structured Teaching is not used in isolation, yet the research evidence is severely lacking in relation to the effects of combinations of strategies.

This review found some, albeit limited, evidence that Structured Teaching and its components were used together in combination with the Picture Exchange Communication System (PECS) (Dooley *et al.,* 2001). Given that PECS is essentially a visually-based communication strategy, this particular combination is not surprising. Structured Teaching has also been implemented with other behavioral instructional strategies. For example Buschbacher, Fox, and Clarke,(2004) report decreased challenging behavior and increased engagement exhibited by a 7 year old at bedtime using a 'package' of Structured Teaching and behavioural strategies including: a photograph turn-taking board; photo/icon choice board; timer; verbal warnings for transitions; Social Stories; reinforcement contingencies; redirection; photo/icon task analysis strips and an icon self-regulator. Combination of schedules with other

behavioural strategies are reported, with some suggesting that this combination results in greater success in terms of both reducing problem behaviours and increasing learning behaviours (MacDuff *et al.,* 1993; Machalicek *et al.*, 2009: Waters, Lerman and Hovanetz, 2009). Some have focused on social learning and engagement, including Morrison, Sainato, Benchaaban and Endo (2002) who report increased on-schedule and play correspondence in four young children with autism, whilst increased social engagement and social initiation is reported by Krantz, McDuff and McClannahan (1993). Of particular interest is Kurt and Parson's (2009) investigation into the effectiveness of constant time delay (CTD) in combination with TEACCH structure; in this study five male students (three diagnosed as 'severely autistic') were taught individual target skills (language and cognitive). Mixed quantitative and qualitative methods were utilised to measure learning and to gather views of the teacher, assistants and care staff; findings suggest that the combined use of CTD with TEACCH structure 'was effective in teaching four out of five target skills' (p. 178) and staff expressed 'positive opinions' (p. 180) of this combined approach.

Whilst combining schedules with other behavioural strategies seems popular, others take a different stance. A growing interest in computer-based activity schedules combined with video modelling is directly linked to learning in some studies. Recent interest in visual cues and supports is found in relation to interactive and multi-media technologies and the effects on engagement and task completion, (e.g., Dunkel-Jackson, Dixon, and Szekely, 2012; Hayes, Hirano, Marcu, Monibi, Nguyen and Yeganyan, 2010; Mechling, Gast, and Seid, 2009; Stromer, Kimball, Kinney and Taylor, 2006). Kimball, Kinney, Taylor and Stromer (2004) present a case study of a child at three and four years of age who was taught to initiate play with a peer by following computer-based activity schedules (using PowerPoint) and video modelling. They suggest that '... videos permit additional instructional stimuli to be incorporated into the schedule itself.' (p. 292) and go on to say:

> '... a child who has learned to follow a schedule and imitate a model is able to practice the instructed response immediately in the natural setting depicted in the video. This is a very different scenario than one in which a skill is taught and practised in a discrete trial context that may differ in a number of ways from the environment where the skill is ultimately supposed to occur.' (p. 292)

Stromer, *et al*., (2006) develop this concept arguing that such schedules can be used to teach play, commenting and academic skills, suggesting that there is a:

> ... natural goodness of fit between activity schedules and computers, because the latter can pair static visual supports with additional instructional stimuli such as audio and video recordings. (p. 14)

Interestingly however, Stromer *et al.,* (*Op. Cit*.) make a distinction between ABA approaches which make use of discrete trial training as a teaching strategy and activity schedules which they claim might:

> yield functional skills that may not be readily achieved through instructional methods that are more adult directed and less naturalistic. In this respect, activity schedules are potent supplements to, and perhaps in some cases even replacements for, discrete-trial teaching. (p. 14)

A small number of studies have explored particular combinations with Gray's (2010) 'Social Stories' which has a similar emphasis on visual information and therefore seem a fairly logical combination with Structured Teaching. Training in schedule use together with Social Stories was provided to PE teachers in the study by Zimbelman *et al.,* (2007) with the aim of determining usefulness of these approaches in the context of teaching PE to children with autism. However following training, of the 17 participants, only one reported having implemented a Social Story and reasons for not using the strategy were not given by the remaining participants. Limitations in design of the study minimize the usefulness of this particular investigation. Schneider and Goldstein (2010) researched the combined use of Social Stories and visual schedules upon on-task social behaviours in three children educated in inclusive settings, concluding that the use of Social Stories *with* visual schedules produced increased on-task behaviours. In a single case study, Armstrong, DeLoatche, Preece and Agazzi (2014) found the combination of visual schedule, Social Story and interaction therapy improved a five year old girl's behaviours at home.

Finally, 'jigsaw' planning (Aronson, Blaney, Stephen, Sikes and Snapp, 1978; Rose, 1991) combined with Structured Teaching is reported by Howley and Rose (2003) in which a pupil with autism in an inclusive, mainstream school was enabled to participate in group work with his peers; this investigation is of interest as the focus uniquely involves teacher planning (using the jigsaw approach) to build on individual strengths and interests in combination with components of Structured Teaching to support the learning process.

3.6 Discussion

Reviewing research evidence regarding the effects of Structured Teaching led to the identification of three key aspects worthy of further investigation in relation to this study. Firstly, identification of gaps in the research evidence in relation to behaviour and learning outcomes; secondly, issues relating to combinations of strategies which include Structured Teaching; thirdly, issues around methodology. This discussion considers each of these areas as having the potential for my study to make a contribution to the research evidence base.

3.6.1 *Structured Teaching research evidence: behaviour and learning outcomes*

Overall there appears to be a general consensus in relation to implementation of Structured Teaching components and outcomes related to problem behaviours. The majority of researchers report increased positive behaviours and reduced problem behaviours when using schedules, work systems and visual information such as visual cues. Given that managing behaviours associated with autism are essential precursors to facilitating learning (Mesibov and Howley, 2003), these results have direct implications for enabling individuals on the spectrum to be 'ready to learn'. Results also indicate that Structured Teaching components produced positive results in terms of learning behaviours, with some research indicating a direct correlation between reduced problem behaviours and increased learning behaviours such as engagement, on-task, transition, organisation and independence.

Importantly, one particular concept which is a key focus in many of the above studies is 'engagement'. However, definitions of engagement are typically restricted to behaviours such as looking at task materials, looking at and following a schedule; whilst some (e.g., Betx *et al.,* 2008) investigated peer engagement (defining this as taking turns, initiating play and verbal interaction with peers), evidence of 'social engagement' is less well-supported and evidence of the role of Structured Teaching components is inconclusive in relation to developing interaction.

The tendency to focus primarily on observable behaviours neglects other crucial aspects of learning, including *what* individuals *learn and understand* in relation to curriculum content and indeed *why*. For example, Zimbelman *et al.,* (2007) do attempt to investigate learning in relation to PE but focus solely upon amount of time engaged in physical activity, neglecting to consider what students *learned* in the context of PE lessons – here again we see an explicit focus on behaviours and not on meaningful learning and understanding which Mesibov (2001) claims that the TEACCH approach is concerned with.

Finally, Burgess and Gutstein (2007) suggest that self-determination, self-esteem, control of choice, independence and autonomy are 'predictive of well-being' and as such should be included in 'Quality of Life' indicators for people with autism (p. 80). As Structured Teaching aims to promote independence and self-esteem, it could be argued that the research evidence indicates positive results in relation to these concepts, for example showing that the approach increases independent choice-making. However, it is perhaps a little surprising that research evidence neglects to investigate individual levels of self-esteem and whilst applauding the potential for positive outcomes in relation to learning behaviours, it is disappointing that only two studies pay any attention to individual internal states relating to 'well-being' (Hume *et al.,* 2009) and 'happiness' (O'Reilly *et al.,* 2005). In 2011, Mesibov and Shea argued a case for measuring alternative outcomes related to quality of life for individuals with autism, an aspect which turned out to be an underpinning factor in teachers' implementation of approaches for children in this investigation (see chapter twelve).

3.6.2 *Structured Teaching combined with other approaches: toward eclecticism*

This review reveals limited research evidence relating to the use of components of Structured Teaching in combination with other strategies. Teachers are increasingly urged to be eclectic in their approach, no single approach proving to be more effective than any other (Jones *et al.,* 2008), yet there is a distinct lack of research which has explored the effectiveness of combinations of approaches. By far the main aspect that interests researchers focuses upon comparisons between ABA and TEACCH, often with the aim to 'prove' one approach better than another. This may be explained by the proclaimed controversy and debate between proponents of the two approaches, exemplified by Callahan, Shukla-Mehta, Magee and Wie (2010) who suggest that 'despite their pre-eminence in the world of autism treatment, ABA and TEACCH are often viewed by proponents and consumers as competing' (p. 75). Yet it cannot be denied that there are overlaps between the two sets of practices and as Callahan *et al.,* (*Op. Cit.*) argue, TEACCH and ABA 'share common components that are both socially valid' (p. 75), identifying 37 common components. As already indicated, overlaps have certainly been found within this review of the research evidence, particularly in relation to TEACCH 'schedules' and ABA 'activity schedules'. It is important to note here that whilst both approaches advocate use of visually based schedules, there is some confusion between the two, for example the use of 'activity schedules' could be defined as visual cues or instructions in Structured Teaching. This is illustrated for example in the work of Bryan and Gast (2000) whose 'picture activity schedules' represented a four-step task (through task analysis); Structured Teaching however would define this strategy as visual instructions rather

than schedule. The overlaps between components, together with differences in definitions of Structured Teaching and ABA, is clearly reflected in the research evidence, resulting at times in lack of clarity regarding which approach can be attributed to which positive outcomes. Adding to a sometimes confusing picture is the potential for bias in research which is often conducted by proponents of each of the approaches. Hence ABA researchers attribute effectiveness of schedules to their approach, while TEACCH researchers attribute effectiveness of schedules to Structured Teaching. Perhaps it is wise here to reflect further on the social validation survey conducted by Callahan, Henson and Cowan (2008). Their findings demonstrate that teachers, parents and administrators had 'no clear preference' for either model, but a significantly higher level of social validity for components inherent in both approaches (p. 74). This reflects a difference in focus between researchers who seek affirmation of their preferred approach and stakeholders who are implementing approaches. This possible tension is explored further below (see 3.6.3, p. 46)

Comparisons between other behavioural approaches such as Intensive Behaviour Therapy (IBT) and eclectic approaches have been undertaken by some (e.g., Eikeseth, Smith, Jahr and Eldevik, 2002, 2007; Eldevik, Hastings, Jahr and Hughes, 2012; Eldevik, Eikeseth, Jahr and Smith, 2006; Fava *et al.,* 2011; Howard, Sparkman, Cohen, Green and Stanislaw, 2005; Magiati, Charman and Howlin, 2007; Odom, Hume, Boyd and Stabel, 2012; Zachor and Ben-Itzchak, 2010; Zachor, Ben-Itzchak, Rabinovich and Lahat, 2007). Eclectic approaches in these studies typically included: ABA, TEACCH, sensory motor therapies, sensory integration, alternative communication strategies including PECS, developmental intervention, joint attention training, SPELL (National Autistic Society's approach to autism education) and DIR. Conclusions vary between studies, with the majority claiming significantly positive change in groups of children receiving IBT and two studies reporting no significant difference between IBT and eclectic (Magiati *et al.*, 2007; Zachor and Ben-Itzchak, 2010). However, as Odom, Hume, Boyd and Stabel (2012) point out, a number of confounding variables affect interpretation of claims made, including: overlap between components used in IBT and eclectic approaches; lack of clarity regarding intervention components; lack of determination of length of time spent on different interventions in the eclectic approaches. These apply equally to studies reviewed in this chapter and demonstrate the complexities in attempting to disentangle which approach works best for which individuals.

Whilst evidence relating to the effectiveness of Structured Teaching when combined with other strategies is limited, the reality of classroom practice demonstrates that teachers are indeed combining approaches on a regular basis. McConnell argued in 2002 that:

> ... although empirical support for various intervention components seems strong, the literature still requires practitioners to assume a significant burden in developing a logistically feasible yet sufficiently powerful package for use in their classroom. Researchers ... may want to develop and evaluate one or more interventions packages that represent compilations of techniques identified in existing research. (p. 368)

It would appear from this review that this remains the case.

3.6.3 *Methodological issues encountered in the research evidence*

Research approach

The need for scientifically-based, rigorous research studies is essential to developing evidence-based practice to avoid educational practices being 'driven more by ideology, faddism, politics and marketing than by evidence' (Slavin, 2008, p.5). Those who are at the receiving end of autism education are left vulnerable to a myriad of approaches and interventions which lack scientific, reliable research evidence (Howlin, 2005). This understanding has led to researchers striving to develop empirical approaches in order to produce reliable, scientific evidence of 'good practice' in autism education (e.g., Stansberry-Brusnahan and Collet-Klingenberg, 2010) and is reflected in the research reviewed in this chapter. Much of the research adopts a positivist approach using quantitative methods and reporting findings related to behavioural outcomes, an approach favoured by those who strive to develop evidence-based practice. Scientific approaches include an 'assumption of determinism' explained by Cohen, Manion and Morrison (2011) as an understanding that:

> ... events have causes, that events are determined by other circumstances, and science proceeds on the belief that these causal links can eventually be uncovered and understood, that the events are explicable in terms of their antecedents. (p. 8)

Given the (partly) behavioural approach of Structured Teaching it would seem logical to measure and count behaviours in order to measure progress and outcomes for individual children. This empirical approach, i.e., '... that which is verifiable by observation...' (Cohen *et*

al., 2011, p. 9) appears to be, at least on the surface, the most appropriate approach to measuring observable behaviours.

Numerous small-scale studies were found to report positive effects on problem behaviours and learning behaviours and despite limitations due to small sample sizes, collectively these studies contribute to a 'bigger picture' and inform knowledge and understanding of how Structured Teaching accomplishes its key purposes to manage behaviour (Schopler *et al.,* 1995; Mesibov *et al.,* 2005) and facilitate learning (Mesibov and Howley, 2003; Mesibov *et al.,* 2005). However, the predominance of quantitative studies results in counting of behaviours and numerical rating scales to measure social validity, which in turn results in a distinct lack of in-depth analysis of perceptions of those using the approaches under investigation.

Social validity

Whilst studies have conducted investigations primarily focused upon quantifying observable behaviours, some have also included measures of 'social validity' albeit still within the positivist paradigm. In 1978, Wolf acknowledged the importance of the perceptions of society in relation to ABA research and explored the challenges of considering 'social validity' within a positivist paradigm, specifically in relation to ABA approaches. He determined features of social validity as social significance of goals, social appropriateness of procedures and social importance of effects (p. 207). More recently, Callahan, Henson and Cowen (2008) argue that lack of 'social validation of potentially effective autism interventions' (p. 678) creates challenges in determining evidence-based practices. The move towards acknowledging the importance of social perceptions has been gradual but has increasingly become a feature of small-scale, positivist research in relation to autism education.

A number of studies in this review were found to explore 'social validity' in addition to quantifying observable behaviours, albeit measures of social perceptions appear to be largely obtained through the use of quantitative methods such as Likert scales (Bryan and Gast, 2000; Hume and Odom, 2007; Hume *et al.,* 2012; Massey and Wheeler, 2000; Mavropoulou *et al.,* 2011). Views of teachers, support assistants and other professionals were reported as reflecting agreement with observed increases in positive behaviours relating to on-task/off-task, engagement, independence, transitions and reductions in adult prompting. However, quantitative measurements of social perceptions are limited and fail to capture any in-depth insights that may be better obtained through qualitative methods. Some have attempted to

explore perceptions through the use of pre and post surveys, again largely using rating scales, but also including open-ended questions. For example, Zimbelman *et al*., (2007) surveyed PE teachers who attended an autism training course with aims of exploring perceptions of effectiveness of schedules and in particular whether schedules increase on-task behaviour in a PE setting. Their pre-training survey included five point Likert scales with the addition of three open-ended questions related to participant previous experiences and two questions which explored usefulness of schedules and any barriers or problems participants anticipated in implementing schedules. The post-training survey explored usage of schedules and Social Stories over a seven month period, combining five point Likert scales to establish satisfaction and perceived effectiveness with four open-ended questions regarding perceived barriers, modifications required, additional support needed and recommendations for use of schedules in PE settings. Whilst this is an interesting study in that it attempts to explore perceptions of PE teachers, resultant evidence is extremely weak due to a number of methodological limitations including lack of consistency in wording of questions, lack of definitions for respondents, small sample size and failure to address one of the key research questions when collecting data. Nevertheless, there is a clear attempt to obtain more reflective comments through the use of qualitative, open-ended questions in combination with quantitative methods.

Callahan *et al.,* (2010, p. 75) argue that social validation is a 'critical step' in validating educational outcomes, defining social validity as 'consumer satisfaction with the goals, procedures, and outcomes of programs and interventions'. Yet, this review reveals that the views of those who implement educational strategies in classrooms are largely ignored, yet their views are fundamental as these are the very people who will decide which approaches to use or not. As Callahan *et al.,* (op cit.) argue:

> Whether or not a particular intervention.... receives widespread social validation can determine the extent to which the intervention or model is adopted and implemented within schools, homes, and clinics. (p. 75)

It is for this reason that consideration of social validity in relation to Structured Teaching is of interest. No matter how compelling behavioural outcomes appear, implementation of any strategy is also dependent upon the views of those who both use and receive the intervention. Whilst not refuting the importance of empirical evidence, neglecting a more qualitative

research approach (which may be applied equally rigorously) results in limited evidence of 'social validation'.

Ethics

One final, but crucial, point remains which arises from the traditional scientific A- B and A-B-A- B design prevalent in the studies reviewed. Alternating periods of intervention and non-intervention may allow researchers to compare treatment effects, but given that individuals on the autism spectrum are 'vulnerable participants', indeed probably one of the most vulnerable groups who are being researched, such a design raises critical ethical issues. The British Educational Research Association (BERA) have established ethical guidelines for conducting educational research (BERA, 2011) and stipulate a number of points with regard to vulnerable participants, including for example 'the best interests of the child must be the primary consideration' (p. 6). Adhering to these guidelines, researchers must put the interest of vulnerable participants before their own research interests. The predominance of scientific designs revealed in this review reflects an earnest intention to develop empirical evidence for treatments and approaches to autism education. However, it cannot be in the interest of a vulnerable participant to have interventions repeatedly withdrawn in a bid to test and prove effectiveness, especially when those interventions are intended to reduce problem behaviours such as self-injury. If a schedule is found to reduce such behaviour, how can it be in the child's interest to then withdraw the schedule to test its efficacy?

3.7 Conclusion

Re-visiting the research questions (Table 2.2, p. 24) at the heart of this study is crucial in drawing conclusions from this literature review. The research evidence reviewed provides insight into the research questions and more importantly also identifies gaps and issues to which this study may contribute. Firstly, the research evidence presents only a partial picture of the impact of Structured Teaching components upon behaviour and learning outcomes for children on the autism spectrum. Focus on observable behaviours results in a clear gap in the evidence in relation to what children are learning, why they are learning what they are learning and neglects consideration of the whole child, particularly in relation to inner experiences and well-being. Secondly, the review demonstrates that there is a need to explore combinations of approaches being used in special school classrooms in order to investigate teachers' decision-making and to determine those factors that govern combinations of approaches. Finally, further research is needed which offers an alternative to a positivist approach. Whilst a quantitative approach has elicited useful evidence relating to behavioural

outcomes for individuals, questions remain regarding the views of those who are selecting and implementing approaches in classrooms. The use of an interpretive approach, deploying qualitative methods through in-depth case studies has the potential to enhance evidence gathered through quantitative methods by examining potential explanations for, and interpretations of, statistical results. This relates directly for example to the use of rating scales to 'measure' social validity; the use of qualitative approaches could add to the quantitative measures, thus strengthening the evidence. Further research is also needed to find ways of determining intervention impact in an ethical manner which always puts the rights of the child first.

In the next chapter, I present and justify my research approach, methods and analysis strategy. I also explore potential ethical issues identified from the outset in order to ensure respect and dignity for all who were involved in my investigation.

Chapter Four: Research Approach and Methodology

In this chapter I critically reflect upon the dilemmas faced in determining the 'right' approach to my research. In this chapter I consider a range of influences, both personal and theoretical, which had the potential to direct the research and which ultimately led to the approach taken. The multi-case study approach is explained and justified, with a clear statement about the purpose and the potential implications of this approach. I also consider ethical issues in relation to the research approach. This chapter does not outline the methods used to gather data in relation to each of the research questions; chapters five and six provide detailed accounts of the selection, design and implementation of specific data collection and analysis methods.

4.1 Introduction: critical influences

Educational research does not take place in an objective vacuum, devoid of internal and/or external influences. In order to adopt an informed and meaningful research approach to this investigation, consideration of a number of factors was important in helping me to establish and define both practical and theoretical influences which determined the resultant nature and process of the study. Such influences included firstly, personal factors and secondly, theoretical factors.

Personal influences included: my pre-existing knowledge and experience of the subject area, i.e., the use of Structured Teaching to teach children with ASD; my past research experience in relation to teaching and ASD; my belief systems, developed from my previous experiences of teaching children with ASD and working collaboratively with teacher colleagues.

The latter is intrinsically linked to theoretical factors which included: consideration of the influence of praxis and theory which may, or may not, provide a 'theoretical lens or perspective' (Creswell, 2014, p. 64) through which to plan, view and interpret the study; identification of appropriate 'models' or 'paradigms' which 'shape research' (Silverman, 2013, p. 105); development of overall research design. Each of these factors is explored in this chapter in order to explain, justify and 'own' the research approach and methodology which I adopted in order to inform seek insights into the research questions.

4.2 Personal influences

Much as researchers may strive to conduct research which is unbiased, it is often the previous experiences of a researcher which ultimately provide the impetus for an inquiry. As such it may be impossible to separate previous experiences, which have shaped personal beliefs and

values, from that which is being investigated. For this reason, it was important from the outset to lay bare my previous experience and the resultant beliefs and values in relation to education for children with autism and severe learning difficulties.

Linked closely to personal beliefs about entitlement to inclusion in learning and to social justice, particularly for those vulnerable groups with the most severe educational needs, was my pre-existing knowledge and experience in relation to pedagogical practices for children with autism, more specifically in relation to Structured Teaching practices. As a teacher who used this approach for many years when teaching children with autism in special schools, and as a fully trained 'TEACCH trainer' who taught (and indeed still teaches) educators in uses of the approach, I am fully conversant with the principles, techniques and mechanisms of the approach. Clearly this experience has led to personal views about the efficacy of the approach, particularly in relation to the impact on individual's independence and behaviour. In addition to experience in classroom practice and in training colleagues in the use of the approach, previous publications (Howley, 2013a; Howley, 2013b; Howley, 2006; Mesibov and Howley, 2003; Howley and Preece, 2003; Howley, Preece and Arnold, 2001), together with previous small-scale research studies (Howley and Rose, 2003) and conference papers (Howley, 2008; Howley, 2009; Howley 2011) clearly reflect an ongoing and active interest in this particular approach.

It was essential therefore to take into account these prior experiences, views and research when designing the research approach, as there was clearly a potential risk for bias. Credibility, or validity, could be clearly questioned in the light of this prior experience and the potential for bias needed to be critically reflected upon. Denscombe (2007) argues for objectivity which 'denotes research that is impartial and neutral in terms of the researcher's influence on its outcome' (p. 296); the risk of not achieving impartiality and neutrality was at the forefront of my mind, given my experience and knowledge. The first step in reducing the obvious risks of bias was firstly to openly acknowledge the risks and then to ensure a rigorous approach to research design and implementation; this required an open-minded and honest approach throughout all stages of this investigation.

4.3 Research approach: positivist, interpretivist or mixed methods?

Determining the 'right' research approach is a crucial decision in any research investigation. In order to decide upon an appropriate approach for my investigation, first it was important to consider the options, to identify which approach would best enable me to inform, and to seek

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answers to, the research questions. The first decision was informed by the literature review of the Structured Teaching research evidence-base (chapter three).

4.3.1 *Structured Teaching research evidence-base: positivist approaches*

Establishing a theoretical framework within which to locate this research was instrumental in developing the research approach and design. As indicated previously, adoption of a particular theoretical 'lens' was influenced by personal professional experience and was firmly rooted in concepts of social justice, inclusion and entitlement, specifically in relation to a 'minority' group of learners. In addition to these influences, the research approach was guided by clarifying the purpose of the investigation, as articulated in the research questions which supported the intention of seeking answers to 'what', 'how' and 'why' questions (Table 4.1).

Table 4.1 Research questions: how, what, why

1. What Structured Teaching strategies are being implemented for children with autism in special schools? (*what?*)

2. In what ways and for what purposes are Structured Teaching strategies being implemented in special schools? (*how?*)

3. What do teachers perceive the outcomes are for children in relation to behaviour and learning? (*why?*)

4. What other approaches are combined with Structured Teaching? *(what)*

5. What influences teachers' decisions to combine Structured Teaching with other strategies? *(what and why?)*

The literature review of Structured Teaching research evidence (chapter three) revealed only partial answers to some of these questions, answers which were largely discovered through positivist approaches to conducting the research. The review identified gaps in the research evidence which could be explored through the research questions in this investigation. This left me, however, with a methodological dichotomy between 'positivist' and 'intepretivist' research approaches. The former was already established in determining 'evidence-based practice' in autism education (e.g., Stansberry-Brusnahan and Collet-Klingenberg, 2010; Mesibov and Shea, 2011). Empirically based research studies adopting positivist methodology have been the bench-mark by which evidence is evaluated. Such an approach to researching

Structured Teaching components appears logical, as those components can be identified as variables which can be measured in terms of the impact upon specific behaviours. As was discovered in the literature review, such research largely adopted quantitative methods commonly associated with a positivist approach. The potential advantages and disadvantages of a positivist approach have been analysed by many and form the staple of research methods texts (e.g., Creswell, 2014; Henn, Weisntein and Foard, 2009; Robson, 2002; Silverman, 2013) which identify experimental design procedures as 'true experimental designs' (pre-test-post-test, control groups), 'quasi-experimental designs' and 'single subject designs' (Silverman, 2013, pp. 173-174). Research studies in relation to Structured Teaching predominantly implemented single-subject design procedures, measuring baseline 'A', treatment 'B', baseline 'A' (A–B–A) in order to produce empirical evidence to support use of the approach. However, despite the majority of the research evidence being generated using this empirical approach, there persist difficulties in evaluating the efficacy of autism interventions. For example, Jordan (1999b) and Jordan and Jones (1999) highlight some of the inherent difficulties, including identifying 'control' groups, ethical questions and lack of control for intensity of interventions.

In relation to the challenges identified above, I would make two further points which were important in determining my research approach. Firstly is the crucial question of ethics when adopting single subject designs to 'test' whether an intervention is effective or not. To illustrate this point, take the example of O'Reilly *et al.,* (2005). If a child's self injurious behaviours (baseline A) are significantly reduced when introduced to using an activity schedule (intervention B), are researchers justified in withdrawing the intervention (return to baseline A) to test a theory that schedules reduce self injury? Secondly, Howley (2013a, p.5) argues that according to Mesibov (2001) Structured Teaching is:

> ... more 'Gestalt' in its approach to learning, concerned with understanding of the 'whole' rather than isolated components and with a focus on meaning and understanding; despite this claim, the research evidence focuses predominantly upon measuring isolated behaviours and largely neglects the 'bigger picture'. This propensity to focus primarily on observable behaviours neglects other crucial aspects of learning, including *what* individuals *learn and understand* and indeed *why* they learn what they learn.

As argued in chapter three, a positivist framework to research in this field has so far resulted in a narrow perception of the impact of components of the approach. This evidence fails however to fully explore the whole picture, neglecting in particular 'social validity' of the approach. Howley (2013a, p.5) cites Callahan *et al.,* (2010) who argue:

> Whether or not a particular intervention. . . . receives widespread social validation can determine the extent to which the intervention or model is adopted and implemented within schools, homes, and clinics. (p. 75)

Whilst evidence gathered through a positivist approach is indeed important and valuable, it is equally important and valuable to 'measure' social validation in relation to educational outcomes. Whilst some have attempted to measure social validity, due to the predominant use of Likert scales to produce quantitative results, the extent to which these results present the 'bigger picture' is limited to that which can be counted. In relation to this investigation, the views of those who teach children with autism are likely to determine which interventions are identified as 'good practice', thus indicating a need to research those very views. At this point I decided that my research approach would not mirror the positivist paradigm already represented in the research evidence-base.

4.3.2 *Considering reality paradigms*

At this point my consideration of the research approach in this investigation diverged from a positivist theoretical framework to that which is described as 'relativist' (e.g., Robson, 2002, p.22) 'interpretivist' (e.g., Henn *et al.,* 2009, p.3), 'constructivist' or 'naturalistic' (e.g., Robson, 2002, p.24). Robson (*Op. Cit*.) explains that for constructivists, 'people... are conscious, purposive actors who have ideas about their world and attach meaning to what is going on around them' (p.24). The important word for me here was *meaning*, especially given Mesibov's (2001) focus on meaning and understanding as crucial tenets which underpin the Structured Teaching approach. The existing research evidence base provides testable hypotheses and seeks to establish 'what works' in relation to the approach components, based upon quantifiable measures by means of quantitative approaches; however, if we are to *understand* more than 'what works', i.e. asking 'how' and 'why', then an interpretivist approach is called for, using a predominantly qualitative approach.

This is not to deny the importance of the existing research evidence. Rather the purpose of this investigation is to enhance the evidence through interpretation of the views of those who implement the approach in 'real world' classrooms. Robson's (2002) focus on 'real world

research' provides an approach in which the perspectives of the participants are central to that which is being researched. Such an approach can be found in emancipatory approaches (e.g., Mercer, 2002; Oliver, 1997) and in relation to promoting social justice (e.g., House, 1991), thus resonating with the theoretical context of this investigation. Indeed, House links 'scientific realism' to educational research, arguing that:

> If teachers themselves are strong causal agents, able to dramatically affect the production of events, then their intentions and their knowledge are also important factors in good educational programs. A teacher's knowledge consists not only of subject matter but also of knowledge of concrete interactions of particular students in the classroom. The good teacher possesses knowledge of what is likely to happen with particular students when certain activities occur, and in fact the teacher may know that each student may respond in a different way to certain classroom activities. That is, the teacher possesses specific causal knowledge built on inferences made over a period of time from different sources and focused on particular students and the concrete conditions of the classroom. (1991, pp.8 – 9)

This explanation makes good sense in the context of this investigation which is primarily concerned with teachers' knowledge of: i) subject matter – in this case autism and Structured Teaching; ii) interactions between individual learners, peers and adults and iii) activities – including approaches to enable individuals to participate in activities. Robson's (2002) model of realism in the context of science provides a list of features; in particular, he identifies the complexity of the social world 'stratified into different layers' which includes (among others) individual and group levels (p.32). It could be argued that this investigation is concerned with both of these levels and at the same time is interested in causal factors which determine teachers' practice and outcomes for learners. Figure 4.1 makes use of Robson's (p. 31) representation of realist explanations in terms of actions, outcomes, mechanisms and context in relation to an investigation into the use of Structured Teaching for children with ASD. This model might conceptualise this investigation as focusing upon what teachers do, in which contexts, using which mechanisms and with what outcomes. Such a study might then investigate multiple layers of 'reality' and combine both positivist and intepretivist methodologies in order to explain causal relationships.

A mixed methods approach, often associated with realism in social research, may prove to be a valid way forward in advancing the research evidence base. Such an approach offers

opportunities for combining both quantitative measures, e.g., in relation to outcomes for children, with qualitative approaches which would reveal insights of those who implement the approach.

Mechanisms (Structured Teaching components)

Actions
(teachers' practice)

Outcomes
(for children with ASD)

Contexts (special school classrooms)
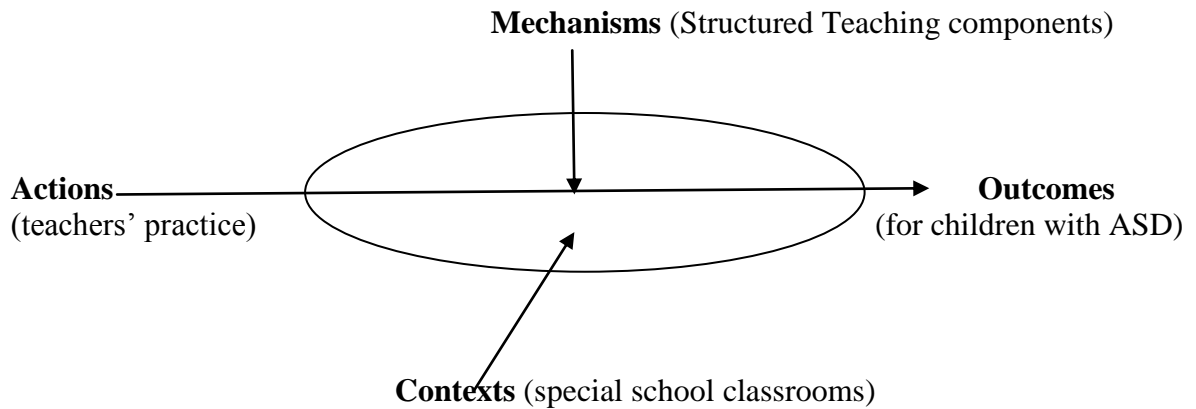
Figure 4.1 Representation of realist explanation, adapted from Robson (2002, p. 31)

However, whilst alluring this model may be, the distinct lack of interpretive approaches to researching Structured Teaching led to a decision to focus my investigation primarily upon teachers' perception about what they were doing and why in order to gain in-depth insights, thus exploring phenomena relating to social validity. This decision was taken with the view that adopting an interpretive approach would enable me to gather and analyse qualitative data which focused upon teachers' practices and perceptions. This is a first step in the process of comparing measurable outcomes (existing research evidence) with implementers' perspectives (this investigation). It was anticipated that the direction of future research could build on this study by using a mixed methods approach, this is discussed in more detail in chapter thirteen.

4.3.3 *Structured Teaching research evidence-base: developing an interpretive approach*
According to Punch (2009) 'quantitative research is empirical research where the data are in the form of numbers. Qualitative research is empirical research where the data are not in the form of numbers' (p. 3). Given that the purpose of this investigation was to gather insights of participants, it was clear that the data generated would be qualitative and interpretive; by adopting this approach, the subsequent analysis of findings had the potential to add to the existing research evidence which has traditionally produced quantitative data.

Bassey (1999) argues that the interpretive researcher seeks to:

> ... advance knowledge by describing and interpreting the phenomena of the world in attempts to get shared meanings with others. Interpretation is a search for deep perspectives on particular events and for theoretical insights. It may offer possibilities, but no certainties, as to the outcome of future events. (p. 44)

This view resonates with the purpose of my investigation which, unlike the positivist research evidence base, is not concerned with quantifying changes in children's behaviours; indeed the purpose of this study is concerned with describing and interpreting teachers' actions, perceptions and decisions in relation to Structured Teaching classroom practices. The potential to explore and analyse their 'deep perspectives' could best be achieved through an interpretive approach, the results of which could add to the 'bigger picture' (Howley, 2013a, p. 6). It is argued therefore that a qualitative study such as this is an important step towards understanding 'shared meanings' Bassey, 1999, p. 44) in relation to autism education and classroom practices. Again I was drawn to the focus upon *meanings* and a belief that the existing research evidence-base would be enhanced by exploring what Structured Teaching *means* for those who implement the approach as part of their everyday classroom practice.

Teachers' Decisions

A further theoretical consideration stems from the research questions and is concerned with teachers' decisions. Analysing the decisions teachers make is an important feature of gaining 'deep perspectives' through a qualitative approach. Jordan and Powell (1996) identified what they called 'therapist drift', asserting that whilst therapists (in this investigation, teachers) may subscribe to particular approaches and adhere to practices based on the theoretical rationale of specific approaches following training, nevertheless their classroom practices 'drift' away from this 'towards a 'mean' of behaviour in which the norms of adult-child dyadic interaction are reasserted and the differences between approaches minimised' (p. 21). They conclude that there is a 'mismatch between what is reported as the underlying rationale and methodology of an approach and its actual realisation in practice' (p. 29).

In addition, as discussed in the introduction to this thesis (chapter 1) teachers are urged to be eclectic in their educational approaches and interventions, no single approach meeting all the needs of an individual, nor the need of all children with ASD. However, despite the

recognition that teachers use a variety of approaches (Charman *et al.,* 2011), little is known about how and why they select particular strategies, or indeed how far their practices reflect their choices.

The research questions in this investigation aimed to firstly explore the Structured Teaching practices of teachers, probing whether teachers adhere to the rationale, principles and mechanisms of the approach and why, or why not, in relation to outcomes for children. Secondly, aimed to explore the decisions teachers make in relation to which Structured Teaching strategies they use and which other strategies they implement alongside Structured Teaching. Thus, there is a clear focus upon teachers' decisions in relation to both their use of Structured Teaching and the role of the approach in eclectic practices. Jones (2006) argues that teachers need:

> to know and understand the rationale for their work and to monitor and evaluate the child's response to interventions. Knowledge of the rationale allows staff to modify their work to match the child's changing needs and responses. If staff do not appreciate the principles of the interventions...then they may lack the knowledge to modify their work as and when the need arises. (p. 545)

Jones (2006) goes on to state that 'teaching staff base their actions on information from different sources, interpreting this information in relation to their own beliefs about children, learning and ASD' (p. 545). Links between teachers' beliefs and decision-making are integral to this investigation. With regard to mainstream teachers' practices, some argue that teacher beliefs and attitudes drive classroom practice (e.g., Stuart and Thurlow, 2000). More specifically, in relation to the inclusion of children with autism, links between teacher knowledge, experience and their attitudes are identified as factors determining classroom practices (Segall and Campbell, 2012). Decision-making in relation to interventions for children with autism is not restricted to teachers. Herbert (2014) concludes that parental decisions regarding interventions for their child with autism are 'highly individualistic' and influenced by a variety of reasons based on 'unique concerns and perceptions' (p. 120). All of the above equally apply to teachers of children with autism whose practices are likely to be influenced by their knowledge and experiences, which determine their beliefs about 'what works'. Decisions made by individual teachers are also likely to be 'highly individualistic', based upon their prior knowledge and experience.

Tutt, Powell and Thornton (2007) illustrate the complexities in relation to educational approaches in autism, arguing:

> Because of [the] essential and profound differences in the way in which individuals with autism relate to learning and to teaching and the way in which those differences manifest as not amenable to typical notions of good practice, the area is full of 'approaches' to all aspects of pedagogy including curriculum design and delivery as well as teaching style. Generalist teaching principles often have to be discarded in favour of individually tailored strategies and tactics. (p. 70)

If approaches are to be 'individually tailored', then it follows that decisions about approaches are likely to be individualistic. However, Tutt *et al.,* (2007) reflect upon the risks inherent with such an approach, arguing that 'many approaches to autism are based on what is perceived to 'work', rather than the child's way of learning' (p. 71).

Teachers of children with ASD are making decisions every day about which approaches to use and some of those teachers look to research evidence to inform their decisions. In relation to Structured Teaching, most of this evidence is conducted using quantitative approaches, yet as Jordan (2005) points out 'statistically based results are of limited value to the teacher trying to decide on the best approach for a particular child in a particular context' (p. 116). Given earlier arguments in the literature review which highlighted the gaps in that research evidence, this investigation sought to add to the research evidence by adopting a qualitative approach in order to explore teachers beliefs and decisions about their practices. There are many diverse qualitative approaches, originating in different disciplines, for example, ethnography (anthropology), symbolic interaction (psychology), phenomenology (philosophy), life story (history), field or case study (education); whilst each approach has its own set of terms and concepts, they share similar intentions. The interpretive paradigm of social research is concerned with individuals and is interested in developing insight, illumination and interpretation of events, through the use of qualitative methods (Cohen and Manion, 1994; Bassey, 1999). In educational research, case study is arguably the most effective approach to gathering and interpreting the perspectives of participants (Thomas, 2011) and was therefore the approach which I selected for this investigation.

4.4 Case study approach

As the purpose of this research was to explore, analyse and interpret how Structured Teaching is implemented in a sample of special school classrooms, an interpretive approach is justified. Within this interpretive approach, case study was used as the main strategic research strategy following, and informed by, a survey to identify initial themes (chapter six presents the survey results). Yin (1994) defined case studies as enquiries which are conducted in 'real-life' contexts, further developed by Robson (2002) who defines case study as:

> a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence (p. 178)

In this case, the 'contemporary phenomenon' is the use of 'Structured Teaching for educating children with ASD, the real-life contexts are the special school classrooms in which the investigation was conducted. Thomas (2011) explains simply that 'when you do a case study, you are interested in that thing in itself, as a whole' (p. 3), emphasising the 'drilling down' within a case study approach in order to understand *how* and *why* (p. 4). This view relates clearly to this investigation and the how and why reflected in the research questions. Moreover, educational case studies are concerned with 'the understanding of educational action' (Stenhouse, 1985, p. 50 in Bassey, 1999, p. 28) through enquiries 'aimed at informing educational judgements and decisions in order to improve educational action' (Bassey, 1999: 59). Furthermore Bassey's (1999, p.58) definitions and explanations of educational case study relate directly to the case study approach of this investigation which is concerned with educational decisions in relation to educating children with ASD; Table 4.2 identifies key features of Bassey's explanations linked to this investigation.

Table 4.2 Features of educational research: comparison with Bassey

Bassey (1999) Educational case study is...	This investigation...
conducted within localized boundary, study of *singularity*	focuses upon a particular strategy (Structured Teaching) within a particular natural context (special schools)
into *interesting* aspects of educational activity	interest stemming from previous professional knowledge and experiences
in order to inform judgements and decisions of practitioners or policy-makers	primarily concerned with teachers' decisions in order to inform future practice
in such a way that sufficient data are collated for the researcher to be able to: • Explore *significant* features • Create *plausible* interpretations • Test for *trustworthiness* of interpretations • Construct a *worthwhile* argument • Relate the argument to relevant research *From Bassey, 1999, p.58*	Uses multiple methods of inquiry: • literature reviews • survey questionnaire • classroom observations • semi-structured interviews • informal conversations

Case studies take many forms: Stake (1995) defines case studies as 'intrinsic' or 'instrumental' (p. 3); Yin (1994) categorises case studies as 'exploratory', 'explanatory' or 'descriptive' (p. 5); Bassey (1999) defines educational case studies as 'theory-seeking and theory-testing', 'story-telling and picture-drawing' and 'evaluative' (p. 62). This investigation is arguably instrumental in that there are defined research questions into which the case study seeks to gain insights in order to understand a phenomenon (Stake, 1995); however, this case study is also exploratory (Yin, 1994), or as Bassey (1999) defines 'theory-seeking', in that the intention is to generate a theory or model which explains teachers' classroom practices. The notion of 'theory' within a qualitative case study approach is perplexing, depending upon the perspective one takes. Theory within positivist research is perhaps more obvious, starting with a clear theory which generates testable hypotheses using quantitative methods; however, interpretive research frequently does not start with a testable hypothesis and indeed in this study, whilst there are defined research questions, there is no hypothesis from the outset. However, interpretive approaches must not ignore theory, indeed what is research without theory? The issue that is perhaps most relevant here is perhaps the 'placing' of theory within a qualitative approach. Creswell (2014) suggests that theory may be located early in a study, for example in relation to a theoretical lens, but theory may also be located at the end of a qualitative study (pp. 67 – 68). In this investigation it has been outlined earlier in this chapter that the theoretical lens through which to view the research is that of social justice and in particular the notion of enabling children with ASD to achieve their capability. However,

theories pertaining to social justice are not the focus of the study and indeed are not being 'tested', rather this theoretical lens helps to contextualise the research and explain the personal and professional influences bought to the investigation.

Creswell (2014) explains 'inductive logic' (p. 66) in which the researcher firstly gathers information, asks open-ended questions and records field notes, analyses data to form themes and categories, looks for patterns, generalisations or theories and finally poses generalisations of theories from past experiences and literature. Such an inductive approach suggests a 'theory-seeking' (Bassey, 1999) or 'theory-building' (Thomas, 2011, p.112) approach, 'developing and testing hypotheses in the course of... data analysis' (Silverman, 2013, p.364). The above argument might infer then that this investigation takes the form of a theory-seeking case study, with the purpose of gaining insights into classroom practice, particularly in relation to Structured Teaching. However, by exploring multiple case studies in parallel, comparisons and contrasts can be made among the cases in order to 'throw the spotlight on an important theoretical feature' (Thomas, 2011, p.153). In this investigation, each case has the potential for building theory and as such, any theory generated by one case can be tested in parallel cases. Thus, it is argued that whilst from the outset the case study is theory-seeking and theory-building, opportunities for theory-testing may emerge as data from multiple cases are analysed. However, the suggestion of development of theory raises important questions about issues with generalisation in small-scale case study research.

Alternatives to generalisation in case study research
Generalisation from case study is frequently criticised. For example Bell (2005) states that in case study research 'a major concern is that generalization is not always possible' (p. 11) whilst Thomas (2011) suggests 'its poor relation status exists, I think, only because it is *conspicuously* deficient in its potential for generalisation' (p. 10) and that 'you *cannot* generalise from a case study' (p. 179). However, according to Bassey (1999) 'scientific generalization is not appropriate for summarizing social findings because of the sheer complexity of social events' (p. 45). In 1995, Bassey suggested that case study may be a useful approach to discovering themes and practices that may relate to similar cases and in so doing 'stimulate thinking about similar situations elsewhere' (p. 111). The notion of 'relatability', as opposed to generalisation, later led to two proposed outcomes from empirical educational research: 'predictions of what may happen in particular circumstances and interpretations of what has happened in particular circumstances' (Bassey, 1999, p.46). This may generate what Bassey (1999) refers to as 'fuzzy generalisations' which show how 'the

discovery *may* apply more widely' (p. 55). Fuzzy generalisations are defined by Bassey as statements which include uncertainty, e.g., if teachers do this, this *may* result in that; he argues that case studies are studies of singularity which research 'particular events' and 'conducted in depth in natural settings' (p. 47). In particular, he suggests that:

> the outcome of a theory-seeking or theory-testing' case study should be a worthwhile and convincing argument supporting a fuzzy generalisation (or in a more tentative form a fuzzy proposition). (p. 12)

According to Bassey, fuzzy generalisations are 'sound bites' (p. 51) which suggest that '...something has happened in one place and that it may also happen elsewhere. There is a possibility but no surety. There is an invitation to 'try it and see if the same happens for you'.' (p. 52).

The notion of generating fuzzy generalisations is one which relates to this investigation; indeed the findings, analysis and interpretation of the case studies have the potential to invoke interest from, and influence the practice of, those who teach children with ASD in special schools. However, such statements of fuzzy generalisations may be viewed with scepticism by those who favour a positivist approach to determining an evidence base and as such may be perceived as weak evidence. The questions this raised for me were ones which ask what influences teachers in determining their practice and in particular what influence does research evidence, be it positivist or interpretivist, have in shaping best practice? To address this it is helpful to consider Hargreaves' (1999) call for teaching to become a research-based profession, his identification of a 'need to turn teachers' habitual classroom tinkerings into a much more trustworthy form of research evidence' (p. 246) and his suggestion that research which is 'evidence-informed' may be more useful to teachers than that which is 'evidence-based' (p. 246). This suggestion has particular relevance for this investigation which, rather than attempting to establish an evidence-base in relation to Structured Teaching through empirical inquiry, rather seeks to analyse and interpret, through case studies, practitioners' insights which may have the potential to inform future practice, thereby contributing to evidence-informed research. I return to this discussion in chapter thirteen. Hargreaves *(Op. Cit)* also refers to 'craft knowledge' of teachers, a label which Brown and McIntyre described in 1993 as:

professional knowledge which teachers acquire through their practical experience in the classroom... which guides their day-to-day actions in classroom... and which is brought to bear spontaneously, routinely and sometimes unconsciously on their teaching. (p. 17)

Added to this is Bassey's (1999) 'model of the relationship between educational research and the practice of teaching and formation of educational policy' (p.50) which presents a more complex model that incorporates craft knowledge which is influenced by professional discourse. He describes this professional discourse as 'the maelstrom of ideas, theories, facts and judgements which the individual teacher meets..., broods on, contributes to and occasionally uses' (p. 51). This model clearly suggests that teachers' practice is influenced by multiple factors and is not restricted to scientific evidence-based research, leading me to conclude that statements of fuzzy generalisation are worthy components of professional discourse and are equally valid as contributory factors to research evidence, in this case the evidence in relation to the role of Structured Teaching in autism education.

The concept of generalisation is also taken up by Thomas (2011) in relation to case study and the inherent difficulties with inductive reasoning (p. 212). Cohen and Manion (1994) describe the inductive process as 'the study of a number of individual cases [which] would lead to a hypothesis and eventually to a generalization' (p. 3). However, Thomas (2011) argues that 'abduction' is a more useful concept in relation to case studies, describing abduction as 'making a judgement concerning the best explanation for the facts you are collecting' (p. 212). This process he goes on to argue provides:

> Ways to analyse complexity that may not provide watertight guarantees of success in providing for explanation or predication, but are unpretentious in their assumptions or fallibility and provisionality. (p. 212)

If case studies justifiably do not seek to establish infallible generalisations, i.e., *not proving* efficacy of particular teaching strategies, a final question arises which is asked by Thomas (2011): 'are we really talking about *theory* in the case study or should we be talking about *phronesis*?' (p. 213). Phronesis is described by Thomas as 'practical knowledge, craft knowledge, with a twist of judgement squeezed into the mix' (p. 214), craft knowledge which is also identified in the models of Hargreaves and Bassey. The valuing of 'craft knowledge' is also recognised in other fields; for example, in relation to teachers of children in the early

years, Hedges (2012) refers to 'teachers' funds of knowledge' (p. 7) and the impact this has upon teachers' decision-making. Thomas (2011) goes on to explain that case study research 'offers you an example from which your experience, your phronesis, enables you to gather insights or understand a problem' (p. 215) and so this chapter comes full circle. The personal professional factors, which as previously discussed put at risk impartiality and bias, at the same time constitute my phronesis; if my case study is less concerned with establishing theory and proving efficacy, and more concerned with gaining insights and understanding, then my phronesis enables me to interpret the insights of the research participants, therefore illuminating features of craft knowledge which thereby contribute to evidence-informed research.

4.5 Analysis strategy

There exist multiple ways of analysing qualitative data, depending upon the nature of an inquiry. For example grounded theory includes systematic steps to data analysis (Corbin and Strauss, 2007). Silverman (2011) summarises the process of this approach as coding, theoretical sampling and generating theories grounded in data (p. 68). This approach begins by examining data, before conducting a literature review, in order to ensure that analysis stems from the data 'rather than through prior hypotheses' (Silverman, 2011, p. 73). However, due to professional experiences in autism education, prior ideas about what may be found in this investigation were impossible to eliminate, even with steps taken to reduce the risk of bias (see 4.2.1, p. 52). For this reason, I planned an analysis strategy which, whilst not adhering strictly to a grounded theory approach, nevertheless adopted a constant comparative approach to coding and categorising the data. The qualitative survey data would provide opportunities to gain experience in coding and categorising the data in order to generate themes. This iterative process would provide valuable experience in coding and at the same time would enable me to become familiar with emerging themes before turning to the field to 'check out emerging explanations' (Denscombe, 2007, p.292).

It was anticipated that analysis of the qualitative data, generated by open questions, would enable thorough familiarity with the 'raw' data, through an iterative process, described by Denscombe, 2007) as the 'data analysis spiral' (p.292). Analysis of the survey data would identify initial codes and categories which in turn would generate further questions to be pursued through interviews and observations (see chapter seven). The same analysis strategy could then be adopted to analyse and interpret participants' perceptions and practices.

Cresswell (2009) provides an explanation of data analysis and interpretation which illustrates this iterative approach:

> It is an ongoing process involving continued reflection about the data, asking analytic questions, and writing memos throughout the study. I say that qualitative data analysis is conducted concurrently with gathering data, making interpretations and writing reports. (p. 184)

This analysis strategy is appropriate for case study research which Cresswell (2009) explains involves 'a detailed description of the setting or individuals, followed by analysis of the data for themes or issues (p. 184). Thomas (2011) argues that 'interpretative inquiry seems made for case study' and that 'the basic principle of constant comparison is that you emerge with *themes* that capture or summarise the essence (or essences) of your data' (p. 171).

I therefore planned an analysis strategy which enabled me, through a process of coding and categorising the data to identify key themes. This was planned from the outset as an iterative process which is presented in Table 4.3 (informed by Cresswell, 2009, p. 185).

Table 4.3 Process of analysis

Phase 1
- Read survey responses to qualitative questions; identify initial codes.
- Retain full copy of raw data; code segments and save as working data *by retaining both the raw data and the coded segments, this ensured that I did not lose sight of meaningful, holistic responses*
- Re-read and recode to identify recurring ideas in the data.

Phase 2
- Read interview data multiple times to become familiar with raw data.
- Code using initial codes generated from survey data.
- Re-read and identify newly emerging codes *complete this process throughout interview process*
- Identify themes and compare with survey themes. Look for recurring themes.
- Record observation field notes, coding and writing memos whilst observing.
- Re-read observation notes to check codes, identify new codes and recurring themes *coding and analysis of interviews and observations to take place simultaneously and with constant comparisons*
- Identify major themes and colour code data segments to visually highlight themes across the data
- Inter-relate and interpret themes

4.5.1 *Issues of reliability, validity and trustworthiness*

Concepts of reliability and validity are fundamental in the context of positivist research, where hypotheses and theories are tested, where certainties are strived for and where replication is a key feature. The concept of reliability, assuring that if a study were replicated, the results would be the same (Blaxter, Hughes and Tight, 2006, p.221) is slightly different in qualitative research where researchers are asking if their approaches are 'consistent or stable' (Creswell, 2014, p.203). Steps towards achieving reliability in qualitative research require careful documentation of the process (Yin, 2009) so others may follow the same procedure. Validity, is defined by Bassey (1999) as 'the extent to which a research fact or finding is what it is claimed to be' (p. 75) and refers to both internal validity (concerned with cause and effect) and external validity (concerned with generalisation of cause and effect relationships). Bassey goes on to argue that in studies of singularity, as in this investigation, concepts of reliability and validity are less helpful than the concept of trustworthiness (introduced by Lincoln and Guba in 1985). Trustworthiness is linked by Bassey (1999) to the 'ethic of respect for truth' (p. 75) and is relevant at various stages of the research. Appendix 6 identifies features of trustworthiness as outlined by Bassey and the steps I took in order to ensure trustworthiness in this investigation. Further discussion of these concepts follows in relation to each of the research methods (chapters five and seven).

4.6 Ethics

Ethical issues may arise at any stage during the research process and, as suggested by Punch (2005), anticipating these is an important factor when conceptualising the research at the proposal stage. Bassey (1999) suggests three major ethical values associated with social research, namely 'democracy, respect for truth and respect for persons' (p. 73). The British Educational Research Association Ethical Guidelines (BERA) (2011) state clear underpinning principles of its ethical guidelines, stating that educational research should be conducted within an ethic of respect for persons, knowledge, democratic values, quality of educational research and academic freedom (p. 4). Moreover, the guidelines indicate clear responsibilities to participants, sponsors of the research, educational researchers, professionals and policy makers and to the general public (p. 5). Table 4.4 briefly outlines steps I took to meet responsibilities to participants, followed by a summary in relation to further responsibilities; further discussion of ethics in relation to specific research methods continues in chapters five and seven.

Table 4.4 Conducting the research ethically: responsibilities to participants

Responsibility to participants	Steps taken
Voluntary informed consent	Code of ethics (Appendix 7), information leaflet, discussions, consent form
Openness and disclosure	Code of ethics, discussion and consent before research began
Right to withdraw	Included on ethical statement and on consent form
Children, vulnerable young people and vulnerable adults	Code of ethics
Incentives	Training offered to schools on completion of the research by means of expressing gratitude rather than incentive.
Detriments arising from participation in research	Any unexpected detriments would be bought to attention of participants as soon as they arise and actions agreed as appropriate
Privacy	Confidentiality and anonymity assured; secure storage of data in accordance with Data Protection Act (1998)
Disclosure	Should situation arise resulting in need to override agreements regarding confidentiality and anonymity, e.g., in case of harmful practice, this would be discussed in full with supervisors to identify necessary actions

Further ethical responsibilities included: responsibilities I had to the university where I was, and still am, employed and which funded my PhD study and research and to which I ensured that I met my responsibilities to the highest standard possible, to deploy methods 'fit for purpose' and to follow research writing guidelines (e.g., BERA, 2011) in relation to publications; responsibilities to the educational research community by conducting and reporting the research openly and truthfully; responsibilities to education professionals and policy makers and practitioners by publishing the results and to make public through clear and appropriate language, appropriate to the intended audience. Bassey (1999) warns of the potential 'clash' of these values, for example when a participant withdraws their consent which may clash with the 'democratic right' of the researcher to publish (p. 74). Consideration of this potential issue led to a decision that in the unlikely event of such a clash, then the rights of the participant would override the researcher's rights to research and publish.

To ensure that ethical values were upheld, the research proposal was submitted to the University Research Ethics Committee for approval prior to beginning the research; additional explanation of how I would strive for impartiality was requested especially given

my involvement with the Structured Teaching approach previously as a practitioner and more recently in relation to research and writing. Steps were taken to address this issue which included discussion of potential for bias with supervisors and review of processes, methods and analysis at all stages of the research. As stated at the start of this discussion of ethics, ethical issues may arise at any stage in the research process, before it begins, during data collection, during analysis and reporting the findings. Hence, ethics continue to be addressed throughout this thesis.

4.7 Summing up my approach to this investigation

This investigation is a study of singularity with defined boundaries to the case study approach (see Table 4.5).

Table 4.5 Case study approach: drawing the boundaries

Location: two primary special schools in one local authority; two classrooms in each school
Time: Field-work, data collection over four school terms (18 months)
Focus/interest: Educational approaches to autism; Structured Teaching; other classroom approaches; teachers' beliefs and decisions; teaching assistants' beliefs

The study aimed to analyse and interpret: Structured Teaching practices for children with ASD in special schools; perceptions of teachers and teaching assistants with regard to Structured Teaching outcomes for children; decisions which teachers make in using Structured Teaching strategies with other classroom interventions. The study seeks to enhance the existing, largely positivist, research evidence-base, adding to social validity evidence by gaining in-depth insights into what is described by Howley (2013a) and in chapter three as the 'bigger picture'. 4.2 (p. 74) summarises the research design and captures the process in conducting the research and building the case studies.

Multiple, parallel case studies were designed to gather insights using multiple, qualitative methods of data collection derived from a purposive sample of four special school classrooms in two special schools in one local authority (see chapters five and six for further details of both the initial and revised sample). The design of these methods is presented in chapter five (survey questionnaire) and chapter seven (classroom observations and semi-structured interviews). These case studies were theory-seeking in as much as they seek to shed light on

what informs teachers' decisions when selecting teaching strategies for children with ASD in special schools; at the same time it was anticipated that the case studies may (or may not) develop a theory or model by shedding light on craft knowledge which has the potential to influence teachers' practice.

Figure 4.2 Overall research design

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                    ┌──────────────────────────────┐
                    │  Area & purpose of investigation │
                    └──────────────────────────────┘
                                   │
                                   ▼
                    ┌──────────────────────────────┐
                    │   Initial research questions   │
                    └──────────────────────────────┘
                          ╱                  ╲
          ┌────────────────────┐     ┌────────────────────┐
          │ Literature reviews │     │ Reflect on previous│
          │                    │     │     practice       │
          └────────────────────┘     └────────────────────┘
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                    ┌──────────────────────┐
                    │   Revised research   │
                    │      questions       │
                    └──────────────────────┘
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                                   ▼
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                    │  Research approach   │
                    │   & methodology      │
                    └──────────────────────┘
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                    │       Survey         │
                    │   questionnaire      │
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                    │   Questionnaire      │
                    │     analysis         │
                    └──────────────────────┘
            ┌────────────────┐         ┌────────────────────┐
            │   Classroom    │◄───────►│  Semi-structured   │
            │ observations   │         │    interviews      │
            └────────────────┘         └────────────────────┘
                    ┌──────────────────────┐
                    │     Analysis &       │
                    │      synthesis       │
                    │    Case studies      │
                    └──────────────────────┘
          ┌────────────────┐         ┌────────────────────┐
          │  Final model   │         │ Critical evaluation│
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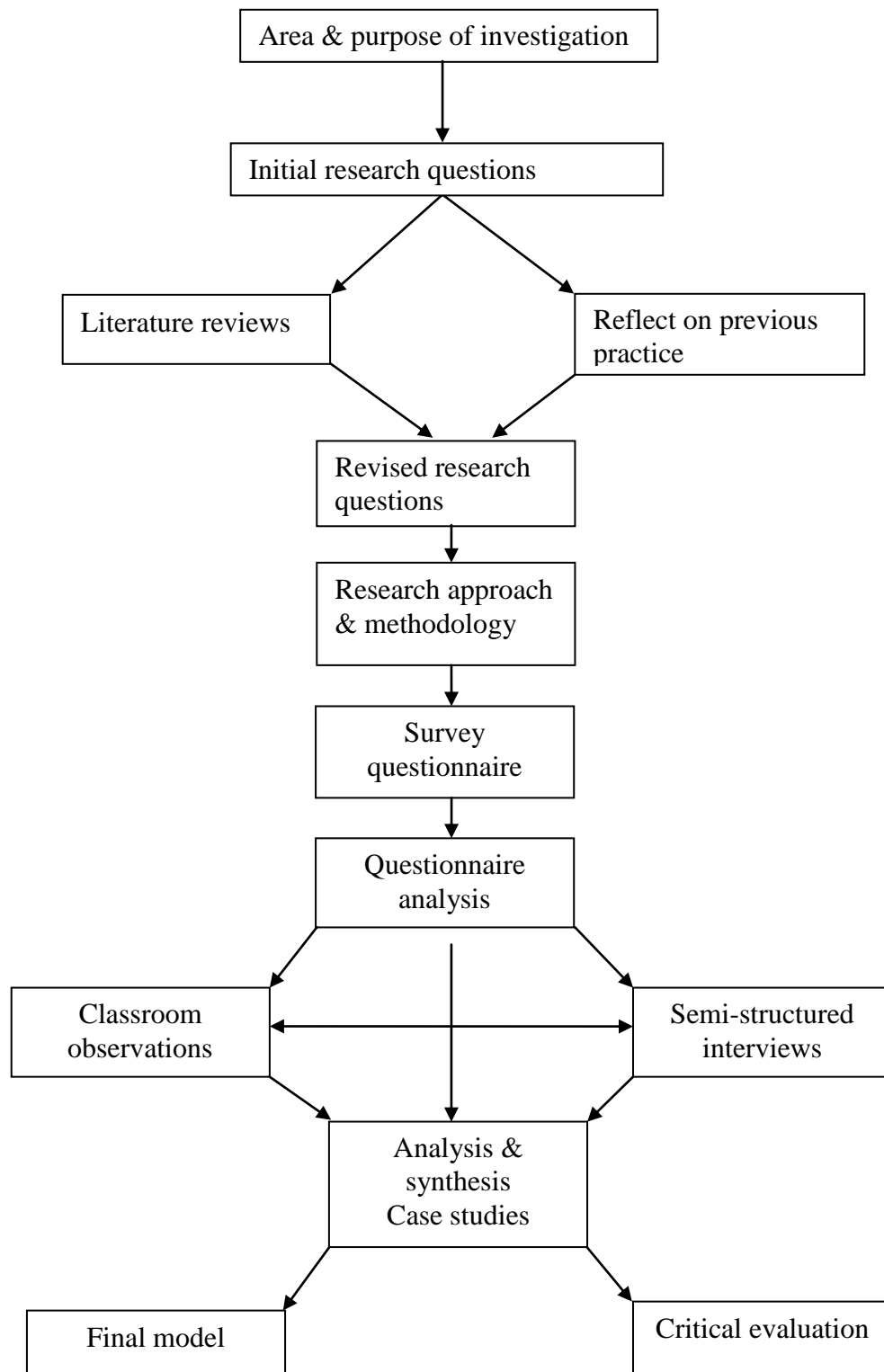
Chapter Five: Survey of Special Schools; Questionnaire Design and Pilot

In this chapter I explain and justify the design and pilot of a questionnaire, designed to survey teachers' and teaching assistants' perceptions of the uses and impact of Structured Teaching for learners with autism and severe learning difficulties. I outline the stages of questionnaire design, before explaining the pilot process and outcomes. The main purposes for gathering data at this first phase of the study were exploratory, in order to gain an overall impression of perceptions of the approach and to subsequently analyse the findings to inform the next phases of the research which would seek to gather detailed, 'rich' data in relation to the research questions. The survey was conducted in five primary special schools in one local authority.

5.1 Introduction

In order to begin the process of gathering the perceptions of educators who implement Structured Teaching in special school settings, a descriptive and interpretive survey approach was taken. The use of surveys in educational and social research is well established and can be applied in both large and small scale studies. Cohen, Manion and Morrison (2011) indicate that surveys collect data 'at a particular point in time with the intention of describing the nature of existing conditions...' (p. 256). Furthermore they suggest that surveys can provide data that allows for comparisons and determines relationships between 'specific events'. Robson (2002) argues that surveys can 'go beyond the descriptive to the interpretive' in order to identify 'explanations of phenomena' and 'patterns of results' (p. 233).

Whilst surveys typically generate data from a wide population that can be processed statistically, they can also be used to explore phenomena in small-scale research and may include the use of open-ended questions in order to develop explanations and interpretations of events and processes. The focus upon special schools in one LA provides a context for this research which supports the use of a cross-sectional survey that 'provides a 'snap-shot' of a population at a particular point in time' (Cohen, Manion and Morrison, 2011, p.267). However, whilst surveys generate data that provides a summation or a 'snap-shot', in this research the data gathered is intended to capture not only a 'snap-shot' of a particular context but also to inform the development of further research tools in order to explore themes in greater depth.

A self-administered questionnaire was selected as an appropriate survey tool for the first stage in data collection. The use of questionnaires offers several advantages, perhaps most importantly that identified by Robson (2002) as providing 'a relatively simple and straight forward approach to the study of attitudes, values, beliefs and motives' (p.233). In addition, Denscombe (2007) suggests that questionnaires are useful in gathering data relating to facts and opinions, both of which are relevant to questionnaire design in this case (p.155). Moreover, the use of a questionnaire offers benefits of relatively quick production of standardised data as a 'relatively straightforward approach to the study of attitudes, values, beliefs and motives' (Robson, 2002, p. 233). Questionnaire design needed to provide anonymity to respondents and encourage open and honest responses. Questionnaire design also needed to assure that steps were taken to avoid the possibility of low response rates and ambiguities in interpretation of questions. In addition, the potential disadvantage of using a questionnaire could result in respondents not reporting their beliefs and opinions accurately, as Robson (2002) indicates respondents may respond in a way they think is expected or their responses indicate a 'social desirability response bias' (p. 233). This was a particularly relevant issue to consider carefully in my investigation due to the likelihood of respondents being familiar with my previous professional practice and experience in this field, especially in relation to TEACCH and Structured Teaching and my delivery of professional development sessions to schools. The possibility of wishing to please both myself as the researcher, and also schools' senior management who had invested in the approach, was a risk and one which needed to be considered carefully (see 5.2.3, p. 79).

5.2 Questionnaire design

The purpose of the questionnaire was linked closely to the research aims and questions and was designed in a multi-staged approach. Time invested in planning and designing the research instrument, taking into account Cresswell's (2009, p. 147) checklist of questions for designing survey methods, was viewed as important for two key purposes. Firstly, careful and thorough consideration of the questionnaire layout, presentation and content would have direct impact upon quantity and quality of the responses obtained. Secondly, investing time in questionnaire design was viewed as a research learning process through which a deeper understanding of key considerations and issues could be gained. Denscombe (2007) cautions against rushing this stage in the process, whilst Cohen *et al*., (2011) suggest that time invested in the design stages may result in more rapid analysis. These authors propose a staged sequence for planning a questionnaire which begins with identifying the questionnaire purpose and objectives, linked to the research questions. Such a staged sequence seemed

highly appropriate as I was particularly concerned to develop an effective questionnaire design which would elicit useful data for the first phase of analysis and which would inform subsequent data collection tools. Appendix 1 includes the staged sequence in the questionnaire design for this study, informed by Cresswell's (2009) 'components of a survey method plan' (p.147). Each stage of the design sequence offered opportunities for reflection upon both the challenges of the process and the decisions I made. This detailed, staged sequence provided the model for designing and developing the questionnaire and each stage is discussed further in the following sections.

5.2.1 *Aims, research questions and questionnaire design*

The key aims of the research, to *identify* existing understanding and implementation of Structured Teaching strategies for teaching children on the autism spectrum and to *analyse* how Structured Teaching is used within a context of developing eclectic classroom practices, fit well with Denscombe's (2007) notion of description and opinion. A well structured questionnaire would elicit both description of existing understanding and practice in relation to the Structured Teaching approach and opinions about how the approach is implemented. The questionnaire sought to produce data that would generate descriptions and opinions that, when analysed, would inform the development of further research instruments which in turn would provide qualitative data, enabling analysis of themes, ideas and concepts in greater depth.

The research questions which underpinned the focus of the questionnaire were:

1. What Structured Teaching strategies are being implemented for children with autism in special schools? (*what?*)

2. In what ways and for what purposes are Structured Teaching strategies being implemented in special schools? (*how?*)

3. What do teachers perceive the outcomes are for children in relation to learning and behaviour? (*why?*)

4. What other approaches are combined with Structured Teaching? *(what)*

5. What influences teachers' decisions to combine Structured Teaching with other strategies? *(what and why?)*

Questionnaire design was multi-staged and is illustrated in figure 5.1. The design process included pre-testing, miniature and main piloting before finalising the questionnaire.

Figure 5.1 Stages in questionnaire design
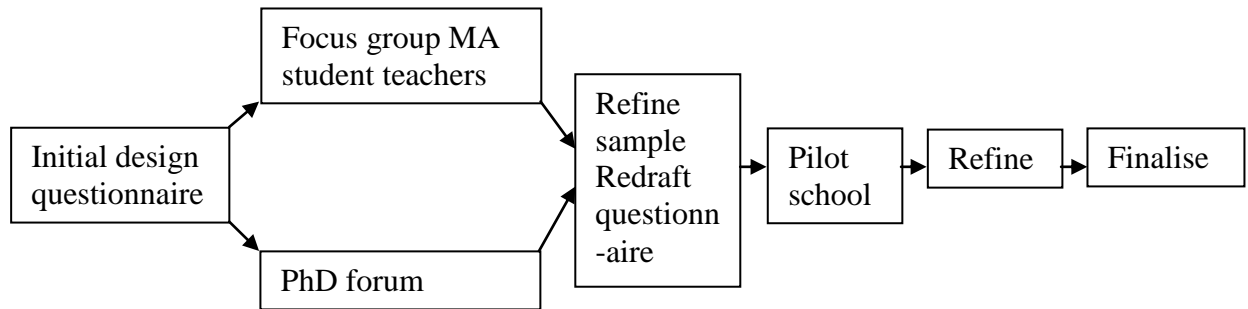
Questions were designed to elicit responses related to these research questions and were informed by the literature review and professional experience. This stage was crucial in formulating questions most likely to generate useful responses. Design at this stage was informed by Blaxter *et al.,* (2006), Denscombe (2007), Cohen and Manion (1994) and Robson (2002) who offer guidance relating to writing questions. Robson (2002) also refers to Czaja and Blair's (1996) model of survey data collection processes, emphasising the researcher's role in linking the questionnaire to the research questions and the respondents' role in interpreting the questions and formulating a response. Robson (2002) argues that this model can inform the design of a 'good' questionnaire which 'provides a valid measure of the research question but also gets the co-operation of the respondents and elicits accurate information' (p. 242). Decisions about question content, question wording, form of responses and sequence of questions (Cohen and Manion, 1994) were made during all stages of the design and pilot (p 95). Questions were likely to be of interest to the respondents as they linked clearly to their professional practice and a shared interest in autism education. Nevertheless, it was important not to make presumptions about respondents' knowledge and understanding and to ensure that wording was unambiguous, avoiding leading questions and limiting the use of technical jargon, in this case terms associated with the TEACCH approach. Definitions of 'autism spectrum' and 'Structured Teaching' were included on the front page of the questionnaire. However, use of key terms associated with the approach, i.e., physical structure, schedules, work systems and visual information, were included in the questionnaire as a means of 'testing' respondents' understanding in relation to practice, thus beginning to explore levels of understanding and relationship with training experiences.

The first draft questionnaire layout and order of questions was considered in order to entice respondents to complete the questionnaire. The questionnaire began with a statement of the research purpose, definitions of key terms, identification of who should complete the

questionnaire and reference to the ethical code (appendix 7). An information leaflet was designed which included a consent form (appendix 8). In the first draft of the questionnaire (appendix 9) questions 1 – 4 were designed to collect demographic information and information about relevant training. The subsequent questions focused upon key themes linked to the research questions and issues emerging from the literature. These related to the use of TEACCH/Structured Teaching strategies, opinions about the impact of these approaches upon learning and behaviour and finally questions about the use of other classroom interventions.

The questionnaire included both closed and open questions. Closed questions structured responses by 'allowing only answers which fit into categories that have been established in advance by the researcher' (Denscombe, 2007, p.166). Open questions offered the opportunity for respondents to decide upon length of the response, wording and content and therefore gathered information 'more likely to reflect the full richness and complexity of the views held by the respondent' (Denscombe, *Op. Cit.*). Varying presentation and type of question, using lists, scales and open questions, was felt to be more likely to engage the respondent and maintain interest (Bell, 2005).

5.2.2 *Initial intended sample*
The initial focus for the research led to identification of a small-scale, non-probability sample within one LA which had invested resources in the development of education for pupils on the autism spectrum, in particular training in the use of TEACCH/Structured Teaching. Robson (2002) describes the use of a 'sampling frame', i.e. '... the source of the eligible population from which the survey sample is drawn' (p. 240) whilst Denscombe (2007) suggests that the sampling frame is 'an objective list of all those that comprise the population for research' (p. 19). At the beginning stage of the research, the intended sampling frame was identified as all primary mainstream (including those with specialist units for children on the autism spectrum) and special schools in the LA. The sample was to include a representative group of schools within the sampling frame and with the intention of including professionals who had direct contact with pupils with autism in Key Stage two. This was reviewed in later stages of the design process (see 5.3.1, p. 82; 5.3.2, p. 82).

5.2.3 *Ethics and impartiality*
This research was governed by ethical principles which underpinned all stages of the research including the questionnaire design. Bassey (1995; 1999) suggests three major ethical values

associated with social research, namely respect for persons, truth and democratic values. In order to uphold these values, the principles established by BERA (2004; 2011) were adhered to. In addition, the University's Code of Conduct for research informed consideration of ethical issues and ethical permission was sought and granted by the University's 'Research Ethics Committee'. As Cohen *et al.,* (2011) articulate, 'the questionnaire will always be an intrusion into the life of a respondent...' (p. 377) and steps must be taken in order to encourage individuals to respond; these steps included assuring respondents of confidentiality and anonymity and the right to withdraw. A code of ethics (Appendix 7) explained the procedures of the research, described the arrangements for protecting privacy and set out arrangements for dissemination and publication of findings. A copy of the ethical code was made available to all participants, together with an information leaflet about the research and consent form (Appendix 8) and a letter to Head Teachers (Appendix 10).

The potential for researcher and/or respondent bias was considered as, whilst bias may not be totally eliminated in research of this nature, certain factors were potential threats to reducing bias. In particular, the potential for bias was identified in relation to implementation of 'Structured Teaching', due to the researcher's involvement with the approach previously as a practitioner in the same local authority, and indeed in one of the participating schools, and more recently in relation to research and publishing. The researcher's intention to investigate the approach had to ensure that the research be carried out rigorously, with integrity and with impartiality. Steps that were taken to ensure impartiality included: discussion of potential for bias with supervisors; peer review of processes, methods and analysis (involving 'research buddy'); researcher's obligations identified on the ethical statement in relation to feedback and dissemination.

5.2.4 *Reliability, validity and trustworthiness in relation to survey design*

Reliability considers '…the consistency or stability of a measure; if (the study) were to be repeated, would the same result be obtained.' (Robson, 2002, p.93). Whilst consistency and replication of results are difficult to achieve in social research contexts such as this study, reliability was considered both in the overall research approach and design (chapter four) and in relation to the design of the survey instrument. Consideration of wording of questions was essential to respondents' interpretation of what was being asked, hence the staged process and piloting stages were central to the concept of reliability during the design process of the research instrument. I considered the design and wording of the questionnaire would be crucial in seeking to ensure that respondents would be able to interpret questions reliably,

hence I made a decision to invest time in designing, piloting and redesigning the questionnaire until reliable interpretation of questions was more, rather than less, likely. In addition, being able to draw upon my own professional experience was helpful in the repeated design, pilot and refining process as I was able to consider responses and make a professional judgment regarding reliability of respondents' understanding of questions.

Validity is perhaps a more challenging concept when undertaking qualitative research, posing the question 'are we investigating what we think we are investigating? (Bassey, 1999, p. 75). In this regard, Silverman (2010) recommends that qualitative researchers ensure a high degree of 'methodological awareness and resistance to anecdotalism' suggesting strategies to achieve validity which include mixed methods and data triangulation (p. 277). In this respect the questionnaire was the first stage method in a multi-method design and as such contributed to the overall quality of validity of the research. Respondents were asked to indicate their willingness, or not, to participate in further data gathering, with the intention that respondent validation would be partially achieved through a process of going back to questionnaire participants at a subsequent stage in order to explore issues and concepts in greater depth. Such validation strategies may, as Silverman (2010) argues, be 'flawed' and provide perhaps only the first stages in striving for validity of the research (p. 278). Given the potential flaws associated with validity in this research, consideration was given to Bassey's arguments regarding trustworthiness (1999). This concept offers an alternative to more traditional concepts of reliability and validity (Bassey, 1999) and relies upon the researcher's commitment to ensure integrity of research processes (p. 129). As a researcher I was bound both by ethics and principles (professional and personal) to take a reflexive approach, to be open and explicit about my purposes and to maintain a clear audit trail. The design of the questionnaire and supporting documentation provided to respondents was designed in such a way as to be clear about my purposes. I was conscious that respondents needed reassurances regarding the research purposes and that openness and honesty were vital in order to secure their confidence, which would determine their willingness to complete a questionnaire. I had numerous conversations with Head Teachers and key respondents in each school which were important in establishing a two-way open and honest relationship between myself as the researcher and the respondents prior to distributing the questionnaire. In addition, I maintained a detailed log of comments and feedback throughout the trialing of the questionnaire in order to produce evidence of an audit trail (appendix 11). Finally, reliability and trustworthiness were also considered in relation to the development of an analysis strategy (see 5.3.5, p. 85).

5.3 Questionnaire Pilot

Piloting research instruments is a crucial stage in the research design and provides opportunities to test the usefulness of research instruments. Cresswell (2009) argues that pilot testing is 'important to establish the content validity of an instrument and to improve questions, format and scales' (p. 150). In this case, the questionnaire pilot guided refinements to content, structure and wording and provided the researcher with sample data that indicated whether items on the questionnaire were fit for purpose in relation to the research aims and whether they elicited relevant responses that could be analysed in relation to the research questions. Piloting also offered opportunities to consider issues that impact upon reliability and trustworthiness, for example wording and re-wording of questions to assure reliability of interpretation of what was being asked.

5.3.1 *Miniature Pilot*

Designing and refining the questionnaire was multi-staged as indicated in Figure 5.1. Pre-testing of the first draft of the questionnaire (appendix 9) and supporting documentation (appendices 7 and 8) was carried out informally with colleagues and through discussion with a small focus group of student teachers from both mainstream and special school settings who were studying for a Master's (MA) degree. As Robson (2002) suggests, pre-testing is helpful in considering wording of questions and checking meaning of the questions to respondents before conducting a 'miniature pilot' in order to check wording and usefulness of covering materials (p. 254). Hence a miniature pilot was undertaken by a similar group of MA student teachers; suggestions and actions taken were logged (appendix 11) in order to document suggestions and revisions. Following refinements resulting from the miniature pilot the revised questionnaire was taken to a PhD forum, comprising PhD students and supervisors, who reviewed the draft questionnaire with the researcher through informal group discussion. An important focus of the discussion considered the sample frame which resulted in a key change in the research focus.

5.3.2 *Changes to the sample*

Importantly, at this stage the sample was reconsidered for a variety of reasons. Firstly, feedback indicated that the original scope of the sample was perhaps overly ambitious and that the issues across the original sample group were potentially too broad and vastly different across the intended sample. Secondly, the literature, whilst limited in the main to small-scale studies with methodological limitations, identified studies which investigated the impact of TEACCH/Structured Teaching strategies which primarily included samples of children with

autism and learning difficulties and which provided opportunities for comparisons with a similar sample. Finally, autism research had focused in recent years upon the education of children with 'high-functioning' autism and Asperger Syndrome. There has been less development in relation to those children who have autism with severe learning difficulties and who are educated in specialist settings. Moreover, whilst immersed in reviewing the literature, I was reminded of my commitment to enabling individuals with autism and severe learning difficulties to be able to participate in learning. Consequently, changes to the design at this stage were to reconsider the sampling frame to primary and secondary special schools in the LA. From this much smaller sampling frame a sample of five schools (three primary and two secondary) were identified for the first stage of the research, to include those special schools which catered for pupils with autism and severe learning difficulties. This revised sample of schools for distributing the questionnaire was purposive as 'the principle of selection in purposive sampling is the researcher's judgement as to typicality or interest' (Robson, 2002, p. 265). In this case the sample of schools was judged to be 'typical' of, and of interest to, those settings outside the LA which also catered for children with autism and severe learning difficulties. In addition, the use of snowball sampling (Robson, 2002; Cohen, Manion and Morrison, 2011) was used within the purposive sample of schools in order to reach relevant members of the school population, comprising teachers and teaching assistants, who had regular contact with pupils with autism in their school (see 5.3.4, p. 84).

5.3.3 *Main pilot*

During the pilot process identified above, contact was made with a special school which catered for children with autism and severe learning difficulties in a neighbouring LA; staff at this school had completed similar training in TEACCH/Structured Teaching with the same training provider. The Head Teacher agreed for the school to act as a pilot school for designing and refining all research instruments for this study. The revised questionnaire and accompanying documentation were distributed to five teachers and two teaching assistants at the school. In addition, I provided a set of questions to those who completed the questionnaire to inform any changes (appendix 12). This provided valuable feedback from a sample similar to that where the research was to take place and was useful in checking interpretation of questions to assure reliability. This pilot resulted in further actions (appendix 11) and refinement and production of the final questionnaire (appendix 13). There were few suggested amendments at this stage which suggested that the previous pilots, discussion and refinements were effective.

The final questionnaire included a statement of the purpose of the research, definitions of autism spectrum and Structured Teaching, instructions and contact details, provided on the questionnaire front page and revised supporting documentation (Appendix 13). Questions 1 – 4 were designed to collect data relating to school information, respondent information and training; sub-questions were used to group questions and intended to break down components of each theme. Question 5 was designed to elicit data relating to uses of components of Structured Teaching using rating scales with space for respondents to include examples. Questions 6 and 7 asked for ratings and opinions in relation to Structured Teaching, learning and behaviour. Question 6b asked for ratings related to areas of learning identified as 'key skills' in the English National Curriculum (Department for Education and Employment (DfEE) and Qualifications and Curriculum Authority (QCA) 1999a; 1999b). Open questions were included to elicit opinions about usefulness of the approach in relation to the themes of learning and behaviour. In particular, it was anticipated that questions 6c and 7b would generate data which could be coded and categorised and which would inform the design of subsequent interviews and observations. Questions 8a – 8c focused upon use of other classroom interventions and the final questions 9 and 10 invited any other information and asked if respondents would be willing to be interviewed.

5.3.4 *Strategies for maximising response rate: distribution of questionnaire*

Response rates to postal surveys are notoriously low (Bell, 2005) so in order to maximise the response rate, personal contact was initially made with Head Teachers (who were known to the researcher prior to undertaking the study) to seek permission to include the school in the study and to identify a key contact in each school who would be the key research respondent. The research aims were discussed and relevant information forwarded to the Head Teachers and key contacts. It was agreed with Head Teachers that ten questionnaires would be delivered by the researcher to each of the five schools (n = 53). Questionnaires would then be distributed by the key respondents (snowballing sampling) who identified teachers and teaching assistants who had daily, direct contact with pupils with autism and severe learning difficulties. The key respondents indicated that pupils with autism may be educated in 'autism specific' classes and also in mixed classes with children with other types of SEN. They were instructed to distribute questionnaires to teachers and teaching assistants in both of these class contexts.

The completed questionnaires were collected by the researcher two weeks later. In addition, incentives for participating were offered in the form of one-day equivalent of free training or

consultancy for each school in order to ensure and maintain positive relationships with the school which were crucial for their continuing participation in future stages of the research. The drawback of this strategy meant that ultimately the distribution of questionnaires was taken out of the control of the researcher; nevertheless this approach was felt to be most likely to encourage responses from relevant members of staff. Following collection of the completed questionnaires, a follow-up letter was sent to Head Teachers and key respondents to thank the school for participating, informed them of the next stages in the research process and reminding them to return any completed questionnaires that had not been ready for collection (appendix 14).

5.3.5 *Analysis Strategy*

Consideration of the analysis strategy was integral to the design process as the structure of the questionnaire would impact upon subsequent analysis and therefore questionnaire design needed to have 'data analysis in mind' (Cohen, *et al*., 2011, p.380). Data generated from closed questions and Likert scales would be straight forward to process and analyse in numerical form as the sample size was small. Open questions would generate reflective responses which could be analysed with a commitment to what Denscombe (2007) refers to as ''grounding' all analyses and conclusions directly in the evidence...' (p. 287). Data generated from open questions suggested analysis as a 'constant comparative' method, a further strategy for achieving validity (Silverman, 2010, p. 279) and an iterative process described by Denscombe (2007):

> The development of theory, hypotheses, concepts or generalizations should be based on a process that constantly moves back and forth comparing the empirical data with the codes, categories and concepts that are being used (p. 288).

Reliability and trustworthiness were supported through this constant comparative strategy, comparing firstly the responses of teachers and teaching assistants and secondly responses of staff working in different class contexts (whole classes of children with autism and classes with children with mixed special educational needs, including some with autism).

The qualitative responses provided the opportunity to develop, implement and test the analysis strategy, before embarking upon analysis of a larger amount of qualitative data that would be generated through subsequent interviews.

5.4 Conclusion

Designing and piloting the survey instrument were lengthy stages but the repeated testing and refining of design and layout of the questionnaire and supporting documentation were invaluable. In particular, consideration of respondents' interpretations of questions would increase the likelihood of reliability and trustworthiness of data that was fit for the research purpose. In addition, consideration of the analysis strategy during the design process informed the types of questions, grouping of the questions and identification of initial themes which had emerged in the literature, particularly in relation to impact of the approach upon learning and behaviour. Whilst the questionnaire asked for perceptions of the approach in relation to these initial themes, questions were designed to elicit qualitative responses which could be coded and categorised in order to identify new themes which emerged from the data.

The ultimate purpose of the study was to gain an in-depth, rich perspective in relation to Structured Teaching educational interventions for children with autism and severe learning difficulties. The design of the first phase data collection tool was pivotal to subsequent design of data collection methods. Moreover, the quality of the questionnaire design directly related to the quality of data likely to be generated. Importantly at this first stage of the research, relationships were established with Head Teachers and key research respondents which were essential for developing future stages of the investigation. The results of the survey are reported in chapter six, before explaining and justifying the design of observation and interview tools in chapter seven.

In this chapter I present the findings from the survey questionnaire. Details of respondents'
experience, training and current class are summarised, followed by a summary of Structured
Teaching strategies used by respondents. I then present the findings generated from the data
and its analysis of responses to the open questions. Findings are presented thematically and
include learning, wellbeing and behaviour. I conclude the chapter with the contribution the
findings make to the beginnings of developing a theory and to informing the design of
observation and interview tools.

6.1 Introduction

The questionnaire was designed to generate responses which could be analysed with three
primary purposes: i) to identify key themes which emerged from the data, ii) to compare and
contrast the findings with existing research evidence and iii) to inform subsequent
development of research strategy and methods. The questionnaire was distributed to three
primary (P) and two secondary (S) special schools ($n = 53$) in LA. A total of 47
questionnaires were returned, this high return rate being attributed to my selection of a
purposive sample and the methods of distribution and collection of completed questionnaires
as indicated in chapter five (see Table 6.1).

Table 6.1 Questionnaire returns

School	Teachers	TAs	Total
A (P)	6	8	**14**
B (P)	9	1	**10**
C (P)	1	3	**4**
Total	**16**	**12**	**28**
D (S)	3	10	**13**
E(S)	5	1	**6**
Total	**8**	**11**	**19**

Summaries of data are presented in relation to respondents' experience of teaching or
supporting children on the autism spectrum, class types (i.e., autism specific or mixed SEN)
and finally TEACCH/Structured Teaching training undertaken.

6.1.1 *Respondents' Experience*

The number of years' experience ranged from less than one to more than ten, with the majority ($n = 21$) having between one and five years experience teaching or supporting children on the autism spectrum (see Table 6.2).

Table 6.2 Respondents' experience in years

Years of experience	Teachers (P)	TAs (P)		Teachers (S)	TAs (S)	Total
Less than 1		1			1	2
1 – 5	11	2		3	5	21
6 – 10	2	3		2	3	10
More than 10	3	5		2	2	12

(2 left blank)

6.1.2 *Class types*

Data were also collected in relation to class types (i.e., autism specific or mixed SEN) and year groups within classes. Tables 6.3 and 6.4 summarise this data, indicating that 16 staff were teaching/supporting children in autism specific classes and 29 were teaching/supporting children on the spectrum in mixed SEN classes. In addition, the questionnaire was completed by 1 outreach teacher in a primary school and 1 TA supporting PE across a secondary school.

Table 6.3 Autism classes

Primary					Secondary			
Ch with autism (Class size)	Year group(s)	Ts	TAs		Ch with autism (Class size)	Year group(s)	Ts	TAs
5 (5)	R - 3		1		5 (5)	7 - 11		6
6 (6)	2 & 3	1			8 (8)	7 -12	1	
7 (7) x 2	4 – 6 R 1 & 2	2	2 2		10 (10)	3 - 5	1	
Totals		**3**	**5**		**Totals**		**2**	**6**

Table 6.4: Mixed SEN classes with at least 1 child on autism spectrum

Primary					Secondary			
Ch with autism (Class size)	Year group(s)	Ts	TAs		Ch with autism (Class size)	Year group(s)	Ts	TAs
1 (7)	EY R	1			1 (6)	7 10 & 11	1 1	1
1 (8)	2 - 4	1			1 (7)	7 - 9	1	
2 (8)	2 - 4	1			1 (8)	11		1
3 (7)	5 & 6	2	1		3 (5)			2
3 (8)	5 & 6	1	1		4 (6)	7 -9	1	1
3 (9)	R & 1	1						
4 (7)	1 - 4	1	1					
4 (8)	4	1	1					
5 (11)	Left blank		1					
6 (7)	1 & 2	1	1					
6 (10)	1 & 2	1						
6 (13)	4 - 6	1	1					
Totals		13	7		Totals		4	5

6.1.3 Training

Training in the TEACCH approach was also taken into account and tables 6.5 and 6.6 indicate similarities in numbers of staff in both primary and secondary settings who had attended in-service training, LA and local autism society introductory training. More than half of respondents had completed training provided by Division TEACCH and of the total sample, only four TAs had received no training in relation to TEACCH and Structured Teaching. The high numbers of respondents who had completed TEACCH training in some form may be attributed to the LA's initiatives in adopting the approach in 1990 (Preece *et al.,* 2000).

Table 6.5: TEACCH/Structured Teaching training (Primary)

	Teachers (P)				TAs (P)				Total
	'90 '95	'96 2000	'01 '05	'06 '10	'90 '95	'96 2000	'01 '05	'06 10	
In-service			2		1	3	1	5	**12**
Initial teacher training							1		**1**
Accredited HE course						1			**1**
Local authority introduction to TEACCH			2		1	4	1	3	**11**
Local autism societies introduction to TEACCH	2	1	1	1	2	1	3	1	**12**
Division TEACCH 3 day seminar		1			1	3	4	4	**13**
Division TEACCH 5 day workshop		1			1	1	2	2	**7**
Division TEACCH advanced									
TEACCH trainer	1								**1**
Other	Online inset 2 (DCSF IDP)								**2**
None						**3**			**3**

Table 6.6: TEACCH/Structured Teaching Training (Secondary)

	Teachers (S)				TAs (S)				Total
	'90 '95	'96 2000	'01 '05	'06 '10	'90 '95	'96 2000	'01 '05	'06 10	
In-service		1	2	1			2	6	**12**
Initial teacher training		1		1					**2**
Accredited HE course			1	2			2		**5**
Local authority introduction to TEACCH			1	1			3	1	**6**
Local autism societies introduction to TEACCH			2	1		1	2	2	**8**
Division TEACCH 3 day seminar			2	3		1	3	3	**12**
Division TEACCH 5 day workshop				3				3	**6**
Division TEACCH advanced				1				1	**2**
TEACCH trainer									**0**
Other									**0**
None					**1**				**1**

6.2 Analysis strategy

The analysis strategy, as explained in chapter five, was planned as a constant comparison process across all data gathered through the questionnaire, observations and interviews. The analysis of the questionnaire required analysis of data generated both from Likert rating scales and qualitative data generated from open questions. Following the completion of demographic findings, questionnaire data generated from the remaining questions (5 – 10) was coded (see appendix 15). Findings and analysis are reported in relation to Structured Teaching strategies which respondents reported implementing, with examples of how, followed by analysis of perceptions of respondents in relation to learning and behaviour.

6.2.1 *Analysing the rating scales data*

As the sample size is small, caution is needed in interpreting results from rating scales. Nevertheless, ratings were an important first step in establishing respondent views, hence descriptive statistics were thought to be helpful in beginning to understand possible patterns in the data (Cohen *et al.,* 2011).

6.2.2 *Coding and analysing the qualitative data*

The structure of the questionnaire explored learning and behaviour themes, identified from the literature review (chapter three), through rating scales. However, whilst quantifying levels of agreement with the use of rating scales is increasingly evident in the research evidence to support social validity (e.g., Bryan and Gast, 2000; Hume and Odom, 2007; Hume *et al.,* 2012; Massey and Wheeler, 2000; Mavropoulou *et al.,* 2011), such results risk neglecting the 'bigger picture' as argued in chapter three. Thus data were analysed with two aims: firstly identifying levels of agreement about impact of the approach upon learning and behaviour; secondly exploring the perceptions of respondents in order to identify further themes.

As indicated in chapter five, analysis of qualitative responses was an iterative and 'constant comparative' process (Denscombe, 2007, p. 288; Silverman, 2010, p. 279) which aimed to identify patterns and themes in the data. Concepts relating to learning and to behaviour themes were identified and coded (appendix 15) line-by-line, beginning with identification of 41 open codes which were then organised and repeatedly reorganised into 'thematic codes' (Bernard and Ryan, 2010, p.76) which I identified as categories. The findings are presented and analysed in relation to firstly, Structured Teaching strategies, secondly learning, thirdly behaviour and finally in relation to combinations of strategies. Important to note at this point is that as a result of going back to the data repeatedly and revisiting codes and categories over a ten month period, new key themes emerged: teaching and learning, learning behaviours and

wellbeing (see appendix 17). Of significant interest at this point was the lack of data in relation to 'problem behaviours', particularly as this was predominant in the research evidence-base (chapter three). Whilst I had an early expectation that practitioners would perceive the management of behaviours as a key reason for implementing Structured Teaching strategies, this was not evident in the data. Rather, respondents referred mostly to concepts which I coded and categorised and which eventually established two new themes which I recorded as learning behaviours and wellbeing. Whilst these new themes were significant in influencing the second phase of data collection (chapter seven), the findings of this chapter are structured in relation to learning (6.4, p. 94) and behaviour (6.5, p. 104) as the key themes which the questionnaire aimed to probe. Analysis which gave rise to new themes is included within each of these sections.

6.3 Findings: Structured Teaching strategies

Before asking respondents to rate their levels of agreement with statements about learning and behaviour, respondents were asked to indicate which Structured Teaching strategies they use with children on the autism spectrum (appendix 13, q. 5). Table 6.7 summarises this data which indicates high numbers of respondents in both settings using components of Structured Teaching 'often' or 'always'.

Table 6.7 Structured Teaching strategies

(Key: No = do not use, O = occasionally use, Of = often use, A = always use, NS = not sure)

	Teachers (P)					TAs (P)				
	No	**O**	**Of**	**A**	**NS**	**No**	**O**	**Of**	**A**	**NS**
Physical structure	1	5	5	5			2	2	8	
Schedules (visual timetables)		1	3	13					12	
Work systems	1	5	5	4	1	3		2	7	
Visual information (visual organisation,		2	9	6				3	9	
	2	**13**	**22**	**28**	**1**	**3**	**2**	**7**	**36**	**0**

	Teachers (S)					TAs (S)				
	No	**O**	**Of**	**A**	**NS**	**No**	**O**	**Of**	**A**	**NS**
Physical structure	2	1		4			1		8	
Schedules (visual timetables)				7			1	1	8	
Work systems	1		1	4		1			7	1
Visual information				7				1	9	
	3	**1**	**1**	**22**	**0**	**1**	**2**	**2**	**32**	**1**

In particular, 40 respondents indicate that they always use schedules; this was unaffected by type of setting, years of experience, class type and amount and type of training, suggesting that use of schedules is a commonly used strategy. This reflects a similar predominance of schedules in the research evidence-base (Lequia *et al.,* 2014). In relation to other components of Structured Teaching, 31 respondents indicated that they always use visual information and half of the sample indicated that they use physical structure and work systems.

Comparisons between the data and experience, class types and training variables showed that teachers and TAs who use all four components of Structured Teaching were predominantly working in classes where all children were on the autism spectrum in both primary and secondary settings. Of these (*n* = 16) seven had completed both three and five day training delivered by Division TEACCH and eight had completed the three day training; one TA had completed no training other than in-service.

Of those who indicated that they did not use Structured Teaching components, typically identified in relation to physical structure and work systems, it was found that this related to mixed classes for children with SEN in both primary and secondary settings. Three teachers indicated that they did not use physical structure, whilst two teachers and four TAs say they did not use work systems. Of these, all the TAs had completed 3 day TEACCH training, but none of the teachers had completed any TEACCH training other than in-service which shows that teachers of mixed classes had less training than those in autism specific-classes.

Respondents were subsequently asked to give examples of how they use Structured Teaching components (see appendix 16). Analysis of the results indicated that a range of Structured Teaching components were being used by both teachers and TAs, although examples were provided mainly by respondents in primary settings. The majority of examples relate to the use of schedules in different forms and various uses of visual information. These examples were then considered in relation to qualitative responses regarding learning and behaviour (see 6.4, p. 94; 6.5, p. 104).

The remaining survey questions (6 – 9) were asked in order to answer the research questions: what are teachers' and teaching assistants' perceptions regarding how Structured Teaching impacts learning and behaviour? What other interventions are combined with Structured Teaching? What influences teachers' decisions to combine Structured Teaching with other strategies? Presentation and analysis of this data begins firstly with the data gathered from

rating scales, followed by analysis of qualitative data generated from analysis of responses to open questions.

6.4 Findings: Learning

Respondents were asked to rate their agreement with the statement 'Structured Teaching helps pupils who are on the autism spectrum to learn'. Table 6.8 indicates overall consensus of agreement across the sample, with only 1 teacher disagreeing with the statement.

Table 6.8 Structured Teaching helps children who are on the autism spectrum to learn

SA = strongly agree, A = agree, NS = not sure, D = disagree, SD = strongly disagree									
Teachers (P) *n* = 16					**TAs (P)** *n* = 12				
SA	**A**	**NS**	**D**	**SD**	**SA**	**A**	**NS**	**D**	**SD**
10	5		1		7	5			
94%			**6%**		**100%**				
Teachers (S) *n* = 8					**TAs (S)** *n* = 11				
SA	**A**	**NS**	**D**	**SD**	**SA**	**A**	**NS**	**D**	**SD**
6	1				8	3			
88%					**100%**				

(1 teacher did not complete)

Question 6b further explored respondents' views in relation to learning in three subjects (communication/literacy skills; mathematical and/number skills; ICT capability) and six areas of learning (social skills; working with others; reflecting on learning; problem-solving and decision-making; study and organisational skills; personal and emotional skills). Again respondents were asked to rate their levels of agreement in relation to each learning area; table 6.9 summarises the results.

Table 6.9 Structured Teaching helps children to learn: Areas of learning

(Key: SA = strongly agree, A = agree, NS = not sure, D = disagree, SD = strongly disagree)

Primary schools	Teachers *n* = 16					TAs *n* = 12				
	SA	A	NS	D	SD	SA	A	NS	D	SD
Communication and literacy skills	5	11				7	4	1		
	100%					92%		8%		
Mathematical and number skills	6	9	1			5	7			
	94%		6%			100%				
ICT capability	2	9	4			3	2	7		
	69%		25%			42%		58%		
Social skills	6	8	2			10		1	1	
	88%		13%			83%		8%	8%	
Working with others	6	5	3			9	1	1	1	
	69%		19%			83%		8%	8%	
Reflecting on learning skills	2	3	10			1		11		
	31%		63%			8%		92%		
Problem solving and decision making skills	5	5	4	1		5	5	1	1	
	63%		25%	6%		83%		8%		
Study and organisational skills	7	9				7	4	1		
	100%					92%		8%		
Personal & emotional skills	5	6	4			10		1	1	
	69%		25%			83%		8%	8%	
Secondary schools	Teachers (S) *n* = 8					TAs (S) *n* = 11				
	SA	A	NS	D	SD	SA	A	NS	D	SD
Communication and literacy skills	3	4				8	3			
	88%					100%				
Mathematical and number skills	4	3				7	4			
	88%					100%				
ICT capability	2	4	1			5	5	1		
	75%		13%			91%		9%		
Social skills	4	1		2		6	3	2		
	63%			25%		82%		18%		
Working with others	4	1		2		6	3	2		
	63%			25%		82%		18%		
Reflecting on learning skills	2	4	1			5	6			
	75%		13%			100%				
Problem solving and decision making kills	3	3	1			5	2	4		
	75%		13%			64%		36%		
Study and organisational skills	5	2				5	3	3		
	88%					73%		27%		
Personal & emotional skills	3	2	1	1		4	4	3		
	63%		13%	13%		73%		27%		

(1 secondary school respondent did not complete)

A number of comparisons can be made across the data. Notably respondents in both settings agree that the approach helps learning in relation to curriculum subjects literacy and mathematics; whilst reference to learning related to subjects is scant in the research evidence-base, where this is reported the focus is predominantly related to these two subject areas (Bryan and Gast, 2000; Hume *et al.,* 2012). In addition, there is agreement across the sample that respondents believe the approach helps with learning social skills and working with others; research evidence also points to improvements in relation to these aspects of learning (Betz *et al.,* 2008; Ganz and Flores, 2008; Kimball and Kinney, 2004; Mavropoulou *et al.,* 2011). Of particular interest is the clear difference between primary and secondary school respondents in relation to ICT and reflecting on learning, with primary school staff feeling unsure in these areas compared with secondary school staff. TAs in primary settings are considerably less sure about Structured Teaching helping children to reflect upon learning; this may link to degree of developmental delay which may restrict 'reflecting' skills in younger children, but which may have begun to develop in children in secondary settings. Overall, levels of disagreement are notably low across the sample, although where individuals disagree reasons are not given; in hindsight this was an error in questionnaire design which failed to ask respondents to give their reasons.

The data generated from rating scales provided some insight into respondents' opinions; these opinions were explored further through question 6c which asked in what ways Structured Teaching helps children to learn. Collecting the views of teachers and TAs aimed to begin the process of gaining insights into their perceptions and to begin to ascertain the social validity of the approach. Data were segmented and coded, organised into categories then merged, which led to identification at this stage of three key themes: teaching and learning; learning behaviours; wellbeing (see appendix 17). Notably, behaviour did not emerge as a major theme, this is discussed further in relation to wellbeing (see 6.5.1, p. 105). Results are analysed thematically and synthesised with the research evidence-base.

6.4.1 *Teaching and Learning*

Three categories were identified from the data in relation to the theme teaching and learning: understanding; teaching strategies and curriculum.

Understanding

Understanding was referred to by many respondents; within this category two sub-categories emerged as 'understanding expectations' and 'meaning'. Comments indicate that both teachers and TAs in primary and secondary settings believe that Structured Teaching help children to understand expectations and that the approach gives meaning, for example:

> *...when they know what to expect they are more relaxed and so are able to learn. (School B T6)*

> *ST enables pupils on the AS to make sense of the information in front of them (School A T6)*

> *Structured Teaching provides meaning to a lesson/task. It offers a clear beginning, middle and end. Students are able to work more independently and hopefully with less anxiety. (School D TA11)*

Understanding expectations is reflected further in comments about daily routines and organisation of the day and tasks, features of the approach addressed through schedules and work systems (Schopler *et al.,* 1995; Mesibov *et al.,* 2005).

> *They learn the rules of the structure, it gives them a clear visual start, finish, how much they have to do and what happens next. (School D TA6)*

Some indicate that the approach provides clarity to learning, a concept which is included as a component of visual information within the Structured Teaching approach (Schopler *et al.,* 1995; Mesibov and Howley, 2003). One teacher (School A, T1) suggests that the approach *"reduces grey areas"* and another teacher in the same school (T2) believes the approach *"gives clarity to what has to be done so they understand what's next"*. The data also reflected a belief that the approach helps understanding by reducing the need for understanding of language:

It clarifies, simplifies approach and removes reliance on language, child can visualise when he cannot rationalise with language. (School A, T6).

Further links are made to developing independent learning by both teachers and TAs, illustrated by a primary school TA:

It gives them the learned routine to cope with the school day helping them to know when their day begins and ends. The ability to work independently lessening the need for support... (School A, TA8)

Many responses in this category demonstrate links between understanding of expectations and independence. Moreover overlaps were repeatedly found in the data between learning and wellbeing, with respondents referring explicitly to increased independence and lowering of anxiety. This illustrates the clear links found in the data between learning and wellbeing, which Hume *et al.,* (2009) allude to, yet which is an aspect lacking in the research evidence-base. (See 6.4.3, p. 102, for further discussion).

Teaching Strategies

A number of respondents indicate that Structured Teaching is used as a teaching strategy, with particular reference to the visual component. Comments which related to this aspect were categorised as 'visual differentiation' strategies, for example a primary school teaching assistant suggests that *"visual clues are important and aid a child's learning"* (School A, TA3) and a secondary school teachers refers to *"visual communication for instructions and worksheets" (School E, T4).*

Visual strategies were also indicated in the form of labelling and organisation of tasks. The visual component is linked by respondents to learning and also to the theme of wellbeing:

Structured learning offers a safe, secure learning environment alleviating anxieties with visual aids and therefore promotes wellbeing and the child's learning. (School A, TA7)

Multiple examples of visual strategies were found in responses to question 5 all of which were coded as 'visual differentiation'; these include the use of pictures, symbols and written

worksheets and instructions, visual cues in lessons and visual communication strategies, examples found in Mesibov and Howley (2003).

Curriculum

A few respondents refer to learning and the curriculum, referring to literacy and mathematics (in particular, numeracy). However, no other National Curriculum subjects are mentioned by any respondents. This focus is also demonstrated in the research evidence which reports on the same subject areas (Bryan and Gast, 2000; Hume *et al.,* 2012) and at the same time does not provide any evidence in relation to other curriculum subjects. Both the research evidence and the data in this study demonstrate gaps in relation to learning and the curriculum.
A few respondents refer to Structured Teaching helping children to learn skills. For example a primary school teacher believes that the approach helps to "*consolidate skills in all areas of the curriculum that relate to everyday skills" (School B T1)* whilst one TA refers to Structured Teaching helping children to:

> *gain organisational skills and self help skills, to grow in confidence to be able to work alongside peers who are not on the spectrum and to help with social skills (School A, TA8).*

This particular view is interesting as again it reflects the link already identified above between learning and wellbeing, but also is the only comment which mentions the development of social skills. This is surprising when compared to agreement ratings in relation to 'social skills' and 'working with others' which indicate that the majority of respondents believe that Structured Teaching helps learning in these areas; this aspect is not substantiated in the qualitative data and identifies a further gap worthy of further investigation during the next stage of the research..

6.4.2 *Learning Behaviours*

Many concepts identified in the data were linked to an emergent theme of *learning behaviours.* These were categorised as engagement, organisation and independence in the learning environment, concepts also identified in the research evidence-base (e.g., Betz *et al.,*, 2008; Bryan and Gast, 2000; Chiak and Ayres, 2010; Dauphin *et al.,* 2004; Dettmer *et al.,* 2000; Hall *et al.,* 1995; Hume and Odom, 2007; Watanabe and Sturmeny, 2003).

Engagement

Structured Teaching was believed by many to support engagement, helping children to focus and to concentrate. One TA refers specifically to the use of schedules in relation to this category:

> *Having a schedule to use throughout the day keeps them calm and focused (School D, TA7)*

Other comments illustrate the belief that the approach promotes engagement with activities and tasks:

> *Structured Teaching gives the pupil a form of independence to follow routines and learn to focus on tasks and activities (School B, T1)*
> *Helps by ensuring pupils can concentrate on tasks without distraction and independently (School C, TA1)*

One TA goes a step further and offers an explanation for why the approach helps children to remain engaged:

> *I think Structured Teaching helps our pupils because they don't get overloaded in one go. They work then choose (reward) this way they don't 'turn off'. (School C, TA2)*

These views support claims in the research evidence that schedules and work systems promote engagement (Bryan and Gast (2000; Hume *et al., 2009; Hume and Odom, 2007*).

Organisation

Qualitative data enhances the data gathered from rating scales which shows that 42 respondents agree that Structured Teaching helps children to learn 'study and organisational skills'. Organisation features in many comments, with sub-categories of organisation of the day, organisation of tasks and organisational skills. Comments from teachers and TAs in primary and secondary settings indicate a clear belief that Structured Teaching supports children to understand the organisation of activities and events. In relation to organisation of the day, respondents suggest that the approach *"provides pupils with the skills of organising their day" (School B, T10)* and that *"'the whole day is organised, they learn what is happening when" (School E, T2)*. Links to routines are evident in comments such as: *"Structured Teaching provides clear routines which become familiar" (School D, T1)* while a

primary teacher makes specific reference to *"foundations for learning routines' (School B, T1).*

Many comments refer to the organisation of tasks:

> *The work system gives clarity of expectations, understanding. What work, how much work, what to do next, what to do when finished (School D, TA10)*

> *... tasks are organised and presented so the children know what to expect. They can carry out tasks and help to achieve independence (School A, TA5)*

Respondents refer specifically to 'work systems' in relation to children learning organisational routines and skills, examples of which were provided in response to question 5 (appendix 16).

Learning Environment

This particular category relates closely to the physical structure component of Structured Teaching so it might be expected that respondents would refer to this aspect, however very few comments are made in relation to the environment. One primary school teacher suggests that structure in the environment is *"essential for learning to take place" (School A, T1)* and others refer to children feeling safe within the learning environment for example, *"security in the environment makes them feel more secure and more able to learn" (School E, T1).* One TA makes specific reference to use of work stations, suggesting that *"Work stations help students work independently" (School D, TA7).*

Clear links are made between a structured environment, learning and concepts identified in relation to the theme of wellbeing, the following comments illustrating this view:

> *Structured learning offers a safe, secure learning environment alleviating anxieties with visual aids and therefore promotes well-being and the child's learning (School A, TA7)*

> *...provides secure, safe context in which to learn... removing anxiety therefore facilitating readiness to learn (School B, T6)*

The notion of 'readiness to learn' is an interesting concept as much of what respondents say about Structured Teaching and learning could be interpreted in relation to this concept. Analysis of the data indicates that respondents believe the approach supports learning through

enhancing understanding of expectations, at the same time promoting wellbeing, both of which could be argued as preparing children to be ready to learn. Insights into precisely what children are learning in relation to curriculum content and skills and why they learn what they learn are minimal in the questionnaire data; likewise the research evidence is primarily concerned with what children are doing (learning behaviours) rather than on what they are learning, thus confirming the gap in both the data and the research evidence.

6.4.3 *Wellbeing*

Many concepts were coded and categorised which led to identification of wellbeing as a key theme emerging from the data. This was somewhat of a surprise as analysis of the research evidence in chapter three indicated very little in relation to what may be interpreted as children's 'inner states' (Hume *et al.,* 2009' O'Reilley *et al.,* 2005) which may be due to the predominantly positivist approach. Whilst beliefs in relation to some aspects of teaching and learning and to learning behaviours supports, and to some extent mirrors, the research evidence this theme indicates that many of the respondents hold beliefs about the impact of the approach upon children's wellbeing which cannot be captured by quantitative methods. Categories in relation to this theme were identified as negative inner states, positive inner states and autonomy (appendix 17). Examples from the data are presented to illustrate common views in relation to learning and wellbeing; at the same time similar views about wellbeing were identified in relation to behaviour (see 6.5.1, p. 105)

Negative inner states

Agreement between respondents is found in beliefs expressed about learning and levels of anxiety and stress, with many believing that Structured Teaching reduces anxiety with direct implications for learning. The view of a primary school teacher illustrates many of the opinions expressed across the sample:

> *structure takes away anxiety, when they know what to expect they are more relaxed and so are able to learn...all lead to reduced levels of anxiety therefore increased learning opportunities (School A, T3)*

Reduction in anxiety and stress is believed to help children to access learning, for example:

> *clarity and organisation which helps to lessen the anxieties and therefore allow opportunities for the child to access more learning opportunities (School A, T5)*

References to anxiety, by many respondents, demonstrate views that offer an explanation for <u>why</u> they believe Structured Teaching helps children with autism to learn; this is a good example of how qualitative data enhances the social validity of this approach – whilst the rating scale data indicate beliefs that the approach helps children to learn, data relating to anxiety and stress offers insights into why teachers and TAs hold this belief.

Positive inner states

In addition to reducing negative inner states, respondents suggest that Structured Teaching produces positive inner states including self-esteem and independence, both of which are identified as key purposes of the approach (Schopler *et al.,* 1995; Mesibov *et al.,* 2005). Quotes from the data illustrate the opinions of many:

> *It enables them to achieve a level of independence they would be unable to attain without structure. (School A, T6)*

> *Structured Teaching... promotes students' self-esteem. They can learn more when they feel good about themselves. (School D, TA9)*

One anecdotal comment in the research evidence refers to a child feeling 'happy' (O'Reilly *et al.,* 2005), but there is a distinct lack of focus on how children feel when using Structured Teaching to learn. The data shows that in addition to referring to how children feel, many then link these feelings to concepts categorised as increasing children's autonomy.

Others refer to children feeling calm, relaxed, safe and secure, linked by respondents to learning. Levels of confidence and motivation are linked by some respondents to the use of children's special interests, which is illustrated by one teacher's comment;

> *I try to use their favourite things in their work, sometimes on a schedule. I might use a picture of their favourite character – this attracts their attention and motivates them, then they may be more interested in learning. (School A, T2).*

In addition to perceptions relating to negative and positive inner states, a number of comments were identified in relation to children's autonomy.

Autonomy

Analysis of a number of concepts led to identification of the category 'autonomy' in relation to the wellbeing theme (see appendix 17). Moreover, some respondents refer specifically to emotional wellbeing, referring in particular to visual communication:

Visual aids enhance learning and the emotional well-being of the children it gives the children the ability to communicate and equips them to understand a routine or day's events for instance (School A, TA7)

.. helps with some aspects of emotional learning as child tends to be more focused and calm due to safe feeling of being able to communicate choices/needs (School D, T8)

A few comments refer to developing self confidence and to being able to anticipate and predict events and activities due to understanding and organisation. Coping strategies are mentioned by one teacher who suggests that *"because they are calm and relaxed they are more likely to be able to cope with something different" (School B, T2).* These illustrative opinions indicate that there is value to be gained through exploration of the views and insights of practitioners who work directly with children with autism.

6.5 Findings: Behaviour

Respondents were asked to rate their agreement with the statement: 'Structured Teaching helps to manage the behaviour of pupils who are on the autism spectrum.' Again, caution is needed in interpreting these results nevertheless Table 6.10 indicates that all respondents except for 1 teacher agree that Structured Teaching manages behaviour, thus supporting one of the key purposes of the approach. With hindsight it would have been helpful to ask respondents to explain their reasons why they rated their level of agreement as not sure or disagree; whilst only 1 teacher is unsure, it would be useful to know why this is the case.

Table 6.10 Structured Teaching Manages behaviour

SA = strongly agree, A = agree, NS = not sure, D = disagree, SD = strongly disagree									
Teachers (P) *n* = 16					**TAs (P)** *n* = 12				
SA	A	NS	D	SD	SA	A	NS	D	SD
7	8	1			10	2			
93%		6%			100%				
Teachers (S) *n* = 8					**TAs (S)** *n* = 11				
SA	A	NS	D	SD	SA	A	NS	D	SD
4	3				7	4			
87%					100%				

(1 teacher did not complete)

Given the considerable agreement across the sample, it may not be surprising that qualitative data reflects positive perceptions about how the approach manages behaviour. Coding of responses to question 7b was undertaken in the same manner as data related to learning. Individual concepts were coded, categorised and re-categorised until the data had been saturated and no more codes could be found. At this point it became increasingly clear that the data linked directly to the three themes already identified in relation to learning; in many ways, what the respondents said about learning they also said about behaviour. Additional concepts were identified (frustration, confrontation, overload, improved behaviours, reduced behaviours, behaviour strategies), these were all linked to themes already identified.

Analysis of the data gives rise to some interesting commonalities and anomalies. Most of the data indicated 'understanding' as an important category in addressing behaviour and many respondents referred repeatedly to categories relating to the theme of wellbeing. However, the research evidence-base (chapter 3) is primarily concerned with measuring and counting problem behaviours such as self-injury and self-stimulatory behaviours (e.g., Dettmer *et al.,* 2000; Dooley *et al.,* 2001; Massey and Wheeler, 2000). Respondents in this investigation rarely mentioned such behaviours, even when specifically questioned about the impact of the approach upon behaviours. Whilst two teachers refer to reducing 'challenging behaviour', as was seen in relation to learning, the most prevalent responses across the sample offer insights into the impact of Structured Teaching upon children's 'inner states', which they link to improvements in behaviour. This led to a clear connection the data between Structured Teaching, behaviours and wellbeing.

6.5.1 *Behaviour and Wellbeing*
Understanding expectations and routines
The data shows that respondents repeatedly refer to anxiety which they believe arises due to lack of understanding, reflecting similar beliefs in relation to learning. This data suggests that teachers and TAs believe that Structured Teaching, and specifically the use of schedules, work systems and visual information, enables children to understand what is expected of them. This includes understanding of the environment, understanding of the organisation of the day and events and understanding instructions. The relationship between lack of understanding and behaviour is referred to by many respondents, the following illustrating a view of many:

> *I think a lot of bad behaviour is due to lack of understanding, therefore if a child knows exactly what he/she is supposed to be doing and where they should be they can cope with day to day problems they might otherwise come up against. (School C, TA2)*

Qualitative data indicates that both teachers and TAs believe that Structured Teaching reduces anxiety, helping children to feel calm, safe and secure. This is directly related to improved behaviour, for example:

> *Structure creates more certainty and therefore reduced levels of anxiety. It is the anxiety that often results in inappropriate behaviour. Therefore if you can reduce the anxiety you can improve the behaviour (School A, T3)*

Further correlations are made between lowering anxieties by improving understanding of daily routines. A primary school teacher and a secondary school TA both illustrate this indicating:

> *Children know what is going to happen throughout the day, reduces anxiety and keeps children calmer. (School C, T1)*

> *It helps the children by keeping them calm and they can also focus if you have structured teaching in place... if they know what is happening they stay calm and reduces the possible occurrence of challenging behaviour (School D, TA5)*

Furthermore one primary school teacher refers specifically to emotions and well-being:

> *Familiar routines, places and people reduce their anxieties and emotionally regulate them so they feel more relaxed during the school day. (School B, T7)*

The visual component of Structured Teaching is also referred to in relation to behaviour, with opinions that the approach *"visually enhances acceptable behaviour expectations" (School E, T4).*

A secondary school teacher links lack of understanding to frustration and behaviour, but also alludes to the role of using special interests in the management of behaviour:

> *A lot of behaviours occur when a student does not understand what is expected or when they feel frustrated. It is also a great way to include special interests and motivators. (School D, TA9).*

The use of special interests to help to motivate learners is identified by Mesibov *et al.,* (2005) and Mesibov and Shea (2010) and is an aspect worthy of further investigation as it illustrates a feature of Structured Teaching in professional practice.

Reducing and improving behaviours

Reducing challenging behaviours and improving behaviour are also linked to understanding of expectations and organisation of the day. For example two teachers suggest:

> *structure creates more certainty and therefore reduced levels of anxiety, reduce anxiety, reduce behaviour (School A, T3)*

> *behaviour has improved with certain pupils because they have more understanding of what is happening and what will happen next. (School E, T1)*

The data suggests that the visual component of Structured Teaching is used as a teaching strategy which has direct implications not only for learning but also for behaviour, one teacher indicating that visual information "*reduces the likelihood of confrontation" (School A T1).* A primary school teacher clarifies this further, suggesting that:

> *the visual approach can give them a focus. (Stop, think, make the right choice cards.) It has helped some of our children to calm down with this visual reminder. First, then, next cards have helped also... (School B, T8)*

Another teacher suggests the approach is helpful when a child is experiencing difficulties, saying:

> *if things are wobbly for the child then structured teaching support can be a safety net to break a negative cycle on the child's behalf (School A, T5)*

whilst a teaching assistant in a primary school extends this perception with the following comment:

> *Over the years working with ASD pupils, most of the unwanted behaviours are usually brought about by any confusion and change, these are things I have observed – structured teaching appears to have given the pupil a 'safe bubble' in which they can make sense of what is being asked of them and allows them to achieve academically alongside class peers. When there is no structure especially visually some pupils become immersed in their flapping, twiddling and other obsessive behaviour, increasing until they are completely 'switched off'. (School A, TA8).*

However, one TA says:

> *If a student has behaviour problems I personally think if they are going to blow they will whatever structure they work from you can only try to calm situations. (School D, TA3)*

Some indicate that not only is Structured Teaching used by staff to manage behaviours, it is also used as a pro-active strategy, for example:

> *addresses challenging behaviour in a proactive manner by creating an environment that reduces anxiety and frustration (School D, TA11)*

Two teachers explain that Structured Teaching aids understanding of behaviour expectations, at the same time alluding to children learning self-management of behaviours:

> *Pupils know what is expected of them. They are able to learn what is acceptable and are given methods of dealing with situations which are difficult. (School E, T3)*

> *The use of class timetables, individual schedules and a repetitive structure and routines to the school day mean that activities and sessions are clear and specific with clear indicators to enable the children to work independently in the knowledge that activities will come to an end. Because of the structures in place the children are less anxious and therefore prevents some inappropriate behaviour. (School B, T7)*

Autonomy

In addition, to lowering anxieties, respondents in both primary and secondary settings link the use of Structured Teaching to increasing independence and self-esteem. This view is illustrated in the following responses:

> *Structured Teaching also reduces challenging behaviours and promotes students' self-esteem (School D, TA9)*

> *Having a schedule to use throughout the day keeps them calm and focused. Work stations help students work independently and give them self-confidence. (School D, TA7)*

> *It helps to reduce anxiety, increase independence and self-esteem. (School A, TA5)*

A further factor identified in the data is indicated by two primary teachers from the same setting who suggest that Structured Teaching:

> *empowers the pupil to be able to understand what is happening now/next and most importantly when the day will finish. They know exactly what is expected of them. (School B, T1)*

> *he is able to control what happens because he knows what is coming and what he needs to do to get something he likes (School B, T2)*

Here we see a clear link being made between understanding and individuals' autonomy, reflected also in the following view:

> *it makes them feel safe/secure in their environment and when they feel anxious they can retreat to their routine area (safe and secure) to compose themselves. (School B, T2)*

Overall, whilst respondents believe that Structured Teaching helps to manage behaviour, the data suggests that the approach is used as a preventative strategy, providing pro-active behaviour approaches to pre-empt behaviours rather than waiting for behaviours to occur and then using Structured Teaching to reduce them. The data also indicates that it is the process of helping children to *understand* which reduces anxiety and frustration, which in turn helps to manage behaviours, thus linking behaviour to elements of learning.

Whilst the opinions reflected are of a very small sample of teacher and TAs, nevertheless their views support the research evidence which claims that the approach reduces 'problem behaviour'. The qualitative data also highlights gaps in the research evidence in relation to how and why the approach may reduce such behaviours. In this regard, the data identifies in this investigation a link between behaviour and wellbeing, largely ignored in the research evidence, thus indicating a gap in the existing evidence worthy of further investigation.

6.6 Combining Structured Teaching with Other Approaches

In order to begin the process of answering research question 4, investigating if and how other approaches are combined with Structured Teaching, respondents were firstly asked about training (question 8a); table 6.11 summarises the results and indicates that the most common form of training completed by 83% of respondents is the Picture Exchange Communication System (PECS) (Bondy and Frost,1994). This approach employs behavioural techniques to teach a visual, alternative communication system, the visual element suggesting an obvious

link with Structured Teaching. Intensive Interaction (Nind and Hewett, 2001) and behavioural strategies are typically used with learners with developmental delay so it is not surprising that respondents had completed training in these strategies. Completion of Social Stories (Gray, 2010) training is interesting given that Gray argues that the approach requires language, understanding and cognitive skills not usually found in learners with autism and severe learning difficulties.

Table 6.11: Training in approaches

	Teachers (P)	TAs (P)		Teachers (S)	TAs (S)	Total
Alternative communication systems (e.g., PECS)	12	12		5	10	39 **83%**
Behavioural strategies	6	2		5	1	14 **29%**
Play therapy	2			1	3	6 **12%**
Intensive interaction	7	4		4	5	20 **42.5%**
Music interaction	3			3		6 **12%**
Social skills groups		1		1		2 **4%**
Jigsaw - group work	3					3 **6%**
Social Stories	5	6		6	1	18 **38%**
Comic-strip conversations	4	1		1		6 **12%**
Buddy systems	1					1 **2%**
Circles of friends	1	1				2 **4%**
Other SCERTS	2			1		3 **6%**
Sherborne	1				1	2 **4%**
Language of emotions	1					1 **2%**
Brain gym	1					1 **2%**
Sensory	1			1	4	6 **12%**

Question 8b asked which of the strategies are combined with Structured Teaching; table 6.12 presents the results. Again, PECS is the approach which is combined with Structured Teaching by more than half of respondents. Other combinations of interest include intensive interaction which has different aims, purposes and strategies, with links between the two being less obvious. Likewise combining Structured Teaching with Social Stories for those with autism and severe learning difficulties is not an obvious link as the approach was developed by Gray (2010) for academically able learners. Other approaches are less

commonly combined, of these it was noted that those who combine SCERTS (Prizant, Wetherby, Rubin, Laurent and Rydell, 2006a) and Sherborne movement (Sherborne association UK, online) with Structured Teaching are from the same primary school (A).

Table 6.12: Combinations of Structured Teaching with other approaches

	Teachers (P)	TAs (P)		Teachers (S)	TAs (S)	Total
Alternative communication systems (e.g., PECS)	12	8		2	5	27 **57%**
Behavioural strategies	4	2		1		7 **14%**
Play therapy	1			1		2 **4%**
Intensive interaction	4	2		3	2	11 **23%**
Music interaction		1		1		2 **4%**
Social skills groups		1				1 **2%**
Social Stories	5	6		1	2	14 **29%**
Comic-strip conversations	1			1		2 **4%**
Buddy systems	1					1 **2%**
Circles of friends,						0
Other SCERTS	2			1		3 **6%**
Sherborne movement	1					1 **2%**
Language of emotions	1					1 **2%**
Sensory	1			2	3	6 **12%**

6.6.1 *Decisions about Combining Approaches*

A final question (8c) asked respondents to explain how they decide to combine particular approaches with Structured Teaching; this question was important as it aimed to gather data which would begin to shed light on what guides decision-making. Eighteen teachers and fourteen TAs answered this question; five TAs in primary settings and four in secondary settings indicated that decisions were made by teachers.

Responses took the form of short phrases, with little or no elaboration. However, concepts in the data were coded and categorised and led to the identification of two key themes: individual needs and others involved in making decisions. The data relating to these two

themes is presented in appendix 18 with some points worth noting: i) all but one of the responses in relation to individual needs were from teachers; ii) responses relating to the involvement of others in decision-making were, with only one exception, made by TAs. Reasons for these differences are not clear, but could be related to the decision-making process in which a) teachers take responsibility for and b) in which TAs are expected to work in collaboration and under guidance. Finally, some respondents gave examples of how and why some of the above approaches are used, although with no explanation of how the approaches combine with Structured Teaching. Most comments were from TAs in relation to PECS, many of whom suggest the approach is used for children with no, or limited, communication. One TA elaborates:

> *PECS is used for the children with limited or no verbal communication, they are able to request items taking away the anxiety and frustration of not being able to make themselves understood. (School A, TA2)*

TAs also gave examples of when Social Stories may be used, including for reducing anxiety and problem behaviour and for preparing for events. Two teachers also indicate that they use the approach for times of difficulty and with *"more able children" (School B, T5).*

6.7 Conclusions: Contribution to developing theory and further research tools
The survey results need to be considered with caution due to important factors which may have influenced responses as indicated in chapter four. In particular a desire to please the researcher may well have created biased responses in this survey, particularly as the researcher was known to many of the respondents. Nevertheless, whilst acknowledging the need for caution, the qualitative results are useful in adding detail to rating agreements and also to the research evidence-base by offering explanations for *why* learning increases and problem behaviours decrease when Structured Teaching strategies are implemented.

Analysis of the questionnaire data led to formulation of first impressions, compared findings with the research evidence and identified gaps in the data worthy of further investigation. Conclusions are made here with regard to the perceived effects of Structured Teaching upon learning and behaviour and which other approaches are combined with Structured Teaching. Planning for the next phase of the investigation is presented, identifying themes for further study and research methods most appropriate for exploring and analysing themes in greater

depth. Finally, analysis of the questionnaire data leads to the beginning of a conceptual model with the potential to contribute to a developing theory.

6.7.1 *Structured Teaching, learning, wellbeing and behaviour*

The questionnaire data suggests that there is a belief that the approach supports some aspects of learning, although this belief is primarily focused upon learning behaviours and less on learning content and curricular, a pattern also found in the research evidence. The data also suggests that respondents believe the approach helps to manage behaviour, reflecting views which support the research evidence. However, whilst the research evidence makes claims about quantities of behaviours (including learning behaviours), the questionnaire data in this investigation adds to this evidence and consequently to the social validity of the approach through the analysis of the perceptions of those who implement Structured Teaching. The data indicates that what respondents believe contributes to helping learning they also believe contributes to management of behaviour. Moreover, analysis of the data identifies a key theme, wellbeing, which is linked by respondents to both learning and behaviour yet which is not evident in the research evidence. In addition the category 'understanding' was also found to be linked to both learning and behaviours, with views that the approach helps children to understand expectations, learning routines and organisation of the day and tasks, which in turn positively impact upon wellbeing and consequently learning and behaviour. Whilst the research evidence represents a behavioural perspective to learning and behaviour, data from this questionnaire reflects Mesibov's (2001) emphasis upon 'meaning', which is worthy of further investigation.

6.7.2 *Conclusions and next phase: learning, wellbeing and behaviour*

In summary, analysis of the survey indicates that:

- all components of Structured Teaching were found to be used by teachers and TAs, with particular emphasis upon the visual component;
- Structured Teaching strategies are believed to increase understanding and wellbeing, both of which respondents believe affect learning and behaviour;
- the data lacks precision and detail in relation to learning content and processes.

The next phase of the research aimed therefore to explore in greater depth practices and perceptions and beliefs about Structured Teaching in relation to learning, wellbeing and behaviour.

6.7.3 *Conclusions and next phase: combining Structured Teaching with other approaches*

The questionnaire results in relation to combining Structured Teaching with other approaches are limited and lacking in detail; equally the research evidence with regard to this theme is also lacking in detail. However, albeit limited, the data suggests that:

- Structured Teaching is most commonly combined with PECS which may link to the visual component;
- Teachers make decisions about Structured Teaching based primarily upon perceived individual needs of learners;
- TAs are involved with a variety of other adults in making decisions about combinations of approaches.

Phase two of the study investigates which approaches are combined with Structured Teaching and seeks to gain deeper insights into decision-making which informs combined approaches. Analysis of the questionnaire data was subsequently used to inform the development of research tools for phase two of the investigation. Chapter seven explains and justifies the design of classroom observations and interviews, analysis of which is presented in four detailed case studies (chapters eight to eleven).

Chapter 7 Designing and conducting observations and interviews

In this chapter I explain and justify the design of data gathering tools following the analysis of the survey findings. The sample for this phase of the investigation is summarised, before outlining the rationale for designing observation and interview tools. I explain my rationale for using observations and semi-structured interviews in order to seek in-depth qualitative data from which the case studies emerged. I reflect upon issues particular to observing in special school classrooms and areas for careful consideration when interviewing participants about their practice. My discussion includes two key issues pertinent both to observing and interviewing in special schools. First I discuss the issue of ethics in relation to the special school classroom context, the potential vulnerability of the children and the feelings of the teachers and TAs who were willing to allow me to scrutinise their practice. Secondly I discuss the shifting balance of power in each classroom and the dynamic and flexible approach that was required in order to gather observation and interview data.

7.1 Introduction

As indicated in chapter six, survey data provided initial insights into the implementation of Structured Teaching for children with autism in special schools, including: the range of Structured Teaching components used in practice; opinions regarding the impact of Structured Teaching upon learning and behaviour and other approaches used in combination with Structured Teaching. Survey data was analysed in order to inform the design of the interview and observation methods. The key themes which emerged from the survey data were teaching and learning, learning behaviours, and wellbeing. In addition, gaps in both the survey data and the research evidence base were identified and which could be explored during this second phase of data collection.

As the research approach is interpretative, seeking to explore and analyse the perceptions of those who implement the approach in special school classrooms, qualitative methods were designed to build on the survey data in order to enable deeper analysis in relation to the research questions. This phase of the investigation involved the identification of a sample for the purpose of gaining deeper insights and from which case studies could be developed.

7.1.1 *Sample*

The survey was conducted in three primary and two secondary special schools in order to gain a broad impression of classroom practice of Structured Teaching and any other approaches combined with this approach. In order to develop deeper insights, narrowing of the original sample was appropriate with the intention of investigating classroom practices, teachers' and

TAs' perceptions and decision-making. Taking into account those who indicated at the end of the questionnaire their willingness to be involved in the second phase of the research, two primary schools were identified to be involved in phase two of the research. Both schools were located in similar sized towns in 1 local authority and both were judged 'outstanding' by OFSTED. Following discussion with senior managers and teachers, four teachers and 13 teaching assistants were identified who were willing for classroom observations to be conducted and to be interviewed. The sample is summarised in table 7.1. Further details for each class are presented in each of the four case studies.

Table 7.1 Phase two sample

School A	Class size & age range	Ability range	Teachers	TAs
Classroom 1	5 x m 3 x f Years 4 – 6 Age range 9 - 11	P4 – NC level 1	1 x f TEACCH trained MA Education	3 x f Full-time In-service training (inset)
Classroom 2	8 x m Years 2 – 5 Age range 7 – 10	P8 – NC level 2	1 x f TEACCH trained	2 x f Full time inset
School B	**Class size & age range**	**Ability range**	**Teachers**	**TAs**
Classroom 3	5 x m 2 x f Years 3 – 6 Age range 7 - 11	P4 – P8	1 x f TEACCH trained MA Education	3 x f 1 fulltime, 2 job share 1 x m fulltime inset
Classroom 4	5 x m 3 x f 1 nursery 5 reception 1 year 1	EYFS	1 x f TEACCH trained	4 x f 2 full-time 2 job-share inset

7.2 Designing and Conducting Classroom Observations

7.2.1 *Rationale and justification*

Following on from the survey findings, observations were considered to be an effective method to capture actual events and interactions in each classroom, with a focus upon what teachers, TAs and children do.

The key research questions which could be answered using the observational data were:

> Research question 1: What Structured Teaching strategies are being implemented for children with autism in special schools? (*what?*)
>
> Research questions 2: In what ways and for what purposes are Structured Teaching strategies being implemented in special schools? (*how?*)
>
> Research questions 4: What other approaches are combined with Structured Teaching? *(what)*

Qualitative observations involve 'taking field notes on the behaviour and activities of individuals' (Creswell, 2009, p. 181). Observations generate data which 'contrasts with, and can often usefully complement, information obtained by virtually any other technique' (Robson, 2002, p. 310). In this study, observational data would achieve triangulation by corroborating and validating findings from both survey and interview data, 'testing' whether what teacher and TAs say they do is reflected in the reality of everyday practice.

Unobtrusive observations, as defined by Robson (2002), were determined as the most appropriate observational approach, with the intention of causing the least amount of disruption to both staff and children as possible. However, achieving a degree of 'unobtrusiveness' was not without challenge for a number of reasons relating to relationships between the researcher, adults and children. The degree of participation, from complete participation to participant as observer, was carefully considered and discussed with all class teachers in order to establish the researcher's role in each classroom. Robson's (2002) suggestion of a 'marginal participant' role seemed to be the 'best fit' for the observation purpose in that I sought to establish myself as the researcher, known as the researcher to all adults, but a 'largely passive, though completely accepted, participant' (p. 318). All four classrooms had frequent observers and so all staff and children were familiar with this context. I aimed to adopt the role of marginal participant with the intention of forming trusting relationships with those being observed, but at the same time not taking any active role in classroom activities so as not to influence participants' responses or to upset children in any way. However, discussions with staff made it clear that the researcher's role had to be flexible and responsive, or not, depending upon individual children's responses to the observer. This had the potential to increase the complexities of conducting observations in this context, where the researcher may have to be responsive to the dynamics of interactions

within the context and at the same time remain attentive and observant to the array of activities and responses going on at any one time. Challenges which arose in relation to this potential problem are discussed further in chapter thirteen.

Despite the potential for problems during observations, the advantages of carrying out direct observations could reveal the reality of classroom practices. However, awareness of potential disadvantages was important before undertaking any observations. The risk of observer bias had to be addressed as a particular risk due to my professional experience in the autism field and pre-existing relationships with schools and individual members of staff. Bell (2005) suggests that 'participant observers are well aware of the dangers of bias but it is difficult to stand back and adopt the role of objective observer when all the members of the group... are known to you' (p. 187). This was indeed the case for me as I was known to both schools and to the class teachers. In addition, Denscombe (2007) identifies two potential factors which may influence impressions and conclusions drawn from observations: 'familiarity' which means that observers 'tend to see what we are *used* to seeing' and 'past experiences' (p. 208). Both of these were possible risks as I observed, and so steps were taken to mitigate the risk. These included: firstly, acknowledging the risk; secondly, completing the historical literature review (chapter two) to determine key concepts as determined by the originators of Structured Teaching rather than relying upon *my* interpretation and experiences; thirdly, checking my impressions and conclusions through interviews with classroom staff.

The need for an open mind and to be aware of the potential for bias was important in reducing that bias. At the same time, familiarity with the characteristics of children with autism and severe learning difficulties, and with types of approaches used in special school classrooms, enabled me to immerse myself fairly quickly into each classroom context. For example I was familiar with the use of visual and symbol communication systems and so could interpret how adults and staff used such strategies to communicate with each other. Further potential disadvantages of observing in special classrooms are now discussed in relation to ethics.

7.2.2 *Observing in special school classrooms: ethics*
Careful consideration of the ethical issues relating to classroom observations was essential in order to protect and safeguard all involved, particularly as the children were identified as potentially vulnerable participants as defined by BERA (2004; 2011). If I was to be granted the privilege of being allowed to enter the world of children with autism, and those who educate them, then gaining the trust of all concerned was paramount before beginning observations.

Gaining the trust of adults

Potential participants may view research observers as 'intrusive' (Creswell, 2012, p. 191) and therefore gaining the trust of participants was essential in order to gather data which reflects as true a picture as possible. Aware that some may feel suspicious about the purpose of the research and that I may in some way be 'judging' their performance, a perspective exacerbated by participants' view of me as an 'expert', meant that reassurances were essential from the outset about precisely what the investigation was concerned with and that no judgements about individual's performance would be disclosed to other members of school staff. To address this I met with all members of staff of each classroom to explain the purpose of the research and to answer questions. The ethical statement and information leaflet (appendices 7 and 8) supported this process and potential participants were asked for informed consent to take part in the research. In order to ensure that participants understood the purpose and process of the research, I met with them to discuss the proposed research and to answer questions. I also reassured them of anonymity and that they could ask me questions at any stage. All participants were informed of their right to withdraw and also to feel free to inform me during classroom activities if they were in any way uncomfortable with my presence. Whilst the focus of the observations was to watch the practices of teachers and TAs during a variety of activities, this process would inevitably require observations of children and how they respond to those practices.

Gaining the trust of children

Creswell (2014) suggests, some participants 'may present special problems in gaining rapport' (p. 191) as indeed is the case with children on the autism spectrum. Difficulties with social interaction and communication are intrinsic in individuals with autism and are complex with the addition of severe learning difficulties (Jordan, 2001). In addition, whilst the focus of the study was the adults, it remained critical to consider the vulnerability of the children. Gaining their trust, in order to be allowed by the children to be a guest in their classroom, was potentially more problematic due to the nature of each child's autism; moreover the children were not able to understand the purpose of the research and give informed consent. For this reason, parents were informed of the research by their child's class teacher; the information leaflet was provided and assurances of anonymity and confidentiality were explained in order to request informed consent. Previous experience meant that I was fully aware of possible responses and reactions to an observer's presence; for example, some children may be fearful of an unfamiliar person, some may be anxious due to a change in the classroom. The possibility of causing distress was discussed fully with each class teacher and an agreed

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protocol for observing was established in order to protect the children as vulnerable participants. Table 7.2 illustrates the agreed protocol and examples of actions taken during observations. The possibility of the 'observer effect' (Denscombe, 2007, p. 46) was also an important factor, particularly as individuals with autism find it difficult to cope with change to their regular routines. The presence of an unfamiliar person could trigger anxieties and affect how children behaved. The spread of observations over four terms aimed to ensure that I became a familiar person in the classroom and therefore I was likely to eventually see what were more usual behaviours for the children; this was could also be verified with classroom staff.

Table 7.2 Observation protocol to protect and safeguard children

Agreed protocol	Examples of actions taken
Observer to stand or sit at an agreed distance away from children, particularly those who have a need for a large personal space	Sat in corner of classrooms and on edge of playground
Observer to relocate if children are showing signs of anxiety and/or when asked to do so by teacher or TA	Moved away from group activity in PE lesson
Observer to remain quiet unless invited by staff or children to contribute	Responded to child who asked when I'd be leaving; joined in greetings in circle time when invited by teacher
Observer may observe children working at work bays from behind the work bay screens and to relocate if child shows signs of anxiety	Positioned self slightly behind screens when watching work-bays, moved to corner of room out of child's view
Observer not to question children or touch activity materials in their presence, unless invited to do so	Never invited by child
Observer to communicate with children using signs and/or visual cues if requested to do so by teachers, TAs or children	Joined in with signs during circle time greetings; used child's visual cues to respond to child's question
Observer may join in activity if child requests this	Child sat on my lap and requested 'swaying' game so joined in
Observer may ask questions of adults at appropriate times during an activity, but NOT when adult is engaged with child/ren	Asked TA questions at playtime or when adults approached with information to volunteer
Questions may be asked of adults after the observation	Informal discussions after observation sessions, e.g. to clarify points following RE lesson
Observer to leave the classroom or teaching context at teacher and/or TA request	This never arose

7.3 Conducting classroom observations

The method of observations was selected in order to compare and contrast what was observed with what adults had to say about what they were doing. As concluded in chapter three, structured observations involving systematic counting of specified behaviours in individuals with autism were commonplace methods in the research evidence-base and associated with empirical, positivist approaches. Whilst determining the empirical evidence of Structured Teaching is essential, this quantitative method was rejected for two reasons: firstly, this study sought to investigate the practices of teachers and TAs rather than focus solely on children's behaviours; secondly, reducing the approach to counting behaviours, such as how many times a child checks a schedule, potentially reduces the effectiveness of observations which could result in counting isolated behaviours without checking the meaningfulness of those behaviours. Thus open-ended field notes were considered more useful in order to build a fuller, narrative account of practices in each classroom. It was anticipated that this would be challenging and complex, requiring the ability to observe the 'bigger picture' with all that involved and at the same time to retain focus, concentration and an ability not to be distracted. Robson's (2002) 'dimensions of descriptive observation' (p. 320) were drawn upon to capture as much detail as possible in relation to: space, actors, activities, objects, acts, events, time, goals and feelings. A field notebook was used to record observations during a wide range of sessions (see case studies, chapters eight to eleven, for details).

Familiarity with codes and categories identified from survey data meant that initial analysis of observations could be carried out in situ, thus an observational notebook included a template, or protocol, similar to that described by Creswell (2009, p. 181) was used which enabled recording of codes, categories and themes whilst observing (appendix 19). As more and more observations were gathered, so analysis and reflections in situ increased, resulting in an amended observational template (see appendix 20) which allowed me to add more detailed reflections and notes as I observed. In addition, observation note books were divided into two, with dated templates at the front and additional reflections, notes and ideas recorded at the back of the notebook. This was particularly helpful as observations continued and various 'models' were formulated to reflect classroom practices (see case studies and chapter twelve).

7.4 Designing interviews

7.4.1 *Rationale and justification*

It has already been established that observations would provide insight into the 'what' and the 'how' in relation to classroom practices and specifically the use of Structured Teaching,

together with other approaches. Clearly as this is an interpretative investigation, there is an interest in, and focus on, the perceptions and opinions of those who are implementing these approaches, in this case teachers and TAs. As Robson (2002) indicates 'a case study might employ some kind of relatively formal interview to complement participant observation' (p. 270). Moreover, the use of multiple sources, i.e., triangulation, 'enhances the rigour of the research' (Robson, 2002, p. 174). Interviews would generate data which could be compared and contrasted with data gathered by other methods (i.e., survey and observations), with checking and cross-checking for consensus views and discrepancies across all data sets.

Gaps in the literature: social validity

Gaps in the research evidence base included a lack of detailed analysis and interpretation of the perceptions of those who implement approaches and strategies, with social validity in the main being measured through limited quantitative means. This added to the rationale for, and justification of, designing and implementing interviews which would generate qualitative data with the potential to reveal in greater depth the opinions and beliefs of teachers and TAs about the purposes and outcomes of using Structured Teaching in a special school classroom. In particular, data gathered through interviews had the potential to provide answers and insights relating to the following key research questions:

Research question 2: For what purposes are Structured Teaching strategies being implemented in special schools?

Research question 3: What do teachers perceive the outcomes are for children in relation to behaviour and learning?

Research question 5: What influences teachers' decisions to combine Structured Teaching with other strategies?

Whilst observations revealed the 'what' and 'how' of Structured Teaching and other practices, qualitative interview data could provide deeper insights into participations' perceptions, importantly answering 'why' questions. This was felt to be an important feature of this study in the light of the identified gap given the research evidence base in relation to social validity. Moreover, such insights were fundamental to building each classroom case study with the potential to identify rich data which, in particular could be achieved by making comparisons

between what practitioners said they do, think and believe with what was observed in practice.

7.4.2 *Interviews: ethics*

Ethical issues were identified and addressed in much the same way for both the survey and classroom observations. It was imperative to ensure that all teachers and TAs were fully informed about the purpose of the research and of their rights; in addition to providing an the ethical statement, and information leaflet and consent forms (appendices 7 and 8), I met with every participant to discuss the research and to answer any questions and I also made sure that I was available to answer questions which may arise as the research was undertaken, including publication of findings.

It was important from the outset to acknowledge that previous professional relationships with teachers might influence the course of some interviews. It was essential to remember that as a researcher I was indebted to all who had given permission and had participated in the study. In order to offer something of use in return for schools and staff who had been so willing to share their practices and views, an offer was made to return to the school on completion of the study and to offer in-service training or other forms of support.

Balance of power

One particular issue that was also important to consider was that of power and the 'distorting effects of power' (Cohen *et al.,* 2011, p. 205) which led again to consideration of ethics and also to the influence of power upon validity and reliability in interviews. It was important to recognise that the balance of power between the interviewer and the interviewee had the potential to be affected by a number of characteristics which could place either or both parties in an uncomfortable position. The potential risks relating to power in this investigation are summarised in table 7.3 which identifies steps taken to address potential risks. It is important to note here that whilst I anticipated issues in relation to the balance of power between myself as the researcher and the interviewees, I did not anticipate this issue in relation to the children who I (wrongfully) assumed to be 'powerless'; this issue is critically discussed in chapter thirteen (see 13.2, p. 258).

7.5 Conducting interviews

Multiple observations in each class were advantageous to conducting interviews, as being a regular observer in class meant that as interviewer I became a familiar face to interviewees.

Being aware of the potential influences of power perceptions was an important factor in striving to maintain a 'fair' balance, reflecting the fluidity of the power balance in order to achieve interviewer-interviewee reciprocity.

Semi-structured interviews were selected as the best method for exploring participants' opinions, perceptions and beliefs (see chapter four). As Thomas (2011) explains:

> 'you can get the best of both worlds from a semi-structured interview. In it you provide the structure with a list of *issues* (rather than specific questions) to be covered and you have the freedom to follow up points as necessary' (p. 163).

Table 7.3 Balance of power during the interviews

Perceptions of power	Resultant risks	How addressed
Interviewer power		
Interviewer perceived as an 'expert' by interviewees	Interviewees may feel intimidated	Build trust, be open and honest
Interviewer perceived as judging performance	Interviewees may feel under threat and may give answers which are believed to be 'correct' rather than revealing what they believe or think	Build trust, be open and honest Multiple observation sessions enabled positive relationships to be developed which built trust and mutual respect
Interviewer perceived by interviewees as having control of the interview	Interviewees may restrict responses to what interviewer asks about and may not expand or introduce different topics	Open-ended questions to allow interviewees some control over direction of responses List of issues/questions for discussion provided to interviewee to read before the interview commenced
Interviewee power		
Interviewees have power to decide what information is available to interviewer	Selective insights	Careful questioning; linking questions to specific observations
Interviewees have power to withhold and/or misrepresent information	Guarded responses	Open and trusting relationships, built over a period of time
Interviewees control location & timing of interviews	Interruptions	Patience and willingness to be flexible

This approach provided a degree of structure with researcher-led key issues linked to findings from both survey and observational data. In addition the identification of probe questions was useful in order to ensure that as much insight was gathered as possible. At the same time, a

semi-structured approach would facilitate an open-ended dialogue which at times might be led by participants.

7.5.1 *Interview phases*

An initial interview with teachers was planned in order to gain an understanding of each classroom context. Interviews and observations were then planned to be conducted in phases as indicated in figure 7.1.

Figure 7.1 Interviews and Observations Process
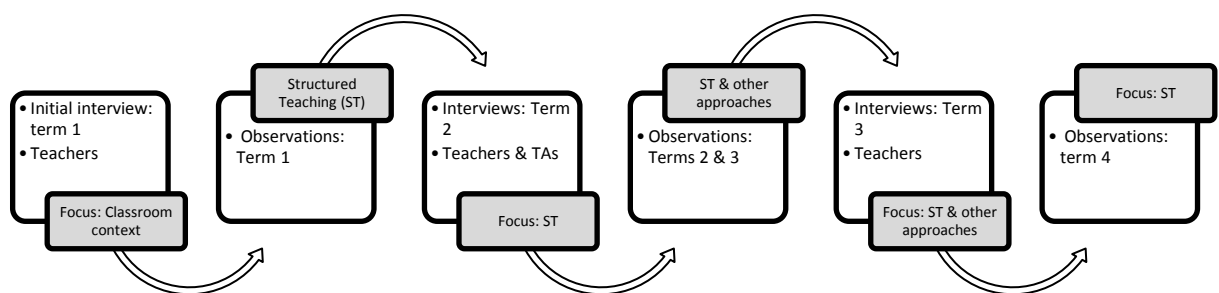
The first set of interviews began following classroom observations (see each case study for details) and investigated perceptions of Structured Teaching strategies and the impact upon learning and behaviours (research questions one, two and three); the second set of interviews, also followed classroom observations, and were designed to probe further perceptions and decisions-making in relation to Structured Teaching in combination other strategies, thus seeking answers to research questions four and five. It was planned to interview teachers individually, whilst it was felt that TAs may feel more intimated by the interviewer and therefore a decision was taken to offer a choice of individual or focus group interviews to TAs, all of whom selected the group interview option.

Prior to each interview, interviewees were provided with a list of issues for discussion; this ensured that interviewees were informed and comfortable about what was to be discussed. All interviews were recorded digitally, with agreement from participants, which enabled the interview to flow naturally rather than being halted whilst notes were taken; this also meant that attention could be paid to non-verbal communication (Blaxter, *et al.,* (2006, 172). Recording the interviews was an important step towards reliability as reliance on accurate note-taking was replaced with accurate recordings of what was said. Having said that,

recordings do not show body language so brief notes were taken at times to capture affirmation and conflicts between verbal and non-verbal communication and between participants (Denscombe, 2007, p. 194). All interviews were transcribed in preparation for analysis.

Piloting the interview schedule

A semi-structured interview schedule was devised and piloted with teachers and TAs from the school which had previously piloted the survey questionnaire. The purpose of the pilot was to 'test' understanding and interpretation of the questions; this was particularly important to check that the terminology used was understood by participants. Terminology was determined during the historical literature review which had previously identified key words and terms defining Structured Teaching strategies. It was important again to acknowledge the potential for bias on my part due to previous professional experience and expertise in the area under investigation. This included the risk that assumptions may be made as a researcher and interviewer about understanding and interpretation of questions. As Cohen *et al.,* (2011) argue: 'reducing bias includes careful formulation of questions so that the meaning is crystal clear' (p. 205). Use of terminology was therefore considered very carefully in order to ensure that questions were meaningful to the participants, with key words and terms included which were determined by i) key words of Structured Teaching approach (as defined in chapter two) and ii) words and terminology used by participants in responding to the questionnaire. Whilst it might be assumed that teachers and TAs who had completed 'TEACCH' training would be familiar with the same terms, it was important to test this in order to identify areas of confusion or misunderstanding, moreover this was an important factor in determining whether interviewees would understand questions in the same way, an important feature of interview reliability (Silverman, 2010). Piloting of the interview questions demonstrated shared understanding of the meaning of questions asked; previous TEACCH training undertaken by teachers and TAs was an important factor as this facilitated understanding and shared meaning in relation to Structured Teaching questions.

Phase one interviews

The first interviews were conducted following a period of observations and were designed to probe and question teachers and TAs in order to gain insights in relation to what had been observed. A total of seven key questions were included in the first phase interview and each question included a series of prompt questions (see appendix 21). Questions were designed to probe perceptions and beliefs in relation to Structured Teaching practices (research question

3) and to generate data which could be cross-checked with observational data. As discussed in chapter three structured interviews may increase reliability, however, open-ended interviews allow respondents to 'demonstrate their unique way of looking at the world – their definition of a situation' (Cohen *et al.,* 2011, p. 205). A semi-structured interview would offer a degree of reliability, as issues and suggested questions were identified, but at the same time allow interviewees a degree of control over the direction of the interview. Thomas (2011) explains that semi-structured interviews provide opportunities to ask follow up questions and probes (p. 163). As each interview progressed, individual responses might lead to additional probe questions which would reflect the interviewee's individual opinions, beliefs and perceptions. Whilst such spontaneity of questioning might risk reliability, it was felt that open-ended questions which were generated in response to an interviewee's responses had the potential to shed light on 'important but unanticipated issues' (Cohen *et al.,* 2011, p. 205). Appendix 22 indicates additional probe questions asked which were generated by interviewees' responses. A semi-structured approach, together with a willingness to be open to individual responses, was intended to achieve what Thapar-Bjorkert and Henry (2004), (cited in Cohen *et al.,¸* 2011), identify in that 'power is fluid and is discursively constructed through the interview rather than being the province of either party' (p. 206).

Phase two interviews

The second phase of interviews (appendix 23) were conducted following further observation sessions in each classroom which focused on how and why Structured Teaching was used in combination with other approaches (research questions four and five). These interviews were also semi-structured, with questions determined by both survey findings and classroom observations in order to explore in greater depth opinions about which strategies are implemented with Structured Teaching, how they are implemented and most importantly why strategies are selected for individual children. Questions differed for each class and were determined by: i) Structured Teaching strategies observed and ii) other strategies observed. Whilst differences in interview schedules may threaten overall reliability, it was essential to: firstly, identify what was similar across classrooms; secondly, identify what was different; thirdly, identify and interpret why similarities and differences occurred across each classroom setting. This meant that a degree of flexibility in relation to question wording was necessary, but at the same time steps needed to be taken to assuage potential issues regarding reliability. Thus, wording of questions followed a similar format to achieve a degree of reliability. For example, whilst different strategies were observed in each classroom the main wording of the interview question was consistent: "I'm interested in your XXX approach and wondered if

you could tell me what the benefits are to children who take part in those XXX sessions." Such wording meant that the XXX component could be amended to YYY, whilst retaining the overall structure of the question. Prompt questions were identified from the outset and probes were generated by interviewees' responses through the course of each interview Conducting the interviews should be largely relaxed and with mutual respect established as a result of previous interviews and classroom observations. Mindful of the view that when conducting interviews: 'we need to recognize that the interview is a shared, negotiated and dynamic social moment' (Cohen *et al.*, 2011, p. 205), time invested in building positive relationships with teachers and TAs was an important part of planning and conducting the interview process in order to gain interviewees' trust and consequently a willingness to respond to questions with openness and honesty.

7.6 Analysis strategy

The process of analysis (table 4.3, p. 68) indicates the phase two process of analysing observational and interview data. This planned process was not linear; rather it was an iterative and ongoing process which was sustained throughout the data gathering period and beyond. As figure 7.1 illustrates, this process moved back and forth between interviews and observations. Interviews were transcribed as soon as each one was completed so that analysis could begin immediately. Likewise, coding was applied during observations and continued beyond the observation period. (See appendix 24 for codes and categories identified during analysis of observations and interviews). Memos were noted on transcribed interviews and observation data to indicate: areas for further questioning and/or observing; new codes emerging from the data; comparisons across the data sets for each class; varied versions of models which reflected practices and decisions. As a result of data analysis, two major themes were identified as 'wellbeing' and 'teaching and learning'. Learning behaviours were also significant, but analysis of observations and interviews highlighted that these were inextricably linked to teaching and learning. Critical evaluation of the analysis strategy is presented in chapter thirteen.

7.7 Conclusion

The process of conducting classroom observations and interviews was lengthy and one which could not be rushed. However, time invested in this process was essential in order to generate the rich, in-depth qualitative data which had the potential to enhance the existing research evidence-base. The process of constant comparisons between observation and interview data, both for each case and across the cases, enabled me to illuminate and analyse teaching

practices and staff perceptions. In the next four chapters I present four case studies. Chapters eight and nine present two case studies from school A; chapters ten and eleven present two case studies from school B. The case studies which follow include analysis of Structured Teaching practices, other approaches combined with Structured Teaching and teachers' decision-making in selecting approaches for individual children.

Chapter Eight Case Study One

In this chapter I present case study 1, school A. The case study provides insights into the research questions and includes analysis of: Structured Teaching practices; combinations of other approaches; the teacher's decisions to select and combine approaches. I present a model which reflects the practices and decisions which underpin this case study. Analysis of the data reveals that Structured Teaching provides a framework within which other approaches are combined. Decisions are underpinned by a priority focus upon the wellbeing of each child.

8.1 Introduction: Case Study One

The class teacher explained during the initial interview that the class comprises eight children (see table 7.1, p. 114), all of whom had had severe learning difficulties and also experienced high levels of anxiety, together with sensory needs. Most of the children were described as non-verbal and used alternative visual communication systems. Following the initial discussion, data collection was conducted over four terms (see appendix 25). Observational data clearly demonstrates that all four components of Structured Teaching, as determined by the TEACCH approach (Mesibov *et al.,* 2005) are implemented in the classroom as part of regular, everyday practice. A summary of Structured Teaching components for each child can be found in appendix 26 and the layout of the classroom (physical structure) is presented in appendix 27.

This case study is based upon two key themes: 'wellbeing' and 'teaching and learning'. Both themes are presented in relation to Structured Teaching and other approaches before exploring the decisions which result in a combination of approaches in practice.

8.2 Structured Teaching: Children's Wellbeing

8.2.1 *Wellbeing: anxiety*

The predominant theme which emerged from interviews with the class teacher and TAs is the perceived impact of Structured Teaching upon children's wellbeing and how children feel. Reduction of anxieties is explained as the first priority for the children and this is addressed with the use of Structured Teaching strategies. An important part of the physical structure in this class is the use of an adjacent room which children can retreat to at times of anxiety or when they feel *"overloaded"*:

I suppose we are so lucky in that room to have that sensory area, to have the ability for the children who are particularly self- injurious, would take themselves in there, which has the comfy sofas, and they know that if they went in there and had their, you know, upset in there, they're not going to hurt themselves, you know they're not going to have the opportunity for that. (Teacher interview 1)

Structured Teaching strategies are used to reduce anxieties by helping children know what is expected. Anxiety is linked to confusion about daily routines and the sequence of activities:

I think they've got enough anxieties in their life. Definitely there is a little boy in the class very anxious. He is three hours ahead of us in his daily tasks, he is so anxious about what to do and what's next. (TA 1)

The class and individual schedules are believed by the teachers and TAs to be the most important elements of the structure in relation to reducing anxieties, which then impacts behaviour. Schedules are used to reduce anxieties, for example:

I think one of the most important things that I use in my class is the schedule for structured teaching, so that children have knowledge of what they're doing, at what times and obviously if there's any changes, you know, that has a big impact on the children, so their anxieties are addressed. (Teacher interview 1)

Without it [schedules] it would all be a surprise what you're doing next and they wouldn't cope with that. (TA 1)

Yes, with the schedules they don't get confused and they know what's expected of them and what's coming next. And not worrying and think - it's there, it's visual, they can see what's next. (TA 2)

Whilst schedules are believed to be important, children do not always check their schedules, instead referring to the class schedule. This may be due to children's familiarity with the daily timetable, and indicates that they do not experience anxieties about what is expected. However, a child who has recently joined the class (child A) is observed being taught to use a 'first… then' schedule and is prompted by TAs; she is at times distressed but is beginning to follow the schedule with help.

Anxiety, communication and behaviour

There are an extensive range of visual strategies evident in the class and around the school which provide communication tools for children to communicate basic needs (see appendix 28). The class teacher explains the rationale for the use of visual strategies, linked to the ability to communicate basic needs:

> *Things like that need to be available, so they are able to ask for food at any point during the day, anything to drink , to make sure that they're comfortable. We always think that our children won't be comfortable working - in the same way that we wouldn't be comfortable working if we were hungry or thirsty – if they can't ask for these things then they are very, very anxious and some will panic. Then we see their behaviours, one girl scratches herself. (Teacher interview 1)*

Links between anxiety and behaviour are also explained, for example:

> *In terms of behaviour, I think the structure is hugely important, particularly - I mean in our classroom with regards to visual structure to know where their sensory soothers are, to know exactly where to go to get those things. At the time when a child was really highly emotional, they don't want to be searching around trying to find the symbols to give me to ask for their sensory soothers. (Teacher interview 1)*

Sometimes the schedule information can trigger behaviours, which adults are aware of; nevertheless adults believe that the use of visual structure reduces anxieties by increasing knowledge of expectations which *reduces* behaviours, as illustrated in the following dialogue:

> *It [behaviour] can go either way. Because the schedule could have something on that they don't want to do, so then they're worked up for the day about that. (TA 2)*

> *Yes but a case in point this week, they've changed dinner times. And whereas they just used to go up when they were ready to go up for their dinner, now they go up table by table and it's a few on our table got really anxious and couldn't wait and were really upset. So they designed a board so they could see it's xxxxx - no, it's xxxx, yyyy and then zzzz. And when we showed them the order and then they had to wait, it took the anxiety right down. And this little boy can now cope with the fact that he knows he has*

to wait and he can see - and he sees each table go up and he knows when he can go up for his dinner. (TA 1)

8.2.2 Wellbeing: autonomy

Independence

Structured Teaching strategies are used to develop independence and to reduce children's dependence on adults:

> *... a lot of our children have got that need to have us to support them and having that structured area where they know exactly what they have to do, they don't need us anywhere near them, they could actually take down the tasks, they have their work systems, they know which tasks to do first and work their way through, know where they were going, means that we don't have to get involved and they could just get their work done without the input from us, which is great. (Teacher interview 1)*

Independence is achieved because children know what to expect and what to do; this is linked by the adults to the use of schedules:

> *The daily schedule is very important for them to know what they're going to be doing next. What they are doing and also what they're going to be doing next. It's the main focus of the day, as in every activity we move on to we say, 'Go and check your schedule', then you can see we move round the classroom, so when it's next snack time they'll go and take their card from their schedule, stick it onto 'snack' so you know exactly what you're doing. (TA 2)*

Children sometimes check their individual schedules and are able to make transitions independently:

> *Children arrive, come straight in, check schedule, know what to do and where to go. Children go to independent work bays and are quickly on task and engaged. Children G and H fetch work from labelled drawers and take to tables to work. (Obs. term 1)*

Some children (A and E) require additional prompts from TAs, for example:

Child A needs additional verbal and physical prompts to check her schedule and start work tasks. TA uses concise phrases, "first work, then choose". Hand-over-hand prompts used to take 'first' card and move to work bay; work (puzzle) is placed on table for A, who completes with hand-over-hand prompts. TA says "work finished, now you can choose". This process is repeated multiple times while other children are working independently. (Obs. term 2)

Independence is also extended beyond the classroom, facilitated for example by portable 'first…then' key-chains. TA 2 explains:

We *walk around with the cards round us so when we're not in the class we can show where we're going. We use 'first' and 'then's.*

The teacher emphasises children's knowledge of expectations is crucial to independence. In addition to the use of schedules, physical structure is also part of the structure which is linked to knowledge of expectations and consequently independence:

… to have a work area, to know that is where you are going to work, to know this is the place where you are going to work on your own, so it's your independent work area, that is where you are going to work on your own. You know, you are not going to ask for help, you know that is your time to get it done. Then at the [group] tables, to know that that's where the staff sit with you and you do your work there, and the snack table. So they know exactly what is expected in each part of the room. That helps reduce behaviour because then they obviously know what's expected. (Teacher interview 1)

Communication and choice

Visual strategies are used to encourage children to participate in activities and to communicate and are used in conjunction with daily routines such as the morning greeting routine (appendix 28). Routine songs are used in conjunction with visual cues, all of which enable children to participate. Opportunities are created for communication within familiar routines and structure, for example:

Children are on chairs, gathered round class symbol/word schedule and days of week. Child H talks through the timetable and notices an activity is missing, saying "where's it gone?" Teacher says, "well done, you spotted it is missing, here it is" and adds appropriate symbol to schedule. (Obs. term 1)

Visual cues are also used to provide information when changes are made to the schedule. For example, during the morning greeting, the class are ahead of schedule. The teacher adds a 'music' symbol to the schedule and children turn to the interactive whiteboard:

Visual choices are indicated on the IWB. Individual children choose from selection of music slideshows. Slideshow has clear visuals and symbols. Wow, brill! Children are all calm despite change to schedule, joining in with enthusiasm. (Obs. term 2)

Visual structure is evident during snack-time, including colour-coded tables for places at group tables, with one child sitting separately as she does not like sitting in a group for snack. During snack time the main focus is upon children making requests and communicating their choices. See appendix 28 for examples of visual cues for communication at snack time. Visual communication is facilitated by communication routines, with adults modelling phrases for individual children *("xxxx pour orange juice")*.

Visual communication is embedded across all activities, including outdoor activities. The TAs explain the use of visual cues to enable children to communicate and make choices:

Everything is visual. We also have, wherever it is gone, to go out to play and what you want to play with outside. Because there's children that would just wander and play with nothing and do nothing. So we're really trying to engage with them. We're really trying to engage with them and encourage them to play. So we then have a board with 'swings', 'chase me' 'squeeze'. And then also in class we have a mini choose board. It's got paper, glue, pens, scissors, which a little boy in particular has just really started using. (TA 1)

I think on the whole if we didn't have all these visuals and prompts, I think they would do nothing. (TA2)

Structured Teaching components and visual cues for communication are also evident in class lessons which incorporate routines and visual information. For example during a swimming lesson, children respond to a familiar routine and communicate their requests for pool equipment using visual communication strategies (appendix 28).

8.3 Structured Teaching: Perceptions of Teaching and Learning

The two main factors which reflect the perceptions of adults in relation to impact of Structured Teaching upon learning are: learning behaviours and curriculum.

8.3.1 *Learning behaviours*

Transitions

The physical structure of the classroom, together with familiar routines and individual schedules, enables the children to transition independently. As a result, children know where to go and what to do. The class teacher believes that this structure enables children to be *"ready to work"*; children are using the structure to develop behaviours which are essential precursors for teaching and learning. For example, during an observation of a PE lesson, the following is noted:

> *The children come in from lunch-time play and transition to snack places for drinks.*
> *The children are all calm. When drinks are finished, the class schedule is referred to*
> *and children transition to sit in a circle on carpet squares for a parachute activity.*
> *The activity is supported with song routines. A verbal prompt transitions some*
> *children outside to participate in sensory activities in a mini-circuit. The layout of the*
> *circuit means children know where to go. This is a familiar activity and children rely*
> *on their knowledge of the routine of the activity in order to complete actions along the*
> *circuit. Individual children are instructed to check their schedules for transition to a*
> *Sherborne movement lesson in the classroom. (Obs. term 3)*

On some occasions, the familiarity of routines is key to enabling children to make independent transitions and to organise themselves for an activity. Individual schedules, although always available, are not always used and children are not always instructed to check their individual schedules. Instead familiar routines, together with the presence and skills of the class teacher, determine how children respond. Whilst learning behaviours are developed through the structure, as these children are familiar with class routines there is less use of individualised structure. For example following snack-time, children are given a verbal

prompt to transition to outside play. However, at times of change to familiar routines, structure is followed to support children's understanding of expected learning behaviours particularly when change to familiar routines increases anxiety.

Engagement: work bays, work system and tasks

Concentration, engagement and on-task behaviours are sometimes evident when children use individual work bays, work systems and structured tasks. Work bays are screened to reduce distractions and matching 'to do' lists are provided as work systems. The teacher explains:

> *Visual structure is really, really important with that class. They have to have an understanding of where to begin, what the outcome is, and to know that that's the end and then to know that that task's finished, we can move on and do the next task. (Teacher interview 1)*

However, whilst work systems are provided, children frequently ignore them. As with the use of schedules, familiarity with routine appears to reduce the use of work systems. Whilst children have an understanding of how to organise, complete and finish tasks within a familiar routine, it is less clear how they might respond in a less familiar context. Nevertheless, children are observed working independently on a variety of structured tasks, including literacy and numeracy tasks, matching and eye-hand motor coordination, leisure and life skills.

Concentration, focus and engagement are sometimes fleeting and children may become distracted by materials or by self-stimulatory behaviours. The TAs explain that children sometimes need prompts to complete what should be independent tasks:

> W*e sometimes seem to have to sit with them, independent work isn't always quite working for some in here at the moment. (TA2)*

> *It's because they just lose their concentration and they need a reminder just to try and stay focussed on the activity. If you walk away from them they'll just sit there, sort of looking around. And you're in - 'Come on, we need to finish your work, next piece'. (TA1)*

Child A in particular is frequently prompted with verbal, gestural and physical hand-over hand prompts from TAs. She is less engaged with tasks and is sometimes distressed. The teacher explains that the adults are currently observing child A carefully due to changes in her behaviours which may explain her current lack of engagement.

Observations note that motivation and engagement is highest when tasks include special interests, such as popular children's TV characters. This is explained by the class teacher:

> *Using things that are of interest, such as characters, to support them to make sure that they are enthusiastic about the task because it's something involving their favourite character. For example we bought a pillow case with the Tweenies on for one of our girls who loved the Tweenies and that helped to support her to do that activity, to do that task. (Teacher interview 1)*

Overall children use visual structure, together with familiarity with daily routines, to enable them to develop learning behaviours which are integral to teaching and learning.

8.3.2 *Curriculum Access*

Structured Teaching strategies are used as a differentiation strategy to enable individual children to access the curriculum. A variety of visual information, cues and instructions are used during independent and one-to-one taught activities, as well as across curriculum lessons with the whole class.

Independent tasks

Visually structured literacy and numeracy tasks are completed by children during independent work. Tasks aim to enable children to practice using skills previously taught during one to one to one or paired teaching sessions. Children are observed learning new skills which are then transferred to independent tasks for consolidation. The TAs explain the process:

> *We teach it first, we sit one to one with them and then once they've more or less got it, it goes into their independent work… (TA 2)*

> *Yes, you'll work with that child until they've got it, or nearly got it, and then you put in their work station to try and see if they can do it independently. (TA 1)*

Tasks observed include visual matching, sorting and counting. Visual instructions are integral to independent tasks and the class teacher explains the use of visual instructions to enable children to engage with tasks, understand what to do and complete independently:

> *We use a lot of a lot of jigs. The children obviously understand using visual jigs - a lot of our children use symbolic jigs to kind of give them prompts as to what to do. A lot of our tasks are set up that way. Activities that we had when we worked as a whole group are demonstrated at least once, so children know what is expected of them, what they need to do in order to get the outcome of the task. (Teacher interview 1)*

However, the class teacher also explains that whilst children complete literacy and numeracy tasks using visual instructions, other independent tasks aim to develop broader skills such as eye-hand coordination, dexterity, leisure, and life skills.

> *I mean we have literacy and numeracy activities but we do them a lot more out of the structured areas. So I mean their work station tasks are more for making sure that they're learning things independently that would be useful later on in life. (Teacher interview 1)*

The teacher continues to explain that individual special interests are incorporated to add motivation:

> *We try and introduce maybe things that are, I suppose, more activities that the child could do on their own at another time. So for example like puzzles, although there's a shape element to it, it's also something that is of interest. One of our boys loves puzzles so we used to make a really difficult puzzle - that again is something that he could then do as an independent task when he's a little bit older on a Sunday when he's bored.*

The combination of visual instructions, together with incorporating individual interests, enables children to transfer their learning from the independent work tasks. The class teacher notes this in relation to leisure activities:

> *I suppose particularly in some of the activities that we set up for leisure activities which we introduce in the work areas. Because we find a lot of our children have no*

way of amusing themselves, I suppose you'd call it, during choose time. If there
wasn't something that was a real grab for them, they have no way of kind of going,
'Oh, I'll have a go at that instead'. So we decided to introduce leisure activities as a
big focus in our independent work areas. And I noticed quite frequently then that the
children would go and get, like, the Duplo off the side, because we started to introduce
Duplo as a leisure activity rather than just as a matching activity kind of thing.

Visual differentiation across the curriculum

Visual differentiation strategies, including visual instructions and cues, are integral to whole class teaching across curriculum subjects. Observations of PE and swimming lessons illustrate the richness of visual differentiation strategies which are used to engage children in learning. Appendix 28 identifies the visual differentiation strategies for communication observed during a swimming lesson and the following observation explains how the strategies are used during the lesson:

Visual instructions – symbols and words - referred to as the schedule by the class
teacher, presented in a left-to-right sequence (reading direction) and provide the
instructions for each step in the lesson: sing with hoop; splash feet; push ball with
nose; blow egg flip; blow bubbles; push and glide; pick up sinker; choose water toy.
These are referred to frequently by the teacher who uses concise accompanying
phrases to communicate with the class, e.g.., "splashing feet finished, now time for
swimming", "next on schedule, push a ball with your nose" , "sinkers and then it's
choose time". (Obs. term 2)

Children are observed looking at and following visual instructions and the lesson is calm. The lesson routine, together with the visual instructions, enables children to understand and to participate in the lesson. Further strategies are also incorporated into the lesson and which focus on development of individual communication and interaction; these strategies are combined within the structure of the lesson (see 8.5, p. 147).

Similar visual instructions are included in an observed Sherborne movement lesson, with visual symbols and words being used by the adults whilst working one-to-one with individual children. Symbols identify specific movement activities (rocking; back to back; rowing; rolling; tunnel) and are attached on a key-chain which each adult uses to show the child. At the same time, children make choices of specific activities they would like by showing the

adults the relevant symbol. This is a further example of how routines and visual strategies are combined with other approaches (see 8.5, p. 147).

8.4 Structured Teaching and Other Approaches

A variety of strategies are implemented in combination with Structured Teaching, summarised in table 8.1.

Table 8.1 Case Study One: Other approaches combined with Structured Teaching

Approach/Strategy	Contexts
SCERTS model	Continuous and embedded across all aspects of school life
Picture Exchange Communication System (PECS)	PECS books kept at work bays Snack & some group activities
Intensive Interaction	Timetabled sessions Spontaneous, initiated by children
Sensory strategies: soothers, physio-balls Sensory circuits	As needs arise for individuals Morning arrival & timetabled sessions

8.4.1 *SCERTS*

The school has adopted some features of the SCERTS model which addresses social communication, emotional regulation and transactional supports (Prizant *et al.,* 2006a; 2006b). The SCERTS model prioritises emotional wellbeing and incorporates a range of strategies to enable individuals to self-regulate their emotions and levels of arousal.

The class teacher explains during interview two that, by using SCERTS, a range of strategies are made available to children to enable them to communicate, to interact, to understand and to manage their emotions.

> *There are lots of different things available for each child, but it is based on the child. So each child has their own set of emotional aids to kind of ensure that they are able to learn.*

The teacher's focus upon meeting children's basic needs is prioritised and linked to preparing children to learn:

> *So we always want to make sure that everything that is available to them gives them that opportunity to be prepared to learn. The feeling of hunger or thirst or anything*

like that needs to be addressed before anything. It's the whole Maslow hierarchy of needs. You know, we would want to make sure all of those things are hit in order for them to actually be able to focus.

Examples are given by the teacher which reflect varied strategies, including sensory and communication strategies:

So a child, particularly a physical child, loved to move around had a physio ball to sit on in order to do their work. So that's meeting his needs to move while sitting at a table. So he was able to bounce, he was able to rock and roll on his chair, but take part in the activity as well.

We have emotional regulation boards obviously on the side to show children - I mean there was one board for one particular child in the class that had an opportunity for her to see what she could do to manage certain emotions. Because although she may feel hungry, she may not have realised that she could go and ask for food. So one of the boards had a symbol of hunger and then underneath it, 'Go and ask for some food' you know, symbol to show 'go to the food board'. So she had the opportunity to really understand that emotion, these were some of the things that she could do to manage that emotion. If the noise was too loud in the room, for example, we have headphones and a CD player so she could listen to some calming music while she was doing her independent work. Just to allow her the opportunity to remain focussed.

Provision of strategies is informed by assessment integral to the SCERTS model:

The Occupational Therapist gave us a number of sheets that we could go through and SCERTS gives a lot of ideas of how to sit and observe a child and to kind of pick out, just slight details that kind of make you focus on their imbalance in that area. And I mean, towards the end we never really looked at the sheets after that because you knew the individual, you knew the child and you kind of knew their learning style. You knew what they really engaged in, what they kind of used to calm themselves, you'd start to pick up when these things weren't right, when they weren't balanced, and then you'd implement something around it to make sure that they were able to. So although we had paper based recordings, a lot of it was done just purely from

knowing the child and visually watching that child, recognising that they needed
something to support them in certain areas within the class, within their learning.

Observations note a wide variety of strategies available to children which link to the priorities of SCERTS; these strategies overlap with other approaches including visual communication, interaction approaches and sensory strategies.

8.4.2 *Communication strategies*

Visual communication

A variety of visual communication strategies are used in combination with Structured Teaching. PECS books are kept at work stations although observations note that children do not use these spontaneously. The use of PECS is observed during routine communication routines such as snack time and also during a swimming lesson to enable children to request activities and resources.

The following observation illustrates the range of strategies which focus on addressing basic needs, encouraging communication and promoting readiness to learn:

> *Children come in from lunch time play time and go straight to places at snack table –*
> *clear communication routine as the teacher asks each child "xxxx what would you like*
> *to drink?" Children use visual cues to request drinks and the teacher models, e.g.,*
> *"xxxx pour orange juice". Children then look at books with an adult who says "I can*
> *see …" and pauses for child to respond; again this is a communication routine. The*
> *atmosphere is low arousal – a TA (2) tells me that this is to reduce the excitement*
> *and/or anxieties from playtime. All children are engaged. (Obs. term 3)*

In addition to PECS, colourful semantics which, according to Ogg (2012) is

> ... a system of applying colour to language. In addition to the traditional 'who', 'what'
> 'why', 'when', 'where' questions, a colour is applied to support consistency, word
> retrieval and sentence construction. (p. 3)

Use of colour provides a visual structure for forming sentences. This is observed during snack time routines, for example to make a sentence such as *"xxx pour black-current"*. This approach is evident in the use of sentence strips placed in various contexts, together with the

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phrase *"tell me"*; for example *"xxxx open door"* on the classroom door. However, these are not observed being used by children.

Visual symbols are integral to all activities and are used by adults to communicate with children and by children to communicate with adults. Observations of a Sherborne movement session illustrate how visual symbols are used to promote two-way communication and interaction (see 8.4.3, p. 144).

Communication techniques such as 'pause…burst' are observed being implemented by the teacher during whole class and individual teaching, for example during a swimming lesson when this technique is used as part of interaction approaches. Pause burst is used to build up arousal levels and anticipation as the following observation illustrates:

> *Children transition from reading books to a parachute activity. The activity begins with a song which is sung faster each time it is repeated. The teacher pauses during the song and asks "do again? more?". Soft bouncy balls are thrown into the parachute and children get excited as the balls bounce. The teacher pauses and asks "do again? more?" (Obs. term 3)*

This technique is also observed, together with the use of visual symbols, during a Sherborne movement session.

8.4.3 *Sherborne developmental movement*

Sherborne developmental movement is **'**a method of working in which the movement is securely based in normal developmental movement experiences' (Sherborne Association UK, online). Sherborne movement a timetabled activity used regularly with the class which aims to develop self-awareness and relationships with others. The approach is used in the context of SCERTS with an emphasis upon social communication. Observations of a Sherborne movement session, in which the teacher and a TA works one to one with children, illustrate how the approach is used in combination with visual symbols for communication:

> *Mats are placed in the classroom to indicate where movement activity is taking place (note adjustment to physical structure). Individual children are transitioned to the area by checking schedule. Teacher and TA1 have visual symbols which are attached to key-chains. Movement activities are completed and the adult shows the child which*

movement is next. Movements include: rocking; disappearing knees; back to back wobble; rowing; rolling; crawling through tunnel. Approach is individualised, for example, movements are accompanied with songs for some children and not others. Children are seen looking at the visual symbols closely.

Within the movement session, communication techniques are used to encourage children's communication, for example:

Pause burst technique and communication routines are used by adults, e.g., 1,2,3 pause…; ready, steady pause…; children vocalise during the pause, child C says "'gain" during tickling of knees. Child D says "ready, steady, go", followed by "let's do it again"; D says "I rolled over"; D requests tunnel "through the tunnel", "thanks xxxx".

Some children use the visual symbols to request particular movement activities and communication becomes reciprocal, for example:

Child C returns to the teacher at the end of the session and shows her the symbol for 'tunnel' activity; the teacher makes a tunnel and waits, child C watches, then put toe near tunnel, then puts foot under tunnel – goes back and forth repeatedly before going under the tunnel feet first. Showed the teacher the tunnel symbol again and repeated movement, then requested rocking activity by showing the symbol. The teacher responds to all of C's requests. At the end of the session, the teacher explains that child C has never gone under the tunnel before "this is a big achievement in building his trust and confidence".

The session follows a structured routine, but used flexibly to allow adults to respond to individual children's responses. During movement activities, children are engaged with the adults, make eye contact, imitate, vocalise, laugh, ask for 'more' and 'again'.

8.4.4 *Sensory strategies*

A range of sensory strategies are used and are viewed as particularly important in relation to emotional regulation (Prizant *et al.,* 2006b). A discrete area is dedicated to the provision of a variety of sensory strategies which are used by individual children when needed. The teacher explains:

We have a sensory room off the side - the sensory room is a great area, physical area that we have lots of physical activities like rocking chairs, physio balls, lights, sensory toys, that would give the child the opportunity to play with those really. (Teacher interview 2)

Resources which provide sensory feedback are considered to be *"calming"* and are described by the teacher as *"sensory soothers"*. The sensory area and activities are represented by visual cues to enable children to request when needed; for example, during one observation: *child B requests to go to the sensory area by handing a visual cue to TA2, she transitions to the area independently then rocks on a rocking chair*. This area, together with individualised sensory soothers is particularly important for children with self-injurious behaviours, as the teacher explains in the following example:

Another girl that we had would attack her face quite a lot and she was able to then pass us a symbol to ask for something that would help soothe that. She would grab hold of us and take us to the board because she actually wasn't able to use PECS efficiently at that point because she was new; she hadn't really learned that skill. But she could show us, you know, she wanted an ice cube to chew which was something that she preferred to do rather than hurt herself. So she could actually - having those available, you know, supported her to manage her own emotions and to regulate.

Sensory circuits (Horwood, 2009) are integrated into daily practice, with calming, organising and alerting activities provided for morning arrival in school. A sensory circuit is also observed during a PE lesson and children follow the circuit independently. TAs explain how children respond to the approach:

They do like the sensory. They do like the jumping and the bouncing and a little bit of squashing. I think it helps them to know their own body and where they are… And make them feel a bit secure. (TA 1)

It's to make them a bit more alert and I think there's three stages to it isn't there? There's your - it starts with a jumping up and - or some activity to kind of waken them up a bit. And then there's your thinking bit in between where you're going between steps but you might have a beanbag or something on your head so you've got to think, you know, and you've got your balance. And then it ends with usually another calming thing and squashing with a ball. (TA 2)

Individual children also request sensory feedback from adults during the day, for example TA 1 says children request *"squeezes and squashes"* and the teacher explains that:

> *Some of the children like to have particular staff do Sherborne and sensory activities with them throughout the day so... one of the boys would always go to one person for rocking who used to go really fast at the rocking. And I can't go very fast at the rocking but I'm much better at the squeezy type activities and he'd always come to me for the squeezes, he could discriminate between people, - visually we always had photographs in the colourful semantics to make sure that those people could be selected. (Teacher interview 2)*

8.5 Making Decisions

Decisions about classroom practices, and the ways in which structure is used as a framework within which other approaches are combined, led to the development of a model which reflects practices and priorities in this class (figure 8.1). This model reflects the child and their wellbeing at the centre of all decisions. The decision-making process is the same for both Structured Teaching strategies and for combinations of approaches. Decisions are determined by knowledge of individual needs and characteristics of each child. The priority which drives decisions is individual wellbeing.
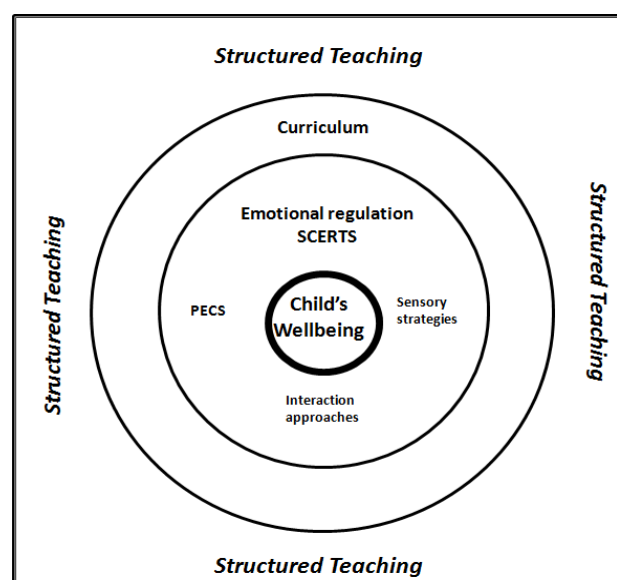
Figure 8.1 Structured Teaching and Other Classroom Strategies: Decision-making Model

8.5.1 *Knowing the child as an individual*

Responsive to individual needs

Decisions about structure for each child are centred upon knowing each child. The class teacher explains:

> *I suppose the most important thing for me is the child as an individual. Every child in that class is an individual so everything needs to be based around that child. (Teacher interview 1)*

Each aspect of structure is individualised and changes which are made to structure are responsive to individual needs. For example, child A had recently begun exhibiting signs of distress including self-injurious behaviours and aggression towards other children. Whilst all adults are involved in observing child A closely in order to determine the underlying causes of her distress, structure is adapted to meet her current needs and levels of anxiety. Her need for a larger personal space is addressed through adapted physical structure, with a work bay separate from other children (see appendix 27) and separate places to work during whole class activities. Her schedule information is presented as 'first… then' and her work system is supported by an adult who hands tasks to her. Tasks are visually structured and consist of preferred activities such as inset puzzles and eye-hand coordination toys. These adaptations reflect the focus on the individual which underpin the teacher's decisions in relation to individualised structure; structured strategies are implemented flexibly and responsive to individual needs.

The four key components of Structured Teaching are planned for each child depending upon their current needs. Flexible use of structure results in adaptations to structure as needs arise. Decisions reflect a flexible use of the approach and the class teacher explains how structured strategies are introduced at a young age:

> *I think it's easier to introduce it early. I know when we've had children that have come from other schools and they've joined us and maybe haven't had the opportunity to learn that, I think they find it a lot harder to engage in some of the activities. I mean, particularly the way that our classes are set up, having that schedule on the board, particularly if you've got an individual schedule, and if each child's doing something different, you know, to have the opportunity to learn that from an early age and to*

recognise schedules, to recognise, 'This is how my day's going to go, this is my routine', is a massive thing. (Teacher interview 2)

The teacher also explains that as children become familiar with Structured Teaching strategies, so the need to explicitly teach specific strategies reduces suggesting that skills become embedded in daily activities. The introduction of a child to the class part way through a year is also considered by the teacher in the following account:

… we've had children that have come in part way through the year and have really struggled with the schedule and not really engaged in knowing that, 'My day follows a routine; my day will follow this routine', you know and I think it's quite important then that, you know, when they first start in [school] *it is a case that they learn that there is a routine to the day and then throughout their time here it becomes more and more embedded so they know, they recognise it. And it's not then necessarily at the forefront at their minds.   It's not having to be taught throughout, you know, in Year 5 or 6, they recognise there is a schedule, they recognise that these things, they're already embedded in them, they know that these things are happening. And that gives you the opportunity to then build upon that and make it, you know, a little bit more in-depth. (Teacher interview 2)*

Observations support this belief as all children but one (child A) are observed confidently using physical structure, schedules, work systems and independent tasks. In this class, Structured Teaching is implemented as a structured framework (figure 8.1), however where the need arises, as with child A, Structured Teaching is adapted by becoming core to meeting the child's immediate needs.

Visual cues are individualised according to children's understanding, as are independent tasks. Knowing the individual influences the teacher's decisions, with an emphasis upon ensuring that children have tasks which promote independence:

A lot of the children wouldn't be willing to do things that they would find particularly difficult, too challenging. In those scenarios they'd obviously want adult support and that takes away the independence of the task. It's really based on the individual, what we think that they - the skills that they need… (Teacher interview 1)

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Teaching assistants echo the focus upon knowing individual children and using varied strategies according to individual needs, as illustrated in the following dialogue:

> *… it's knowing the children, you get to know the child. You get to know what they like or what they'll tolerate, whether the child wouldn't. Because some children need a lot of physical contact with squeezes and squashes and other children just don't - within a few days of knowing that child you can gauge and know. (TA 1)*

> *I don't know if that's just what working here and it just comes natural, that you know so-and-so needs the running machine, but you wouldn't put somebody else on it. Now ask me how you know that, I - it's very hard to explain. You just really get to know them. (TA 2)*

TAs are also involved in decisions about which tasks are suitable for which children. They explain the bank of tasks which they can draw from in order to offer each child appropriate tasks for independent work:

> *But we seem - tend to know, like some can do inset puzzles, some can't and we do move the tasks around them all, move them on to threading or them following a sequence with threading… (TA 2)*

> *You know if a child is finding something very easy you look for more - something that's a little bit more challenging… (TA 1)*

> *…until we, until you think, 'Right, that's far too easy for them', then we make up more tasks or we rotate around who's maybe a bit more advanced than the other. (TA 2)*

As TAs also teach individual children one-to-one, they are familiar with each child's strengths and interests which then inform decisions about suitability of tasks for individuals. TAs frequently use the phrase *"you just know"* when asked how they decide which tasks are suitable for individual children and also when to make changes to tasks; this feeling of 'just knowing' reflects an intuitive 'knowing' which influences their decisions.

Intuitive decisions
Whilst the teacher and TAs refer to 'knowing the child' as crucial to determining structure, this knowledge determines not only levels of structure but also combinations of approaches

and strategies. The teacher's rationale and decision-making is driven by knowing the individual child to the point where decisions are made intuitively:

> *I think it's really important to get to know the child as an individual. Because each child - and although, you know, they may both be musical as their preferred learning style, they may both have a musical - two children, both musical, really enjoy music, but one of them might like very heavy beats and the other one may like your nursery rhymes or something. And it's just recognising - giving them the opportunity to explore music. So music's a big thing for them, giving them the opportunity to explore music. And then you do, you become accustomed to what they prefer. You get to know intuitively what each child prefers and it's making sure that that's then available when they need it. (Teacher interview 2)*

The notion of intuitive decisions is echoed by TA2 who, when asked how strategies are decided for individuals, refers again to knowing the individual and *"it just comes natural"*; however, this seemingly intuitive decision-making process in combining strategies is in reality informed by in-depth knowledge of individual children. So whilst adults respond 'intuitively', this intuitive feeling is based on careful assessment of a number of factors including likes, dislikes, strengths and interests.

8.5.2 *Wellbeing and Learning*

Decisions about the use of Structured Teaching and combinations of approaches are linked to individual wellbeing, with strategies implemented to reduce anxieties and promote autonomy. The class teacher justifies this by explaining how structure is individualised to promote wellbeing which enables children to be *"ready to learn"*. The class teacher believes that by promoting wellbeing Structured Teaching strategies then foster engagement and *"meaningful"* learning. Incorporation of special interests is believed to be an important aspect which promotes interest in learning and motivation which consequently enhance task engagement. Decisions about independent tasks are determined by individual strengths and interests. In addition to developing wellbeing, the class teacher believes that learning should have life-long goals. This view influences the types of independent tasks designed for individuals, focusing upon leisure and life skills.

Other strategies are combined within the structure for each child, with the aim of promoting wellbeing and again, with the aim of preparing children to be 'ready to learn':

I suppose the most important thing for me is the fact that the child is ready to learn. You know, if the child is not ready to learn, if they are not, you know, prepared to actually engage in a task, there's absolutely no pointing doing that task because it's not going to be meaningful to the child, they're never going to learn anything from it. So we always want to make sure that everything that is available to them gives them that opportunity to be prepared to learn. (Teacher interview 2)

The teacher identifies a causal relationship between wellbeing and learning, suggesting that individual wellbeing is an important precursor to teaching and learning. This link explains the combination of Structured Teaching with SCERTS which the teacher explains:

It [SCERTS] *fits together really well, especially your social communication side, fits together brilliantly with your TEACCH, because again it's quite a structured way of communicating. And they've learned that a lot through TEACCH because we implement TEACCH from a really early age here at school so they recognise, you know, your left to rights* [work systems, visual instructions]*, they recognise routines and the social communication part of that fits in brilliantly. So I wouldn't notice any real difference between that and TEACCH with regards to implementing it within the classroom, it kind of fits really well. (Teacher interview 2)*

The teacher also believes there are some differences between Structured Teaching and SCERTS and offers insights into how, despite apparent differences, she feels the two approaches work together:

I suppose the emotional regulation part of the SCERTS area is very different because I suppose TEACCH [Structured Teaching] *is very much based on focus and having that child focussed and engaged in that activity and only that activity and they cannot be focussed in any other way on any other thing. But we were really keen to ensure that a child has something to manage their emotions, be it a flapper, be it a chewy toy. I suppose TEACCH would look at it as in, 'Well, they now are not focussed on the task, they're focussed on flapping the toy'. Well, we're thinking more along the lines of the flapping of the toy is managing their emotions, that they then can take part in the structured tasks. So it's kind of flipping TEACCH a little bit on its head and kind of going, well actually we are letting them have free flow, free play with these toys in order to engage them in the activities.*

A number of other individual factors in relation to wellbeing are identified by the teacher as important to address if children are to engage with learning and these individual factors determine the combination of approaches and strategies. The first priority identified by the teacher relates to basic needs and communication. Communication extends beyond communicating basic needs and includes being able to communicate choices and to express how children feel. The teacher explains that *"there are lots of different things available for each child, but it is based on the child"*, again reflecting the focus on the individual. Particular communication strategies are combined as integral to both Structured Teaching and SCERTS, including the use of PECS and colourful semantics, both with a strong visual component which explains their combination.

Sensory strategies are decided upon in relation to individual sensory needs which the teacher identifies as basic and essential needs which must be addressed to promote wellbeing and readiness to learn. These sensory strategies are used to support children's 'emotional regulation' as part of the SCERTS approach. At the same time, reduction in sensory distractions, as observed for example in work bay areas, reflects the teacher's consideration of physical structure.

Emotional engagement and positive relationships
The class teacher also implements other strategies which aim to develop emotional engagement and positive relationships, including Sherborne movement and child-led activities which foster children's interests and preferences. These strategies are not used in isolation, but rather are combined within the Structured Teaching framework.

Observations during a swimming lesson note combinations of strategies used by the teacher according to individual needs and responses:

> *Structured Teaching organises and structures the* [swimming] *lesson. The teacher responds to individual communication, child-led opportunities are provided within the structure of the lesson. Lots of children are engaged and focused on interaction with the adults, children are enjoying the session, no anxieties observed. Children use PECS "I want…" to request swim resources during the choose part of the lesson. Choose is very interactive and child-led. Pause – burst techniques used to build anticipation. Spontaneous communication is noticed and responded to by all adults. Child D calls*

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"xxxx come and get me" and TA 2 chases him across the pool then pauses, child D calls out "again" and the TA chases him. The choose part of the lesson is high arousal, children are excited and anticipating familiar interaction games. The visual schedule is used to let children know the lesson is finished – each child is informed "swimming finished, get dressed" and leave the pool one by one, transition to changing area. Children return to class calmly. (Obs. term 2)

8.5.3 *Combining approaches and potential for conflict*

Adults believe there is no conflict between Structured Teaching and interaction strategies and see visual structure as a means of supporting and enhancing interaction. For example, when asked if there is any conflict between approaches:

well no, because we use visual cards for the Sherborne, don't we? And so they know exactly what they're doing. But at the same point, if they didn't like - like last year there is a little boy didn't like a tunnel to crawl through, skip that bit. If they don't like it, we wouldn't do it. (TA 2)

The class teacher has a clear belief that the combination of interaction approaches with more structured approaches need not conflict:

I would say personally in my teaching no, I wouldn't say there is a conflict. I would say that both of them are very valid. Both of them need to be accessible to the child. They need to have a structure, they need to know a routine. However, they also need to have the freedom to have that expression and to have us, you know, join them in that expression. So I think your daily routine should incorporate as much as possible. You should always ensure that you have a structure to some degree. However, the flexibility to deviate from the structure as needed for each child and I think again, the structure shouldn't be so rigid that it kind of fuels the ASD rigidity. (Teacher interview 2)

The teacher concludes by emphasising her belief that combining approaches is essential:

I also think though it's really dangerous, as a member of staff, you know, for these children for their lives, it's really dangerous for us to get into a one approach way of teaching. You know, I think that is really dangerous because if we go down a one approach way of teaching, we are missing, you know, the rest of the iceberg. You know,

you are hitting that top bit, the rest of that iceberg (referring to Schopler's, 1995 metaphor) *is completely lost to those children and this is the one chance they've got and we've got to make sure that it's right for them. And if that does mean that it does look pick and mix-y, so be it, you know. I just think it's so important for the children.*

8.6 Summary of case study one

Structured Teaching is implemented in combination with SCERTS as a framework (figure 8.1) within which other approaches and strategies are combined. This framework is flexible, for example by becoming a core focus for children new to the class, or for children experiencing difficulties. In this class, the priority aims of Structured Teaching and SCERTS are to promote wellbeing in order to help children to be ready to learn. Structured strategies are individualised according to needs and are use flexibly in order to be responsive to each child. The use of structure promotes learning behaviours through strategies which are meaningful to individuals. Visual structure and cues are used to support teaching across the curriculum. SCERTS is used with key aims of enabling children to communicate and interact and to regulate their emotions. Both of these approaches are perceived as promoting wellbeing which enables children to be ready to learn. Within the framework, combinations of strategies are implemented based on knowledge of each child. The individual child and their wellbeing is at the centre of all decision–making.

Chapter Nine: Case study Two

In this chapter I present case study 2, school A. The case study provides insights into the research questions and includes analysis of: Structured Teaching practices; combinations of other approaches; the teacher's decisions to select and combine approaches. I present a model which reflects the practices and decisions which underpin this case study. Structured Teaching is implemented flexibly, depending upon needs and provides a broad framework for combining other approaches. Decisions are underpinned by a priority focus upon independence and the emotional wellbeing of each child.

9.1 Introduction: Case Study Two

The class teacher explained during the initial interview that the class comprised eight children (see table 7.1, p. 114) who experience high levels of anxiety, emotional outbursts and sensory needs. The children use spoken language to communicate. Despite their use of language and cognitive abilities, the children had transferred from mainstream settings due to their emotional needs and outbursts. Following the initial discussion, data collection was conducted over four terms (see appendix 29 for details). A summary of Structured Teaching components for each child is presented in appendix 30. The class layout (physical structure) can be found in appendix 31. All four components of Structured Teaching, as determined by the TEACCH approach, are implemented flexibly and in relation to individual needs.

This case study is based upon two key themes: 'wellbeing' and 'teaching and learning'. Both themes are presented in relation to Structured Teaching and other approaches before exploring decisions which result in a combination of approaches in practice.

9.2 Structured Teaching: Children's Wellbeing

9.2.1 *Wellbeing, anxiety and emotional overload*

The class teacher explains that the children are performing academically at levels P8 and 1 and 2 of the National Curriculum, but that they all experience high levels of anxiety and emotional overload which is why they have transferred from mainstream schools to special school A. Difficulties with expressing their feelings, together with high levels of anxiety, frequently result in frustrations which develop into behavioural outbursts. Despite the use of language and cognitive abilities, the priority for the children according to the class teacher is to develop *"emotional regulation and self-esteem"*.

Physical structure and anxiety

Reduction of anxieties is explained as a key priority for the children and this is partly addressed with the use of Structured Teaching strategies. The physical structure of the room (appendix 31), whilst flexible according to activities, is clearly organised with specific areas designated for specific activities. On all occasions children are observed transitioning around the classroom independently and calmly. An important part of the physical structure in this class is the use of a curtained quiet area which children can choose to go to when feeling anxious or overloaded. Other features of the environment, rocking chair and walking machine, provide children with sensory stimulation which is considered by the teacher to be an important strategy to teach the children to *"self-regulate their emotions"*. The flexibility of the physical structure is responsive to individual needs, as illustrated by the use of screened work bays for two children who are more easily distracted by events in the classroom. If child A and B (appendix 31) are able to see what the other boys are doing, they become anxious, ask repetitive questions and repeatedly seek reassurance from adults; reduction of distractions through the use of screens reduces their anxieties and consequent behaviours.

Schedules, work systems and anxiety

The class teacher explains that a whole class schedule is the main means of providing the class with information about the daily timetable. The boys do not have individual schedules, justified by the teacher due to their *"high verbal skills"*. Structured strategies in this class are sometimes subtle and not always evident at first glance. For example, the use of work systems is not evident until boys collect their work from a drawer which incorporates a number work system (see appendix 32)). Observations of independent work sessions note:

> *children are calm, independent, confident… when anxieties arise during independent work, adults redirect individual children to visual structure including the work system and task instructions.(Obs. Term 1)*

Visual information and, anxiety

There are an extensive range of visual strategies evident in the class and around the school which provide communication tools for children to communicate needs and feelings and also used to remind children of positive behaviours (see appendix 32). Visual cues and communication strategies are provided as part of the structure in place for the whole class. In particular, visual cues are used to support children at times of anxiety to enable them to communicate how they are feeling, as explained by the class teacher:

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These boys are all very bright academically but they're emotionally volatile. The visuals are there to remind them that they can tell us how they are feeling. We have lots of different ones available as different ones work for different children – so some like the traffic lights and others use the 'tell me' symbols and words. If a child gets anxious or overloaded, using the visual is calm and reassuring and reduces how much talking we use – if we talk too much when they are upset that can make them feel worse.

The need for visual information is not always apparent in this class until children are anxious. Observations of circle time and registration note how visual information is swiftly added when needed:

Children sit on soft chairs for circle time and registration. Child x notices that the topic symbol (yum yum) is incorrect and starts to become anxious, the teacher quickly draws a visual symbol on a card to represent 'religious leaders' and replaces the incorrect visual cue. Child x says "that's right now" and becomes calm. (Obs. Term 3)

The use of visual information is one of a variety of strategies to reduce anxieties and is one which is produced in response to individual needs. In addition, there is a strong use of routines, with visual information, to support children and to reduce anxieties, with routine actions and activities supported by routine phrases used by all adults. For example during transition from the classroom to the first part of a PE lesson, observations record:

Children line up at door, red taped lines on the carpet indicate where to stand. TA4 tells me that lining up is difficult for these boys due to "problems understanding personal space". The boys each stand on a red line, the order of the line is pre-determined and provided on a 'line-up list'. Children go to the hall for warm-up activities; the teacher gets the boys' attention with a clear "listen", followed by clear and concise verbal instruction for each child to go to a particular space in the hall – they all find their space quickly and wait. Teacher leads a cat and mouse chasing game. Verbal instructions given: "It's ok to be caught, it's ok to be first to be caught. If you think something is unfair, tell a grown-up – no need to scream, cry, shout, run away. Tell a grown-up". (Obs. term 3)

This example illustrates the mix of visual information in combination with use of children's understanding of routines and routine phrases, neither strategy used in isolation from other strategies. In addition to combinations of strategies, the teacher's interaction style and communication are key elements in ensuring children remain calm. Following the cat and mouse game, children transition to the gym for large apparatus work; no visual cues are used and the lesson is directed verbally. Following the excitement generated in the final PE activity (parachute game), children return to class and a calm atmosphere is established through the teacher's interaction and whispered communication.

9.2.2 *Wellbeing: autonomy*

Just as the reduction of anxieties is prioritised, at the same time increasing individual children's autonomy is also a priority for every child in this class. The class teacher believes that the children's emotional difficulties, anxieties and poor ability to express their emotions results in lack of independence and low self-esteem. Structured Teaching strategies are used with the aims of developing independence and self-esteem, communication of emotions and the development of self-control and self-management of behaviours.

Independence and self-esteem

Each child is described by the class teacher as being *"very dependent on adults when they first arrived in this class"* and that since joining the class they have *"become more independent and confident"*. The teacher attributes these changes to the combined use of Structured Teaching with other approaches and in particular as part of the SCERTS approach (see 9.4.1, p. 167). The use of clear routines and the class schedule means that children know what to expect each day and can also cope with changes to their day when represented on the schedule. This results in self-confidence and independence as children are able to understand and predict expectations. Individual children are selected each day as the 'leader' of activities during registration, as observation notes record:

> *Circle time, soft chairs. Child E is selected as 'leader', he calls out names for the register then explains the sequence of activities for the day using the class schedule. Child E then uses visual cues to record the date and talk with class about today's weather. The class sing a routine hello song. (Obs. term 1)*

The familiarity of this routine, together with the use of visual structure, reassures children; anxieties are allayed by referring back to the visual cues which are meaningful to the children. Independent transitions between activities are supported by the class schedule and children are observed independently referring to the schedule during and between lessons.

The schedule is not relied upon at all times by these children who have good understanding of verbal language and so the class teacher uses verbal directions to transition children to some activities. In addition, children know the daily routines well and so have less need to refer to the class schedule. This reflects use of the schedule as a timetable, which these children can recall from memory, thus negating the need for them to refer to it. This leaves open the possibility that as demands change and increase, for example when moving to secondary school, children may be less able to recall 'timetable' information from memory but may have limited skills of using a schedule to understand and keep track of daily, weekly and termly events. Lack of individualised schedules, which extend the purpose beyond that of timetable by incorporating opportunities to develop communication, flexibility and thinking skills such as decision-making, limit the outcomes of using this strategy for greater autonomy.

In addition to the class schedule, independence is evident particularly during independent work sessions. Children are able to independently locate tasks and complete in the sequence the teacher requires them to by following a number matching work system placed in their work drawer. Each child has the same work system, illustrated in figure 9.1. All children are observed using this system to complete tasks in sequence independently. Individual anxieties are evident in some children who then use different strategies to manage their anxieties, as illustrated in the following observation:

> *All children fetch their work drawer and take out the number work system. They follow the system to complete each task in sequence. Child A is less confident and shows each completed task to a TA for reassurance before moving on to next task. (Obs. term 1)*

Independent tasks focus upon literacy and numeracy and include written instructions which enhance independence. Again individual children are observed getting anxious and using different strategies to express their feelings (see communication and emotions).

Similar levels of independence are observed during whole class lessons, for example during a literacy lesson children work in small groups to complete differentiated sentence and punctuation tasks; written instructions are provided with tasks which aid independence. TAs refer to these written instructions when supporting individual children who need help. The visual instructions provide consistency of support which TA 3 explains:

> *The key is consistency and consequences. They used to go round adults asking repetitive questions about what to do in their work. The instructions in the tasks give us a consistent response about what children have to do. They also need to know if this, then this – now we all say the same and the visuals remind all of us including the children. The boys are more confident now and they know they can read the instructions so they are more independent when they learn.*

As well as supporting taught lessons, visual instructions are used to address individual priority needs. For example, child G has an individual education plan (IEP) with a target to *'follow a micro-routine to remind him to be safe when leaving a vehicle – he will be prompted to read it before leaving a vehicle, leading to no prompting, reading it independently and following the instructions with no support'.*

In addition, children's interests are incorporated into lessons, in the case of this literacy lesson a cartoon/games character 'Super Mario' is included in sentences; special interests are believed to be *"important to motivate them" (TA 3).* The class teacher explains that the children know how the structure works and are confident using visual cues and information. The teacher believes that use of this structure has increased confidence and that this raises self-esteem; as the structure is familiar to the children, the teacher explains that the priority is focused upon their *"emotional regulation as this is their biggest difficulty."*

Flexibility and coping with change

The four key components of Structured Teaching are planned for each child depending upon their current needs; flexible use of structure results in adaptations to structure as needs arise. Flexibility is evident, for example when physical structure is changed throughout the day according to activities; TA 2 indicates that changing the layout of the tables during the day *"helps them to practice coping with changes"*. Such changes are made to both the physical layout of the classroom and the class schedule and children are observed coping with these changes, supported with visual tools to communicate their anxieties should these arise. In

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addition to coping with change the boys are taught to following visual instructions, as a routine learning behaviour, which then enables them to be more flexible in their learning. Independent tasks demonstrate this as children are observed following visual instructions which vary in terms of what they are to do, offering opportunities for individuals to develop more flexible learning skills.

Communication and emotions

The emphasis for the boys is upon communication, emotions and anxieties and a variety of strategies are utilised to help each child to express themselves. Visual strategies support routine activities such as snack time, social conversations, recalling and reflecting upon previous events and for expressing feelings. IEP targets for individuals illustrate the use of visual strategies to support communication, ranging from recalling every day events to reflecting upon events. For example: child I has an IEP target which reflects this: '*child I* will begin each day telling a member of staff about his evening – what he had for tea etc. using visual cards… to develop his understanding of social conversations'; child B is learning to keep and use a written diary to help him to recall events where he has upset another child, record what he did and talk with an adult about how he could behave in future.

Routine activities such as snack time are used to encourage children to take responsibility for example by leading snack time. Visual reminders are referred to when necessary, but children are independent during these routine activities unless anxieties arise at which point adults may step in with prompts or direct children to visual information. This strategy is also evident during lessons, as illustrated by the following observation:

> *Child D talks to himself while completing his first task - "this first work is easy – easy peasey, lemon squeezy" – but he actually needs some help and is struggling with starting the task (literacy worksheet). He looks at the written instructions and repeats the phrase – TA 4 notices and prompts him to read the instructions to which child D says "I don't need help. I'm doing it when you've gone". TA 4 points to the first written instruction and moves away – child 4 then complete the task correctly, reading the visual instructions. (Obs. term 2).*

Structured Teaching strategies are part of a combined approach to managing and expressing emotions. As the teacher explains: "*They're clever boys – they're mainstream but their emotions mean their needs can't be met in mainstream.*"

Thus, communicating emotions is a priority for every child and a priority which visual cues support; a wealth of visual information (appendix 32) is available to provide children with ways of communicating how they are feeling, especially when they become anxious. Both class teachers explain that these visual cues are part of their approach to helping children to communicate their feelings and to self-regulate.

Children are observed referring to visual cues to support their communication of basic needs, such as the need for a tissue, and to request help from adults; they express levels of anxiety by using visual symbols and traffic lights; visual cues are also referred to for individual to self-manage their behaviours, for example referring to the 'I could, I should' cue. Adults equally refer to the visual cues during activities to remind the children of the strategies which are available to support their communication.

9.3 Structured Teaching: Teaching and Learning

The two main factors which emerged from data analysis were learning behaviours and curriculum access (see appendix 23).

9.3.1 *Learning behaviours*

The academic ability of the children enables them to use Structured Teaching strategies independently; these strategies have been learned and provide a framework for learning behaviours which enable children to engage in learning, providing a supportive learning environment.

Transitions: physical structure, routines and schedules

Children are able to transition independently between activities and events as they clearly understand classroom organisation, are familiar with class routines and are able to refer to the class schedule to retrieve information about the sequence of activities each day. A degree of flexibility is demonstrated, for example by pointing out errors on the schedule and making changes to both the layout of the classroom and to the schedule. Observations note a *calm and purposeful learning atmosphere* on a number of occasions. TA 3 (term 1) explains:

> *The children know the routines and they look at the class schedule when they need to*
> *remind themselves about 'what's next'. Their emotions do get high sometimes and*
> *then we have to remind them to check the schedule and to use the visual reminders*

around the room to deal with their anxieties. Sometimes that helps when it doesn't help they may go and sit behind the curtain until they feel better.

Whilst the structure is providing strategies which the children use independently, i.e., they have been taught how to use the structure and no longer needs constant reminders, this independence may rely in part on the familiarity of routines. It is not clear whether this level of independence would transfer to a new context, such as moving to secondary school.

Engagement and organisation

Visual instructions enable children to organise their work and to engage in learning, both independently and during group and class teaching. Work systems are used independently and the boys read written directions to complete activities. Again, the level of structure is more subtle, and perhaps more similar to the type of structure provided in a mainstream class; the difference is in how this structure is utilised in response to boys' emotional anxieties. For example, the following observation illustrates how attention is directed to available visual structure to support anxiety:

> *Child D uses his work system independently and completes a series of literacy and numeracy tasks during an independent work session. The class teacher gives a verbal five minute warning to packing away time. Child D gets increasingly anxious, verbalising his anxiety by repeating phrases, "I won't be finished". A countdown to finishing work and packing away increases his anxiety – TA 3 points to a visual reminder about what to do when work is not finished. Child D reads the reminder several times. When children pack away and transition to the circle area, child D is still upset as he has not finished his work. TA 3 prompts him to follow the instructions for unfinished work and also reminds him that he may go behind the curtain if he needs 'time to be quiet'. He follows the reminders but remains upset, he take himself behind the curtain and stays there for approximately one minute, then joins the circle for register and hello activity. (Obs. term 2)*

This example illustrates the potential for upset at any time for each of the children; at these times, attention is drawn to available structure and visual cues which re-engages children or reminds them of strategies they might use to manage their anxieties and behaviours.

Teaching and learning routines

Familiarity with learned routines supports teaching and learning in a variety of contexts. This is evident for example during a PE lesson which follows a familiar routine (warm-up activities in hall, class lesson in gym, return to hall). During some whole class teaching which follows a familiar routine, little reference is made to visual structure and cues unless individuals become upset. The reliance on learned routines is combined with a teacher interaction style which provides concise prompts, reminders and verbal instructions. For example, during a play-buddies session the teacher gives verbal instructions to the class; visual cues are then used to provide individuals with reminders for positive behaviours or what to do if upset. Observations of this session note the emphasis upon listening to the teacher, communication and problem-solving. The routine of the activity provides familiar structure, within which the children are learning to cope with a potentially anxious activity.

Structured Teaching is used flexibly in this class to provide a learning atmosphere within which individuals can engage in learning. At the same time, opportunities are created which may provoke anxiety and high levels of emotions in order to teach the boys how to use strategies for 'emotional regulation' (see 9.4.1, p. 167). The class teacher explains that:

> *... because so many children with ASD are so rigid on what their expectations are, I think we also need to give them the opportunity to deal with change, to deal with, you know, things are going to happen that maybe won't be exactly what we're expecting and to have that flexibility of practice is great for children, you know, throughout their lifetimes. (Teacher interview 1)*

9.3.2 *Curriculum Access*

Visual instructions: independent work

Structured Teaching strategies are used as a differentiation strategy particularly during independent work, as the teacher (interview 1) explains:

> *We've got obviously the targets that we need to meet re the curriculum. So we have got literacy based activities, numeracy based activities in there.*

Observations of independent work note that all children complete literacy and mathematics tasks independently, following written instructions. When help is needed, individual children

ask the teacher or TAs who remind them of the written instructions and add verbal prompts as needed. The use of written instructions for these boys works well due to their literacy skills.

Visual differentiation: core subjects

Written instructions and visual cues are incorporated into whole class lessons, particularly in core subjects. For example, observations of a mathematics lesson illustrate the use of visual instructions to promote access to the lesson:

> *The class sit in the circle area for the first part of a maths lesson: quarter, half, three-quarters and full turns. The teacher demonstrates quarter and full turns using arms. Child E is chosen as the leader and he demonstrates by copying the teacher's demonstration. He chooses individual children and they copy his actions for quarter and full turns.*
>
> *Visual instructions are then used to explain the lesson and children are each given turns to move pictures quarter, half, three-quarters and full turns. Children then sit together at a group table, except for child E who sits on his own saying "by myself work" (perhaps reflecting his preference for working alone). Children complete worksheets which include visual instructions, some children read the instructions out loud to themselves. All are engaged and know what to do; reassurance is sometimes asked for e.g., "is this a quarter turn?" – teacher and TAs reply by referring back to visual instructions and cues and demonstrating turns with arms. (Obs. Term1)*

The class teacher explains:

> *We use written instructions and other visuals in literacy, maths and science especially – they can all read and they like to keep reading them while they are working. They do not remember all the instructions if we just say them, by giving them written instructions they can keep checking if they forget what is said during the introduction to a lesson. (Teacher interview 1)*

This contrasts with other whole class lessons, as observed for example during PE and during a play buddies session. The teacher explains why the use of visual cues and instructions varies depending upon the focus of a lesson:

In some lessons the focus is more on the subject, for instance in literacy - we want

them to concentrate on what they are learning, like adjectives or adverbs or

punctuation. In those lessons we use visuals and written instructions to help them to

focus on what they are actually learning in the subject. In other lessons, like PE or

social group lessons, we use the visuals more to support their emotions and anxieties.

9.4 Structured Teaching and Other Approaches

A variety of approaches are combined with the use of structure, with a priority purpose of developing emotional understanding and positive relationships (table 9.1).

Table 9.1 Other approaches combined with Structured Teaching

Approach/Strategy	Contexts	Relationship to Structured Teaching
SCERTS	Continuous and embedded across all aspects of school life	Visual strategies
Sensory circuits	Morning arrival	Visual layout of circuit displayed
Sensory strategies	Individual as needs arise e.g., weighted blankets	
Peer interaction strategy 'play buddies'	Social interaction and problem-solving	Visual rules and cues to support social behaviour
Social Stories	Individual needs	Visual cues and communication

9.4.1 *SCERTS*

The SCERTS approach is the main approach which is combined with Structured Teaching. The school has adopted the SCERTS model (Prizant *et al.,* 2006) which underpins classroom practice. The model prioritises social communication and emotional wellbeing and incorporates a range of strategies to enable individuals to communicate, interact and regulate their emotions. The approach adopts a variety of strategies in order for individuals to learn to recognise signs of anxiety and to self-regulate and manage their emotions and behaviours. All of the children have IEP targets which reflect these priorities and which also aim to increase self-esteem. An illustrative example reflects the emphasis upon building self-esteem:

'child H will work on a self-esteem building programme to support him to realise how

wonderfully he is working. He will be able to identify ten things at the end of each

week that he feels he has done well'. (IEP child H)

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SCERTs and Structured Teaching coexist as complementary approaches, with overlapping aims which include increasing independence and raising self-esteem. The visual strategies of Structured Teaching support the aims of self-regulation in the SCERTS approach. In this class this is achieved by providing visual strategies which support communication and in particular communication of feelings, emotions and anxieties. Observations show that SCERTS and Structured Teaching strategies dovetail and are fundamental to classroom practice in this class.

This juxtaposition of the two approaches is especially evident when individuals are upset and anxious. Children have access to a variety of 'self-regulatory tools' to teach them strategies to manage their emotions and behaviours and a number of children have IEP targets that reflect this approach. For example: *'child I will use blu-tack as an anxiety reliever whenever he is feeling anxious'.* Visual cues support this self-management, as illustrated in the following IEP target: *'child C will recognise when he is feeling anxious and will move to complete a self-regulatory activity to ease this. He will do this with a visual prompt as needed'.*

9.4.2 *Peer interaction: play buddies*

At times some children verbalise their anxieties with repeated phrases which have the potential to escalate their emotions, which can result in problem behaviours. The following observation illustrates how this occurs and is managed:

> *When snack is finished a song is used to transition the boys to the next activities – TA 2 tells me "it's play buddies time". Mats are arranged in a circle and the children stand on a mat. Child 5 uses visual rules to explain the rules to the class – combination of symbols and words for the rules of the game. The teacher reminds the children where to look for visual cues to remind themselves how to behave and how to manage their emotions and behaviours.* (see figure 9.2, p. 169).

> *The first activity is called 'tangle' – the children hold hands and then move under and over each other's arms and bodies until the circle is 'tangled'. The teacher uses verbal instructions which the boys follow – the aim is for the children to then disentangle themselves to reform the circle without losing hands. Great emphasis upon communication and problem-solving.*

> *Child A "I don't like this game, it's stupid" – he does not want to hold hands, no fuss made, sat quietly on a chair to the side and watches but clearly finds it stressful. "It's*

just a bloody hard stupid game" – the teacher reminds child A to *"make the right*
decision" to which he replies *"am I very naughty?"*

Child D is asked to join the circle but says "I'm having time" –When the boys are
'tangled' he tries to join and is told to "stand out until we are untangled" to which he
replies "stand out stinks" – but he then stood and watched. When the boys were in a
circle again he asked "why can't I be a play buddy" to which the teacher replied "you
waited for us to untangle, good, now you can join the new circle". He joined the
activity when it began again and participated until the end of the activity, no outbursts
or refusal.

Child E is worried the boys will not untangle and form a circle, "why is this game so
boring?"

There is potential for very high emotions throughout the activity – children are
encouraged to communicate how they feel, for example by referring to 'tell me' visual
cue. The quiet area behind the curtain is used briefly by child A before returning to
watch. (Obs. Term 3)

We should listen to the adults in the classroom.

We should understand that others may have an idea.

We should take time out when we are angry.

We should think about what we should say to our friends.

We should walk away when someone upsets us.

We should keep our hands to ourselves.

We should use useful words when we are sad or angry.

We should not hurt each other.

We will have – or + minutes for golden time
depending on which decisions we make.

Figure 9.1 Visual reminder: how to manage own emotions and behaviours

This play buddies activity illustrates how opportunities are created which expose the children
to activities which they are likely to find stressful in order that individuals can practice self-
management of emotions and behaviours. Activities such as this which raise levels of anxiety
and high emotions are then supported with the following: clear activity routine; physical

structure (mats to show where to stand, quiet area to retreat to if upset); visual cues; symbol/written rules; verbal reminders of self-management strategies; consistent feedback from adults.

The potential for high levels of anxiety and emotional outbursts is clear during all observations, with individuals showing anxiety and sometimes becoming upset. The SCERTS approach is believed by both teachers and TAs to be particularly important for the boys in this class, whose priority needs are emotional and behavioural.

9.4.3 *Sensory strategies*

Sensory strategies are incorporated into classroom practice as a complementary way of teaching the children to manage their sensory processing differences. The routine use of sensory circuits when boys arrive in class each morning is believed to help the children to transition from home to school transport in a way that is *"comfortable"* (teacher). The circuit of activities is displayed on a whiteboard using pictures/symbols and includes a variety of activities which alert the sensory system, help children to organise sensory information and finish with calming activities, as suggested by Horwood (2009). The children know this morning routine and begin the circuit without prompts. A timer is used to determine how long to spend on each activity in the circuit and the boys complete the circuit independently. Adults monitor each boy discretely, stepping in with a verbal or visual prompt if needed. TA 3 explains:

> *The sensory circuit is brilliant – they all know what to do and they all like it. If they arrive at school upset or flapping, the circuit activities calm them down before they start work.*

In addition to the sensory circuit a variety of other strategies are used to help individuals to self-manage their sensory needs; individual sensory strategies are used as part of the SCERTS approach to enabling individuals to self-regulate and manage their emotions and behaviours. These include the use of weighted blankets and pressure jackets which children have access to at all times. Child C in particular is guided to make use of these when he becomes fidgety on his chair and begins repetitive movements. Again, individuals have IEP targets which reflect the use of sensory strategies for self-management, for example: *'child D will have a range of similar fabrics that he can chew on (instead of his coat). He will be given this each time he is wearing his coat and be reminded to chew on these instead of his coat'*.

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9.4.4 *Social Stories*

Social Stories (Gray, 2010), designed to develop individual's understanding of social interaction, are used with individuals as needs arise. Although not observed, IEP targets reflect the purpose of using this approach; for example, child G reads a Social Story about how to make friends before his social integration sessions at a local mainstream school. Child E has a Social Story to support his ability to accept adults being near to him whilst wearing particular accessories such as jewellery. The class teacher explains that the approach is another which is incorporated as: *... part of the mix of approaches within SCERTS and also with TEACCH. They all go well together and we can choose which to use with which children. (Teacher interview 2)* TAs 1 and 2 explain that they read Social Stories with individual children before events, such as play-time or integration to mainstream school.

9.5 Making Decisions

Decisions about classroom practices, and the ways in which structure is used as a framework within which other approaches are combined, led to the development of a model which reflects practices and priorities (figure 9.2). This model is slightly different to that of case study one (figure 8.1, p. 145) in that PECS is not used as the children communicate verbally. However, the model still reflects the child and their wellbeing at the centre of all decisions. The decision-making process is the same for both Structured Teaching strategies and for combining approaches. Decisions are determined by knowledge of individual needs and characteristics of each child and the priority which drives decisions is individual wellbeing.
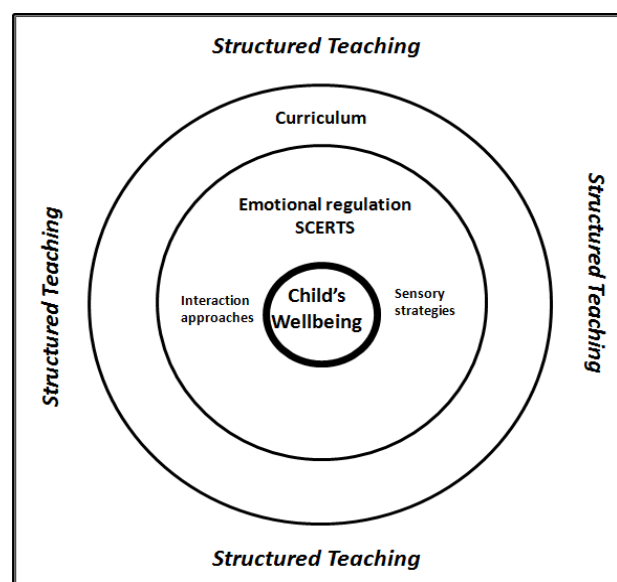
Figure 9.2 Structured Teaching and Other Classroom Strategies: Decision-Making Model

9.5.1 *Knowing the child as an individual*

Knowing each child underpins all decision-making. The teacher explains that decisions about strategies for individual children are made as part of a team approach:

> *We have meetings when we discuss individual children, how they are doing and what they might need. This happens especially if a child is having some problems with their behaviour or if they are upset. We think about which types of strategies might be helpful and we put together a mix of things – it is based on what we know about the child, finding out how they are at home and then working out what we could do as a team. (Teacher interview 2)*

Decisions about what types of structure to provide for each child are determined in part by their academic ability. The class teacher explains:

> *The boys in this class are clever but they get upset very easily. Structured strategies are decided for each individual, but because they are academically able this means some of the structure is the same for each boy – especially the class schedule and work systems.*

Observations of structure also reflect this whole class approach to Structured Teaching strategies, particularly in relation to use of the class schedule which all boys refer to as and when they need to.   At the same time, structure is individualised in response to individual needs. TA 3 explains:

> *We observe the children all the time and if we think they need changes to the structure we talk to* [the teacher] *and we change things. Child A and B both needed some individual tweaks to the structure as they can't concentrate very well – we use the work bays for them so they can't see the other boys while they are working.*

Visual cues and independent tasks are also individualised according to children's understanding. The class teacher's main focus for independent tasks is upon literacy and maths which influences decisions about types of tasks for each child to complete independently. Knowing the individual influences the teacher's decisions, with an emphasis

upon ensuring that children have tasks which promote independence and based on *the skills that they need*.

Knowing the individual is at the centre of decisions, resulting in different combinations of approaches for different children. The class teacher describes the combination of Structured Teaching and SCERTS as *"a natural fit"*. Structured Teaching provides strategies which complement the foci of SCERTS upon social communication and emotional regulation, mainly through the use of a wide variety of visual cues and supports. Other approaches and strategies are integrated into this framework, informed by decisions in relation to each individual child and which are reflected in IEP targets. Decisions about Structured Teaching strategies reflect the sometimes delicate balance in this class between children's academic abilities and their emotional states, thus decisions to individualise structure and other approaches are driven by the boys' emotional needs which impact their ability to learn. The teacher explains that decisions need to take into account the individual's academic ability together with their anxieties and emotional wellbeing.

9.5.2 *Wellbeing and Learning*

Independence and autonomy

Structured Teaching strategies provide a framework which enables children to be independent and to develop autonomy, whilst other strategies are combined within the structure to promote emotional wellbeing. The class teacher emphasises the link between wellbeing and learning, indicating that decisions focus upon these key factors. She explains that wellbeing and learning for these boys are interdependent, each having the potential to impact the other. The fragility of both wellbeing and learning results from the emotional volatility of each boy and justifies the focus for decision-making.

Decisions about the use of Structured Teaching strategies reduce anxieties and promote autonomy. The emotional volatility of the boys in this class influences all decisions, including those in relation to Structured Teaching. 'Knowing the child' links not only to individual academic ability but also to individual emotional states. The development of, and ability to sustain, independence is prioritised to raise self-esteem and confidence which is observed during morning work sessions as:

... fragile for each boy – emotional states fluctuate moment to moment. When boys
arrive, the structure of the sensory circuit, followed by independent work sessions,
provide reassurance and a routine which they follow independently. (Obs. term 1)

The class teacher explains that she decides how to use structure for the class and for
individuals, depending upon individual emotional states and levels of anxiety with a priority
to support their emotional development and wellbeing. Whole class structure provides a safe
and secure learning environment which promotes independence and autonomy and which can
also be quickly adapted to respond to individual needs.

Special interests are integral to many activities, including independent work and class lessons.
The teachers and TAs all view this as an essential factor which motivates individuals to
complete tasks and participate in class activities. For example, observations of literacy and
numeracy lessons note the use of favourite cartoon characters to add motivation; the teacher
explains that this is *"particularly important when the work is challenging and they may
become anxious"*. The class teacher believes that:

> *By using their interests in lessons, like Super Mario, we are showing them that we*
> *value them as individuals and that we take an interest in what interests them. For*
> *example, small things like having a cartoon character appear on a literacy worksheet*
> *brings a smile to their face and they are drawn to then look at the worksheet content.*
> *(Teacher interview 1)*

Emotions, communication and interaction
Many of the teacher's decisions relate to identifying strategies which support individuals to
develop awareness of emotions and an ability to communicate how they are feeling. A
variety of strategies support 'emotional regulation' and are selected based on *"what we have
tried before, what worked before"*. The teacher says in relation to 'what works', *"We are all
learning, we try something and observe to see the impact, we don't always get it right and
then we go back and think of other strategies to try"*. She explains that:

> *Some strategies are easily combined, the visual ones let's say. So your visual traffic*
> *lights to show how they feel and the visual reminders how to behave when they are*
> *upset like 'I could, I should' – we tend to always try those... (Teacher interview 2)*

Visual strategies support children's ability to communicate about how they feel and children are observed checking visual cues which promote communication, e.g., to ask the teacher for help. Other strategies are selected to support emotional regulation of individuals:

> *... then we use others like sensory which we decide depending on the child. We have to know the child to be able to decide. For example, we use weighted jackets for [child C] whereas [child A] does not need these but he does need things like blu-tack to fiddle with. (Teacher interview 2)*

Strategies which are used to support interaction range from whole class strategies, for example as observed in a play-buddies session, to individualised strategies such as Social Stories. Again the teacher explains that individualised strategies are decided upon in relation to each child "*... because what works for one does not work for another*". Observations of lessons with interaction as the focus illustrate how the teacher balances activities which have the potential to cause anxiety and high levels of emotions with reminders to use the structures in place in order to remain calm and in control, for example:

> *Play-buddies includes problem-solving interaction games which require children to share space in close proximity, co-operate with each other to solve the problem e.g., to untangle. The teacher and TAs remind individual children to look at visual cues, supports and rules to encourage them to 'make the right decision'. The curtained-off quiet area is used for individuals to go and calm down before returning to the activity. Structure helps the children to participate in an activity which is potentially stressful for them. (Obs. term 2)*

The same combination of structure with the challenge of interaction opportunities is a frequent and integral part of teaching and learning in this class. Wellbeing of individuals, including self-management of anxiety and increased self-esteem, drives decisions regarding which approaches to use with which individual at any one time.

9.6 Summary of the case study

Structured Teaching is implemented as a framework within which other approaches and strategies are combined. This framework is flexible and responsive to individual needs and strength and. is less obvious at first glance. Whole class visual structure underpins daily practice, but this is quickly individualised when required by individuals. For example, a

whole class schedule is referred to by each child and all are able to use this information to transition between activities. However, staff are able to quickly produce an individual schedule should an individual require this. Likewise the physical structure is flexible and adapted according to lessons throughout the day. Independent learning behaviours are evident as the children make use of Structured Teaching strategies to locate and complete tasks and to organise themselves.

Other approaches are combined within the structured framework according to individual abilities and needs. The priority aims are to promote the emotional wellbeing of each child and in particular to reduce their anxieties, enable them to express their emotions and to raise independence and self-esteem. These are achieved through a combination of Structured Teaching strategies with aspects of the SCERTS model, sensory regulation strategies and a variety of activities to promote interaction and emotional understanding. Decisions about which approaches to implement are informed by knowing each child's strengths, abilities and needs.

Chapter Ten: Case Study Three School B

In this chapter I present case study 3, school B. The case study provides insights into the research questions and includes analysis of: Structured Teaching practices; combinations of other approaches; the teacher's decisions to select and combine approaches. I present a model which reflects the practices and decisions which underpin this case study. Structured Teaching is implemented as a framework within which other approaches are combined. Decisions are underpinned by a priority focus upon each child's wellbeing.

10.1 Introduction: Case Study Three

The initial interview with the class teacher established that seven children (see table 7.1, p. 114) in this class had a diagnosis of autism and all had severe learning difficulties. The case study is presented thematically, based upon iterative analysis of interviews and observations, (see appendix 33). All four Structured Teaching components were implemented in the class, see appendix 34 for summary for all children. The key themes which emerged from data analysis (see appendix 24) were identified as wellbeing and teaching and learning. This case study presents the results and analysis of Structured Teaching practices in relation to both themes before exploring which other approaches are combined with Structured Teaching. The factors which determine decision-making, and in particular decisions to combine particular approaches, are explored and a model which reflects the decision-making process is presented (figure 10.1, p. 196).

10.2 Structured Teaching: Children's Wellbeing

10.2.1 *Negative inner states: Anxiety*

The most common belief expressed in both the teacher and the TA interviews related to levels of anxiety and stress in individual children, all believing that Structured Teaching strategies reduced anxiety and established a safe and secure learning environment.

Physical structure: organisation of classroom and anxiety

The physical layout of the classroom (appendix 35) provides specific areas designated for specific purposes; children are consistently observed transitioning around the classroom independently and locating appropriate area for specific activities. The teacher explains that this is "*the first part of the structure – they need to know where everything is and where to go and knowing this reduces their anxieties.*" The teacher also explains that the layout of the room is adjusted according to individual needs, as and when they arise. The most notable

observation of such an adjustment was during term 4 when a new child had recently joined the class. The teacher explains that a major change was made to the room during the summer to accommodate the child who was "*extremely anxious and not able to cope with close proximity to his peers*". The quiet/play area (appendix 35) was now an enclosed space with a window; the child was observed being prompted to transition to this area as his anxieties and behaviours increased. He watched the class activities through the window, within the security of this enclosed space. The teacher explains:

> *He needs to be in his own space for some of the time. He does independent work in that area and also one to one teaching sessions. He is less anxious when he uses that space and his behaviour is much better. He has started watching the other children through the window which I think is important as he can see what they are doing but does not have to join in yet he's not ready to join the others but it's good for him to watch what we are all doing.*

Physical structure: work bays and anxiety

All three TAs linked the use of work bays to levels of anxiety, for example:

> *... they've all got their individual working bays so they know that that's their work area. I think that works quite well doesn't it? And especially if they are having a difficult day sometimes, they can go back into their work area so that they're kind of a bit more isolated to the rest of the group. I think sometimes it can just de-escalate them, and if they're feeling perhaps a little bit anxious, they know that that is their area and generally nobody else would use that area. If their anxiety levels have gone up they can go into that area, perhaps be given the work in that little area and they quite often sort of regulate themselves, come down and then re-join the group if that's what we're doing at the time. Or move on then to the next thing that we're going to be doing. (TA 2)*

This view was supported by TA 3 who called the work bay a "*comfort zone*" explaining that: "*... part of it is consistency, so they're sort of going back to the same thing, to a routine, having a work area in the same place*".

TA 1 explains this as "*familiarity*":

> *It's sort of just like a place they can go where they can - where they know exactly what they're doing and there's not going to be any surprises.*

The focus on reducing anxieties through the use of the work bay is a belief which is also attributed to other Structured Teaching strategies and in particular in relation to the use of individual schedules.

Schedules, anxiety and behaviour

A variety of schedules are used by individual children, all of which provide information about what, when and where. This information is considered key by adults in reducing children's anxieties and is linked by adults to children knowing what is expected:

> *I think knowing what is expected is very important and that where you have to be and what you are supposed to be doing. Particularly in our children who are anxious anyway and the world is a confusing place, to have that structure I think is important so they don't tip over the edge and just not understand anything at all.* (Teacher Interview 1)

When probed to explore which aspects of structure the teacher feels most important in reducing anxieties, the teacher responded with "*both the environment and the visual timetables*"*,* indicating a link between both physical structure and schedules in addressing children's anxieties.

Links between anxiety and behaviours are also made by the TAs, illustrated by this comment from TA3:

> *I think if you were just sort of expecting children to do what you are want them to do without giving them any sort of warning, like schedule or any sort of thing, I think you'd get a lot of more sort of breakdowns and things. I think you'd get loads more.*

This view is reiterated by the teacher who emphasises the links between anxiety, not knowing what is happening and behaviour:

... if they were anxious and wondering what was going to ever happen and what they were supposed to be doing, they would be in - get up to the sort of fight - flight mode and their behaviour would - they would be trying to protect themselves and may be aggressive and not compliant, because they wouldn't understand what they are complying with... (Teacher Interview 1)

When questioned about the word '*compliant*', the teacher referred to '*engagement*':

We want them to be engaged and want to do what it is, but I think you need to have the secure base and understanding and security before you are able to engage and want to do - to comply.

The concept of engagement is discussed further in relation to teaching and learning (see 10.3, p. 186).

The teachers and TAs share firm beliefs that structure reduces anxiety which results in reduced difficult behaviours. An important link is made by all that this is because the structure helps children to understand what is expected. This link was noted as important to check during classroom observations, which subsequently corroborated the teacher's and TA's beliefs, as the following example demonstrates:

...child B arrives late and is clearly agitated and anxious (transport has been delayed). She goes straight to her individual work bay, bypassing her schedule, and begins her independent work – she has not removed her coat nor responded to adults' greetings. Child B completes all independent tasks, anxiety reduces whilst working. When tasks are finished she removes her coat, hangs on peg and checks her schedule. (Obs. term 1)

The security and routine of using the work bay, together with an understanding of the routine of the work system, on this occasion reduces child B's anxieties. However, on other occasions, the same child is not calmed by this structure in which case TAs make changes to her schedule which she is then redirected to; this is observed as a consistent strategy used by adults at times when children are anxious. A starred entry in the observation note book (term 2) states:

When structured – children are organised, engaged and focused. No structure - increases in disorganisation, repetitive and stereotypical behaviours. Autism is more apparent when there is less structure.

10.2.2 *Wellbeing: autonomy*

Positive inner states

Use of structure to address children's negative inner states correlates closely with adults beliefs that Structured Teaching strategies foster positive inner states. For example:

> *...without the structure they wouldn't know what was happening next or they wouldn't know where they were supposed to be so it would all be further stresses, which is not good for them or their wellbeing in order to keep them relaxed and calm and confident and have self-esteem; knowing what they can do and achieving their tasks and their workstations for example is vital for their wellbeing.* (Teacher interview 1)

Observations indicate that the use of schedules, and structured tasks provided for independent work in the work bays, results in children remaining calm and relaxed; at these times, children are motivated and interested in independent work tasks which include individual's special interests, for example:

> *Child F independently uses filing tray work system, completes word-building tasks with materials using his interests in x and x* [note, interests not specified in order to preserve anonymity] (Obs. term 1)

Following lunch-time break, children are directed to schedules and to independent work before a group lesson. The following observation illustrates how children respond:

> *In from play-time, before science. Children B, D and F approach me; child F asks "what's your name? Where are you from?" TA directs children to check schedules which they do independently. Children are on task, engaged, calm and independent. Tasks linked to literacy, numeracy and to individual interests and are completed quickly. Children B and D smile. Child F says "I can do it".* (Obs. term 3)

Independence is linked to the development of self-esteem, for example the class teacher explains:

I think in respect to their schedules and workstations we were talking about and completing the tasks that they are able to do, completing something successfully raises your self-esteem. Being able to be confident, to know where you are going and everything makes you feel good about yourself.

In addition to feeling calm and motivated, the development of autonomy is evident during multiple observations and adults indicate this is a priority area of development. Aspects related to autonomy include independence, flexibility and communication.

Independence

There is an emphasis in this class upon children's independence and components of Structured Teaching are believed by all adults to facilitate independence. Independence is linked by adults to the use of routines, predictability and consistency, provided through individual and class schedules. A remark from TA 2 illustrates this shared belief:

Well the schedules and independence, it's consistency again for the kids I think. If they see something they recognise they know that's what they're going to do.

In particular, the use of schedules, work bays and visually structured tasks are causally linked to children's independence, with strong skills and interests in visual matching being used to provide independent work task for individual children. Multiple observations corroborate adults' beliefs about the impact of visual structure, for example:

Child F independently completes tasks including: sorting big to biggest, placing roman numbers on clock-face, making "I see …" sentences, number concept to eight, counting back from 20, word matching, sorting picture cards into language categories e.g., food. (Obs. term 2)

Child E stands at his table in his work bay, uses a number work system and independently completes tasks: matching words to pictures, inset puzzle, matching numbers and colours. (Obs. term 2)

The class teacher reflects upon the outcomes for children when using Structured Teaching, suggesting that the approach develops greater flexibility, understanding and independence:

Some people feel that it is very rigid and regimented and some people, like me, don't. I for example think that the structure is really important as a basis but from that structure you can include flexibility and allow the children to have more independence and understand themselves and understand other people more. So I think it's a basis from which one grows, not a means to an end. (Teacher interview 1)

Flexibility and coping with change

Flexibility is considered by the TAs who refer to issues around changes to what children are expecting and the impact upon their behaviours. The following discourse illustrates their views:

If we do have to change [an activity] we've got a change card to tell them because we've tried to do it before where we've sneakily whipped something off the schedule and one of these children's noticed and you get a head butt or something like that because they got upset about it - so now we've got a change card and we just show that to them. (TA 1)

I think it's an important skill to learn really, that change happens and it's one of those important things. (TA 3)

I think as long as you give them enough warning kind of thing, rather than just springing it on them. (TA 1)

Again, some you can change the schedule and just literally in front of them, take that off and put something on and they'll cope with that. And others will be anxious but I think if you kind of try change something that's going to happen, put it on the schedule and do it with the least fuss possible then quite often you are creating quite a calming effect anyway. (TA 2)

Independence and flexibility in relation to changes to expected activities is demonstrated during classroom observations. For example when a change to music (location of lesson) is made children cope with the disruption through the use of schedules. However, changes still have the potential to cause disruption and anxiety, reflected in the following observation:

At the end of snack, children check their schedules and line up at classroom door to go to assembly. The teacher receives a message that assembly is cancelled, tells the children "assembly is cancelled"; group table cards given to children and they transition back to table calmly. Children choose songs but focus is lost, children start rocking, leave the table and wander the room, repetitive rocking, flicking fabrics and body; repetitive behaviours increase until transitioned back to group table. (Obs. term 2)

Whilst adults agree that structure supports independence and flexibility, there are also concerns amongst the TAs that following structure may not be independence:

Some of them are a bit dependent on the structure and that's why I think it's good - not at first but when we feel they are ready - I think it's important to maybe try and break them away from it a little bit. But obviously not all of them will be able to, but if you can I think that's quite an important thing. Because I think independence is very important but I don't think that having to abide by a list every single day is particularly independent. (TA 3)

Discussion that follows offers further insights into how structure is used to support independence and at the same time flexibility:

I mean we went to the zoo on Monday, once we're out we don't take schedule boards with us or anything like that. We're out, you know, for the day, and they cope okay with whatever happens, don't they? With, you know, when we stop for lunch, when we say, 'Right, lunch is finished, this is happening, we're off to see the animals', or 'We're going to do this', and they do cope really well with that. (TA 2)

In a way I sort of think when we go to these places it's sort of - even that is kind of in a way a structure because they know when they get to school in the morning they see it's a bus and they are well aware by this point that we're going to the zoo or something because we've been sort of harping on about it for like a week or something. So I don't, I mean, when they get there they sort of know that it's a day out, sort of thing. They sort of - I don't know, they kind of know what to expect. They are away from the school environment. We are going to walk around a place and then we'll come back and check the schedules again. I don't know whether or not it is because they are

completely coping with absolutely anything. I mean, if we just - if rather than taking
them to school in the morning we took them to a zoo randomly, when they are
expecting school, I don't know whether or not they'd cope then. So it might be like
going to the zoo I think is more like an unstructured piece of structure, if you know
what I'm saying. I think unstructured thing, structured within a structure. (TA 3)

This notion of 'unstructured within structure' is evident in classroom observations at times
when lack of structure is replaced by verbal directions; in these instances the verbal directions
are routine phrases which children are familiar with, such as "*x is finished, group table*" or
"*first x, then y*". Whilst at times children are not using schedules, these routine phrases serve
as familiar structure which enables children to cope with changes to what was expected.

Communication

A striking feature in this classroom is the frequency of spontaneous communication between
children and adults. Whilst visual information is used to enhance adults' communication to
children through the use of schedules and visual differentiation strategies, visual cues are used
to enable children to communicate with adults at all times. A variety of visual communication
strategies are used to encourage social greetings and to support children to say how they feel;
for example, during "hello" routines (appendix 36). During observations of this
communication routine, individual children approached me and initiated communication, e.g.:

> *Children E and F initiated hello activity with me and wanted to sing to me.*
> *Visual cues prompt child D to verbalise "today is Thursday". Child D bought 'today*
> *is Thursday' cue and gave to me. (Obs. Term 1)*

Observations record *lots of child to adult communication, especially when visual cues used,*
lots of eye contact with adults. Visual cues, together with the communication routine, support
children to participate and communicate; this leads to spontaneous communication
occasionally, e.g.:

> *A visual calendar is shown to the children and the teacher says "cross out yesterday,*
> *yesterday has gone". Child F says "what we doing tomorrow?" (Obs. term 1)*

Following this routine, children are told to check schedules which indicate 'snack'. Children
A, B and C collect their 'picture exchange communication system' (PECS) books without

prompting and bring to the snack table. Visual cues are used to enable children to communicate their choices (see appendix 36). Child E is observed using an 'i-pod' to make multiple requests; informal conversation with TA (child's communication partner) notes TA's view:

> *The i-pod is better than PECS, it's more portable and speaks the phrase. Child E has been taught that he needs to get the adult's attention before he can use the app successfully. (TA 3)*

Observation (term 1) notes:

> *Child E's communication contrasts with Child F who verbalises his choices, although does not seek adult's attention and does not direct requests to anyone in particular. Use of the visual tool reinforces the need for a communication partner for child E.*

Child E is observed seeking out his i-pod and using it spontaneously to communicate with an adult in numerous contexts including whole class mathematics and RE lessons and observed frequently during 'choose' times. The emphasis upon communication is also evident when observing other strategies used alongside and in conjunction with Structured Teaching (see 10.4, p. 191).

10.3 Structured Teaching: Teaching and Learning

Teaching and learning emerged as a key theme during data analysis. Adult perceptions, in relation to the impact of Structured Teaching upon outcomes for children, focus upon learning behaviours and curriculum access.

10.3.1 *Learning behaviours*

Understanding the organisation of the classroom

Consideration of the physical structure is evident in the following explanation:

> *Well, within the classroom we have structured the environment and each child has their own individual workstation, which is labelled, apart from two children who do share the same workstation. The aim is to divide the room so it's clear what you do in what area so the individual workstations have core stuff of their own work. And there's also the group table, which we use symbols that they can post from their*

schedules, which are another aspect of the structured teaching.... we also have a leisure area which is divided just by bookshelves, for relaxing and choosing. (Teacher Interview 1)

The teacher's belief that this structure provides order and organisation of the classroom is reflected in the first observations which focused on room organisation and layout. Observations in term 1 identified the physical structure in place (appendix 35) and children are observed in their use of the classroom space. Individual children are observed working independently in work bays and are able to transition independently to other areas of the classroom, such as the leisure area or the one to one teaching table, when they finish independent work. Observations (term 1) note that while children are meaningfully engaged in work areas, they are focused and stay in the appropriate area. However, when focused activities finish, some children wander aimlessly around the classroom, displaying repetitive behaviours. This is the first of several observations which note increased engagement during structured independent and one to one work and increased repetitive behaviours and aimless behaviours when structure is reduced.

TAs offer an explanation about why physical structure is helpful to children, particularly in relation to the use and purpose of work bays as distraction free spaces:

I think as well because they're restricted, they're generally facing the wall or a board so that they haven't got the stimulation going on, they are just sort of head down. If they look up it is generally a wall, so they're not being distracted by anything else that's going around. Because it can be very loud in our class as well and I think they perhaps are able perhaps to shut off that sound a little bit if they've got no other distractions in front of them. So that kind of does work quite well I think. (TA 2)

Independent transitions
Schedules are used to promote independent transitions between activities and throughout the day. Children are frequently observed checking individual schedules and are able to locate their next activity independently, for example:

Child A finishes work in work bay and is told by TA to "check your schedule" which he did and independently transitioned to play/choose in the leisure area. Child A lay on the floor with a blanket for several minutes, then left the leisure area and wandered

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the classroom for several minutes before being verbally directed back to check his schedule which he did and returned to the leisure area. (Obs .term 1)

The schedule is viewed by the class teacher as the most important component of Structured Teaching in relation to the development of independent transitions:

Knowing what is expected is very important and that where you have to be and what you are supposed to be doing... I think both the environment and the visual timetable are most important, yes I think combined together that they work well so children can be independent.

Organisation and engagement
Work systems and tasks are visually structured which result in children organising their work and materials needed for each task independently. Children are observed on numerous occasions using independent organisational skills.

The practice of visually structuring tasks, which enable children to rehearse previously learned skills, fosters engagement and concentration. Visually structured tasks result in children engaging with the activity in meaningful ways, completing tasks which are visually structured. At the same time, use of interests within both taught and independent tasks increases motivation.

Every observation of classroom structure indicates that children understand the purpose of each space in the classroom, are able to organise their tasks and materials, are engaged and complete tasks independently. At the same time, reduction in structure reduces engagement and increases repetitive behaviours. The potential for disorganisation and lack of meaningful engagement remains, as illustrated in the following observation:

Child B completes tasks, then undoes them all and completes again. This continues until transition to science lesson. (Obs. term 3)

Likewise children A, C and D are sometimes observed redoing tasks or needing prompts to organise and complete tasks.

However, overall the combined uses of physical structure, schedules work systems and visually structured tasks result in learning behaviours which are prerequisites for successful teaching and learning. These learning behaviours include organisation, engagement, concentration and independence, behaviours which then facilitate curriculum access.

10.3.2 *Curriculum access*

Structured Teaching strategies are used across the curriculum as a differentiation strategy to enable children to access the curriculum. This is apparent during observations of: independent and one-to-one work which primarily focuses upon literacy and numeracy skills; class lessons in a variety of subjects (appendix 29). Individual children's visual strengths are utilised to teach new skills across the curriculum and in a variety of contexts including one-to-one teaching, independent work, small group teaching and whole class teaching. A variety of visual cues and instructions provide differentiation to enable children to access the curriculum.

Literacy and numeracy

Children complete literacy and numeracy tasks during independent work in work bays; these tasks are ones which children have been taught previously and which they continue to consolidate independently. In addition, children are taught literacy and numeracy, linked to IEP targets, during one to one teaching sessions. One to one teaching is called 'black work', denoted by a black circle, and is used throughout the autism classes in school for consistency. One to one teaching and independent tasks are planned by the class teacher:

> *[The teacher] plans the activities but we make the tasks and she gives us guidance for what she wants us to do and talks us about it and we discuss it with her so we've got an input. (TA 2)*

TAs explain how one to one teaching and independent work are linked:

> *You do it sort of first, teach them the new tasks, the new skills, the black work, which is the one to one work that we do. That's sort of the progression bit. And then the independent work is kind of like just a consistent thing for them to do, it's more maintaining their knowledge. (TA 3)*

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Yes, and then we tend to make new tasks based around what they already do. Like, one of our children matches, so quite a lot of our class are match-based. And another child who's on a high level so he doesn't do matching, he'll do like addition or matching words to pictures. (TA 1)

Finishing sentences, that sort of thing. They're things we can, like working with B-squared and whatnot, you can see what they're sort of struggling with and you can make a task sort of specified for an area they need to improve. (TA 3)

Observations reflect this process, indicating that new skills are taught before being practised independently. For example child E is observed (term 2) during a one-to-one teaching session completing number concepts to 5, counting activities and matching activities where he is looking for "the same"; during independent work he completes number concept to 3 matching and counting activities. Likewise, children are observed completing literacy tasks which are taught then practised including for example word marching, word and picture matching, completing sentences.

Visual differentiation across the curriculum
Visual differentiation is observed across other curriculum subjects including science, religious education, drama and music. The class teacher explains that for each topic taught, tasks are developed and used within group and class teaching; these are then transferred to independent work to consolidate learning. TAs are able to explain how tasks are developed building on individual's skills and using visual instructions:

So if it's perhaps something they're learning or an on-going learning topic that's then made into a task once they've kind of mastered it a little bit, it can then be moved into their independent area. We've got tasks for example like with science and plants, you know, the roots and the stem and, you know, it could just be a matching task. There's a picture on a bit of paper and they're matching the stem and a leaf and a root. But it can progress from there. It can start quite simple and then progress. (TA 1)

This process is observed during a class science lesson (term 3) where children are recalling a recent trip to a zoo; the class teacher leads the session with a 'power-point' presentation comprising photographs of animals taken during the trip. Visual cues are included to differentiate for individual children according to abilities and visual skills (appendix 36).

Individual children participate in the lesson using visual cues according to their understanding and skills; for example, child B matches pictures of animals, child F makes sentences requiring adjectives (e.g., *'I see big camel'*). Visual tasks completed during the lesson are transferred to children's independent tasks for practising. Scrutiny of independent tasks reflects a similar process across a range of subjects and topics including history, geography and religious education.

Visual structure is observed during a whole class music lesson with activities contained in baskets, visual cues for *'your turn'*, finished basket and physical structure is adjusted to relax at end of lesson (closing blinds, dimmed lights, mood lights colour change) (Obs. term 4). Similarly, visual cues are evident during a drama lesson delivered by a specialist teacher and include: symbols/words (pretend happy/angry); photo face puzzles; finished box. Similar adjustments are made to the environment for children to relax at the end of the session.

10. 4 Structured Teaching and Other Approaches

A variety of strategies are implemented alongside Structured Teaching, summarised in table 10.1.

Table 10.1 Combinations of strategies

Approach/Strategy	Contexts	Relationship to Structured Teaching
Relationship approach developed by class teacher ('INT')	Timetabled sessions	Used within structure, e.g., added to individuals schedules
	Spontaneous, initiated by children	Visual cue "play with me"
Picture Exchange Communication System (PECS)	PECS books kept at work-bays Snack Some group activities	Visual communication
Sensory strategies Sensory circuits	As needs arises for individuals Timetabled	Visual cues
Social Stories	Individual needs	Visual cues

10.4.1 *Relationship approach*

The class teacher has developed a relationship-based approach (called INT for the purpose of this study), derived from practices commonly associated with 'intensive interaction' including child-led interactions (Nind and Hewett, 2001). At the time of this research, the approach has been developed over a twelve month period. A link is made by the teacher between spontaneous communication and the more structured communication supported by PECS (see 10.4.2, p. 195). The class teacher explains how INT was introduced:

> *Well, we did in different ways, when we have enough staff we would do one to one in the room and every child would chose an adult, they would go up and take their card with the 'Play with me' on it to their chosen adult and then they would interact for 15 minutes or so within that session, just in the classroom, all of us doing it. And the child had a PECS type card if they weren't using verbal communication for 'more' or 'finished', so they were able to say if they wanted to finish early. So that was really down to them because the whole thing was child-lead for that 15 minute slot but there was a clear ending because after the end of the 15 minutes we were onto the next thing on the schedule. (Teacher interview 2)*

On-going filming of interaction sessions takes place to enable the team of adults to review interactions and to adapt the approach for individual needs. The teacher documented steps she had taken to address ethical issues in relation to this as part of her research towards a Master's degree. Filming of interactions is explained by the teacher:

> *So we can look at it together and reflect on what we're doing and look - because when you're doing the interaction you can't tell what's going on so easily and then look for instances of communication and looking for what the children are doing and also what they enjoy doing - so where to lead it from next time.*

The class teacher then explains early findings of using this approach:

> *We first started using INT as a non-structured interlude in the day. We discovered that children started to communicate spontaneously to a greater extent and this happened outside the INT sessions, so they were transferring this to the classroom. We carried this on for a year and looked at what the functions of this new increased communications were and we found that this was occurring outside snack and lunch,*

the traditional time for using communication, and it included children initiating an interaction, social interaction, with an adult. We did it with a variety of children of different developmental levels and the earlier developmental levels became more interested in sharing attention with an adult.

Although originally introduced as a "non-structured interlude", it is clear that structure is inherent as the teacher explains:

We still have the schedules and use the TEACCH approach and texts and other things, but we had a schedule card on the day with the INT symbol that we'd made and it also said "Play with me" on it because we felt - I felt that that would transfer onto the playground if we got that far.

Use of the 'play with me' visual cue is observed during term 2 as a scheduled activity e.g.:

Child B finishes her independent work and checks her schedule when prompted by a TA. She takes the INT card to the class teacher and gives it to her. The teacher says "play with me". Child B puts hand in transparent swim bag and flaps, teacher copies. Child B looks at teacher, continues to flap bag; teacher flaps more excitedly, child B laughs. Teacher pauses, child B makes eye contact, teacher flaps, child B laughs.

The 'play with me' card is also used by individual children spontaneously to initiate interaction with an adult, e.g.:

Child C takes 'play with me' card to TA, gave card to TA. TA says "yes, I'd like to play with you". TA copies child C's sounds and body movements. They hold hands and lift up and down several times. Child C makes eye contact and smiles, pulls TA's hands for more.

Adults also take 'play with me' card to individual children:

TA takes 'play with me' to child A who is playing with ribbon. TA twirls ribbon with child A. A leans on TA, squeezes TA, sits on TA's knee, face to face smiles and vocalises.

Spontaneous interaction is evident in children who approach me while observing, e.g.:

> *Child A sits on my knee, face to face and smiling. Takes my hands and sways side to side. I join in then pause, child A makes eye contact and pulls on my arms to sway, repeated for 10 minutes.*

During these sessions, as individual children interact with different adults other children complete independent tasks. However, those who are not structured, and not engaged in INT sessions, wander aimlessly around the classroom engaging in repetitive behaviours such as rocking. The class appears at this time to be quite chaotic, but this flexibility results in spontaneous communication from a number of children.

When questioned at a later date, the class teacher explains changes to use of the INT approach:

> *[the child] who was more interacting with the environment rather than people found the environment itself I think every distracting. And we found when we took her out to do INT sessions in soft play without all that visual stimulation and the other people whizzing about, sensory stimulation, she interacted for a lot longer and seemed to enjoy and focus on the interactions more. (Teacher interview 2)*

In term four, further changes are evident:

> *At the moment what we are doing is looking at soft play sessions. I've got one two days a week, quite a long one, and then a child is going out with two adults to soft play, one adult to film and the other adult to interact - in rotation, so everybody gets a go. But ones who are more, I suppose, further up the developmental pathway are, they go in in twos because we're interested to get peer interactions. So that's where we're starting. I'd like to put it on the schedule and do it with some children in the classroom I think because I don't want the children to think, 'Oh, we only interact in soft play and not in the classroom'. So that's my aim, to do it in the classroom too. I think when we get the routines and things established I think the adjacent little space would be an ideal spot.*

Further questioning about the need to establish routines reveals the teacher's belief about how the more spontaneous INT approach works with Structured Teaching:

> *I think when we're thinking of creativity we're thinking of thinking outside the box. But I think you have to have the box established in the first place before you can think outside it. (Teacher interview 2)*

10.4.2 *PECS*

Visual communication, and in particular the use of PECS books, is used alongside Structured Teaching strategies during routine activities. The visual structure of using PECS sits comfortably alongside Structured Teaching, making use of the visual strengths of children and structuring their communication with adults. Children are observed collecting their PECS books when needed and without prompting, although this is largely restricted to routine activities such as snack time. Children use PECS sentence strips, together with other visual cues, when provided during curriculum lessons. Other than this PECS books are largely ignored by children, for example:

> *PECS books on each child's shelf, near schedule. No child uses or refers to PECS book during morning until snack time. (Obs. term 1)*

The use of PECS provides structured communication routines, but spontaneous use is limited to these routines.

Visual communication cues support children to communicate how they are feeling, for example:

> *We also use an 'I feel how you're feeling today' thing with various emotions. And we've also got one used as a varying like escalation of how your emotions might go, going from calm and happy up to angry and out of control, and the aim was that the child should be able to recognise themselves what they're feeling themselves and if they are starting to be angry to be able to do something about it and go to the relax area, request that. (Teacher interview 2)*

10.4.3 *Sensory strategies*

Sensory strategies are used with individual children as the need arises, for example:

> *During hello routine, child A rocks repetitively and becomes increasingly agitated. The teacher approaches him and asks if he wants "a squash"; the teacher then holds child A firmly for a minute, child A relaxes and rocking slows down. (Obs. term 2)*

The class teacher explains the development of sensory approaches and expresses her beliefs about the benefits for individual children:

> *Well I think the literature seems to imply, or say, that deep pressure is relaxing and calming and I think from observing one particular child that we used it for last year, I think it definitely was. And you could definitely feel them relaxing and they are able to calm and one of the new ones that you probably noticed this morning whizzing around, he seems to quite enjoy it as well.*

During term four sensory circuits are included as timetabled sessions with the teacher identifying specific strategies included in the circuit:

> *I have allocated a timetable spot for sensory circuits for everybody. So we do sensory circuits in the hall once a week for all of the children. We've got swinging in a blanket, which is quite nice for them as well. We've got the sausage dog, rolling in a mat and pressing. We've also got bouncing on the benches and on spots around the floor for the alerting activities. And then at the end we all lie down and relax and adults can squash with the gym ball for children who like it.*

The use of sensory circuits to teach children to relax is complemented by other approaches observed to encourage relaxation, including adjustments to physical structure (mood lighting, window blinds, and reduced distractions).

Teaching assistants are less clear about the purpose of the sensory circuits approach, although TA 3 explains:

> *I think the idea of that is that sort of exercise. Show the child how to experiment with a particular - you try to isolate a particular sensory experience. I don't know what it*

can be. Like on a ball I think it's sort of movement, sort of thing. You sort of experiment with them. And then you teach the child that you can - you can show the child that you can sort of control that, sort of thing, and show them how to better understand it. I think that's sort of the idea. You can bounce the ball, you can, like, have fun with it and then you can sort of try and get the child to control their movement on the ball sort of thing, show them that they can do that. I think it's a sort of - just trying to get them to understand sensory inputs and sensory output sort of thing.

10.4.4 *Social Stories*

One example of using a Social Story is discussed by TAs who explains how the approach is used for one child (F):

One of our children wouldn't let anyone go near his toenails or fingernails to cut them so he ended up with just like talons going on. And we just sort of - I didn't do it personally, I think [the teacher] wrote this social story about cutting fingernails, how it's okay and it's not going to hurt you and then she put a song into it as well. Was it Tommy Thumb? Yes, Tommy Thumb. And it didn't happen instantly, it was over the course of a few months, it was like in the black work you sang the song, did the Tommy Thumb thing, read the story, and then it would be okay to show him the scissors and then you could just touch his fingers with the scissors eventually. And then it would be just like, put the scissors in sort of cutting position, not to do anything, just putting them - and eventually got to the stage where you can cut them and he was fine with it. (TA 3)

The Social Story includes visual cues and is read daily to the child during one to one teaching; a singing routine is used alongside the Social Story. This example illustrates individualised combinations of strategies implemented in this classroom.

10.5 Making Decisions

Decisions about the use of Structured Teaching and other approaches are represented in the model presented in figure 10.1.
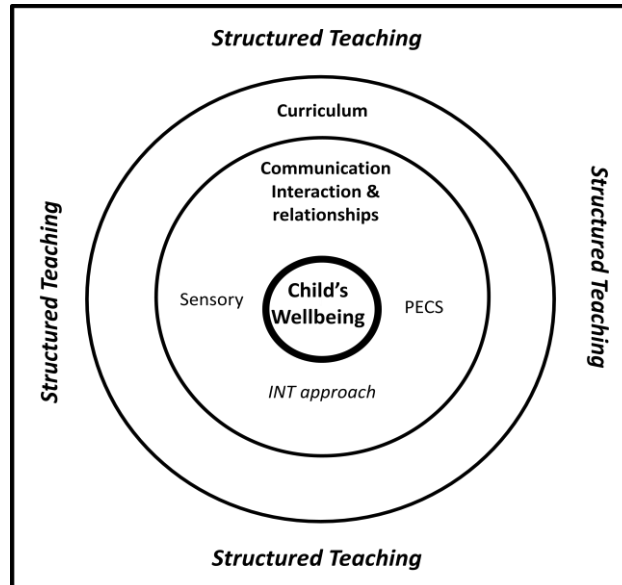
Figure 10.1 Structured Teaching and Other Classroom Strategies: Decision-Making Model

10.5.1 *Knowing the child as an individual*
The teacher's decisions about types of structure are personalised and based on *understanding and knowing the child*. The teacher emphasises that structure is driven by individual needs and is not formulaic:

> *I think that's a point that we shouldn't get locked into when we're thinking of structure and I think there's a danger that people may think, when using structured teaching, that you have to do it using that structure, when really it's about the child and it's what the child works within. (Teacher interview 1)*

Visual cues are presented according to understanding and changes are made as children make progress with their understanding, for example:

> *… when they can use symbols and words independently, we think that they are starting to be ready to go on to just a word schedule. But we wouldn't do - haven't before anyway - done the whole lot, changed the whole thing all together, just certain ones. Like 'lunch' and 'snack' and 'home' perhaps that they build up perhaps to word ones… … and then after that if - I think some children tend to decide for themselves. I think they're no longer interested in all the Velcro-ing and faff when they understand it clearly so - this particular child's just moved on to a written list like you or I would have of what we do in the day. (Teacher, interview 1)*

Similarly, structured tasks are individualised according to understanding:

> *I suppose initially by observing the chid and getting to know the child and what motivates them and what they can do. For example some of the children will do matching and they are able to complete matching and then - and that's something they quite like, particularly if you are using pictures that are of interest to them. Some children like posting things, that seems to be quite popular and to start with I think, to get them used to the whole system, it's about likes, and then to extend those likes gradually to different - to incorporate different skills. (Teacher interview 1)*

According to the teacher, individual tasks build on skills learned during curriculum lessons, mixed with tasks which are motivating and make use of special interests.

In the same way as knowing the child drives decisions about individualised structure, so too are decisions about combinations of approaches. The teacher explains:

> *We decide which approaches to use based on the individual and what he or she needs. For example,* [child F] *is quite bright and understands lots of language, so we can use Social Stories to help him understand social things. But* [child A] *is more sensory, he needs squeezes and squashes when we are doing class lessons and he becomes agitated. It all depends on what they need.* (Teacher interview 2)

Further questioning of how staff know what children need indicates that observations inform assessments and influence decisions about approaches. The teacher's filming of interaction sessions for example illustrates how observational skills of the staff as a team are developed in order to identify and discuss each child's needs. TA 2 illustrates this approach to 'knowing the child': *"[filming] is great, we can see how the children respond to us, we really get to know them and what they like and don't like."*

10.5.2 *Wellbeing and learning*

The priority aim is to use Structured Teaching as a way to teach skills and develop understanding, which in turn promotes wellbeing. In addition, decisions about individualised structure are focused upon reducing anxieties and increasing autonomy, again linked to children's wellbeing. Decisions about which approaches to combine for which children are driven by knowing the individual child and also through interacting with children.

A variety of strategies are used alongside Structured Teaching, with priority aims of promoting wellbeing and to enable children to interact in positive ways with adults. For example, relaxation activities during a drama lesson are provided within the structure and are explained by the teacher:

> *I think their anxiety levels are so tremendously high and it takes the tiniest thing to just tip them over the edge and then we lose them really, we lose their concentration and it's horrible for them too. So yes, I think - and I think for anybody - being able to relax is a really big life skill. (Teacher interview 2)*

Strategies are combined throughout the day and across activities, for example, "swinging in a blanket" is used both as a sensory strategy to provide vestibular stimulation and also one which is incorporated into the INT approach; emphasis is placed again on reducing anxieties, with strategies combining to enable children to be calm and relaxed.

Questioning how strategies are used together leads to further explanation from the teacher:

> *I think they all seem to have merged together and I think it's important really that we do use a variety of approaches to benefit the whole child, not just the child academically but for their relaxation, their sensory and emotional needs too.*

The class teacher explains that her philosophy is to prioritise interactions, communication and emotional engagement, focusing upon the "whole child" and their "wellbeing":

> *I can't think that there's much point in just being trained to really do tasks. I think you want to be a person who is able to operate in later life as well as you can - with relationships with other people and slot into your place in society, wherever that may be. And I think that isn't done by training, I think you need emotional, to learn, to manage yourself emotionally as well and to be able to relate to others emotionally. I think it's not just a sort of intellectual procedure of communicating. I think there's something underlying, the warmth and a joy that we try and promote in [INT] that is part of the whole relationship thing. And if you are missing that you haven't addressed the needs of the whole child.* (teacher interview 2)

When probed further about the impact this has upon learning, the class teacher explains:

> *I think before the children can learn they've got to be able to share attention with you and probably want to be with you a bit. I think if they're interested and engage with you then you can teach them and together you can learn so much. But if they're just on their - in their own little world you can't teach them anything.*

Links between wellbeing and learning are a clear priority and this priority influences decisions about approaches for each child. As the teacher concludes:

> *If the children feel happy and safe, they are more likely to learn. All of our approaches are selected for these reasons, then they are ready to learn.*

10.5.3 *Combining approaches and the potential for conflict*

The potential conflict between highly structured approaches (such as Structured Teaching) and more spontaneous approaches (such as INT) is considered by the teacher:

> *Personally I don't find a conflict. I think it works together. I think you can do unstructured things within the structure of the day. And we all have a structure anyway. We all have a routine throughout the day. (Teacher interview 2)*

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This teacher echoes the views of the TAs who refer to *"unstructured within a structure"*. At the same time, there is a perceived tension between structured versus more spontaneous approaches:

> *But I know other people* [in school] *do find a conflict and I think they find a conflict because there's a risk in releasing the structure, a risk of losing control, and I think there is a definite fear of releasing the structure from the teacher's point of view. (Teacher interview 2)*

The balance between structured versus more spontaneous approaches is precarious, as illustrated in observations which show increased repetitive and aimless behaviours at times when structure is relaxed. Yet at these times children are also communicating spontaneously and interacting with adults. The teacher explains the tensions between structure versus spontaneity:

> *I don't want to lose the flexibility within the structure. And I think if it's so tight you don't get the opportunity, like you said, for spontaneous communication and the wanting to interact and everything because you don't really form a relationship. Getting the balance between enough structure and enough freedom is challenging. I think it depends on the child as well. I think it's not a thing that's going to work for all children like all approaches don't work for all children. (Teacher interview 2)*

10.6 Summary of the case study

Knowing the individual child is at the centre of decision–making in this classroom and the first priority is to promote wellbeing. Structured Teaching strategies are implemented to develop wellbeing by reducing anxieties, providing safety and security and developing autonomy. Learning behaviours are taught through Structured Teaching strategies, which in this class provide a framework within which other strategies are combined. Visual cues and instructions promote access to the curriculum.

Combining approaches starts with developing positive relationships which are child-led. The underpinning philosophy stems from the teacher's belief that children need to have secure, *"joyful"* relationships with adults as precursors to effective teaching and learning.

Chapter Eleven: Case Study Four

In this chapter I present case study 4, school B. The case study provides insights into the research questions and includes analysis of: Structured Teaching practices; combinations of other approaches; the teacher's decisions to select and combine approaches. This is a contrasting case in that the context is a class for children in the early years. I present a model which reflects the practices and decisions which underpin this case study. Structured Teaching is a core approach which is implemented to enable young children to understand, to begin to develop independence and to be ready to learn. The wellbeing of each child underpins all decisions.

11.1 Introduction

The initial interview with the class teacher established that all eight children (see table 7.1, p. 114) in this class had a diagnosis of autism and all had severe learning difficulties. This case study provides a contrasting context to case studies one to three as the children in this class are all in their early years (ages three and four). This case study therefore provides comparisons and contrasts in relation to the key themes and also influences upon decision-making.

The case study is presented thematically, based upon iterative analysis of interviews and observations (appendix 37). All four Structured Teaching components are implemented in the class for all children (see appendix 38 for summary). The key themes which emerged from data analysis (see appendix 23) were identified as wellbeing and teaching and learning. Despite the different context of this class, the same themes are predominant. This case study therefore presents the results and analysis of Structured Teaching practices in relation to both themes, before exploring which other approaches are combined with Structured Teaching. The factors which determine decision-making, and in particular decisions to combine particular approaches, are explored and a model which reflects the decision-making process in this class is presented (figure 11. 1, p. 216).

11.2 Structured Teaching: Children's Wellbeing

11.2.1 *Anxiety*

The class teacher explains how children present when they first join this class:

> *you know, you see children arrive and they're just - you just see them as a child who's just so confused, so anxious, so frustrated, not really being able to access anything without high levels of support from adults. (Teacher interview 1)*

Structure is viewed by the teacher as *"reassuring"* and important to help children to *"understand what is happening"*. The physical structure of the classroom, use of schedules and work bays are all viewed by the teacher as providing reassurance, at the same time reducing anxiety. As well as introducing structure, the teacher also explains that the introduction of *"clear routines"* is also important to reduce anxieties.

Physical structure and routines: reducing anxiety, increasing independence

Reduction of anxiety correlates, according to the teacher, with increases in independence. The physical structure (appendix 39) is viewed as the first step to reducing anxiety and increasing independence:

> *Anybody that comes into the room can see that there's defined areas, that that's the place where you do that; you do something different over there. Everything's defined, everything's differentiated. So even, say the group table which you use for lots of activities, it's very clear when it's for a structured activity or for snack or painting, because we make it different by using a cloth, so everything's really obviously and visually clear. So the screens show the children the defined areas of where they perhaps do their work, where they play, where we all come and sit and join together - particular things happen in each area, and that's constant.*

> *So I think it's just very visually clear for the children, and reassuring, and then they're able - that really helps them then with their independence. You know, they know where to go, they know what's expected of them once they get to that area eventually, once they've got used to the routines. (Teacher interview 1)*

TAs also express their views that the layout of the classroom is organised so that children *"know where to go" (TA 1)* and *"help them to know what is happening – makes it less scary" (TA 2)*.

Schedules and reducing anxiety

Schedules are viewed as an important part of the structure and essential for reducing anxieties:

> *The schedules - it's all about making it really clear. And I just think that, that to them - well I know for them because I've seen it work - that it just reduces any anxiety, reduces any inappropriate behaviour and helps them to be more independent. (Teacher interview 1)*

The class teacher goes on to explain the introduction of schedules and routines for children when they are new to the class:

> *I think for some children who perhaps come and have not been used to maybe following routines or have perhaps set up, you know, their own routines that perhaps aren't appropriate, I think it can just help them to see that, you know, 'Actually this is what's going to be happening, this is the order it's going to be happening, this is what's expected of me. This is what I'm going to do next when I've finished that'.*

All adults share the belief that following visual schedules and clear routines results in less anxiety and increased confidence. The class teacher (interview 1) elaborates:

> *What's really helpful with the schedules is we support them with a 'first and then' board - so that the schedule can be, at any moment in time, can be brought to them really and it's a board that can - it's portable, it can be there with them on the table, they carry it round with them, have them in the outdoor area.*

'First…then' boards are observed being bought to individual children in a variety of contexts, including outside play, independent work, assembly and circle time. The first…then board is bought to child C who is showing signs of anxiety and confusion; this is accompanied by clear, routine verbal phrases, e.g., "first work, then play". The following observation illustrates how this strategy seems to reassure child C who is anxious during assembly:

Child C is wriggling on bench, shows signs of anxiety. TA 3 shows C 'first assembly,
then play' throughout assembly and whenever C is anxious. C looks at the first... then
fleetingly – calms for minute. Becomes agitated again and the process is repeated.
Continues during assembly. (Obs. term 1)

The class teacher explains the priority aim of using Structured Teaching is to help children
"to function happily really". Asked why the structure helps children to be happy, the teacher
explains:

... because it's the structure telling them, or their schedule telling them what's going
to happen and it's not an adult as such, it takes out that confrontation really. It's not
an adult telling them it's actually my schedule. And I think that really helps the child
because it isn't about getting into that kind of too-ing and fro-ing with somebody.
(Teacher interview 1)

11.2.2 *Wellbeing: autonomy*

Alongside the aims to reduce anxiety and for children to function happily in the classroom is
the aim of enabling young children to become independent. The physical structure of the
classroom, together with the use of visual schedules, work systems and visually structured
tasks are believed by the teacher and all TAs to be essential components which promote
independence.

Understanding and Independence

The teacher believes that there is a clear link between children's understanding and their
independence and that the use of schedules is instrumental in developing independence. The
'first…then' concept is also believed to be important in relation to children understanding
what is expected in relation to completing tasks, as illustrated by the teacher's comment:

A *lot of children find it quite stressful actually sitting to kind of complete a task when*
they first come, because they've had that very informal, kind of nursery type setting
where perhaps not too many of demands are being made of them as such - and so just
to have a first TOBI or symbol to say 'Actually it is work first and then you can
choose', and just to see it there in front of them, something really visual, just really
helps reduce that anxiety and the behaviour really... and it's almost - you can see it

> *sort of click that they see it and think, 'Oh, I'm working first and then it's play - that's fine', and it's just about supporting the verbal - because when they're anxious and distressed they're not going to hear what you're saying anyway, so we find that that really helps. (Teacher interview 1)*

There is an emphasis upon children *understanding* the routines of the day and what is expected in order to reduce anxiety and confusion and to help children to *enjoy* school. TA three suggests that:

> *... understanding what to do is so important for them, when they come to us they don't understand very much. It must be so frightening when you don't understand. We want them to like being here so understanding what we do every day is really important.*

The TAs explain that the children are very dependent upon adult prompts when they first join the class. The following example illustrates the TAs' perceptions of children's gradual understanding and independence:

> *It's lovely when they start to understand. They look at their TOBI or symbol and they go off to the right area and we are so pleased. You can tell by watching them that they understand and that they can do this by themselves. (TA one)*

Communication: circle time

In addition to developing independence, the class teacher places emphasis upon teaching children to communicate. A variety of visual communication strategies are evident within the structure and routines of the class (see appendix 40). Circle time is a daily routine activity which is supported with visual structure and communication. Observations (term 2) record:

> *All except one child (C) transition independently to the circle time area, indicating their understanding of both the physical structure and the schedule information.*

During the circle time activity, a variety of visual strategies, together with routine songs, are used to support verbal communication from adults and for individual children to communicate. For example, during a 'what day is it today?' song:

Child E calls out "Tuesday", child B prompted by TA to match picture word card for Tuesday. Teacher repeats "It's twinkly Tuesday"; feely bag passed to individual children who feel for an object, all of which are "twinkly". (Obs. term 2)

Observations also record that children are: *calm, engaged, making eye contact, smiling, looking, participating and anticipating*. Visual cues are also used to enable children to communicate choices. For example:

Child E chooses 'Here I am' song from choice board; children asked to contribute individually. Children use switch to contribute (switch activates 'Here I am' voice) and shake hands with teacher; some children repeat the words of the song when using the switch. (Obs. term 2)

TA two explains that *"the children love the song routines, it helps them to communicate and they like that we do it every day. That's when we see lots of smiles"*.

Communication: snack

Snack time is also supported with visual structure and communication. The class teacher explains the visual tools used throughout the day to encourage children to communicate:

We have lots of times, lots of opportunities for communication throughout the day. I mean we start really with things that - trying to encourage the children to communicate their wants and needs. So start with choose boards - well, initially it's offering them two items and seeing which one they're going to choose really, at that sort of level. And then we have choose boards for snack and play. They have their individual choose board where they can request food or they can request toys to play with. And then we have a class choose board as well in the choose area. Eventually that comes where they'll go into the play area and they'll take the symbol and come and find you, hand you the symbol and say, 'I want cars'. (Teacher interview 1)

TAs are observed providing visual tools during snack time:

TAs give snack choose boards to four children who request food and drink choices by selecting card and giving to an adult. Three children use PECS sentence strips: "I want…", they complete the sentence and give the sentence strip to an adult. Two

children also verbalise their request. Children communicate their choices to adults
confidently. (Obs. term 3)

Asked about the visual communication tools available at snack time, TA one explains:

They are vital, without them they can't ask for what they want. They'd just grab and
snatch, or some would give up.

The use of visual schedules and visual communication is considered by the teacher to have a
significant impact upon children by *"reducing anxieties and fears"* and teaching
"independence". The teacher emphasises her view that these are vital *"for teaching and*
learning. Nobody learns if they are scared."

11.3 Structured Teaching: Teaching and Learning

The class teacher emphasises the individualisation of teaching and learning strategies,
according to likes, interests and strengths. In addition, emphasis is placed on everything being
"visually clear" and *"meaningful"*. There is an emphasis in this class upon using the
structure to teach learning behaviours.

11.3.1 *Learning behaviours*

Structure is used to develop skills related to 'learning behaviours' and which are precursors to
teaching and learning. In this class, learning behaviours observed include organisation,
independent transitions, engagement, concentration, motivation and independence.

Physical structure: organisation

The physical organisation of the classroom denotes specific spaces for specific purposes (see
appendix 39). Observations show that most children understand the purpose of the classroom
space and are able to locate areas for specific activities. Children transition independently to
appropriate locations for specific activities. They are particularly confident making transitions
to independent work bays and to snack and circle time; transitions to work then play are
frequent for children to learn these transition routines.

Schedules: independent transitions

All children except 'C' use their visual schedule to transition between activities. Name cards
are given to children when told verbally to "check your schedule". TAs then wait and watch,

stepping in to prompt children as needed. Checking schedules is at frequent intervals and TA one explains:

> *They are learning to check their schedules. Sometimes they do it independently, sometimes we have to prompt them. They are good at going to their work bay when they see that on their schedule... and snack, they nearly always do that one by themselves... they like snack time.*

Child C is prompted to check his true object-based icon (TOBI) schedule, but frequently TAs approach him with a 'first... then' board or with a TOBI for just one activity at a time. TA 3 explains that *"we are teaching C to use TOBIs. He sometimes gets it and sometimes doesn't."* Child C is observed on numerous occasions being prompted, hand over hand, to take a TOBI to the appropriate activity which it represents.

Work systems and visually structured tasks
The class teacher believes that the work system and visually structured tasks promote learning:

> *I think it really does support their learning because again it's about them understanding what's expected of them and also about, well not becoming frustrated. Because all the tasks or activities that we do we really think about them being visually organised. So whatever we present to the children it's just about looking at it and thinking, 'Is it clear - to that child - what they have to do?' So even if it's a case of, you know, maybe having say a jig for them to follow or that the materials are organised in such a way that they can organise them - even if the materials are in small pots so that they don't move away or roll away or they're not going to get mixed up with something else - so the tasks are organised so that they know they've got all the materials they need to hand and it's clear. (Teacher interview 1)*

Numerous observations of independent work indicate that structured work systems provide the children with organisational strategies which enable them to locate tasks, to know in which order to complete tasks and know where to place them when finished. Visually structured tasks, using visual organisation, instructions and jigs, enable children to complete tasks independently. Incorporation of special interests within tasks adds to motivation and engagement. To illustrate, table 11.1 presents individualised structure for five children observed in terms one and two, demonstrating the range of individualised structures which are provided to develop learning behaviours.

Table 11.1 Examples of learning behaviours

Child A Learning behaviours: follows work routine, organisational skills, attention, concentration and engagement, on task, independence
Symbol/word schedule, top to bottom on transition screen
Left to right work system with picture matching 'to do' list; pictures match picture labels on tasks placed on shelf on left.
Matching tasks
Child A checked her schedule when asked, taking the symbol/word and independently transitioning to the correct work bay. She worked independently, using picture work system to locate correct task; following sequence of visual directions. She completes 3 tasks independently and correctly, placing them on shelf to her right when finished. When she has completed all tasks, she independently goes to check her schedule and transitions to play.
Child B Learning behaviours: learning work routine, prompts required, motivated by task which uses his interest when he is then engaged, focused and independent.
Schedule: TOBI & symbol, top to bottom on transition screen. Coloured name card used to transition to schedule. Child B promoted by TA1 to take name card and match to name card at schedule. Child B is prompted to task TOBI and transition to work bay.
Left to right work system; 4 tasks placed on left and can be completed in any order.
Matching tasks: stars; dinosaurs; coloured gloves, coloured socks
Child B is prompted to check schedule and to take TOBI to work bay. He is prompted, hand over hand, by TA2 who stands behind him to take matching stars task. He is distracted by cards which he fiddles, turns and flaps; not engaged with task. TA prompts him to match coloured stars and to place on 'finished' shelf on right. Child B independently takes next task, dinosaur matching, which TA says is his favourite; he completes this task independently, is much more engaged and interested, he sometimes becomes distracted by is more focused on this task. He is prompted to place task of shelf when finished. Child B needs prompt to take next task (matching coloured gloves); he is not engaged and attention is lost; TA prompts hand over hand to complete task and place on finished shelf. Child B takes final task, matching colours socks; becomes more focused and completes independently. TA prompts to place on finished shelf. Child B is given name card and told to "check your schedule"; he goes to his schedule independently, takes TOBI and goes to play area, smiling and twirling.
Child C Learning behaviours: learning work routine which needs prompts; completion of tasks shows attention, concentration and engagement, on task, independence.
Large TOBI; coloured name card to transition to schedule
Left to right work system, 2 tasks on shelf on left, finished on shelf on right.
2 tasks: hand-eye motor coordination, stacking toy and inset puzzle
Child C is prompted by TA1 to match name card to go to schedule, prompted to take TOBI and go to work bay, then prompted to take stacking toy task. Child C completes stacking toy independently and is focused, engaged, on task; needs prompt to place task on finished shelf and to take next task. He completes inset puzzle independently, is engaged, focused and on task; he then needs a prompt to place the puzzle on the finished shelf and to check his schedule. He takes the TOBI to the play area with prompts from the TA; he lies down in the play area and self-stimulates, waving his fingers in front of his eyes. Child C wanders out of the play area and goes to circle area where he spins on a stool until next activity begins.
Child D Learning behaviours: follows work routine, organisational skills, attention, concentration and engagement, on task, independence.
TOBI + symbol, top to bottom on transition screen
Left to right work system: tasks placed on shelf on left, place on finished shelf on right.
Matching tasks
Child D checks his schedule when told and independently goes to work bay. He takes

matching task, completes task independently, places on finished shelf independently and takes next task. When completing photo/name matching task, he turns photos correct way round. Child D is fully engaged and on task. When all tasks are finished, child D checks his schedule and takes TOBI (cushion); moves toward play area then gestures to TA to check he is going to the right place.
Child E Learning behaviours: follows work routine, organisational skills, attention, concentration and engagement, on task, independence.
Symbol/word schedule, top to bottom on transition screen
Left to right work system, 5 tasks on shelf on left, finished shelf on child's right.
Matching tasks: colours; shapes; match symbol/word to photo; complete 'I see…' with picture; picture puzzle with visual jig for instructions.
Child E checked her schedule when asked by TA2, taking the symbol/word and independently transitioning to the correct work bay. She completes all 5 tasks independently and correctly, placing them on shelf to her right when finished. When using the visual jig, she first finds all the pieces she needs and then constructs the picture correctly (thinking skills). When she has completed all tasks, she independently goes to check her schedule and transitions to the computer.

Visual structure is differentiated for each child. Whilst some children are learning how to follow the independent work routines and are prompted by adults, others are more independent. When children are distracted, TAs redirect them to the visual structure or bring the structure to them. Notably, when structure is reduced, as in the play area for example, this results in children showing self-stimulatory behaviours and a lack of engagement with toys and activities.

Overall the visual structure develops children's independence as they understand the purposes of spaces within the classroom, understand information provided on schedules which mean they know where to go for each activity and can follow visual structure to develop organisational skills. Visually structured tasks promote engagement, on-task behaviours and independent task completion. As the children are very young, it is not surprising that adult prompts are required at times. Nevertheless, the degree of independence observed on numerous occasions supports the teacher's perception that *"Structured Teaching gives them independence."*

11.3.2 *Curriculum content and access*

Early Learning Outcomes and IEPs

Curriculum content for these young children comprises activities and taught lessons which aim to develop skills, knowledge and understanding in relation to Early Learning outcomes (DfE, 2013). Table 11.2 summarises observed structured teaching strategies which are used in this class to teach some of the early leaning goals.

Much of the teaching is highly individualised and one-to-one with IEP targets addressed through one-to-one taught sessions and during scheduled activities. IEP target comprise skills which teach 'learning behaviours', for example: to follow schedule independently'. Other targets are taught and supported with visual cues and structure, for example: 'to undress and dress independently'. IEP targets also link to features of wellbeing, in particular in developing autonomy, and supported with visual cues and structure, for example: 'to develop play skills by extending choices at play' using a visual choice board.

Table 11.2 Early Learning Outcomes and Structured Teaching Strategies

Early Years Outcomes	Examples of Structured Teaching Strategies
Communication & language, listening & attention, understanding & speaking	Visual communication strategies such as visual cues which are used to support understanding of verbal language and to teach expressive communication skills.
Physical development, moving & handling, health & self-care, e.g., "move confidently in a range of ways, safely negotiating space" (DfE, 2013, p. 12)	Physical structure adjusted to enable children to move around environment
"clearly communicate their need for potty or toilet" (p. 13) and to develop independence in self-care e.g., dressing.	Visual cues to communicate needs Visually structured tasks enable children to practice fine motor movement and hand/eye/motor coordination.
Personal, social & emotional development, self-confidence & self-awareness, managing feelings & behaviour, making relationships	Visual cues used in circle time activities. Visual schedules and visually structured independent tasks build self-confidence.
Literacy, reading & writing	Visual structure used to clarify early literacy skills such as matching.
Mathematics, numbers, shape, space & measures	Visual structure used to clarify early literacy skills such as matching.
Understanding the world, people & communities, the world, technology	Visual cues in circle time activities.
Expressive arts & design, exploring, & using media & materials, being imaginative	Visually structured tasks in art lesson build confidence to explore. Visual jigs scaffold imaginative learning.

Observations of one-to-one teaching indicate a variety of visually structured strategies used to teach new skills, particularly early literacy, language, numeracy and hand/eye/motor skills. In addition, individual children's interests, such as TV cartoon characters, are included in teaching and independent tasks to motivate children. For example:

Teacher asks child A to check her schedule which she does independently and

transitions to "black work". Teacher sits alongside A and hands each activity to her.

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When each activity is finished it is placed in a finished basket. Activities are visually structured and include early literacy (word-building) and numeracy (counting and matching) tasks. (Obs. term 2)

Teacher prompts child B to check his schedule and to go to teaching table for "black work". Teacher sits on B's left, hands 1 activity at a time to him. Activities structures left to right or top to bottom and include inset puzzles, stacking toys and cause and effect toys. (Obs. term 3)

Visually structured tasks are first taught one-to-one and then when mastered are transferred to independent work. The class teacher explains that teaching is supported with *"very simple instructions and very simple step-by-steps using symbols and jigs"*. TAs explain that they are involved in making visually structured tasks and *"as we know each child well, we can structure the tasks based on what they can do, and what they need to learn next"*. The class teacher justifies the use of visual structure as a teaching strategy which facilitates access to the Early Years curriculum:

I think that if their work was presented in a different way, a lot of the time I don't think you'd really get a true picture of the skills that a child has got because it's not that they haven't got the skills and ability it's about - it hasn't been organised in a way where they can access it. (Teacher interview 1)

Group activities and play

The use of visual structure is not confined to independent work and one-to-one teaching, but is also used to support group activities. For example, the same level of visual structure is observed during a sticking activity:

Children D and E are at the group table with TAs one and two. A sticking activity is structured with materials (from which the child may choose) placed in a basket on each child's left. The area of pattern for sticking is clearly demarcated with thick penned outlines. A finished basket is placed on each child's right for finished materials and resources. (Obs. term 3)

Observations of circle-time activities contrast with children's activity in play areas. Circle-time activities focus on teaching communication, listening skills, personal and social

education (PSE) and in particular interacting with others. A variety of visual strategies are used to structure activities and to enable children to share and communicate, for example:

We have a news time on a Monday morning so they all have news books which they take home. Some of the children have got symbols, some of the children have pockets where parents put photos or leaflets or carrier bags or leaves from the park. And then - the children are able to share that then. They share their news. The children who are able to talk, it might be one word or short phrase or literally pointing to the symbol and saying the word, 'Swimming', into a microphone. Or some of the children have their news recorded on a switch so that they can show the object they've brought and press the switch to tell their news. So that's a really nice sharing time because the children are communicating what they've done over the weekend and the other children are having to listen really, and take part in that. (Teacher, interview 1)

The circle time routine, together with visual strategies, enables children to engage and to participate. However, in the play area there is no clear routine. Visual jigs are included with toy materials in the classroom play area and also in the under-cover outside play area, where activities are laid out in clearly defined spaces. Children are observed using both play areas, although it is in these areas where they display more stereotypical and repetitive behaviours such as rocking and spinning and also aimless wandering, for example:

When children B, C, D finish independent work, they transition to the play area. This area includes toys and other resources, some of which are contained in labelled drawers. A visual choice board is available to children to request toys and activities. When the children are in this play area, they do not interact with each other, there is little engagement with toys and when there is it is repetitive. Self-stimulatory behaviours increase in this area. Children then transition to the circle area when told, or physically prompted, to check their schedules. The circle activity follows the morning 'hello' routine and children are calm, engaged and participating, using a variety of visual strategies to promote access to activities. (Obs. term 2)

Children F and G are in the outside play area. Activities are laid out in clearly defined areas and are visually labelled (construction, reading, sensory/experiential). The children wander around the area, occasionally stopping to pick up items such as

duplo bricks. There is little engagement with toys and activities, lack of focus, aimless.
(Obs. term 3)

Observations indicate that levels of engagement and participation in learning, across the curriculum, are enhanced with the use of routines and visual structure. Correspondingly as structure is reduced, repetitive behaviours increase and children become less engaged with learning.

11.4 Structured Teaching and Other Approaches

The teacher explains that other approaches and strategies are used *"within the structure"*. For example:

> *This class has a snack time protocol, based on a nurture group model. Each child has his or her own plate, visual communication aids are always available for children to make choices and staff sit with children and encourage communication. (Teacher interview 2)*

Likewise, other strategies are incorporated into structured, routine activities with the primary purpose of developing communication, listening, language and PSE skills. The teacher reports that the class *"do not at the moment use other named approaches but incorporate a variety of strategies into routines"*. For example, during circle times:

> *We have an interaction box which we do during the week. That's usually on a Friday afternoon but we pull it out at other times as well. And that's very much about the children saying what they want to do, what they don't want to do. There's lots of activities in there, like feely bags. Mystery boxes with different things in, and we sing a song. Do they want to look in the drawer or open a lid of the box and they pull things out. There's puppets in there, scarves to do hide and seek, that sort of thing. And then we're waiting really for the response, you know, are you hiding? And then you eventually get, 'Hello, I'm here', or whatever it might be. (Teacher interview 2)*

The interaction box activity uses routine and structure to help children to *"feel safe and confident enough to participate in the surprise element"*. The teacher explains the outcomes of this combination of strategies which combine structure with surprise and spontaneity:

It's really worked brilliantly, it's been excellent. And we've also got a board, a couple of boards with symbols where they can take and chose what they want. And we've also got photo boards so they can chose which child they want to pass the item on to, so once they've had a go with the mystery box they can say that they want to pass it to that child, and you use the photographs as a visual prompt really because that's so difficult for them. And we've seen such brilliant progress with that and they love that. And the communication that we get, really from that session, is amazing.

In addition to structured group activities which aim to develop communication and interaction, individual children access the INT approach developed by another teacher (case study 3). Child C, who is currently still learning some basic routines and structure, has regular INT sessions, with the aim of building positive relationships and interaction with familiar adults. 'TACPAC' sessions also aim to foster communication, social interaction, sensory and emotional development (TACPAC, online). The teacher explains that these sessions *"use touch and music and are good to develop trust".* Sensory massage is also used with individual children and the teacher also wishes to explore the use of other sensory strategies:

Although I'm familiar with sensory circuits and sensory profiles, that is something that I'd like to explore more. I think it would be very worthwhile because I'm very aware that some children are sort of sensitive to certain things that we should be aware of and try to facilitate change if need be for that child. (Teacher interview 2)

Whilst Structured Teaching strategies were observed during every visit to the class, no other particular approaches were observed.

11.5 Making Decisions

The main focus in this classroom is upon the use of Structured Teaching to help children to understand what is happening each day in order to reduce their anxieties. In addition, structured strategies are used to develop skills and behaviours so that, according to the teacher, *"children are ready to learn".* Other strategies, such as the interactive play box, are then used alongside the structure with a priority aim to develop communication and interaction. Figure 11.1 presents a model which represents the priority focus being the structure which surrounds the child. Whilst the structure provides a broad framework for classroom activities, structure is also tightly around each child in order to help them to feel safe and to begin to develop learning behaviours.
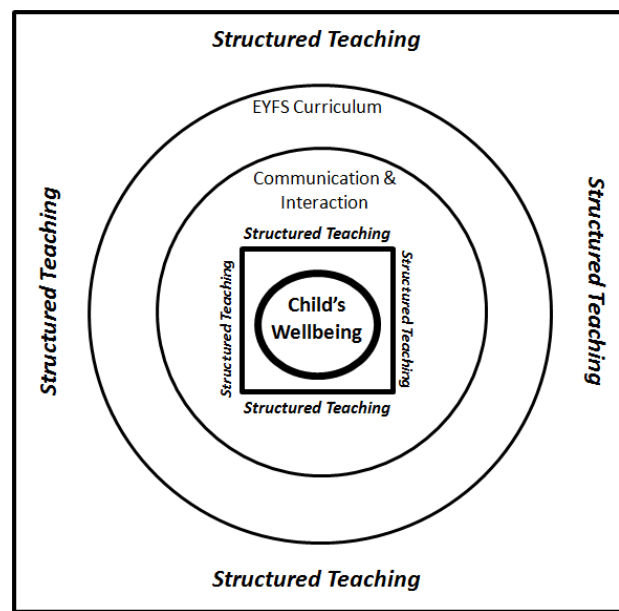
Figure 11.1 Structured Teaching and Other Classroom Strategies: Decision-Making Model

11.5.1 *Knowing the child as an individual*

The class teacher emphasises the importance of assessing individual children in order to develop individualised structure:

> *Obviously when they come into this room, it's their first experience of school so we're assessing really what level they're at and what schedules are going to be most meaningful to them. A big part of the structure is obviously the schedules. So the schedules are individualised for each child so it might be objects or photographs or symbols for the children. In this group we've decided to start on photographs and TOBIs or True Objects Based Icons and we've found - this is our second year of using TOBIs now, we've found that they're so much more meaningful to the children because they're really obvious. They're not, sort of, a traditional photograph where it's six by four and there might be distractions in the background. It's very obvious what the activity is or what the area is because it's cut around and it's the shape of that particular area or activity. (Teacher interview 1)*

Assessment of strengths, interests, likes and dislikes informs the development of individualised structure. The following example illustrates the decisions the teacher makes in relation to the selection of schedules for individual children:

> *TOBIs are more meaningful to some children, it's so much more obvious to them and they really pick up on them ever so quickly. I mean to some children objects are appropriate but we haven't really found that so far in some children in here because they tend to be used as missiles really and they can be quite distracting for some children because, you know, they're trying to explore them with their hands or they're shiny, or they're rough or they're smooth, the textures. And they can get absorbed in the item rather than what the meaning of the item is, so in those cases we decided to try TOBIs and these are definitely more meaningful for some children. (Teacher interview 1)*

Similarly, decisions about tasks for independent work are based on assessment of the individual, their strengths, likes and interests:

> *We assess what level they're at. We just have lots and lots of tasks and just go through and asses where they are at really with them. And then when they successfully and able to do them then they get moved over into their independent work bays and again they are very structured, there's a left to right system, it's clearly labelled, they know which station is theirs, they know that once all the tasks have gone from that shelf they're finished and they move on. It's all about developing structure which is meaningful to the individual. (Teacher, interview 1)*

> *We give them tasks at one to one teaching time and we watch to see how they respond. We look to see if they know which way round a picture goes, if they don't know, they are not ready for it to be independent. (TA 2)*

The teacher stresses during interview one that the structure has to be learned and that staff respond to how children react, explaining that decisions are made but also have to be changed depending upon the child's responses.

> *It's initially going through that period of, you know, working through that period of where that child is, coming out the other side really, putting a structure in. It's not a*

magic wand, it doesn't just work, 'Right, we'll put some structure in for this child and suddenly they're going to be happy and behave perfectly', or whatever it might be. It's about putting that in and coming out the other side.

The teacher also explains that the process is not always smooth and children may regress:

You might see the behaviours get a little bit worse, or some regression, or - but it's like climbing a mountain isn't it? We wouldn't just do it in one go, we'd have to stop and rest and it's just being mindful of that and just knowing that where you're going you are going to come out the other side and you're helping that child really.

11.5.2 *Wellbeing*

Decisions are made to promote the wellbeing of each individual child, structured strategies being seen as paramount by the teacher during interview two:

I think we all need to know what's happening and when and how we're going to work it all out and I think - and in that sense we can rationalise, you know, we can process what's going to happen, we can work things out and sequence things. And for children that can't do that or have real difficulties with that, you know, I think that's got to be so important.

The emphasis upon children's wellbeing is reflected in the use of the 'Leuven wellbeing and involvement scales' (2011) which is used as part of individual child tracking/observations (see appendix 41). Again, the teacher emphasises the importance of structure:

I think the structure is the most important. You know, having - and I'm, very aware that that sounds perhaps like I'm being a bit rigid about which approach I use, but I just think - I've seen it work. I've been involved with it for so long now with lots of children with lots of different needs, you know, right across the spectrum really in all ages and it works.(Teacher interview 2)

Levels of wellbeing and involvement in activities are identified by the teacher as best when structure is in place; this is corroborated by observations of structured activities in lessons and during independent work versus unstructured activities in the play area.

11.5.3 Structured Teaching, Other Approaches and the Potential for Conflict

The class teacher's decisions about the use of other approaches are linked to the belief that Structured Teaching is the priority approach in this class:

> *I think that other approaches can work but I think there can be a conflict with the structure. I think it still needs to be within a structured approach. Structure provides the scaffolding. (Teacher interview 2)*

The notion of structure as the scaffolding is reflected in figure 11.1 (p. 216) which represents Structured Teaching as both the broad framework and also as the first and most direct approach to supporting wellbeing. In this class for young children, this focus upon structure is illustrative of the fact that the children are learning how to use Structured Teaching strategies as the first step in reducing anxiety, developing independence and teaching learning behaviours. Observations across all four terms clearly reflect this approach. Decisions about introducing other approaches depend upon children's progress, as explained by the class teacher:

> *Other approaches are introduced when they know the structure and routine of the day. We use these, like the play boxes, to teach communication and interaction. They love the play boxes now.*

11.6 Summary of the case study

Structured Teaching is the primary approach in this classroom, with the teacher believing that these young children need *"to feel safe and secure"* at school. Structure surrounds each child with the aim of promoting wellbeing. Structured Teaching strategies are used to develop learning behaviours which facilitate independence and readiness to learn. Visual differentiation strategies are used to facilitate curriculum access. Decisions about other approaches are informed by priority decisions about structure. Children who understand what is expected and who become more independent in the classroom are then felt to be confident enough to try new experiences through the use of other approaches. Such approaches introduce elements of surprise and spontaneity, firmly placed within a scaffold of structure.

Chapter Twelve: Discussion

In this chapter, I discuss the key themes in relation to the research questions. Firstly I discuss Structured Teaching practices and consider the integrity of the approach as implemented in four classes for children with autism in two primary special schools. Secondly I discuss perceptions of the outcomes of implementing Structured Teaching with children with autism who are educated in special schools. I propose that educators' priority outcomes focus upon children's wellbeing and supporting their readiness to learn. Thirdly, I propose an original model which conceptualises teachers' decisions in selecting Structured Teaching and combinations of approaches for individual children. I propose that teachers' practice is 'mindful blending' of an eclectic mix of educational approaches, determined by the needs of each individual child. Structured Teaching provides a flexible and responsive framework for this eclectic approach.

12.1 Introduction

The case studies provide rich data and insights into classroom practices for children with autism and severe learning difficulties. Thomas (2011) argues that case study research 'offers you an example from which your experience, your phronesis, enables you to gather insights or understand a problem' (p. 215). To this end, my discussion reflects both my personal and professional phronesis which has enabled me to gather insights into the practices of educators of children with autism in special schools. The insights of the participants, together with classroom observations, are discussed in order to interpret the craft knowledge of the educators who participated in this research. My discussion is presented thematically and in relation to the research questions. Table 12.1 indicates the key themes which structure this discussion and which are linked to the research questions.

Integrity of the Structured Teaching approach is discussed and compared with the key aims, principles and purposes of the approach. This ensures that my claim that I have investigated Structured Teaching in the four case study classes is valid. Further discussion includes comparisons and contrasts of the case studies with the research evidence-base and in so doing proposes that there are important gaps in that evidence-base. Moreover, the outcomes which are 'measured' by researchers may neglect the priority outcomes of the participants in this study. The predominant focus of educators upon individual children's wellbeing is linked to outcomes clearly related to learning and reflects beliefs that the Structured Teaching supports children's readiness to learn.

Table 12.1 Research questions and key themes for discussion

Research questions	Discussion Themes
1. What Structured Teaching strategies are being implemented for children with autism in special schools? 2. In what ways and for what purposes are Structured Teaching strategies being implemented in special schools?	**Integrity** of Structured Teaching practices when compared with key aims, principles and purposes.
3. What do teachers perceive the outcomes are for children in relation to behaviour and learning?	**Readiness to learn** Wellbeing Teaching and learning
4. What other approaches are combined with Structured Teaching? 5. What influences teachers' decisions to combine Structured Teaching with other strategies?	**Mindful blending** Know the child Wellbeing

The focus upon wellbeing and readiness to learn drives decisions which are made in relation to types of Structured Teaching and how the approach is implemented. Moreover, the same focus is prioritised when selecting combinations of approaches for individual children. Discussion of the four cases leads to a model (p. 248) which conceptualises decision-making, both in relation to Structured Teaching decisions and to decisions about the combination of approaches which are best suited to the individual child. Teachers are urged to adopt an eclectic mix of approaches, no single strategy meeting the needs of any one child, nor of all children (Jones *et al.,* 2008). The eclectic approach is strengthened in the more recent 'toolbox' approach identified by Charman *et al.,* (2011). However, with little guidance to help educators to decide upon which eclectic mix is appropriate for which child, the toolbox approach might result in a random 'pick and mix'. I propose that eclecticism in practice, in these four cases, is less random and results from what I propose is 'mindful blending'. My discussion concludes with consideration of the implications of implementing Structured Teaching as a flexible and responsive framework for planning and implementing the mindful blending of approaches to autism education.

12.2 Integrity of Structured Teaching practices

Evidence-based research in relation to autism interventions is fraught with tensions and complexities. A recent review by Kliemann (2014) calls for further research to clarify practices in relation to each component of Structured Teaching and to established an evidence base informed by both researchers and practitioners (p. 12). However, difficulties in researching approaches, which in practice do not comply with the guidelines laid down by those who developed particular approaches, is a particular concern. Lack of 'treatment integrity' may jeopardise any conclusions which can be drawn from the findings, especially when practitioners are not implementing approaches in the intended manner. Research questions one and two sought therefore to identify which Structured Teaching components were being implemented in the four classes and how they were being used in practice. This leads to a discussion of how closely the adults' views and practices reflect the principles and purposes of the approach, thus determining whether this research is truly investigating Structured Teaching.

12.2.1 *Components of Structured Teaching*

Each of the four case studies demonstrates that the key components of Structured Teaching (physical structure, schedules, work systems and visual information) are routine practices, albeit in different forms depending upon children's needs and abilities.

Physical structure

The physical structure of each classroom is determined by the children's needs and each teacher organises the classroom so that specific places are designated for specific purposes. This reflects the purpose of physical structure determined by TEACCH (Schopler *et al.*, 1995; Mesibov *et al.,* 20005) which is to enable individuals to understand the purposes of space so as to independently transition between activities. In addition, attention is given to sensory distractions in each of the classrooms. Adjustments are made to the learning environment by: reducing the number of displays (case studies three and four); using individual work bays (all four cases); providing a distraction-free, quiet area which children can use when they are overloaded (case studies one, two and three).

The use of work bays in particular is linked to reducing anxieties. For example the TAs in case study three refer to work bays as a *"comfort zone"* which provides *"familiarity".* They also refer to children being able to *"de-escalate"* themselves, a view which is echoed in both classes in school A which prioritises the teaching of self-regulation strategies. Observations

record children using work bays for this purpose; this is illustrated in particular by child B in case study three who goes straight to her work bay when she arrives late and in a state of anxiety. Observations support the views of adults that the physical structure enables children to transition from one activity to another independently. The focus upon independent transitions is clearly linked to one of the purposes of Structured Teaching, i.e., to develop independence (Mesibov *et al.*, 2005).

There are clear beliefs amongst participants in this investigation that consideration of physical structure is integral to classroom practice. Furthermore observations of children being able to transition independently and to use self-management strategies when anxious, support the views of the adults. However, little attention is paid to this component of Structured Teaching in the research literature. Some refer briefly to this component, for example: Panerai *et al.,* (2002) refer to 'place activity correspondence' (p. 322). Others refer to specific activities in specific places, such as a literacy centre (Bryan and Gast, 2000) whilst Hume and Odom (2007) refer to minimising visual and auditory distractions in work bays. It is somewhat surprising that, given the beliefs of teachers and support assistants in this study that physical structure is important for independence and to manage sensory distractions or overload, this component of Structured Teaching is largely neglected in the research-evidence base.

Schedules

The purpose of schedules is to provide information about what is happening, where and when (Mesibov and Howley, 2003; Mesibov *et al,* 2005). According to Mesibov *et al.,* (2002) schedules support independent transitions, independent performance of tasks, following routines and self-management of leisure activities, all of which are evident in the four case studies.

The principle of assessing children's strengths, interests and visual cognition ought, according to Mesibov *et al.,* (2005), lead to individualised schedules which present information in a way which is meaningful to the individual. The schedules observed range from whole class visual timetables to individualised schedules using a variety of visual cues including objects, TOBIs, photographs, symbols and words. Each of the participants in this study emphasises the use of schedules as an integral part of their regular classroom practice and they share the belief that schedules help children to understand the structure of the day and the sequence of activities each day. Children are observed independently transitioning between activities by referring to either the class schedule and/or the individual schedule. This supports the findings of other

researchers who report that schedules enable independent transitions (e.g., Bryan & Gast, 2000; Dettmer, *et al.,*, 2000; Dooley & Wilczenski, 2001; Hume *et al.,* 2014, online). Checking schedules is a classroom routine, although there are differences in when and how schedule information is used. The inclusion of one case study in an early years/year one class is useful in illuminating this difference. In this class, young children are learning how to use their schedules through explicit teaching from adults, whereas in each of the key stage two classes most children have learned to follow schedules and do so independently, both when directed and also spontaneously. However, increased independence carries with it the risk that adults believe the individual schedule may no longer be required.

Each of the teachers also use the schedule as the main means of communicating to children any changes to the sequence of activities. The link between the use of schedules and reducing anxieties is made by all staff who firmly believe that following a schedule reduces anxiety. Observations are consistent with this belief as children are observed referring to schedules and asking questions about schedule information at times of anxiety. The inherent anxieties which children with autism experience are often associated with coping with change. Schedules are updated and amended to show changes to activities which provide opportunities for children to practice coping with change; this is more evident in classes one, two and three where children are more experienced at using schedules. All staff express the view that anxiety causes problem behaviours and that using a schedule reduces anxieties and therefore reduces behaviour problems. This reflects similar findings to those found in the research evidence-base, namely that the use of schedules reduces behaviours such as self-injury (e.g., Dettmer *et al.,* 2000; Dooley *et al.,* 2001; Lequia *et al.,* 2012; Massey and Wheeler, 2000; O'Reilly *et al.,* 2005; Schmit *et al.,* 2000; Watanabe and Sturmey, 2003). Importantly, my investigation adds to previous findings by identifying an explanation for reduced problem behaviours linked to levels of wellbeing. This adds a new dimension to the existing research evidence-base and is an aspect worthy of further investigation.

Work systems

The purpose of work systems is identified by Mesibov and Howley (2003) and Mesibov *et al.,* (2005) as teaching independent organisational strategies which enable children to engage in activities. A variety of individualised work systems are used by individual children in each class. Work systems are set up to enable children to locate their work, to see how much work they are to complete, to be able to monitor their progress and to know what to do when finished. Work systems include the full range identified by Mesibov *et al.,* (2005) including:

'left-to right' systems with finished baskets; matching systems which include colour, shape, picture sequences; written systems. These work systems are used in the four classes primarily for independent work sessions. The findings in the four case studies mirror the research evidence in relation to the use of work systems which suggests that the strategy enables learners to engage with activities independently and increase their 'on-task' behaviours (e.g., Hume and Odom, 2007; Hume *et al.,* 2009; Hume and Reynolds, 2010; Hume *et al.,* 2012; Mavropoulou *et al.,* 2011). More recently, O'Hara and Hall (2014) also found that the use of work systems increase engagement with activities. However, there are times in each of the case study classes when children are 'off-task' while working independently and at these time children are observed engaging in repetitive, self-stimulatory behaviours. On occasion, some children follow the work system, but then repeat activities which they have already completed or complete tasks inaccurately. This demonstrates the inherent difficulties that children with autism have with maintaining focus and concentration which the work system only partly addresses.

Visual information

The TEACCH approach to autism identifies the use of visual information as a key component of Structured Teaching (Mesibov *et al.,* 2005). Visual information includes visual organisation of tasks, visual clarity and visual directions (Mesibov and Howley, 2003). This component is particularly evident in each of the four case study classrooms. Visual information is provided according to individual understanding and ranges from the use of pictures, photographs, jigs, symbols and words.

Observations record the use of visual information to support independent work, whole class and group lessons. Visual information supports positive behaviours and also provides information which is meaningful to the individual and which therefore supports learning. The teacher in case study four illustrates how visual information is considered for each child:

> *Because all the tasks or activities that we do we really think about them being visually organised. So whatever we present to the children it's just about looking at it and thinking, 'Is it clear - to that child - what they have to do?'*

This finding is consistent with those found in the research evidence-base (e.g., Dettmer *et al.,* 2000; Mavropoulou *et al.,* 2011; O'Hara and Hall, 2014). However, whilst it is sometimes clear how visual information is used, for example during a swimming lesson (case study one),

at other times it is less clear that children pay any attention to the vast array of visual information presented in the classroom (in particular in relation case studies one and two). This may in part be due to the variety of visual strategies as part of Structured Teaching and also in relation to other approaches which results perhaps in too much visual information on display.

Special interests and self-initiated communication

Mesibov and Shea (2010, p.572) identify special interests as one of the 'essential mechanisms' in Structured Teaching. They argue that by incorporating individuals' interests, this increases motivation and interest. The use of special interests as part of Structured Teaching is evident in all four case studies. In particular, the use of interests is incorporated into independent work tasks, ranging from matching tasks which include pictures of favourite cartoon characters to subject-based tasks which include interests, for example a sequencing activity linked to the Tudors.

In addition, self-initiated communication is a key aim of Structured Teaching (Mesibov *et al.,* 2005). Children are taught and encouraged to communicate spontaneously, supported by visual communication systems and cues. In each of the four case studies, a variety of visual strategies, cues and tools are used to promote communication (see each case study for examples). This feature of classroom practice shows a clear overlap of Structured Teaching with other strategies and is discussed in relation to 'mindful blending' of approaches (p. 248). However, whilst children make use of visual cues and communication systems at times, these are often ignored other than during structured routine activities such as snack. Notably, communication occurred more spontaneously during those times when structure was relaxed and interaction approaches where implemented, these activities referred to as 'unstructured within a structure'

The cases presented include substantial evidence of the use of Structured Teaching components as determined by the TEACCH approach. However, aspects of the approach were at times implemented in limited ways, perhaps indicating misconceptions about purposes of the approach. In particular, the following limitations and weaknesses were evident in each of the four classes. Firstly, at times the structure is not used and is ignored by both learners and educators. During these times, learners' behaviours become more agitated, anxieties increase and children are not engaged in learning. However, at these same times, more spontaneous interaction and communication increase, despite (or perhaps because of) anxieties and

uncertainty. The balance between structure and spontaneity is challenging and indicates a need for training and further research in this respect. Secondly, when children become adept at using schedules, this is interpreted as '*they don't need them now*'. Schedule use is limited to 'what, when, where'. Further training to support and enhance schedule use would be beneficial for children.

12.2.2 *Contribution to the research evidence-base for Structured Teaching Components: Answering research questions one and two*

Integrity

The first two key research questions aimed to gather information which would indicate whether teachers in special schools use and interpret Structured Teaching as it is determined by TEACCH. Findings indicate that each of the key components of Structured Teaching is used in each of the case study classrooms. Moreover, these strategies are implemented in accordance with the approach requirements and staff in each class demonstrate a shared understanding of the purposes of each component of structure. It is argued therefore that this investigation into Structured Teaching has been undertaken in settings where 'treatment integrity' is achieved, thus validating the claim that this study does indeed investigate Structured Teaching. There is a clear consensus across the case studies in relation to the purposes of Structured Teaching and the ways in which it is implemented. Differences in implementation of the approach reflect its flexible use, which is responsive to individual needs and strengths. The next part of the discussion moves on to consider the teachers' and TAs' perceptions in relation to outcomes for children when Structured Teaching is implemented.

This investigation adds to the existing research-evidence base by exploring ways in which Structured Teaching components are implemented in special school classrooms. This reflects recent calls for further research in this regard (Kliemann, 2014). However, whilst investigating the impact of separate components of the approach is important, classroom teachers do not implement isolated components. This study begins to identify the ways in which educators implement all aspects of Structured Teaching in the context of special school classrooms and therefore contributes research evidence which reflects the 'real world' of classroom practice. See chapter 13 for further discussion.

12.3 Perceived Outcomes for Children: readiness to learn

The teachers and TAs who participated in this investigation indicated strong beliefs that Structured Teaching is effective in preparing children to be 'ready to learn'. Reasons for this are related by participants to children's wellbeing, by reducing anxieties and increasing autonomy and self-esteem. In addition, they also expressed a belief that the approach teachers 'learning behaviours' which are pre-requisites for teaching and learning.

12.3.1 *Wellbeing outcomes*

Increasingly researchers conclude that components of Structured Teaching, and in particular visual schedules and work systems, reduce problem behaviours (Lequia *et al.,*2012), increase on-task behaviours (Bryan and Gast, 2000; O'Hara and Hall, 2014) and improve independent transitions (Banda and Brimmett, 2008; Kliemann (2014); Lequia, Wilkerson, Kim and Lyons*,* 2014). Whilst each of these outcomes are evident in the four case studies, the participants also expressed a belief that the primary outcome relates to children's wellbeing. Indeed, the over-riding priority of each teacher is almost exclusively upon children's wellbeing. This theme was identified across survey, interview and observation data and represents a consistent opinion. My investigation finds that Structured Teaching is implemented in order to help children to feel safe and secure, to develop autonomy and self-esteem and to provide a structure which supports children so that they are ready to learn. Teachers make it clear that if wellbeing is not supported, children are not ready to learn.

Teachers and teaching assistants expressed the view that Structured Teaching is an important strategy which reduces children's anxieties. The nature of autism, together with severe learning difficulties, is known to create high levels of anxiety which frequently results in problem behaviours (Jordan, 2001). These anxieties stem from limited understanding of the world and what is expected. In the context of this research, anxieties correlate with limited understanding of the classroom and all that takes place in that context. Consequently, it is not surprising that participants explain that Structured Teaching is implemented in all four classes with a key aim of reducing children's anxieties.

One of the key purposes of Structured Teaching is to manage behaviours (Schopler *et al.,* 1995; Mesibov *et al.,* 2005). It is perhaps not surprising therefore that there is a significant focus upon measuring the occurrences of problem behaviours when using (or not using) Structured Teaching strategies in order to develop the research evidence-base for the approach. For example, reductions in self-injurious behaviours are attributed to the use of

schedules and/or work systems (e.g., Bennett *et al.* 2011; Dooley *et al.,* 2001; Massey and Wheeler, 2000; O'Reilly *et al.,*, 2005; Schmit *et al.,* 2000; Probst *et al.,* 2010). Systematic reviews, e.g., Odom *et al.,* (2003), report that some studies identify a return to self-injurious behaviours during the withdrawal phase in A-B-A-B single subject design studies (e.g., Dettmer *et al.,* 2000). Given this, it was expected at the start of this investigation that educators would suggest that they use Structured Teaching primarily to manage behaviours. However, the data shows that this was not the case. All participants referred to anxiety as the primary reason for implementing Structured Teaching and that behaviours change as a consequence of reducing anxieties. This indicates a focus upon underlying reasons for behaviour and for the participants in this study that means a focus on children's wellbeing.

Observations corroborate with participants perceptions in this regard. This was observed for example in case study three when a girl who, before removing her coat, immediately used the work bay and system when arriving in class in a heightened state of anxiety. This resulted in reduced anxiety and a teaching assistant indicated that this was a regular action which the child took when she was anxious. This example indicates that the child is able to use the structure independently to manage her own anxieties and supports the perceptions of adults that Structured Teaching strategies help to reduce anxiety.

The primary reason for implementing Structured Teaching, and the perceptions of educators that the approach results in a shift from negative inner states such as anxiety to being able to self-manage behaviour, indicates a difference in focus between the participants and what researchers are measuring. However, there is another anomaly between the research evidence and the findings in this investigation. Researchers such as Kliemann (2014) are concerned with 'testing' which components of Structured Teaching result in reductions in problems behaviours, in order to build a research evidence-base. However, the participants in my study believe that the *"structure as a whole"* (teacher case study three) is what helps to reduce anxieties and consequently manage behaviours. They shared a view that each of the components of Structured Teaching work together to reduce anxieties. This presents a tricky dilemma in as much as whilst it is important to determine which features of the approach result in positive outcomes, it is also important not to lose sight of the whole picture. This reflects the argument of Mesibov (2001, online) that Structured Teaching is more 'Gestalt in its approach', focusing on meaningfulness and understanding. My investigation indicates there is a need for additional future research to investigate Structured Teaching as it is

actually implemented in classrooms, rather than isolating single components. This is discussed further in chapter thirteen.

Alongside the beliefs of participants that Structured Teaching strategies reduce anxieties is the perception that the approach supports individual autonomy. In particular participants believe that the approach teaches children to become more independent, a key purpose of the approach (Schopler *et al.,* 1997; Mesibov *et al.,* 2005). Examples given by participants include: independent transitions, independent organisation and completion of activities (see Teaching and Learning); ability to communicate; ability to make choices. Perceptions in relation to independence mirror the findings of research which measures similar independent skills (e.g., independent transitions: Chiak and Ayres, 2010; Dettmer *et al.,* 2000; Dooley *et al.,* 2001; Schmit *et al.,* 2000; Waters *et al.,* 2009; organisation and completion of tasks Bryan and Gast, 2000; Hume *et al.,* 2012; Massey and Wheeler, 2000; choice making Watanabe and Sturmey, 2003). Observations in this investigation also record that children develop a range of independent skills by using all components of Structured Teaching. Each of the case studies includes multiple examples of independence when children use Structured Teaching. These independent skills are identified as 'learning behaviours' in this investigation and are discussed further (see 12.3.2, p. 234).

Considerable emphasis upon the role of Structured Teaching in developing independence is expressed by teachers. However, some uncertainty about independence is expressed by one TA who says "*I think independence is very important but I don't think that having to abide by a list every single day is particularly independent.*" (TA 2, case study three). Whilst this view was expressed by a single participant, it perhaps reflects the limited understanding of how schedule use can be presented to provide opportunities for individual children to extend their skills. The use of schedules in this investigation is limited to providing information which is meaningful to indicate to children 'what, where and when'. The research evidence reflects the same focus, measuring independent transitions based on knowing what, when and where (e.g., Banda and Brimmett, 2009; Dettmer *et al.,* 2000; Dooley *et al.,* 2001; Schmit *et al.,* 2000; Waters *et al.,* 2009).

However, Mesibov and Howley (2003) suggest that once children are independent in their use of schedules, it is possible to adapt schedules to teach a variety of skills beyond being able to follow the schedule for 'what, when, where' information. For example, the schedule might present problem-solving opportunities or promote key skills such as being able to work with

others (p. 63). However, this extended use of schedules was not observed in any of the classes. Rather, once children are independent in using the schedule then an assumption is made that *"they don't need their own"* (teacher, case study two) and the schedule is presented as a whole class timetable. This indicates that despite regular training in the approach, there remains a need to support practitioners to continue to reflect and to enhance their use of Structured Teaching strategies beyond teaching 'what, when, where'.

The case studies reveal a strong correlation between reducing anxieties and increasing autonomy in order to promote positive wellbeing. The following comment from one teacher represents the shared perception amongst participants that structure is essential for wellbeing:

> *...without the structure they wouldn't know what was happening next or they wouldn't know where they were supposed to be so it would all be further stresses, which is not good for them or their wellbeing. It* [Structured Teaching] *is needed in order to keep them relaxed and calm and confident and have self-esteem; knowing what they can do and achieving their tasks at their workstations for example is vital for their wellbeing. (Teacher, case study three)*

This teacher's comments reflect a shared belief that Structured Teaching strategies reduce stress and anxiety and at the same time raise self-esteem and increase autonomy. Links between the development of independence to self-esteem are reflected in occasional comments from children such as *"I did it"* (case study three) indicating recognition of their own success. In addition, participants suggest that this then affects children's self-confidence and levels of happiness which impacts their readiness to learn. Yet, as indicated in chapter three, is a distinct lack of reference to children's happiness or wellbeing in the research evidence-base. Recently a growing interest in this area has emerged, illustrated in the UK for example by a conference and publication which is solely concerned with 'autism, happiness and wellbeing' (Jones and Hurley, 2014). Vermeulen (2014) remarks that "studies of the effects of certain treatments... rarely take emotional wellbeing as a desired outcome" (p. 8). As I concluded in chapter three, Vermeulen too indicates that researchers focus on the measurement of skills and behaviours (p. 8) with consideration only of negative wellbeing. He identifies a need for a more positive approach to the wellbeing of people with autism and to "develop strategies to facilitate their feeling of happiness". The findings of my research resonate with this recently emerged focus (see 12.3.3 p. 238).

12.3.2 *Teaching and Learning Outcomes*

At the same time as this study reveals an important focus upon children's wellbeing and readiness to learn, a co-related theme emerged from the survey, interview and observation data. Survey participants and interviewees referred to skills which are defined in this study as 'learning behaviours'. When referring to examples of learning behaviours, participants frequently refer at the same time to wellbeing and in particular to developing autonomy. Hence, learning behaviours are integral to both wellbeing and teaching and learning themes. In addition, they also indicate ways in which Structured Teaching support 'curriculum' teaching and learning. Observations in each class support the views of participants. Observations recorded independent learning behaviours of individual children and explored if and how Structured Teaching supported teaching of the curriculum.

Learning behaviours

Participants refer to a number of skills and behaviours which they believe are positive outcomes as a direct result of implementing Structured Teaching. These include: motivation, concentration and engagement in tasks and activities; organisation of tasks and materials; levels of independence during independent, group and class activities; the ability to follow and understand teaching and learning routines. These learning behaviours are evident in the research evidence-base (e.g., Bryan and Gast, 2000; Hume and Odom, 2007; Massey and Wheeler, 2000; O' Hara and Hall, 2014; O'Reilley *et al.,* 2005) and indeed are the exact behaviours which researchers aim to measure in order to determine efficacy of components of Structured Teaching.

In this investigation, observations recorded learning behaviours in each of the four classes. Engagement with schedules enabled children to locate and process information in order to understand the sequence of learning planned for each day. This represents one of the first learning behaviours which are taught through the use of schedules. As previously discussed, all participants place great emphasis upon the importance of schedules in promoting aspects of wellbeing. They also emphasise that schedules are a way to engage children with the day's activities. Multiple observations in each class note that when children engage with the individual and/or whole class schedule they are able to transition between activities. When children are not engaged, perhaps due to anxiety or being distracted, schedule information is bought directly to children and is sometimes simplified as 'first, then' (see case study four). The teacher in this class explains that this approach can *"re-engage a child by drawing their attention to what is happening"*.

If being able to locate activities and lessons is the first level of engagement which is taught through the use of schedules, the next level of engagement is linked to use of work bays, work systems and visual information. Observations note in all classes that screened work bays are provided for those children who are highly distracted. Moreover, the use of a work system and the provision of visually organised tasks and/or visual directions support children to engage with independent tasks, as reflected in the research evidence-base.

In addition to the visual structure, the inclusion of special interests in both the work system and in individual tasks supports engagement. Use of children's interests was observed in all classes and individual children were clearly motivated when their own particular interest appeared in a task; for example young children in case study four looked visibly happy by smiling and laughing when completing matching tasks which included characters from favourite TV programmes. These tasks were also completed more quickly and accurately than tasks which did not include their interest.

Class routines were evident in each of the classes and children were able to anticipate and follow these routines. Notably, regular routines include: morning greetings and snack time; during these familiar routines children are recorded as *engaged and able to communicate their requests*. The importance of routines is also evident when activities are changed unexpectedly; at these time some children become agitated and it is the routine of checking the schedule and/or the routine of a familiar activity which is observed as quickly re-engaging children.

This investigation demonstrates that the perceptions of the participants, which are corroborated by observations, shows a direct link between the use of Structured Teaching strategies and the development of learning behaviours. In this respect, the perceptions of the participants echo with the research evidence which claims that the use of Structured Teaching strategies promotes what, in this study, I call learning behaviours. Moreover, all four teachers in this study believe that by teaching these learning behaviours, this prepares children to be *"ready to learn"*.

Readiness to learn

Analysis of the case studies reveals that Structured Teaching is implemented to promote wellbeing and to teach learning behaviours, which together participants believe support children's readiness to learn. This perception is illustrated by the teacher in case study one:

> *I suppose the most important thing for me is the fact that the child is ready to learn. You know, if the child is not ready to learn, if they are not, you know, prepared to actually engage in a task, there's absolutely no pointing doing that task because it's not going to be meaningful to the child, they're never going to learn anything from it. So we always want to make sure that everything that is available to them gives them that opportunity to be prepared to learn.*

This view is reflective of each of the teachers who express beliefs that Structured Teaching provides the structure, reassurance and independence which enables children to be ready to learn. Improved outcomes in relation to a variety of learning behaviours, such as engagement and being on-task, are already established as evident in existing research (e.g., Bryan and Gast, 2000; Hume and Odom, 2007; Hume and Reynolds, 2010; O Hara and Hall, 2014). Observations across the four case studies revealed similar learning behaviours, enabling children to be ready to learn. However, preparing children to be ready to learn is not an end in itself. Howley (2013a) argues that 'the focus on measuring observable behaviours results in a clear gap in the evidence in relation to what children are learning and why they are learning what they are learning' (p. 5) Whilst many studies present evidence in relation to learning behaviours, few have focused upon what children are learning. Those that do consider curriculum content, still report primarily upon learning behaviours (e.g., Bryan and Gast, 2000; Zimbelman *et al.,* 2007). Hume *et al.,* (2012) go a little way towards addressing learning by reporting that the use of a work system improves task accuracy, assuming that task accuracy indicates that a child has learned and understood the task. Given this gap in the literature, this study also sought to find out and document in what ways Structured Teaching strategies support learning across the curriculum. The main finding indicates that the approach is implemented as a visual differentiation strategy, which I now discuss .

Visual differentiation: Supporting learning

A variety of curriculum subject lessons were observed across the four case studies including: literacy, numeracy, science, religious education, swimming, physical education, art, music and drama. Whilst Structured Teaching strategies enabled children to be ready to learn in

these lessons, further strategies were implemented to support learning of lesson content. These strategies draw upon the 'visual information' component of Structured Teaching and which are used as a differentiation strategy to help children to learn.

A wide variety of visual cues and directions were observed in each class. Visual information for children in the early years class is simpler and primarily in the form of objects, pictures and symbols. This was observed during a morning greeting session which was supported with a variety of picture/symbol cues for children. Nevertheless, the teacher believes that the visual cues help young children to learn:

> *I think it really does support their learning because again it's about them understanding what's expected of them and also about, well not becoming frustrated. Because all the tasks or activities that we do we really think about them being visually organised. So whatever we present to the children it's just about looking at it and thinking 'Is it clear - to that child - what they have to do?'*

This teacher reflects upon using visual information to make learning clear, referring to 'visual clarity' which is an important element of visual information in Structured Teaching. For children in key stage two, visual information takes many forms. For example, in a science lesson in case study three, visual information was used to help children to recall previous learning and to highlight adjectives which children could use to describe animals. A swimming lesson in case study one revealed a variety of visual cues which were used throughout the lesson to reinforce the swimming movements which children were learning and to highlight key vocabulary such as '*push and glide*'. Observations show a consistent use of visual information across lessons to "*make learning more meaningful*" (teacher case study one). When asked by the researcher in what ways this visual information helps children to learn, the teacher in case study three replied:

> *It clarifies and reinforces concepts, without it they do not understand and they do not know what to do. The visual instructions are really important to some of my children, for example [child F] understands instructions if he reads them... if we tell him he keeps asking because he can't remember what we said.*

Important to note is the use of visual information as a differentiation strategy as only one of many differentiation strategies observed. For example, observations during an RE lesson in

case study three demonstrated the use of a multi-sensory approach which included visual, auditory and kinaesthetic differentiation strategies. However, it is the visual information which participants believe is what helps the children to understand and recall their learning.

Using visual information to support learning is not exclusive to the Structured Teaching approach and it is this aspect of the approach which overlaps considerably with others that were observed. Other approaches are also visually based, for example PECS (Bondy and Frost, 2004) which provides a visual communication system and Social Stories (Gray, 2010; Howley and Arnold, 2003) which include visual cues to support social understanding. However, the visual cues on display in case study classrooms one and two were noted as particularly *too visually busy – how do children know which visual cues to look at?* The balance between using visual strengths, but at the same time making sure not to visually overload children, requires careful assessment; further training in this aspect would be beneficial.

12.3.3 *Contribution to gaps in the research evidence base: Answering research question three*

The perceptions of the participants in this study reveal beliefs that Structured Teaching is an approach which i) promotes wellbeing and ii) teaches children learning behaviours. Teachers and TAs in all four case studies believe that by promoting wellbeing and teaching learning behaviours the approach enables children to be ready to learn. By this they mean that children feel safe and are less anxious, are developing autonomy, are focused and engaged, are motivated are able to understand and follow learning routines.

This multi-case study investigation contributes to two significant gaps in the existing research evidence-base. These gaps relate to: i) the correlation of wellbeing with learning behaviours for positive outcomes for children; ii) the potential for social validation of the approach to enhance the empirical evidence-base.

The correlation of wellbeing with learning behaviours is not explored in any depth in the evidence-base to date. This investigation has identified an important correlation which begins to explain the priority outcomes of educators who implement Structured Teaching. Recent initiatives have seen an increasing interest in autism, happiness and wellbeing (Jones and Hurley, 2014) with a newly paced emphasis upon promoting positive wellbeing (Vermeulan, 2014). My investigation demonstrates how Structured Teaching is perceived by educators as a

valuable approach to promoting positive wellbeing in children with autism and learning difficulties and is therefore a timely contribution to recent developments in the field.

This study shows that the views of educators offer the potential for enhancing the existing research evidence and adding to the social validation of the approach. By combining results from quantitative studies (i.e., the existing research evidence-base) with findings from qualitative investigations such as this, a richer picture and evidence-base is revealed. The use of visual information as a differentiation strategy contributes to existing research evidence which, whilst it has identified positive behavioural outcomes when using visual information, is limited in investigating learning outcomes. The perceptions of the teachers and TAs identified in my investigation have the potential to add to the research evidence picture and to inform and enhance future practice in this field; this is discussed further in chapter thirteen.

12.4 Combining Structured Teaching with other approaches and strategies

Just as Structured Teaching components are not implemented as isolated components, so the Structured Teaching approach is also not used in isolation from other approaches and strategies. The research of Charman *et al.,* (2011) reveals a wide variety of approaches being implemented as part of good practice in autism education. The toolbox approach typifies 'real-world' practice and reflects the eclecticism which is frequently called for in this field.

This investigation revealed, not surprisingly, a range of approaches and strategies being implemented across the cases. However, whilst it is useful to identify which approaches educators are implementing, of greater interest in this investigation was to try to uncover *why* teachers selected particular strategies and how these were implemented alongside Structured Teaching. This multi-case study investigation found that the reasons teachers have for implementing other approaches and strategies are inextricably linked to their reasons for implementing Structured Teaching. These reasons underpin their decisions to combine particular approaches with Structured Teaching. This section of the discussion therefore considers the reasons participants give for implementing other approaches and their views on how these approaches combine (or not) with Structured Teaching. I then move on to explore teachers' decisions in selecting and combining approaches. A model is proposed (p. 248) which captures factors which influence teachers' decisions and a framework which reflects the combinations of other approaches with Structured Teaching.

12.4.1 *Reasons for implementing other approaches: wellbeing*

Observations demonstrate that the teachers in each case study class implement different approaches. However, whilst different approaches are evident, teachers share similar reasons for using these approaches. First and foremost is a priority which focuses upon children's wellbeing, indicating that this is the underpinning factor which rationalises classroom practice. Wellbeing is the priority focus of each teacher across the case studies. Whilst this is a shared priority, and one which is partially addressed through Structured Teaching, different approaches are implemented in each class but with the same intentions to promote wellbeing. The approaches which are used are in part selected at whole school level and also by individual teacher preference.

Both teachers in case studies one and two identify use of the SCERTS approach, adopted by the school, for its broad approach to developing social communication and emotional regulation. Teacher one explained that the SCERTS approach includes a range of strategies available to children to enable them to communicate, to interact, to understand and to manage their emotions. Both teachers in school A viewed the development of social communication and the ability to *"self-regulate"* emotions as crucial to children's wellbeing. The observed practices in both classes revealed a range of strategies to support children with these priority learning areas. The strategies used in case studies one and two reflect the 'toolbox' approach identified by Charman *et al.,* (2011, p. 23) including: a wide range of visual supports; communication strategies; interaction approaches; sensory strategies.

The teacher in case study three also prioritised wellbeing and addressed wellbeing through a 'toolbox' of approaches. Although not adopting the SCERTS approach, the approaches and strategies observed in this class were not dissimilar to those observed in case studies one and two. An interesting focus of the class teacher reflected her prioritising of positive relationships and interaction and to this end, the teacher had devised an interaction approach based upon principles of approaches such as intensive interaction (Caldwell, 2008; Nind and Hewett, 2001). This supports research evidence in relation to combining Structured Teaching strategies with interaction approaches (for example, Armstrong *et al.,* 2014).The teacher's reasons for this combination again focused upon wellbeing, with the view that successful and *"joyful"* relationships underpin wellbeing.

Comparisons between case studies one, two and three find that while the three teachers share the same priority in terms of wellbeing outcomes, the ways in which they achieve this vary.

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Each teacher uses a variety of strategies which are individualised in accordance with individual children's needs. In contrast, the variety of strategies is less evident in case study four, although this teacher again prioritises children's wellbeing. Monitoring and recording of individual children's wellbeing, through the use of the 'Leuven wellbeing and involvement scales' (2011), reflects the importance the teacher places upon the wellbeing of individuals. In working toward achieving wellbeing, this class teacher implements Structured Teaching as the primary approach, arguing that younger children firstly need structure and then other strategies can be added *"within the structure"*. The 'tighter' structure for these young children is considered by the teacher to be the most important approach to promoting their wellbeing, by providing them with strategies to understand the classroom and to develop some independence.

Other strategies were observed which focused upon communication and interaction, again reflecting the teachers' priorities for children who did not yet have an effective communication system. PECS was the favoured communication system in all four case studies, although this was not used to the exclusion of other communication strategies depending upon individual needs and strengths. Reasons for teaching the use of PECS were linked to the visual component and the relationship with Structured Teaching. However, it has already been noted that children were not observed using PECS other than within a structured routine.

The implementation of a variety of sensory strategies was evident in case studies one, two and three. Use of these strategies also correlates with promoting the wellbeing of individual children. Teachers and TAs indicated that these strategies are taught to children as a means of *"self-regulation"* and to manage levels of arousal. The daily use of sensory circuits in case studies one and two reflect a belief that this approach supports children's ability to self-regulate upon arrival at school, frequently after a lengthy journey to school. Individual children in case study three are described by the teacher as needing sensory strategies, although these are not integrated into routines, whilst in case study four the teacher had recently (term 3) considered sensory strategies for one child who was displaying a range of sensory behaviours. In all cases staff linked the use of sensory approaches, whatever those approaches may be, with the wellbeing of individual children.

12.4.2 *Combining Structured Teaching with Other Approaches: factors influencing teachers' decisions*

An important aspect of this investigation was to explore teachers' decisions when combining approaches. When questioned by the researcher about their decisions, each teacher had clear reasons for combining approaches and they were able to explain why they decided upon particular combinations for individual children. This part of the discussion factors which determine teachers' decisions; whilst teachers made those decisions, TAs expressed their views as they were involved in this process.

'Knowing the child' is at the heart of decisions in all four case studies. Just as knowing the child determines components of Structured Teaching, so knowing the child is at the centre of decision-making when combining approaches with Structured Teaching. Teachers indicated that the assessment of children's needs, strengths and interests informs their decisions which determine both Structured Teaching strategies and other approaches. Teachers and TAs all explain that observations of children are continuous and changes are made to approaches and strategies based upon discussion of observations.

Combinations of approaches and strategies reflect the 'toolbox approach' identified by Charman *et al.,* (2011) which reports that 'Autism-specific approaches were used flexibly depending on the Key Stage level the pupils were working at and on an individualised basis' (p. 24). However, whilst this research indicates that schools adopt a variety of approaches on an individual basis, the research does not indicate why teachers decide upon which tools to implement for which children. In my investigation, teachers explain that knowing the child is the first factor to inform their decisions. In addition to this, a particularly influential factor links to the use of visually-based approaches.

A common factor integral to many of the approaches observed in each case study was the use of visually based approaches, such as PECS, and the use of a variety of visual supports to enhance communication, interaction and access to the curriculum. Each teacher was able to identify why they believed that these approaches worked in combination with Structured Teaching.

The use of SCERTS in case studies one and two is viewed by both teachers as working well with Structured Teaching. The following comment from the teacher in case study one illustrates this view:

It [SCERTS] *fits together really well, especially your social communication side, fits together brilliantly with your TEACCH, because again it's quite a structured way of communicating. And they've learned that a lot through TEACCH because we implement TEACCH from a really early age here at school so they recognise, you know, your left to rights* [work systems, visual instructions]*, they recognise routines and the social communication part of that fits in brilliantly. So I wouldn't notice any real difference between that and TEACCH with regards to implementing it within the classroom, it kind of fits really well.*

The broad approach of SCERTS includes consideration of 'transactional supports'. The SCERTS approach manual (Prizant *et al.,* 2006b) indicates that one type of transactional support is 'learning support' which includes a variety of 'aids':

Learning supports involve aids such as visual supports and augmentative communication supports as well as the strategies for implementation of these supports... (p. 32)

The direct link between the visual structure of Structured Teaching and the visual supports suggested as part of the SCERTS approach indicate a 'fit' between the two approaches. Nevertheless, teacher one expresses a potential conflict with Structured Teaching which aims to enable children to focus and SCERTS which provides self-stimulatory sensory strategies for emotional regulation. Despite this apparent conflict, the teacher is able to articulate the rationale for combining both:

I suppose TEACCH would look at it as in, 'Well, they now are not focussed on the task, they're focussed on flapping the toy'. Well, we're thinking more along the lines of the flapping of the toy is managing their emotions, that they then can take part in the structured tasks. So it's kind of flipping TEACCH a little bit on its head and kind of going, 'Well actually we are letting them have free flow, free play with these toys in order to engage them in the activities'.

Just as the visual supports of SCERTS are perceived as combining well with Structured Teaching, so do other approaches which are visually based. In particular, the use of PECS as a visually based communication system is implemented with individual children as required in

each of the four classes. The overlaps between the Structured Teaching aim of teaching self-initiated communication and the PECS aim for spontaneous communication are apparent in each class. For example, in case studies three and four, visual cues are available in play/leisure areas for children to choose an activity and to communicate their choice to an adult, whilst PECS sentence strips are used by some children for routine activities snack time. However, spontaneous use of PECS did not extend beyond structured routines, rather other approaches are implemented which revealed more spontaneous communication and interaction.

Whilst visually based approaches provide a clear indication that approaches may be combined, other approaches observed appear less compatible with the structure of Structured Teaching. The teacher in case studies one and three both place great emphasis upon developing children's relationships and an understanding of, and ability to express, their emotions. Whilst the approaches used to develop relationships in case studies one, two and three vary, the teachers' decisions for implementing these approaches are informed by similar beliefs about developing 'the whole child'. Some of these approaches, for example Sherborne in case study one, are implemented in order to build trusting relationships; in this case the approach is supported with visual cues which both the adults and the children use to aid mutual communication. In case study three, the development of INT follows the principles of child-led interactions but which again are supported with visual cues.

Both examples of relationship-focused approaches are supported with visual communication tools which enable children to have choices about how an interaction develops. The teacher in case study three explains how Structured Teaching in her class is combined with other approaches:

> *I think they all seem to have merged together and I think it's important really that we do use a variety of approaches to benefit the whole child not just the child academically but for their relaxation, their sensory and emotional needs too.*

This merging together was particularly evident in a swimming lesson in case study one, where the teacher combined structure with open-ended and child-led interactions, both of which were supported with visual communication tools.

Decisions are made which result in teachers selecting interaction approaches in order to foster positive relationships. In addition, other decisions are informed by an understanding of children's emotional needs. This was particularly evident in case study two where academically able children experienced high levels of stress and anxiety. A variety of approaches and strategies were implemented to teach children how to cope with and manage levels of arousal and anxiety, for example through the use of sensory circuits each morning. Some approaches presented the children in this class with particular challenges; for example through play-buddies sessions the children were challenged to cope with activities which encouraged them to interact with each other and to self-manage their behaviours when their emotional arousal was high. These types of activities were again supported with visual cues and communication tools, as required by individuals. Both teachers in case study three were often balancing the need to challenge the children and at the same time providing them with the communication and emotional regulation tools to cope with the challenge. At the end of these types of activities, the class schedule was used to re-focus the children's attention and to resume a calm atmosphere after a high arousal activity.

The apparently contradictory aims of some approaches, particularly those which are child-led, compared with highly structured approaches which are 'structure-led' suggest a potential conflict and incompatibility. However, the views and practices of the teachers in all four case studies indicate otherwise, as they successfully combined seemingly contradictory approaches. When questioned about this apparent contradiction, the teacher in case study three responded: *"I think you can do unstructured things within the structure of the day."*

The potential for conflicting approaches is particularly evident in case study two, where the teacher takes risks in order to provide the children with opportunities to experience more spontaneous, but potentially stressful, activities. The almost continuous ebb and flow of structured activities and risk-taking activities was observed on many occasions in case studies one, two and three. Teachers' decisions about combinations of approaches on these occasions were crucial, as the potential for anxiety and overload for individual children was high. At the same time the teachers in these classes firmly believed that following the structure was not an end in itself and that the children would not learn about relationships and emotions unless they provided activities which gave them opportunities to do so. Interesting to note here is that the teachers who were willing to take more risks (case studies one and three) both had Master's degrees and were actively engaged in keeping up to date with relevant research; indeed one teacher approached me excitedly as she had found something of interest in a

journal article and wished to discuss how she could implement her idea as a result of reading the article.

In contrast, fewer risks, i.e., loosening the structure, were taken by the teacher in case study four as young children were new to school and were learning how to use Structured Teaching strategies. The class teacher explained:

> *I think that other approaches can work but I think there can be a conflict with the structure. I think it still needs to be within a structured approach. Structure provides the scaffolding.*

The concept of structure as a scaffold is interesting and observations of more child-led interactions in this class, for example during circle time, always took place within the familiarity of structure. The fine balance between structure and spontaneity is evident in all four classes and one which is achieved through flexible use of Structured Teaching in each class. The explanation of the teacher in case study three illustrates this important factor:

> *I don't want to lose the flexibility within the structure. And I think if it's so tight you don't get the opportunity, like you said, for spontaneous communication and the wanting to interact and everything because you don't really form a relationship. Getting the balance between enough structure and enough freedom is challenging. I think it depends on the child as well.*

12.4.3 *Summary of Combining Structured Teaching with other Approaches: Answering research question four*

Flexibility of Structured Teaching in practice

A significant finding which emerged from this study is the flexible ways in which Structured Teaching is implemented in combination with other approaches and strategies. The emergent models (figures 8.1, 9.2, 10.1, 11.1) illustrate how Structured Teaching is implemented in each case study. Structured Teaching in case studies one, two and three is implemented as a framework within which other approaches and strategies are combined. These models differ only in as much as class teachers select differing approaches and strategies, but with the same intentions to promote wellbeing. Whilst the research took place in three key stage two classes where the majority of children had already learned how to use Structured Teaching strategies, the inclusion of a contrasting case, i.e., a class for younger children, was helpful in

illuminating any differences and or consistencies in the way in which Structured Teaching is implemented. For younger children who are extremely anxious, especially as participating in school is a new experience, Structured Teaching strategies are explicitly taught and are used 'tightly' around each child. This is presented in figure 11.1 (p. 216) which shows the 'tightness' of the structure around the child. However, the flexibility in how Structured Teaching is implemented is also evident in key stage two classes when new children are introduced and/or if a child becomes anxious or upset which may happen for a variety of reasons. The framework of Structured Teaching remains in place for the class, but at the same time each or all of the components of the approach may be adjusted to respond to an individual's needs.

12.4.4 *Development of a New Model: Mindful Blending of Approaches in Autism Education. Answering research question five.*

This study supports the existing research (e.g., Jones *et al.,* 2008; Charman *et al*, 2011) which shows that schools implement a range of different approaches and strategies in order to teach and to support the learning of children with autism. Moreover, this study adds to the existing research by discovering and documenting how Structured Teaching in particular is combined with other approaches and strategies. Factors which influence teachers' decisions in relation to combining approaches are also identified.

As a result of this investigation, a new model (see figure 12.1, p. 246) is proposed which presents a theoretical framework which aims to support teachers in determining how and why to combine Structured Teaching with other approaches. In developing this model, a process which continued throughout the data-gathering phases and beyond, it became apparent that rather than a random pick and mix, teachers engaged in what I propose as a 'mindful blending' of approaches.

This model for mindful blending illustrates the way in which Structured Teaching is implemented as a broad framework within which other approaches can be combined. The outer frame comprises dashes to reflect that the structured framework is not rigid. The two-way dotted arrows represent the ways in which Structured Teaching might be adjusted from broad framework to explicit and 'tight' structure responsive to individual needs, thus adjusting the structured scaffold.
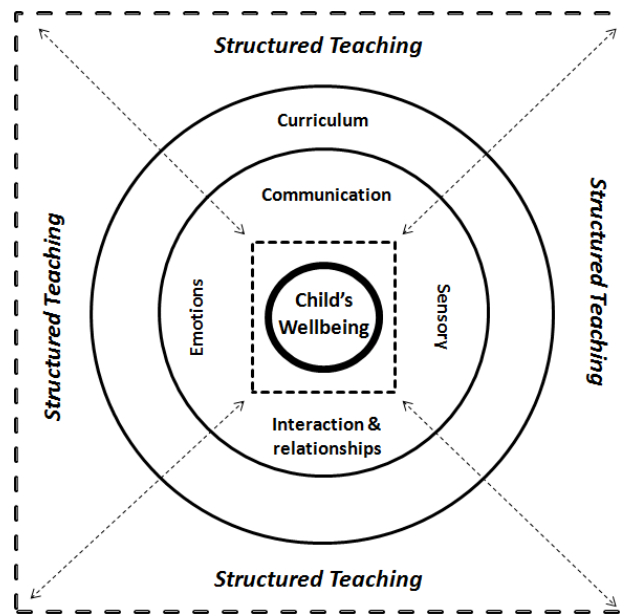
Figure 12.1 A Model for the Mindful Blending of Approaches in Autism Education

Combinations of approaches are selected depending upon individual needs, hence the model need not specify approaches other than the framework of structure. Approaches may differ in how they are implemented, but they share common aims and priorities for children. Unstructured and spontaneous, child-led approaches are combined to develop communication, interaction and relationships. Within this framework, approaches are also implemented with aims to teach children strategies to self-regulate their own emotions and anxieties. Both have a direct impact upon their behaviours. The model demonstrates that unstructured approaches, which may mean taking risks, are supported within a Structured Teaching framework. This flexible model represents high levels of reflexive skills required by class teachers in order to make decisions about which combinations of approaches to implement for which children.

12.5 Conclusion

This multi-case study demonstrates eclecticism in practice which represents a mindful blending of Structured Teaching with other educational approaches. The priority aim of this mindful blending is to promote children's wellbeing in order to enhance teaching and learning. Structured Teaching provides the framework within which other approaches are blended in accordance with individual needs and strengths. Priorities are to promote wellbeing and to enable children to be ready to learn.

There is, of course, a need for caution in developing a model based upon only four case studies. In chapter thirteen therefore, I critically evaluate and discuss the limitations of this study and offer suggestions for future research. In addition, I reflect upon my research journey.

Chapter Thirteen

Critical Evaluation, Reflection and Conclusion

In this concluding chapter, I firstly critically evaluate the outcomes of this multiple case study investigation. I focus upon: contributions of my investigation to knowledge and the existing research evidence-base, including the extent to which the research questions are answered; strengths of this multi-case study evidence; limitations of, and gaps in, the investigation including reflection upon what I would do differently if I were to repeat this investigation. Secondly, I reflect upon the learning process as the investigation progressed. I reflect upon significant moments, such as realisation that wellbeing was a major theme across the case studies. I also reflect upon what I learned in relation to: the shifting balance of power when observing in special school classrooms and the importance of ongoing and sustained analysis when gathering interview and observation data. In my final conclusion I indicate suggestions for future research and summarise the potential use of the proposed model for both educators and researchers.

13.1 Critical Evaluation

This multiple case study investigation sought to find answers to how teachers implement Structured Teaching strategies in special school classrooms, what teachers' perceptions are in relation to outcomes for children and finally to explore how they decide upon other approaches to implement in combination with Structured Teaching. My investigation is different to the existing research in this field in three key ways. Firstly this study investigated Structured Teaching components and Structured Teaching as a 'whole' in order to illuminate how the approach is implemented in classroom practice in special schools. Secondly, my investigation explored ways in which Structured Teaching is combined with other approaches and why teachers select particular approaches. Finally, by adopting a qualitative and interpretivist approach, my research approach differs considerably from the positivist approach which dominates the existing research evidence. The perceptions of educators who implement the approach are, I believe, a valuable part of any research evidence and as such my study sought to investigate these perceptions. In the following discussion I critically evaluate my contribution to the existing research evidence, considering each of the key differences between my study and those of others.

13.1.1 *Contribution to knowledge and the existing research evidence*

As a result of my research, I made a contribution to knowledge in this field through publications which include a literature review: 'Outcomes of structured teaching for children

on the autism spectrum: does the research evidence neglect the bigger picture?' (Howley, 2013a). This review reflects upon the strengths of the Structured Teaching research evidence-base and identifies gaps in relation to use of the approach as a 'whole', lack of inquiry in to the views of those who implement the approach and issues relating to methodology. I have published a chapter in a training resource for schools: 'Selecting and Blending Strategies to meet Individual Needs' which supports special educational needs co-ordinators (SENCOs) in delivering training in their settings. Furthermore, I have co-authored, with Mesibov, a forthcoming second edition (in press) of 'Accessing the curriculum for learners with autism spectrum disorders: Using the TEACCH programme to help inclusion'. This edition includes a new chapter 'Increasing Curriculum Access by Blending Structured Teaching with other Strategies' which provides examples for schools in order to support eclectic practice in autism education. I have presented a paper: 'Using TEACCH Structured Teaching to Promote Curriculum Access for Learners on the Autism Spectrum' at an international conference in Spain (Howley, 2011) which included reporting on my case study findings.

In addition to publications and conference presentations, dissemination of knowledge will include journal articles and conference presentations in relation to the following: my model of mindful blending; the impact of Structured Teaching upon wellbeing outcomes; the value of qualitative research in autism education; a practice-based publication for educators, demonstrating eclectic classroom practices. What follows is a reflective discussion of my overall contribution to knowledge in this field and to the existing research evidence.

An essential question in critically evaluating the findings of this investigation is *to what extent are the research questions answered?* The questions I asked were inherently different to the questions asked by other researchers in that my questions sought the opinions of educators whereas the existing research evidence-base is predominantly interested in answering questions by counting observable behaviours. Table 12.1 (p. 221) summarises the research questions and subsequent key themes which provided insights to those questions. Thus from the outset my research questions indicated that I may, or may not, discover answers to questions which others had not yet asked. The wording of the research questions was therefore key to being able to contribute to existing research and to knowledge in relation to educating children with autism and learning difficulties. What follows is a critical evaluation of my contribution to the research evidence- base in relation to Structured Teaching.

Contribution 1: Treatment integrity and meaningfulness: Implementation of Structured Teaching in special school classrooms

In seeking answers to research questions one and two, this study was concerned with 'treatment integrity' (Livanis *et al.,* 2013). Any claims to have researched Structured Teaching need substantiating with evidence that the practices researched were indeed true to the approaches as determined by TEACCH. This in itself makes a valid contribution by determining that each Structured Teaching component was being implemented in these four case study classrooms in the ways intended by TEACCH. Moreover, by investigating the use of Structured Teaching as a whole, rather than as separate components, the research has taken a holistic approach

Structured Teaching components are intended to be implemented as a whole (Mesibov and Howley, 2003; Mesibov *et al.,*, 2005) and in doing so provide information in such a way that is meaningful to learners with autism. This investigation finds that Structured Teaching *as a whole* is implemented in the four case studies. Participants rarely spoke of isolated components, rather they viewed each component as integral to the Structured Teaching approach. Whilst Van Bourgandien and Coonrod (2013) refer to the approach as a 'framework' (p. 97) this investigation finds that this is a *flexible framework* for classroom practice. The notion of a Structured Teaching flexible framework adds a new dimension to the existing research evidence which has largely been concerned with investigating discrete components of the approach in order to determine behavioural outcomes specific to each component of structure. Whilst this is indeed important, so too is research which investigates Structured Teaching as it is actually practised. In this investigation Structured Teaching has been identified as a framework which teachers implement flexibly depending upon individual needs; each component of the approach is viewed as integral to that framework.

Contribution 2: Social validation: perceptions of teachers and TAs

The views of the participants in this study (research question three) represent their shared perspectives in relation to wellbeing outcomes for children when Structured Teaching is implemented in special school classrooms. These views are important because as indicated in chapter three and by Howley (2013a) the existing research evidence largely neglects the perceptions of those who implement the approach. Callahan *et al.,* (2008, p.678) argue that 'lack of social validation... creates challenges in determining evidence-based practices'. Howley (2013a) argues that by not including the perceptions of those who implement the

approach, the research evidence is only partial, neglecting what is a 'bigger picture'. The perceptions of teachers and TAs in this study make an important contribution to the research evidence in that they represent what educators believe to be important outcomes for the children in this study. Furthermore, these perceptions are supported by observation data, thus adding validity to those perceptions.

A key contribution to knowledge and the existing research evidence is the belief of the participants that Structured Teaching has positive outcomes for children particularly in relation to their wellbeing. Van Bourgandien and Coonrod (2013) indicate that Structured Teaching principles are concerned with wellbeing (p. 97). However, as indicated in the research evidence literature review (chapter three) whilst Hume *et al.,* (2009) refer to 'well-being' and O'Reilly *et al.,* (2005) mention 'happiness', the effects of Structured Teaching upon children's wellbeing are largely ignored in the research evidence-base. Yet for the participants in this investigation, wellbeing is clearly perceived as a key outcome and one which they place great importance upon as a precursor to teaching and learning. My research contributes therefore to Vermeulen's (2014) call for strategies which promote happiness (p. 15) by demonstrating that, for the educators in each of the case studies, Structured Teaching promotes wellbeing.

Learning behaviours are also identified in the case studies as positive outcomes of implementing Structured Teaching. These learning behaviours correlate with the outcomes found in the existing research evidence. The contribution this investigation makes in this regard is the result of an interpretivist and qualitative approach which enabled me to gather illuminating insights of those who implement the approach. In this respect, the perceptions of the participants in this study add validity to similar outcomes identified in the existing research evidence and suggest a case for adopting a mixed methods approach in future research (e.g., Klinger and Boardman, 2011).

Participants in this investigation link wellbeing and learning behaviours to supporting children to be *ready to learn*. This is an important contribution to knowledge as the key characteristics of autism, and the consequent anxieties and behaviours, frequently result in children not being ready to learn. Barriers to learning in children with autism are inherent and any evidence which indicates which approaches and strategies help to overcome those barriers is valuable. As such, the evidence resulting from this study makes a useful contribution to

identifying how Structured Teaching can be implemented to enable children with autism and learning difficulties to be ready to learn.

Whilst the outcome of being ready to learn is worthy in itself, the emphasis is upon being ready – the next steps lie in determining which approaches then help children with autism to learn. This investigation indentifies that the visual component of Structured Teaching is implemented as a visual differentiation strategy across a variety of curriculum subjects. This in itself contributes to the existing evidence which, the literature review revealed, pays little attention to how the approach helps children to learn in relation to curriculum. However, this finding is weaker than those linked to wellbeing and learning behaviours in as much as the data shows that teachers use the strategy across the curriculum but falls short of providing evidence of what children are actually learning, thus identifying a future research opportunity.

Contribution 3: Mindful blending of approaches

Schools deploy a wide range of strategies in order to meet the needs of children on the autism spectrum (Charman *et al.,* 2011) and the need for eclecticism is clear, given the diverse range of needs in individuals (Jones *et al.,* 2008). However, what is missing in practice is guidance to support teachers in their selection of combinations of approaches. For this reason, exploring how and why teachers in this investigation decide upon which mix of approaches to use in combination with Structured Teaching is important. Findings in relation to research question four determine how combinations of approaches are decided upon and result in a model which has identified a flexible Structured Teaching framework, within which a range of strategies can be selected and implemented. The resultant model representing the mindful blending of autism education approaches, (figure 12.1, p. 246) contributes to the existing research evidence by offering a framework which supports teachers in making decisions about their eclectic 'toolbox'.

Whilst Van Bourgondien and Coonrod (2013) identify a Structured Teaching framework (p. 97), this investigation shows that teachers implement Structured Teaching as a *flexible* and *responsive* framework, as denoted by the dotted arrows in figure 12.1. This framework is dynamic and fluid and mirrors the practice of teachers who loosen and tighten the structured framework according to individual needs. Within this flexible framework, a variety of strategies can be combined to meet the needs of the individual child. Decisions about combinations of strategies are shown, in this study, not to be based upon random selections, but instead decisions are made which focus primarily on individual wellbeing and with the

aim of enhancing teaching and learning. Strategies which may appear to be incongruent with Structured Teaching are not seen as such by teachers or TAs in this investigation. Rather, teachers implement spontaneous and child-led approaches within the flexible structure, utilising some of the structured strategies to facilitate children's ability to be spontaneous and to take control of some activities. The model represents a new concept, that of *mindful blending* in order to enhance wellbeing, teach learning behaviours and to support children to be ready to learn. This study has shown that the mindful blending of approaches is achieved by teachers' high levels of reflexive skills which inform decisions based upon the needs and strengths of individual children. Thus, the model does not present a package of 'tools', rather it represents high levels of expertise and critical reflection and is a model which might be used by experienced teachers to mentor others in their settings. This is a positive contribution to the existing research, which identifies a research opportunity to further test the model in a wider variety of contexts.

13.1.2 *Strengths and limitations of the multi-case study evidence*

The interpretivist and qualitative approach to this investigation is a strength in a number of ways. Bolt (2014) argues that qualitative research in autism 'is important, and provided that scientific rigor is applied, as important as quantitative research' (p. 68). By adopting this approach, the results of my investigation add to and enhance the existing research evidence-base. This case study investigation provides a different perspective to that of the existing scientific research evidence. A rigorous and empirical approach is crucial to determine effectiveness of interventions. For example, Naglieri and Goldstein (2013) present a strong argument for this approach. It is therefore not surprising that much of the scientific research into Structured Teaching is concerned with measuring behavioural outcomes. However, whilst they present examples of 'reliable and valid tools' (p. 39), including for example use of a Likert 5-point 'autism rating scale' (Goldstein and Naglieri, 2009), by solely focusing upon measuring changes in behaviours this scientific approach does not capture the 'reality', nor the totality, of how approaches are implemented and with what outcomes in practise.

My investigation is limited to four case studies, nevertheless by taking a different approach, i.e., by deliberately seeking out in-depth insights of those who implement educational approaches, those insights add value to the evidence in relation to efficacy and outcomes of Structured Teaching when implemented in special schools. The literature review (chapter three) clearly identifies behavioural outcomes identified through empirical investigations, gaining answers to *what* questions. The perceptions and insights of the participants in the four

case studies enrich the existing evidence by providing answers to *why* questions. This represents what Hargreaves (1999, p. 246) and more recently Norwich (2014) refer to as 'evidence-informed practice' (p. 194) and as such, investigations such as this have a worthy contribution to make. Recently, Kliemann (2014) reflects upon the apparent dichotomy between researchers and practitioners in relation to autism education, concluding that:

> Bridging this gap must occur in order for professionals in each group to continue finding value and worth in one another. Whilst differences of opinion exist in the field, is it incumbent upon professionals to seek avenues of commonality in order to best meet the unique and individuals needs of persons with an autism spectrum disorder. (p. 13)

The insights of the teachers and TAs who participated in this investigation represent a voice which needs to be heard and valued in research. Social validation of approaches, through a qualitative approach to seeking insights, is as important as quantitative measurements of behavioural outcomes and indeed the two approaches together may enhance the evidence in relation to *what works and why* in autism education.

Whilst the contributions outlined above are worthwhile, there are a number of limitations and gaps in this investigation which could be addressed if the investigation were to be repeated. In the following discussion I consider the limitations of my investigation which leads me to a discussion of what I might have done differently if I were to repeat the study. In addition, the gaps in this investigation are important as the identify opportunities for future research and are suggestive of foci for future investigation.

Firstly there are limitations in relation to the case study approach. Whilst the approach has generated insights which represent the views of the participants in relation to what they are doing and why, nevertheless the lack of quantitative methods limits what can be said about outcomes for children. By conducting a qualitative investigation, my aim was to probe and enhance the findings of those who have measured outcomes for children. My argument for taking this approach centred upon the failure of the research evidence-base to investigate the perceptions of those who implement Structured Teaching strategies. However, whilst I have justified my case study and interpretive approach, it could equally be argued that my investigation also fails to present the 'bigger picture'. To some extent this is true. However by conducting a literature review of the research evidence-base, this enabled me to discover

outcomes of using Structured Teaching components when tested empirically. The outcomes of my qualitative study *relate* to the outcomes of positivist studies and therefore my study adds to the bigger picture. This also indicates further research opportunities; by adopting a mixed methods approach, or dare I suggest the 'mindful blending' of both positivist and interpretivist approaches, it may be possible to answer more fully both what and why.

Generalisations from any case study research are questionable and indeed a frequent criticism of the approach is that such generalisations are limited (e.g., Yin, 2009, p.15). Given the uniqueness of each case it could be argued that generalisation is not the aim of case study research (Thomas, 2011, p.211). At the same time these four case studies have the potential to begin to capture 'a growing pool of data, with multiple case studies contributing to greater generalizability' (Cohen *et al.,* 2011, p.294) . Moreover, Bassey's (1999, p.52) 'try it and see if the same happens for you' argument is compelling in relation to my investigation. For example, I may try it again and see what I find; practitioner-researchers may try the same and see what they find. This 'try it and see' approach may lead to a broader sample of case studies which in turn may then lead to deeper insights, comparisons and contrasts. If Bassey's notion, that case study research has the potential to generate 'fuzzy generalisations', has any value, then the fuzzy generalisation generated from my investigation could be stated as:

> *Special school teachers of children with autism may blend Structured Teaching as a framework for other approaches with the aims of promoting wellbeing and readiness to learn.*

However, as Bassey clearly indicates (1999, p.53), such fuzzy generalisations have little credence unless considered in conjunction with the written report and in this case my thesis. My timeline demarcates every step in my case study research process (see appendix 1) and my 'chain of evidence' (Yin, 2009, p. 41) includes, for example, records of all stages, field note-books and interview transcripts, which substantiate the fuzzy generalisation generated and which say 'look what I found, try it and see what you find'.

In addition, for me, Thomas' (2011) argument for the value of case study research was convincing:

> ... its [case study's] validation comes from the connections and insights it offers between another's experience and your own. The essence comes in understandability

emerging from phronesis – in other words, from the connection to your own situation. (p. 215)

Nevertheless, however convincing these argument may be, there remain clear limitations due to the small number of cases explored in my investigation. I have found connections and gained insights between my personal and professional experience and those of the participants in the four cases. The challenge remains now to look wider for more insights. So what would I do next? I would adhere to a case study approach and seek out more cases and varied cases, such as classes for children of different age groups, children with different types and degrees of autism. By doing this I might gain deeper insights and begin to make links between cases, to make 'fuzzy generalisations' which might be worthy of dissemination to my fellow educators and practitioner researchers as we strive to understand and enhance eclectic autism practice.

There are also gaps in my investigation which present future research opportunities. If wellbeing is at the heart of educators' decisions and practices, then finding out what parents' views are is also important 'Knowing the child', echoed by the participants in this study, must mean knowing the family too and so gathering insights into outcomes for children from parents' perspectives is a factor which in this investigation is missing. Wellbeing of children cannot be restricted simply to their wellbeing in the classroom; nor is wellbeing important only for teaching and learning. So what would I do if I could repeat the study? I would use the same approach to gather the views of parents and carers. I would ask questions about children's wellbeing at home and what strategies families find helpful. I would want to find out if the perceived outcomes identified by the teachers and TAs are similar to or different from outcomes at home. What I have found in this investigation is illuminating, but there remain many questions.

Furthermore, the views of perhaps the most important people are not represented in full – that is the views of the children. Whilst observing in classrooms meant I was watching what children were doing, my focus was restricted to just that, so that I could compare what children did with the perceptions and beliefs of teachers and TAs. This was valuable and important in validating the findings and my interpretations of those findings. However, lack of insight into children's perspectives when both Structured Teaching strategies and other approaches are implemented in their classrooms results in a gap in this research. However, gathering the views of children with autism, and especially those with additional and often

severe learning difficulties is challenging, was beyond the scope of this investigation but which suggests are future research opportunity. Researchers should not shy away from that which is challenging, rather they should perhaps seek out that which is challenging in order to better understand how to overcome those challenges. So, what would I do differently? I would explore tools and strategies to find ways in which I could seek out the views of the children as demonstrated by Preece and Jordan (2010). For example, finding out what they feel helps them to be independent, to make choices, to know what helps reduce their anxieties, to find out what best helps them to understand and to learn. Seeking out and valuing the views of those children who are at the receiving end of Structured Teaching and other approaches resonates with the TEACCH commitment to understanding the culture of autism (Van Bourgandien and Coonrod, 2013, p.76). If we are to truly understand the culture of autism and support children's wellbeing, then research must take into account their views – and that is what I want to do next.

13.2 Critical Reflection

In this section I critically reflect upon the learning process as my investigation progressed. I reflect upon my 'learning journey', recorded in a research diary and throughout my observation notebooks. In particular I reflect upon some of the 'significant moments' in my journey which at the same time intrigued, challenged and invigorated me. These included: the realisation that wellbeing was a significant theme in this research; 'eye-opening' moments when observing in special school classrooms which led to critical thinking and reflection in relation to the balance and dynamics of power between the researcher and the researched. A significant turning point in my research came when I read Thomas' final chapter 'The fancy stuff' (2011, pp.206 – 218). This led me to reflect upon my research journey through the eyes of 'my phronesis' and the craft knowledge of the case study participants. In addition, I learned about the need for sustained analysis throughout the research process and finally, I reflect upon what I learned about myself throughout the investigation.

13.2.1 *My learning journey*

From the outset of this research, I bought to this investigation my professional and personal experiences gained through teaching children with autism in special schools, through my experiences training educators and from my experiences in implementing and researching TEACCH Structured Teaching. In many ways therefore, the outset of my learning journey was not the day I applied to study for a PhD, nor when my proposed research was accepted. Rather, my learning journey began the on the first day I became a teacher of children with

autism. I bought to my research a set of experiences, perceptions, values, beliefs and misconceptions which had the potential to colour my investigation with bias and at the same time relevant insights which would enable me to interpret each case study. A number of significant moments occurred during the research and it is to those that I now turn.

Significant moment: wellbeing

The potential for bias has been acknowledged throughout my thesis and the balance between putting to good use my previous experiences and the potential for preconceived expectations regarding what I would find was precarious. The need for an open-minded approach was of paramount importance if I were to accurately represent and interpret each case study. Knowledge of Structured Teaching in particular led to early expectations that the approach is primarily used to manage behaviours and that teachers and TAs would proclaim this as the main reason for implementing the approach. The literature review was an essential early part of the process in my endeavour to be open-minded. Yet the review left me with a feeling that my expectation was 'right', as I discovered that researchers were measuring behaviours in order to test the outcomes of the approach. My research diary noted:

> *Research evidence is mostly about behaviours and how ST reduces challenging behaviours. Some look at positive behaviours such as on-task and engagement – still behaviours.*

My survey findings produced a significant moment when I discovered, through coding and recoding, a major theme of 'wellbeing' and a number of factors identified by respondents in relation to this theme. My expectations that teachers and TAs would focus their responses upon behaviour and behaviour management proved not to be the case. This finding led me to revisit the research evidence- base, searching for research which focused upon Structured Teaching and wellbeing, a search which led me to identify a significant gap in the research evidence. Whilst a glimmer of 'happiness' and 'wellbeing' appeared in the research literature, wellbeing was largely ignored as researchers investigated the effects of Structured Teaching upon individuals and groups of learners. A further gap in the research evidence showed that whilst researchers measured and counted 'learning behaviours', little attention was paid to what individuals were learning and why. These early findings reminded me of the need to be open-minded and to set aside my preconceived expectations. Whilst my investigation was still concerned with the impact of Structured Teaching upon behaviours, I also wanted to probe the perceived impact upon wellbeing and learning.

As the investigation progressed and I conducted observations and interviews, the wellbeing of the children came into sharp focus. The discovery that individual's wellbeing was at the centre of not only decisions about Structured Teaching, but also in relation to combinations of approaches with Structured Teaching as a framework, was significant. As I observed, I tried to capture what I was observing and what participants were telling me into a model; this model was drafted and redrafted a number of times, which led to a final model (see figure 12.1, p. 246) which conceptualises mindful blending of approaches.

Significant moment: balance of power as an observer in a special school classroom
Prior to beginning observations in the case study classrooms, I was aware of the guidelines and pitfalls of observing which are well-documented in methodological literature. I set out with a preconceived expectation that I would be a 'fly on the wall' as a non-participant observer. The reality of observing in this context very quickly forced me to re-evaluate my preconceived ideas in relation to both the children and the teachers and TAs. My knowledge and understanding of children with autism and learning difficulties meant that I was acutely aware of the impact of having an unfamiliar person in the classroom. My being in the room had the potential to raise anxieties in children who dislike changes to their routines and who may be afraid of unfamiliar people. It was with this knowledge and understanding in mind that I set out to be as unobtrusive as possible, to sit on the periphery observing and not to try to interact with the children. I knew that my very presence could influence children's behaviour and that I would need to observe repeatedly with the aim of the children accepting me as a familiar person in their classroom. I expected that children would at best ignore me and at worst, for the purpose if this research, I may be required to leave the room.

In addition to considering how the children may have felt about having an unfamiliar person observing in their classroom, I was also conscious of the impact of observing the teacher and TAs. Whilst senior leaders in both schools conducted regular observations and also staff were used to being observed by external professionals, I nevertheless was aware that my intentions, as a researcher, may be viewed with suspicion and/or uncertainty. Moreover, I was familiar to some of the staff and not to others and this in itself might have affected how they responded to me. The efforts made in making sure that interviewees were comfortable, were clear about what I was doing and why, and my open and honest approach were critical in developing a rapport with individuals in order that they did not feel threatened by my presence as an observer.

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I decided that my planned unobtrusive approach to observing would reduce the impact upon both children and adults. However, the reality of observing revealed a very different scenario than that which I had expected. Children and adults in all four classes did not behave in the ways I had expected, i.e., they would largely ignore me. This led me to questioning and exploring the balance of power in the classroom. As a researcher, I was conscious that I may be viewed as 'powerful' as I would be interpreting what adults and children were doing and representing the perceptions of adults. I was known by the schools and by participants as an 'expert' in autism and in Structured Teaching; this in itself could make people feel intimidated. It was this sensitivity to my 'powerful' role therefore which caused me to make strenuous efforts to reassure adults about my intentions and to make sure that they did not feel threatened in any way.

So, I entered the observation phase with an understanding that I would observe and not participate. I would do as little as possible to upset the regular classroom routine. I believed that I held the power as a researcher and so I would be open, honest and approachable with adults prior to observing and during interviews to put everyone at their ease. Little did I know that I actually had far less power than I had expected and indeed at times I was powerless.

Early on during observations it became clear that my intended role as an observer would not be possible. Whilst I had decided not to engage adults during observations, saving my questions for follow-up interviews, I had not foreseen that adults would engage me for a variety of reasons. For example, I was frequently questioned about whether I thought what adults were doing was 'right'; I was also frequently asked for advice, sometimes about strategies and sometimes about individual children. Both teachers and TAs sought reassurance and affirmation about their practices and my role (in their eyes) as 'expert' could not be separated from my role as researcher. In addition, teachers in two of the case study classrooms were actively interested in research; both had completed Master's degrees and were eager to share some of their ideas and insights. For example, upon arrival in one classroom the teacher presented me with a journal article and was eager to discuss the reported findings; another teacher discussed an ongoing project which she had set up and was sharing across the school.

In addition to the adults' responses to me as an 'observer', the responses in three of the case study classrooms were not at all as I had expected. Some children approached me

spontaneously to ask questions, to show me their work, to invite me to join in some of their activities and lessons. Ethically and morally, I felt obliged to interact and join in when invited by children. However, this caused me a dilemma as I was also endeavouring to make detailed observation notes at the same time. One incidence in particular was a significant moment which led to my reappraisal of my role as an observer. I was observing (case study three) when a child came and sat on my knee, face-to-face; he touched the palms of his hands to mine and began a repetitive swaying motion. This child was non-verbal and had severe learning difficulties. I had observed him completing some work and activities independently and at other times, when structure was relaxed, he would become absorbed in stereotypical and repetitive activities. As he sat on my knee and made eye contact I felt honoured and privileged that he was inviting me to join in and interact. As he made no move to finish the 'game' which he had initiated with me, I had to abandon my observation notebook and join in the game. When I left the school, I had to sit in my car in the car park and quickly try to record all that I had observed whilst interacting with this child. The realities of observing in a classroom challenged me to: reflect upon *why* children in three of the classes were, at times, interactive and communicative with me in ways I had not expected; re-visit the notion of power as a researcher.

It was notable that the interaction and communication between myself and children in three of the case study classrooms was absent in the fourth. My expectations that children would at best ignore me were fulfilled in the Early Years class. I was not approached by any of the young children in this class and indeed I felt, whilst observing, that some of the children had not even noticed that I was there. The models which I developed and which represented practices in case studies one (figure 8.1, p. 145), two and three (figures 9.2, p. 170; 10.1, p. 196) differ from that of case study four (figure 11.1, p. 216). The focus in case studies one to three upon interaction and communication, within a framework of structure, was highlighted when reflecting upon how children responded to me in these classes. Their invitations to involve me in their activities reflect the impact that the combination of approaches has upon their sociability. These interactions between children and researcher, spontaneously initiated by children, provide further evidence of the impact of educational practices as represented in the final model (12.1). However, at the same time, observations in the Early Years class identified a different focus, i.e., children were being taught to use the structure and that is precisely what was observed. These young children paid little attention to me; their interaction and communication was evident in familiar routines and with familiar people but did not yet extend beyond these boundaries.

The balance of power in the case study classrooms was dynamic and more intricate than I had imagined. Whilst I was at times *powerful*, in the sense that as researcher I would be the one to interpret and represent each case, I was also *powerless*. Adults and children ignored my pre-conceived boundaries as an observer and invited me to engage and interact in a variety of ways and for a variety of reasons. This forced me to reconsider all that I thought I knew in relation to conducting observations. I decided that if, during observations, I were approached by adults, and especially if approached by children, that I would 'participate' as fully as invited.

Responding to and interacting with adults and children turned out to be central to establishing a rapport that would enrich my experiences as observer. Through interactions with adults I could reflect upon my role as researcher. These interactions offered opportunities to reflect upon our shared craft knowledge (Thomas, 2011) and became integral to the interpretation of each case study. My interactions with the children, by their invitation, did not need to challenge and obstruct my observations. By inviting me to join in, these children enriched my understanding in a way which being a non-participant observer could not. As an observer I learned that I had to take risks, at times to abandon the notebook, not to be confined by rigid methodology and to the realisation that as a researcher I was also part of what was being researched. By this stage I was clear that I was no longer bound by any particular theory, but rather was bringing my phronesis together with the craft knowledge of the participants in order to better understand the outcomes of implementing Structured Teaching with other approaches for children with autism in the four cases.

Significant moment: the importance of ongoing, sustained analysis during case study research
As I began my research I thought that I had a good idea of how to carry out the stages of my investigation. In particular, I had intended that I would gather my data and then I would analyse the findings. It was as I came to the realisation that I would at times be obliged to participate, at the same time as I gathered my data, that I also came to understand that analysis would not follow after all the data was gathered. Indeed, it quickly became clear to me as I was observing, that I was also thinking, reflecting, evaluating and analysing. I became adept at attributing codes to observational data as it was gathered. I made constant notes, recorded comparisons and contrasts between the literature view findings, interviews and observation data. I was immersed in the data and discovered that analysis was integral to the data-gathering process. Data gathering and sustained analysis merged as the research progressed.

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As I observed I scribbled rough diagrams which represented my analysis and interpretation of the data, each time I observed these diagrams changed and eventually resulted in a model.

Thus I learned that by adopting a case study approach, data-gathering and analysis had to be concomitant, in a spiral which dug deeper and deeper into each case. I believe that separation into stages would have restricted my analysis as I would have been forced to analyse what I could recall. Analysis at the same time as gathering the data enabled me to record the connections, contrasts, significant moments *as they happened*. Ongoing and sustained analysis meant that I could keep going back to the research evidence, checking and cross-checking the data, comparing and contrasting the four cases. Through this process I came to *know* the data and as this progressed I became revitalised by the analysis – something which had felt daunting became exciting as I began to 'see' connections and anomalies between the cases and the research evidence. It has to be said here, of course, that this 'in the field' analysis and my manual recording of that analysis was possible due to the small number of cases. Suffice to say that this process would not be sufficient for larger scale case studies which would be enhanced by the use of computer-assisted qualitative data analysis software.

What did I learn about myself?

As previously stated, I came to this research with prior knowledge, understanding and experience which I felt in some ways was a drawback due to the obvious risk of bias. Accepting and taking steps to reduce the risks of bias was essential, but at the same time I realised that the risk of bias could not be totally eliminated. I was, and am, so immersed in this field and so committed to education for children with autism, children who are marginalised by the very nature of their autism, that I cannot remain impartial. Through the theoretical lens of social justice is one way in which I have contextualised my research and as such this theoretical perspective makes sense to me. All children with autism should enjoy the same rights and opportunities to participate fully in education. My research therefore sought to investigate some of the practices which special schools implement, and the reasons why specific approaches are combined, to ensure that children are able to participate and learn My commitment, together with my previous experience, reflects my personal bias and the risks therein. However, I have learned that my previous knowledge, understanding and experience is not just about the negative risks of bias, but constitutes what Thomas (2011) refers to as 'fancy stuff' (p.206) and more specifically to my phronesis. I came to realise that my expertise *enables* me to reflect upon, analyse and interpret the 'craft knowledge' of the participants in my research. I now feel that I do not need to apologise for my personal bias,

but that I can put my experience to good use by using my experiences to interpret those of others. Through engaging in this process I have a richer understanding of the value of interpretive, case study research.

In addition, I have learned that I love the process of research. In particular the significant moments, which happened as a result of sustained critical reflection, thinking, analysis and synthesis, were both challenging and exhilarating. I have loved writing throughout the process and have learned to value the sometimes lengthy pauses in writing which occurred due to a variety of circumstances – I felt so challenged and frustrated at times I was not writing, but when I returned to write I realised that, during the pause, I had been thinking and thinking. So, along with sustained analysis I learned that writing too needs to be sustained and that I truly enjoy this process.

Finally, I re-learned something which I already knew but which reinvigorated me to reflect again. I loved and treasure the moments when children invited me to join in with their activities, reminding me of the purpose of this research. I have learned that my future in research will be influenced by what I have learned during this process – I now want to explore more cases, build more partnerships with colleagues and gather and respect the views of the children in whatever ways they may be able to express them.

13.3 Conclusion

This multiple case study research has found that each Structured Teaching component is implemented in the case study classrooms. However, there are a number of aspects which require further investigation: i) the influence of physical structure is considered important by the participants but there is a distinct lack of research evidence in relation to this component; ii) the research evidence-base for Structured Teaching, and particularly in relation to schedules and work systems, demonstrates reduced problem behaviours and increased skills. Further qualitative research could offer explanations regarding why these effects occur and in particular in relation to wellbeing; iii) factors which influence engagement need further investigation, particularly in relation to work systems and the potential for visual overload; iv) whilst the approach prepares children to be ready to learn, there remain significant gaps in relation to how the approach promotes learning. Further research is needed to explore how the approach supports teaching, learning and the curriculum; v) much of the research evidence focuses upon components of Structured Teaching whilst as demonstrated in this investigation, in practice these are not implemented as isolated strategies, therefore more research is needed

to investigate the approach as a whole and as it is used in practice; vi) finally, future research could investigate the model of mindful blending presented in this thesis.

In conclusion, Structured Teaching is implemented with the purposes of promoting children's wellbeing and teaching learning behaviours. By ensuring wellbeing, and teaching independent learning behaviours and skills, the approach enables children to be ready to learn. The four case studies show that Structured Teaching provides a flexible and responsive framework, within which an eclectic range of approaches are selected depending upon an individual child's needs and strengths. These approaches are also selected in order to promote wellbeing and in particular to teach interaction, communication and emotional understanding and skills. The framework which Structured Teaching provides enables children to be ready to learn. This framework provides the scaffold for implementing eclectic approaches which are determined by knowing each child.

The final model (figure 12.1, p. 246) offers a 'theory' which captures how approaches are blended in a mindful way and not as a random selection. Future research might investigate approaches to teaching children with autism in special schools in order to test the applicability and strength of the model. A mixed-methods approach, with mindful blending of positivist and interpretivist approaches, would provide opportunities to develop research which is both evidence-based and evidence-informed, and which is valued by researchers and practitioners, in order to improve outcomes for children with autism.

References

Al Saad, S. (2000) 'Implementation of an Educational Program for Children with Autism: The Case of Kuwait.' *International Journal of Mental Health.* **29** (2) 32 – 43

American Psychiatric Association (APA) (2013) *Diagnostic and statistical manual of mental disorders* 5th ed. Washington, DC: Author

Armstrong, K., DeLoatche, K., Preece, K. & Agazzi, H. (2014) 'Combining Parent–Child Interaction Therapy and Visual Supports for the Treatment of Challenging Behavior in a Child With Autism and Intellectual Disabilities and Comorbid Epilepsy.' *Clinical Case Studies.* [online early view] Available from DOI: 10.1177/1534650114531451 [Accessed: 24. 4. 14]

Arthur, J., Waring, M., Coe, R. & Hedges, L. (2012) *Research Methods & Methodologies in Education.* London: Sage

Autism Working Group (2002) *Autistic Spectrum Disorders: Good Practice Guidance.* London: Department for Education and Skills/Department of Health.

Banda, D. & Brimmett, E. (2008) 'Enhancing Social and Transition Behaviors of Persons with Autism through Activity Schedules: A Review.' *Education and Training in Developmental Disabilities.* **43** (3) 324 – 333

Bassey, M (1999) *Case Study Research in Educational Settings.* Buckingham: Open University Press

Beaver, C. (2011) 'Designing environment for children and adults on the autism spectrum.' *Good Autism Practice.* **12** (1) 7 – 11

Bell, J. (2005) *Doing your Research Project: A guide for first-time researchers in education, health and social science.* 4th ed. Maidenhead: Open University Press/McGraw-Hill

Bennett, K., Reichow, B. & Wolery, M. (2011) 'Effects of Structured Teaching on the Behavior of Young Children with Disabilities.' *Focus on Autism and Other Developmental Disabilities.* **26** (3) 143 – 152

Bernard, H. & Ryan, G. (2010) *Analyzing Qualitative Data: Systematic Approaches.* London: Sage

Betx, A., Higbee, T. & Reagon, K. (2008) 'Using joint attention activity schedules to promote peer engagement in preschoolers with autism.' *Journal of Applied Behavior Analysis.* **41** (2) 237 – 241

Blaxter, L., Hughes, C. & Tight, M. (2006) *How to Research.* (3rd ed.) Maidenhead: Open University Press

Bolt, S. (2014) 'The power of words: Is qualitative research as important as quantitative research in the study of autism?' *Autism: International Journal of Research and Practice* **18** (2) 67 - 68

Bondy, A. and Frost, L. (1994). 'The picture exchange communication system.' *Focus on Autistic Behaviour.* **9** (3) 1-19

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British Educational Research Association (2004) [online] *Ethical Guidelines for Ethical Research* Available from: http://www.bera.ac.uk/guidelines [Accessed 30.9.09]

British Educational Research Association (2011) [online] *Ethical Guidelines for Ethical Research.* Available from: http://www.bera.ac.uk/guidelines [Accessed 10.03.12]

Bryan, L. & Gast, D. (2000) 'Teaching On-Task and On-Schedule Behaviors to High-Functioning Children with Autism Via Picture Activity Schedules.' *Journal of Autism and Developmental Disorders.* **30** (6) 553 – 567

Brown, S. and MacIntyre, D. (1993) *Making Sense of Teaching.* Buckingham: Open University Press

Burgess, A. & Gutstein, S. (2007) 'Quality of Life for People with Autism: Raising the Standard for Evaluating Successful Outcomes.' *Child and Adolescent Mental Health.* **12** (2) 80 – 86

Buschbacher, P., Fox, L. & Clarke, S. (2004) 'Recapturing desired family routines: a parent-professional behavioural collaboration.' *Research and Practice for Persons with Severe Disabilities.* **29** (1) 25 – 39

Caldwell, P., with Horwood, J. (2008) *Using Intensive Interaction and Sensory Integration: A Handbook for Those who Support People with Severe Autistic Disorder.* London: Jessica Kingsley

Callahan, K., Henson, R. K., & Cowan, A. K. (2008). 'Social validation of evidence-based practices in autism by parents, teachers, and administrators.' *Journal of Autism and Developmental Disorders.* **38** (4) 678–692

Callahan, K., Shukla-Mehta, S., Magee, S. and Wie, M. (2010) 'ABA Versus TEACCH: The Case for Defining and Validating Comprehensive Treatment Models in Autism.' *Journal of Autism and Developmental Disorders.* **40** (1) 74–88

Campillo, C., Herrera, G., Remírez de Ganuza, C., Cuesta, J., Abellán, R., Campos, A., Navarro, I., Sevilla, J., Pardo, C. & Amati, F. (2014) 'Using Tic-Tac software to reduce anxiety-related behaviour in adults with autism and learning difficulties during waiting periods: A pilot study.' *Autism: International Journal of Research and Practice.* **18** (3) 264 – 271

Charman, T., Pellicano, L., Peacey, L. Peacey, N., Forward, K. & Dockrell, J. (2011) *What is Good Practice in Autism Education?* Centre for Research on Psychology and Human Development (CRAE) Institute of Education: University of London

Chiak, D. & Ayres, K. (2010) 'Comparing pictorial and video-modeling activity schedules during transitions for students with autistic spectrum disorders.' *Research in Autism Spectrum Disorders.* **4** (4) 763 – 771

Clarke, S., Dunlap, G. & Vaughn, B. (1999) 'Family-centered, assessment based intervention to improve behavior during an early morning routine.' *Journal of Positive Behaviour Intervention.* **1** (4) 235 – 241

Cohen, L. & Manion, L. (2011) *Research Methods in Education.* 7th ed. Abingdon: Routledge

Cohen, L., Manion, L. & Morrison, K. (2011) *Research methods in Education.* Abingdon: Routledge

Cooper, H. (1988) 'Organizing knowledge synthesis: A taxonomy of literature reviews.' *Knowledge in Society.* **1** (1) 104 – 126

Creswell, J. (2009) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* 3rd ed. London: Sage

Creswell, J. (2014) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* 4th ed. London: Sage

Czaja, R. & Blair, J. (1996) *Designing Surveys: A Guide to Decisions and Procedures.* California: Pine Forge

Dauphin, M., Kinney, E. & Stromer, R. (2004) 'Using video-enhanced activity schedules and matrix teaching to teach sociodramatic play to a child with autism.' *Journal of Positive Behaviour Interventions.* **6** (4) 238 – 250

Dawson, G., Rodgers, S., Munson, J., Smith, M., Winter, J. & Greenson, J. (2010) 'Randomized, controlled trial of an intervention for toddlers with autism: the Early Start Denver Model.' *Pediatrics.* **125** (1) 17-23.

Dempsey, I. and Foreman, P. (2001) 'A Review of Educational Approaches for Individuals with Autism'. *International Journal of Disability, Development and Education.* **48** (1) 103-116

Denscombe, M. (2007) *The Good Research Guide,* 3rd ed. Berkshire: Open University Press Department for Children, Schools and Families (DCSF) (2008) *Personalised Learning: A Practical Guide.* Nottingham: DCSF

Department for Education (DfE) (2013) *Early years outcomes: A non-statutory guide for practitioners and inspectors to help inform understanding of child development through the early years.* London: DfE

Department for Education and Employment (DfEE) and Qualifications and Curriculum Authority (QCA) (1999a) *The National Curriculum: Handbook for primary teachers in England.* London: DfEE/QCA

Department for Education and Employment (DfEE) and Qualifications and Curriculum Authority (QCA) (1999b) *The National Curriculum: Handbook for secondary teachers in England.* London: DfEE/QCA

Department for Education and Skills (DfES) and Department of Health (DoH) (2002) *Autistic Spectrum Disorders: Good Practice Guidance.* London: DfES Publications

Dettmer, S., Simpson, R., Smith Myles, B. & Ganz, J. (2000) 'The Use of Visual Supports to Facilitate Transitions of Students with Autism.' *Focus on Autism and Other Developmental Disabilities.* **15** (3) 163 – 169

Dooley, P., Wilczenski, F. & Torem, C. (2001) 'Using an Activity Schedule to Smooth School Transitions.' *Journal of Positive behavior Interventions.* **3** (1) 57 – 61

Dunkel-Jackson, S., Dixon, M. & Szekely, S. (2012) 'Portable data assistants: Potential in evidence-based practice autism treatment.' *Research in Autism Spectrum Disorders.* **6** (1) 65 -72

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2002). Intensive behavioral intervention at school for 4- to 7-year-old children with autism. *Behavior Modification.* **26** (1) 49-68

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2007). Outcome for children with autism who began intensive behavioral intervention between ages 4 and 7: A comparison controlled study. *Behavior Modification.* **31** (3) 264-278

Eldevik, S., Eikeseth, S., Jahr, E., & Smith, T. (2006). Effects of low-intensity behavioral intervention for children with autism and mental retardation. *Journal of Autism and Developmental Disorders.* **36** (2) 211-224

Eldevik, S., Hastings, R., Jahr, E., & Hughes, C. (2012). Outcomes of behavioural intervention for children with autism in mainstream pre-school settings. *Journal of Autism and Developmental Disorders.* **42** (2) 210 – 220

Fava, L., Strauss, K., Valeri, G., D'Elia, L., Arima, S., & Vicari, S. (2011). The effectiveness of a cross-setting complementary staff-and-parent mediated early intensive behavioral intervention for young children with ASD. *Research in Autism Spectrum Disorders.* **5** (4) 1479 – 1492

Fuentes, J., Barinaga, R. & Gallano, I. (2000) 'Applying TEACCH in Developing Services in Spain: The GAUTENA Project.' *International Journal of Mental Health.* **29** (2) 78 – 88

Ganz, J. & Flores, M. (2008) 'Effects of the use of visual strategies in play groups for children with autism spectrum disorders and their peers.' *Journal of Autism and Developmental Disorders.* **38** (5), pp. 926–40

Grandin, T. (1995). *Thinking in Pictures and Other Reports from my Life with Autism.* New York: Doubleday.

Gray, C. (2010) *The New Social Story Book.* Arlington: Future Horizons

Hall, L., McClannahan, L. & Krantz, P. (1995) 'Promoting independence in integrated classrooms by teaching aides to use activity schedules and decreased prompts.' *Education and Training in Mental Retardation and Developmental disabilities.* **30** (1) 208 – 217

Hargreaves, D. (1997) 'In Defence of Research for Evidence-based Teaching.' *British Educational Research Journal.* **23** (4) 405 – 419

Hayes, G., Hirano, H., Marcu, G., Monibi, M., Nguyen, D. & Yeganyan, M. (2010) 'Interactive visual supports for children with autism.' *Personal Ubiquitous Computing* **14** (7) 663–680

Hedges, H. (2012) 'Teachers' funds of knowledge: a challenge to evidence-based practice.' *Teachers and Teaching: theory and practice.* **18** (1) 7 – 24

Heflin, L. and Simpson, R. (1998). Interventions for Children and Youth with Autism: Prudent Choices in a World of Exaggerated Claims and Empty Promises. Part 1: Intervention and Treatment Option Review. *Focus on Autism and Other Developmental Disorders.* **13** (4) 194- 211

Henn, M., Weinstein, M. & Foard, N. (2009) *A Critical Introduction to Social Research.* (2nd edition) London: Sage

Hebert, E. (2014) 'Factors Affecting Parental Decision-Making Regarding Interventions for Their Child with Autism.' *Focus on Autism and Other Developmental Disabilities.* **29** (2) 111 - 124

Hess, K., Morrier, M., Heflin, L. and Ivey, M. (2008) 'Autism Treatment Survey: Services Received by Children with Autism Spectrum Disorders in Public Schools Classrooms.' *Journal of Autism and Developmental Disorders.* **38** (5) 961-971

Horwood, J. (2009) *Sensory Circuits: A Sensory Motor Skills Programme for Children.* Hyde: Learning Development Aids (LDA)

House, E. (1991) 'Realism in research.' *Educational Researcher.* **18** (11 – 15)

Howard, J., Sparkman, C., Cohen, H., Green, G., & Stanislaw, H. (2005). A comparison of intensive behavior analytic and eclectic treatments for young children with autism. *Research in Developmental Disabilities.* **26** (4) 359-383

Howley, M. (2006) Structured Teaching for Pupils with Autistic Spectrum Disorders: Meaningful or Meaningless? *REACH Journal of Special Needs Education in Ireland.* **19** (2) 94 – 101

Howley, M. (2008) Structured Teaching: An Essential Ingredient in the Autism Friendly Classroom *The Centre for Autism 2008 Conference* Lubjiana, Slovenia

Howley, M. (2009) 'Structured Teaching Support for University Students with Asperger Syndrome.' *TEACCH International In-Service conference, May 2009.* Chapel Hill: North Carolina

Howley, M. (2011) 'Using TEACCH Structured Teaching to Promote Curriculum Access for Learners on the Autism Spectrum.' *SEGUNDO CONGRESO INTERNACIONAL DE AUTISMO Noviembre 2011* Murcia: Spain

Howley, M. (2013a) 'Outcomes of structured teaching for children on the autism spectrum: does the research evidence neglect the bigger picture?' *Journal of Research in Special Educational Needs.* [online early view] Available from DOI: 10.1111/1471-3802.12040 [Accessed: 9.11.14]

Howley, M. (2013b) 'Selecting and Blending Strategies to meet Individual Needs.' in: M. Howley & D. Preece (eds.) *Supporting Pupils on the Autism Spectrum: whole-school training materials and resources for SENCOs.* London: Optimus 147 – 166

Howley, M. and Preece, D. (2003) 'Structured teaching for individuals with visual impairments.' *British Journal of Visual Impairment.* **21** (2) 78-83)

Howley, M. and Rose, R. (2003) Facilitating group work for pupils with autistic spectrum disorders by combining jigsawing and structured teaching. *Good Autism Practice (GAP).* **4** (1) 20 – 25

Howlin, P. (2005) 'The effectiveness of interventions for children with autism.' *Neurodevelopmental Disorders.* Vienna: Springer

Hume, K., Loftin, R. & Lantz, P. (2009) 'Increasing independence in autism spectrum disorders: a review of three focused interventions.' *Journal of Autism and Developmental Disorders.* **39** (9), pp. 1329–38

Hume, K. & Odom, S. (2007) 'Effects of an individual work system on the independent functioning of students with autism.' *Journal of Autism and Developmental Disorders*. **37** (6), pp. 1166–80

Hume, K., Plavnick, J. & Odom, S. (2012) 'Promoting task accuracy and independence in students with autism across educational setting through the use of individual work systems.' *Journal of Autism and Developmental Disorders.* **42** (10), pp. 2084–99

Hume, K. & Reynolds, B. (2010) 'Implementing Work Systems Across the School Day: Increasing Engagement in Students with Autism Spectrum Disorders.' *Preventing School Failure.* **54** (4) 228 - 237

Hume, K., Sreckovic, M., Snyder, K. & Carnahan, C. (2014) 'Smooth Transitions: Helping Students with Autism Spectrum Disorder Navigate the School Day.' *Teaching Exceptional Children.* [online] Available from DOI: 10.1177/0040059914542794 [Accessed: 16.06.14]

Humphrey, N. & Parkinson, G. (2006) Research on interventions for children and young people on the autistic spectrum: a critical perspective. *Journal of Research in Special Educational Needs.* **6** (2) 76-86

Jones, G. (2006) **'**Department for Education and Skills and Department of Health Good Practice Guidance on the education of children with autistic spectrum disorder.' *Child; care, health and development.* **32** (5) 543-552

Jones, G., English, A., Guldberg, K., Jordan, R., Richardson, P. & Waltz, M. (2008) *Educational provision for children and young people on the autism spectrum living in England: a review of current practice, issues and challenges.* London: AET

Jones, G. & Hurley, E. (2014) (eds.) *Good Autism Practice: Autism, happiness and wellbeing.* Birmingham: British Institute of Learning Disabilities

Jordan, R. (1999a) *Autistic Spectrum Disorder: An Introductory Handbook for Practitioners.* London: David Fulton

Jordan, R. (1999b) 'Evaluating practice: Problems and possibilities.' *Autism: International Journal of Education and Research.* **3** (4) 411 – 434

Jordan, R. (2001) *Autism with Severe Learning Difficulties.* London: Souvenir

Jordan, R. (2003) 'Foreword' In: G. Mesibov & M. Howley *Accessing the Curriculum for Pupils with Autistic Spectrum Disorders: Using the TEACCH Programme to Help Inclusion.* London: David Fulton

Jordan, R. (2005) 'Autistic Spectrum Disorders.' in: A. Lewis & B. Norwich (Eds.) *Special Teaching for Special Children? Pedagogies for Inclusion.* Maidenhead: Open University Press/McGraw-Hill 110 – 122

Jordan, R., Jones, G. & Murray, D. (1998) *Educational Interventions for Children with Autism: a Literature Review of Recent and Current Research.* London: DfEE

Jordan, R. & Jones, G. (1999) 'Review of research into educational interventions for children with autism in the UK.' *Autism: International Journal of Research and Practice.* **3** (1) 101 – 110

Jordan, R. & Powell, S. (1996) ''Therapist drift': Identifying a New Phenomenon in Evaluating Therapeutic Approaches.' *Therapeutic Interventions in Autism: Perspective from Research and Practice.* Autism Research Unit: University of Durham

Kimball, J., Kinney, E., Taylor, B. & Stromer, R. (2004) 'Video enhanced activity schedules for children with autism: a promising package for teaching social skills.' *Education and Treatment of Children.* **27** (3), pp. 280–98

Kliemann, K. (2014) 'A Synthesis of Literature Examining the Structured Teaching Components of the TEACCH Model Employing the Use of a Visual Conceptual Model.' *The Journal of Special Education Apprenticeship.* **3** (2) 1 - 17

Klingner, J. and Boardman, A. (2011) 'Addressing the "Research Gap" in Special Education Through Mixed Methods.' *Learning Disability Quarterly.* **34** (3) 208 – 218

Knight, V., Sartini, E. & Spriggs, A. (2015) 'Evaluating Visual Activity Schedules as Evidence-Based Practice for Individuals with Autism Spectrum Disorders.' *Journal of Autism and Developmental Disorders.* **45** (1) 157 - 178

Krantz, P., MacDuff, M. & McClannahan, L. (1993) 'Programming Participation in Family Activities for Children with Autism: Parents' use of Photographic Activity Schedules.' *Journal of Applied Behavior Analysis.* **26** (1) 137 – 138

Kurt, O. & Parsons, C. (2009) 'Improving Classroom Learning: The Effectiveness of Time Delay within the TEACCH Approach.' *International Journal of Special Education.* **24** (3) 173 – 185

Lequia, J., Machalicek, W. & Rispoli, M. (2012) 'Effects of activity schedules on challenging behavior exhibited in children with autism spectrum disorders: A systematic review.' *Research in Autism Spectrum Disorders.* **6** (1) 480 – 492

Lequia, J., Wilkerson, K. Kim, S, & Lyons, G. (2014) 'Improving Transition Behaviors in Students with Autism Spectrum Disorders: A Comprehensive Evaluation of Interventions in Educational Settings.' *Journal of positive Behavior interventions.* [Online] Available from DOI: 10.1177/1098300714548799 [Accessed 08.09.14]

Lincoln, Y & Guba, E. (1985) *Naturalistic Inquiry.* Newbury Park, CA: Sage

Livanis, A., Benvenuto, S., Mertturk, A. & Hanthorn, C. (2013) 'Treatment Integrity in Autism Spectrum Disorder Interventions.' Ch 2. In: S. Goldstein & J. Naglieri (eds.) *Interventions for Autism Spectrum Disorders.* New York: Springer

McAllister, K. & Maguire, B. (2012) 'Design considerations for the autism spectrum disorder-friendly Key Stage 1 classroom.' *Support for Learning.* **27** (3) 103 – 112

McConnell, S. (2002) 'Interventions to facilitate social interaction for young children with autism: Review of available research and recommendations for educational intervention and future research.' Journal of Autism and Developmental Disorders. **32** (5) 351 – 372

MacDuff, G., Krantz, P. & McClannahan, L. (1993) 'Teaching Children with Autism to use Photographic Activity Schedules: Maintenance and Generalization of Complex Chains.' *Journal of Applied Behavior Analysis.* **26** (1) 89 – 97

Machalicek, W., Shogren, K., Lang, R. Rispoli, M., O'Reilly, M., Hertlinger Franco, J. & Sigafoos, J. (2009) 'Increasing play and decreasing challenging behavior of children with autism during recess with activity schedules and task correspondence training.' *Research in Autism Spectrum Disorders.* **3** (2) 547 – 555

Magerotte, G. (2000) 'From Quality of Services to Quality of Life of Persons with Autism: Contributions to Research, Training and Community Services of the University of Mons-Hainaut.' *International Journal of Mental Health.* **29** (2) 60 – 77

Marks, S. (2011) 'Special education: more about social justice, less about caring.' *Phi Delta Kappan.* **93** (10) 80

Massey, N. & Wheeler, J. (2000) 'Acquisition and generalization of activity schedules and their effects on task engagement in a young child with autism in an inclusive preschool classroom.' *Education and Training in Mental Retardation and Developmental Disabilities.* **35** (3) 326 – 335

Mavropoulou, S., Papadopoulou, E. & Kakana, D. (2011) 'Effects of Task Organization on the Independent Play of Students with Autism Spectrum Disorders.' *Journal of Autism and Developmental Disorders* **41** (7) 913 - 925

Mechling, L., Gast, D. & Seid, N. (2009) 'Using a Personal Digital Assistant to Increase Independent Task Completion by Students with Autism Spectrum Disorder.' *Journal Autism Developmental Disorders.* **39** (10) 1420–1434

Mercer, G. (2002) Emancipatory Disability Research. In C. Barnes, M. Oliver and Barton, L. (eds.) *Disability Studies Today*. Cambridge: Polity

Mesibov, G. (2001) 'Interview with Professor Gary Mesibov.' *Lookingupautism* 2 (10) Available from: http://www.lookingupautism.org/Articles/GaryMesibov.html [Accessed: September 30 2012]

Mesibov, G., Browder, D. & Kirkland, C. (2002) 'Using Individualized Schedules as a Component of Positive Behavioral Support for Students with Developmental Disabilities'. *Journal of Positive Behavior Interventions.* **4** (2) 73-79

Mesibov, G.B. and Howley, M. (2003) *Accessing the Curriculum for Pupils with Autistic Spectrum Disorders: Using the TEACCH Programme to Help Inclusion.* London: David Fulton

Mesibov, G. B., Shea, V. and Schopler, E. (2005) *The TEACCH Approach to Autism Spectrum Disorders.* New York: Springer

Mesibov, G. & Shea, V. (2010) 'The TEACCH Program in the Era of Evidence-Based Practice.' *Journal of Autism and Developmental Disorders.* **40** (5) 570 – 579

Mesibov, G. & Shea, V. (2011) 'Evidence-Based Practices and Autism.' *Autism: International Journal of Research and Practice.* **15** (1) 114 – 133

Morrison, R., Sainato, D., Benchaaban, D. & Endo, E. (2002) 'Increasing play skills of children with autism using activity schedules and correspondence training.' *Journal of Early Interventions.* **25** (1) 58 - 72

Naglieri, J. & Goldstein, S. (2013) 'Evaluation of Treatment Effectiveness.' Ch. 3 in: S. Goldstein & J. Naglieri (eds.) *Interventions for Autism Spectrum Disorders.* New York: Springer

Nind, M. & Hewett, D. (2001) *A Practical Guide to Intensive Interaction*. Kidderminster: British Institute of Learning Disabilities.

Norwich, B. (2014) 'Contexts, interests and methodologies.' Ch 2. In 'Research in special needs and inclusive education: the interface with policy and practice SEN Policy Research Forum: Policy Paper.' *Journal of Research in Special Educational Needs.* **14** (3) 193 - 196

Odom, S., Hume, K., Boyd, B. & Stabel, A. (2012) 'Moving Beyond the Intensive Behavior Treatment Versus Eclectic Dichotomy: Evidence-Based and Individualized Programs for Learners With ASD.' *Behaviour Modification.* **36** (3) 270 – 297)

Odom, S., Brown, W., Frey, T., Karasu, N., Smith-Canter, L. & Strain, P. (2003) 'Evidence-Based Practices for Young Children with Autism. Contributions for Single-Subject Design Research.' *Focus on Autism and Other Developmental Disabilities.* **18** (3) 166 – 175

Odom, S., Boyd, B., Hall, L. and Hume, K. (2010) 'Evaluation of Comprehensive Treatment Models for Individuals with Autism Spectrum Disorders.' *Journal of Autism and Developmental Disorders.* **40** (4) 425–436

Ogg, N. (2012) *Colourful semantics: A practical resource.* Cornwall: STASS publications

Oliver, M. (1997) 'Emancipatory Research: realistic goal or impossible dream?' In C. Barnes and G. Mercer (eds.) *Doing Disability Research.* Leeds: The Disability Press

O'Reilly, M., Sigafoos, J., Lancioni, G., Edrisinha, C. & Andrews, A. (2005) An Examination of the Effects of a Classroom Activity Schedule on Levels of Self-Injury and Engagement for a Child with Severe Autism. *Journal of Autism and Developmental Disorders.* **35** (3) 305 – 311

O'Riordan, M. (2004) 'Superior visual search in adults with autism.' *Autism: International Journal of Research and Practice.* **8** (3) 229 – 248

O'Riordan, M., Plaisted, K., Driver, J. & Baron-Cohen, S. (2001) 'Superior Visual Search in Autism', *Journal of Experimental Psychology: Human Perception and Performance.* **27** (3) 719–30

Panerai, S., Ferrante, L., Caputo V. & Impellizzeri, C. (1998) Use of structured teaching for treatment of children with autism and severe and profound mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities.* **33** (4) 367-374

Panerai, S., Ferrante, L., & Zingale, M. (2002) Benefits of the Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) programme as compared with a non-specific approach. *Journal of Intellectual Disability Research.* **46** (4) 318-327

Peeters, T. (2000) 'The Role of Training in Developing Services for Persons with Autism and Their Families.' *International Journal of Mental Health.* **29** (2) 44 – 59

Perry, A., Cummings, A., Geier, J., Freeman, N., Hughes, S. & Managhan, T. (2011) 'Predictors of outcomes for children receiving intensive behavioral intervention in a large, community-based program.' *Research in Autism Spectrum Disorders.* **5** (1) 292-603

Pierce, K. & Schreibman, L. (1994) 'Teaching daily living skills to children with autism in unsupervised settings through pictorial management.' *Journal of Applied Behavioral Analysis.* **27** (3) 471 – 481

Powell, S. (ed.) (2000) *Helping Children with Autism to Learn.* London: David Fulton

Preece, D. & Jordan, R. (2007) 'Short breaks services for children with autistic spectrum disorders: factors associated with service use and non-use.' *Journal of Autism and Developmental Disorders.* **37** 374-385

Preece, D., Lovett, K., Lovett, P. & Burke, C. (2000) 'The adoption of TEACCH in Northamptonshire, UK.' *International Journal of Mental Health.* **29** (2) 19-31

Prizant, B., Wetherby, A., Rubin, E., Laurent, A. & Rydell, P. (2006a) *The SCERTS Model: A Comprehensive Educational Approach for Children with Autism Spectrum Disorders. Volume 1 Assessment* Baltimore: Paul H. Brooks

Prizant, B., Wetherby, A., Rubin, E., Laurent, A. & Rydell, P. (2006b) *The SCERTS Model: A Comprehensive Educational Approach for Children with Autism Spectrum Disorders. Volume 11 Program Planning & Intervention* Baltimore: Paul H. Brooks

Punch, M. (2005) *Introduction to Social Research: Quantitative and Qualitative Approaches,* 2nd ed. London: Sage

Punch, K. (2009) *Introduction to Research Methods in Education.* London: Sage

Quill, K. (1997) 'Instructional considerations for young children with autism: The rationale for visually cued instructions.' *Journal of Autism and Developmental Disorders.* **27** (6) 697 – 714

Randolph, J. (2009) 'A Guide to Writing the Dissertation Literature Review.' *Practical Assessment, Research & Evaluation,* **14** (13) 1 – 13

Reichler, R, & Schopler, E. (1971) 'Observations on the nature of human relatedness.' *Journal of Autism and Childhood Schizophrenia.* **1** (3) 283 – 296

Robson, C. (2002) *Real World Research.* 2nd ed. Oxford: Blackwell.

Rose, R. and Howley, M. (2007) *Practical Guide to Special Educational Needs in Inclusive Primary Classrooms.* London: Sage

Rutter, M. And Bartak, L. (1973) 'Special Educational Treatment of Autistic Children: A Comparative Study.' *Journal of Child Psychology and Psychiatry.* **14** (3), pp. 161 - 179

Sasaki, M. (2000) 'Aspects of Autism in Japan Before and After the Introduction of TEACCH.' *International Journal of Mental Health.* **29** (2) 3 – 18

Schilling, D. & Schwartz I. (2004) 'Alternative seating for young children with autism spectrum disorder: Effects on classroom behavior.' *Journal of Autism and Developmental Disorders.* **34** (4) 423-432

Schmit, J., Alper, S., Raschke, D. & Ryndak, D. (2000) 'Effects of using a photographic cueing package during routine school transitions with a child who has autism.' *Mental Retardation.* **38**, (2) 131 – 137

Schneider, N. & Goldstein, H. (2010) 'Using Social Stories and Visual Schedules to Improve Socially Appropriate Behaviors in Children with Autism.' *Journal of Positive Behavior Interventions.* 12 (3) 149 – 160 DOI: 10.1177/1098300709334198

Schopler, E. (1965) 'Early Infantile Autism and receptor processes.' *Archives of General Psychiatry.* **13** (4) 327 – 335

Schopler, E. (1966) 'Visual versus tactual receptor preference, in normal and schizophrenic children.' *Journal of Abnormal Psychology.* **71**, (2) 108 – 114

Schopler, E. (1994) 'Behavioral priorities for autism and related developmental disorders.' In: E. Schopler & G. Mesibov (Eds.) *Behavioral Issues in Autism.* New York: Plenum

Schopler, E., Brehm, S., Kinsbourne, M. & Reichler, R. (1971) 'Effect of treatment structure on development in autistic children.' *Archives in General Psychiatry.* **24**, (5) 415 – 421

Schopler, E., Mesibov, G. B. & Hearsey, K. (eds.) (1995) 'Structured Teaching in the TEACCH system'. In: E. Schopler & G. B. Mesibov *Learning and Cognition in Autism.* New York: Plenum Press

Schopler, E. & Loftin, J. (1969) 'Thought disorders in parents of psychotic children: A function of test anxiety.' *Archives in General Psychiatry,* **20** (2) 174 – 181

Schopler E. & Reichler, R. (1971) 'Parents as cotherapists in the treatment of psychotic children.' *Journal of Autism and Childhood Schizophrenia.* **1** (1) 87 -102

Schopler E. & Reichler, R. (1972) 'How well do parents understand their own psychotic child?' *Journal of Autism and Childhood Schizophrenia.* **2** (4) 387 – 400

Schopler E. & Reichler, R. (1979) *Individualized assessment and treatment for developmentally disabled children: Vol 1 Psychoeducational Profile.* Baltimore: University Park Press

Schopler, E., Reichler, R. & Renner, B. (1988) *The Childhood Autism Rating Scale (CARS).* Los Angeles: Western Psychological Services.

Scott, I. (2009) 'Designing learning spaces for children on the autism spectrum.' *Good Autism Practice.* **10** (1) 36 – 51

Scott, I. (2011) 'Analysis of a project to design the ideal classroom undertaken by a group of children on the autism spectrum and students of architecture.' *Good Autism Practice.* **12** (1) 13 - 25

Segall, M. and Campbell, J. (2012) 'Factors relating to education professionals' classroom practices for the inclusion of students with autism spectrum disorders.' *Research in Autism Spectrum Disorders.* **6** (3) 1156 – 1167

Sherborne Association UK *Sherborne Developmental Movement* (online) Available from: http://www.sherbornemovementuk.org/ [Accessed: 10.06.13]

Siaperas, P. & Beadle-Brown, J. (2006) 'A case study of the use of a structured teaching approach in adults with autism in a residential home in Greece.' *Autism: International Journal of Research and Practice.* **10** (4) 330 – 343

Silverman, D. (2010) *Doing Qualitative Research.* (3rd ed.) London: Sage

Silverman, D. (2011) *Interpreting Qualitative Data.* (4th ed.) London: Sage

Silverman, D. (2013) *Doing Qualitative Research.* (4th ed.) London: Sage

Slavin, R. (2008) 'Perspectives on evidence-based research in education. What works? Issues in synthesizing educational program evaluations.' *Educational Researcher.* **37** (1) 5 – 14

Stake, R. (1995) *The Art of Case Study Research.* London: Sage

Stansberry-Brusnahan, L. & Collet-Klingenberg, L. (2010) 'Evidence-based Practices for Young Children with Autism Spectrum Disorders: Guidelines and Recommendations from the National Resource Council and National Professional Development Center on Autism Spectrum Disorders.' *International Journal of Early Childhood Special Education (INT-JECSE.,* **2** (1) 45 – 56

Stenhouse, L. (1985) 'Case Study Methods', in L. Cohen, L. Manion, & K. Morrison (2000) *Research Methods in Education.* London: RoutledgeFalmer.

Strauss, A. & Corbin, J. (1990) *Basics of Qualitative Research*. 3rd ed. Newbury Park, CA: Sage

Stromer, R., Kimball, J., Kinney, E. & Taylor, B. (2006) 'Activity Schedules, Computer Technology, and Teaching Children with Autism Spectrum Disorders.' *Focus on Autism and other Developmental Disabilities.* **21** (1) 14 – 24

Stuart, C. and Thurlow, D. (2000) 'Making It Their Own: Preservice Teachers Experiences, Beliefs and Classroom Practices.' *Journal of Teacher Education.* **51** (2) 113 – 121

Thomas, G. (2011) *How to do Your Case Study: A Guide for Students and Researchers.* London: Sage

Torgerson, C., Hall, J & Light, K. (2012) 'Systematic Reviews.' In: J. Arthur, M. Waring, R. Coe & L, Hedges. (eds.) *Research Methods & Methodologies in Education.* London: Sage 217 - 230

Tsang, S., Shek, D., Lam, L., Tang, F. & Cheung, P. (2007) 'Brief Report: Application of the TEACCH Program on Chinese Pre-School Children with Autism – Does Culture Make a Difference?' *Journal of Autism and Developmental Disorders.* **37** (2) 390 – 396

Tutt, R., Powell, S. & Thornton, M. (2006) 'Educational Approaches in Autism: What we know about what we do.' *Educational Psychology in Practice: theory, research and practice in psychology.* **22** (1) 69 – 81

Van Bourgandien, M. & Coonrod, E. (2013) 'TEACCH: An Intervention Approach for Children and Adults with Autism Spectrum Disorders and Their Families.' Ch 5. In: S. Goldstein & J. Naglieri (eds.) *Interventions for Autism Spectrum Disorders.* New York: Springer

Vermeulen, P. (2014) 'The practice of promoting happiness in autism.' In: G. Jones & E. Hurley (eds.) *Good Autism Practice: Autism, happiness and wellbeing.* Birmingham: British Institute of Learning Disabilities.

Watanabe, M. & Sturmey, P. (2003) 'The Effect of Choice-Making Opportunities during Activity Schedules on Task Engagement.' *Journal of Autism and Developmental Disorders.* **33** (5) 535 – 538

Waters, M., Lerman, D. & Hovanetz, A. (2009) 'Separate and combined effects of visual schedules and extinction plus differential reinforcement on problem behavior occasioned by transitions.' *Journal of Applied Behavior Analysis.* **42** (2) 309 – 313

Welterlin, A., Turner-Brown, L., Harris, S., Mesibov, G. & Delmolino, L. (2012) 'The Home TEACCHing Program for Toddlers with Autism.' *Journal of Autism and Developmental Disorders.* **42** (9) 1827 – 1835

Whitehurst, T. (2006) 'The impact of building design on children with autistic spectrum disorders.' *Good Autism Practice.* **5** (2) 35 – 41

Wing, L. (1996). *The autistic spectrum: A guide for parents and professionals.* London: Constable

Wing, L. and Gould, J. (1979). 'Severe impairments of social interaction and associated abnormalities in children: epidemiology and classification.' *Journal of Autism and Childhood Schizophrenia.* **9** (1) 11-29

Wolf, M. (1978). 'Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart.' *Journal of Applied Behavior Analysis.* **11** (2) 203–214

World Health Organisation (1993). *The ICD-10 classification of mental and behavioural disorders. Diagnostic criteria for research*. Geneva: Author

Yin, R. (1994) *Case study research: Design and methods* 3rd ed. London: Sage

Yin, R. (2009) *Case study research: Design and methods.* 4th ed. Thousand Oaks, CA: Sage

Zachor, D., & Ben-Itzchak, E. (2010). 'Treatment approach, autism severity and intervention outcomes in young children.' *Research in Autism Spectrum Disorders.* **4** (3) 425-432

Zachor, D., Ben-Itzchak, E., Rabinovich, A., & Lahat, E. (2007). 'Change in autism core symptoms with intervention.' *Research in Autism Spectrum Disorders.* **1** (4) 304-317

Zimbelman, M., Paschal, A., Hawley, S., Molgaard, C. & St.Romain, T. (2007) 'Addressing physical inactivity among developmentally disabled students through use of visual schedules and social stories.' *Research in Developmental Disabilities.* **28** (4) 386–96

Appendix 1 Timeline and Key Outcomes

	Timescale	Outcome
Application	Feb 2009	Accepted
Proposal	April 2009	Determine aims and research questions Draft: Ethical statement Information leaflet Consent forms Ethical permission granted by research ethics committee
Develop research approach	2009 - 2010	Multiple case studies Interpretivist approach Qualitative methods
First phase literature review	2009 - 2010	Definitions, concepts, principles & purposes of Structured Teaching
Decide sample	Oct 09 – March 10	First stage: professionals in mainstream and special schools who have direct contact with pupils on the autism spectrum in key stage 2 Revision of sample: purposive sample drawn from sampling frame of special schools in local authority
1st draft questionnaire	Sept 09 - March 10	Self-administered questionnaire for primary & special schools, key stage two Survey and analysis design to enable comparisons across data and participants Wording of questions to ensure respondents interpret questions as intended and likely to generate more reliable responses Survey data can be compared with subsequent data gathered through interview, observation and document scrutiny
Pre-test, pilot and refine	Pre-test & 1st pilot Oct/Nov 09; refine Dec 09 PhD forum Jan 10; refine Jan/Feb 10 Pilot special school March 10; refine	Revisions in light of MA student group, PhD forum and pilot feedback

	March/April 10	
Final instrument	May 10	Self-administered questionnaire, distributed by researcher to named teacher in each setting, and collected by researcher two weeks later
Develop analysis strategy	Nov 09 – Jan 10	Quantitative data: Small sample size does not support valid statistical analysis, simple numerical analysis (e.g. 12 of 20 indicate that... with %) Qualitative data: Iterative strategy to include identification of codes, categories and themes
Distribute & collect questionnaires	June 2010	Distribution & collection through key respondent in each school
Questionnaire analysis	August 2010 – Oct 2010	Identification of major themes
Transfer	Nov 2011	Approved
Second phase literature review	2010 – 2014	Evidence-base for Structured Teaching reviewed & evaluated. Gaps identified.
Write paper on research evidence-base	2012	Published JORSEN early view 2013
Devise interview questions	(phase 1) (phase 2)	Semi-structured interviews: Focus 1: Structured Teaching Focus 2: Other approaches Decision-making questions include in both interviews.
Pilot interview	Jan 2011	MA student confirmed understanding of questions
Initial discussion with teachers	June 2011	Contextual information: number of pupils, ages, gender, diagnosis, assessment levels TAs
Develop observation protocol	June 2011	Agreed with teachers
Conduct interviews with teachers and TAs	Sept 2011 May 2012	Completed interviews, transcribed
Classroom observations	Autumn '11 - Autumn 2113	Four case studies
Analysis of interviews and observations	Autumn 2011 – Jan 2014	

concurrently		
Draft thesis	Nov 2014	Full draft provided for supervisors
Corrections, amendments	Dec 2014/Jan 2015	Typographical corrections completed; consideration of titles of some subheadings for clarity
Updates	Jan 2015	Final version for submission
Viva	March 2015	Corrections of typographical errors Minor revisions (3)
Corrections and minor revisions presented	April 2015	

Appendix 2 Structured Teaching: Principles, Purposes and Definitions

Source	Principles & Purposes	Definitions & key words

Schopler (1994)	TEACCH principles:
	  i) Improved adaptation (ST principle)
	  ii) Parents as co-therapists
	  iii) Assessment for individualized treatment
	  iv) Teaching structures (ST)
	  v) Skill enhancement (ST)
	
	"Our fourth principle is that education is based on structured teaching." p. 72
		Teaching Structures

Schopler, Mesibov and Hearsey (1995)	'primary TEACCH principles' 2 have direct bearing on ST i) Improve individual's adaptation: improve individual skills, using special interests; modify or structure environment to accommodate autism deficits "essential components for teaching optimum development in autism." p.245 "For students with autism, ST offers learning opportunities not otherwise available. It is not a curriculum.... but it is the framework in which ... skills are taught." p.246 4 main components of ST aim to maximise adaptation by environmental accommodation to deficits or teaching skills directly – often 'ignored or casually improvised' p. 263 Reduce and prevent behaviour problems Promote independent functioning ii) 'providing ST adjusted for the developmental level...' p. 246 Concepts also found in behaviour modification literature (p. 264) "in our application these are subordinated to coordination with ST." p. 264	Cognitive strengths: special interests, rote memory skills, visual processing. Assessment (formal & informal) Individualised – emerging skills and relative deficits Aim to increase independence, reduce 'frequent need for teacher correction and reprimands' p. 246. This reduces frustrations and communication barriers. Prevent behaviour problems. "... different levels of structure can be adapted at every age and developmental level and individual need. Visual structures can also be faded or used by the non-handicapped population." p. 246 4 main components: physical structure, schedules, work systems, task organisation. Identifies other ST concepts *Constructive routines*- ST

		teaches positive routines
		Directions – facilitated by visual structure of ST
		Prompts – to teach new tasks, physical, gestural, modelling and demonstrating, clear & consistent before error is made. Minimise unintended prompts and cues e.g. through teacher positioning
		Reinforcers –motivation, 'must be used systematically' p. 266
Mesibov & Howley (2003)	'Structured Teaching is designed to address the major neurological differences in autism.' P. 8 'Pupils with ASD who use this approach are calmer, more self-assured and are able to work productively and independently for longer periods of time. The use of Structured Teaching, as a method of delivering the curriculum, can enhance and facilitate the teaching and learning process and can improve access to the curriculum for many pupils with ASD.' p. 14	'Structured Teaching evolved as a way of matching educational practices to the different ways that people with ASD understand, think and learn.' P. 8 Curriculum access, teaching and learning
Mesibov, Shea & Schopler (2005)	'Structured Teaching is an array of teaching or treatment principles and strategies, based on understanding of and respect for the 'Culture of Autism' that can be applied on an individual basis to each person's particular situation.' P. 33 • Recognises characteristic difficulties, skill levels, talents, special interests, personality, feelings, quirks, and potential p.33 • Individual need for visual and/or written information to supplement auditory input p.33 • Need for degree of external organizational support • Autism specific supports to teach and support all aspects of life: communication, cognitive, self-help, daily living skills, socially acceptable behaviour, social interaction skills, recreation, vocational skills, academic skills,	"The notion of the Culture of Autism stresses characteristics and behaviours that people with ASD have in common, which are the foundation for the TEACCH program's Structured Teaching approach." p. 29 "highly individualized assessment process designed to identify each person's uniqueness" p. 30 Careful, ongoing assessment Observation Learning patterns Understanding Needs prioritized, goals

		participation in community activities p.34 • Autism specific problem-solving strategies to prevent difficult behaviours, dealing with behaviours effectively when they occur p.34	"The most fundamental component of the individualized approach is the assessment of how people with ASD understand the meaning of their experiences. Difficulty with understanding meaning is seen as the most central problem of ASD." p. 30
		Strengths and interests/ special interests	Strengths & special interests "While we cannot change the autism, we can use it as a context to teach the skills required by our culture." p. 30
		Family collaboration – parent-professional collaboration is one of the most important goals p. 31	Competency-based model Positive interactions Take advantage of unusual pattern of skills Easier to teach if incorporate strengths and interests
			'Structured Teaching... uses clients' special interest to reward successful completion of tasks' p. 573
		"Our **goals** as educators, parents, and others who work with persons with ASD is fundamentally to see the world through their eyes, and then to use this perspective to teach them to function in our culture as independently as possible. Although we cannot cure the underlying thinking and learning deficits of ASD, by understanding these deficits we can design educational programs that are effective in meeting the challenges of this unique developmental disability. "Structured Teaching"... is the set of strategies developed within the TEACCH program for this purpose." p. 31	"Educational planning should be sensitive to the environment where the student goes home..." p. 31 Family wishes & lifestyles Consistency between home and school Generalisation of skills to new environments
		'Two complementary goals: 1) increasing the individual's skills and 2) making the environment more comprehensible and more suited to the individual's needs.' p. 34	'visual structure to translate the expectations and opportunities of the environment into concepts people with ASD can understand, master and enjoy.' p.34
		Goals: meaning and predictability, skills for adult life, spontaneous communication, independence	Cross-cultural interpreters ' 'Structure within the

| | 'Structured Teaching is both a method for teaching new skills and a way of organizing a setting so that it is understandable and meaningful.' p. 34 | TEACCH program refers to active organization and direction of the physical environment and sequence of activities. Structure is essential to the functioning of individuals with autism spectrum disorders because of their major difficulties with conceptual and organizational skills.' p. 34 - 35

'Structured Teaching is based on the assumption that programs matching the neurological needs and preferences of individuals with ASD will facilitate their understanding and learning. Structured environments with strong visual cues meet the needs of individuals with ASD more effectively than typical language-based educational settings, because organized, visually clear environments and cues are more closely related to the ways individuals with ASD process their environments. Structured Teaching helps people with ASD to organize themselves and to function more appropriately, independently and successfully.' p. 47 – 48 |
|---|---|---|
| Mesibov & Shea (2010) | Identifies 6 elements of Structured Teaching p. 39:
• *Organisation of physical environment*
• *Predictable sequence of activities*
• *Visual schedules*
• *Routines with flexibility*
• *Work/activity systems*
• *Visually structured activities*

Four 'essential mechanisms' (pp. 572 - 574):
• Structure
• visual information | Structure: 'organization of time, space, shape and sequences of events within the environment in order to make learning activities clearer and easier to perform' p. 572

Meaningful, self-initiated communication: 'Structured Teaching considers that receptive understanding is the foundation for expressive use of communication. Our approach to teaching early |

	• special interests • meaningful, self-initiated communication. Four kinds of structure: physical; schedules, organisation of tasks; work/activity system pp. 572 - 573	communication skills initially takes the form of associating labels (typically either objects or visual symbols of some kind, paired with spoken words) with meaningful highly interesting activities in the individual's schedule. As the individual learns the association between symbols/labels and the activities, it is then possible to begin offering choices, which is the first step toward understandable, socially acceptable expressive communication. Making the availability of choices visually clear helps to move the individual toward initiating choices rather than becoming dependent upon prompting.' P. 574

Appendix 3 Components of Structured Teaching – Principles, Purposes and Definitions

Component of Structured Teaching	Principles and Purposes	Definitions and Keywords
Physical Structure Schopler, Mesibov and Hearsey (1995)	p. 246 & 247 Students can identify & remember activities and the relationship between activities. Understand, function effectively. Minimise visual and auditory distractions, focuses attention on most relevant aspects. Support transitions, address difficulties with change. "Physical structure helps the student understand the concept of where activities and functions take place" p. 251	Physical organisation "... the physical layout of a room or space" p. 246 "consistent, visually clear areas and boundaries for specific activities" p. 246 "A clearly organised class highlights the specific activities and reinforces the important concepts." p.247 Developmental considerations; individualisation unique needs, fade & adjust Transition area "A transition area is the location where all the schedules are placed. Students come here to learn what their next activity will be, enabling them to orient to the change. Transition areas are a concrete way mediated through visual schedules for introducing consistency to the many changes that occur during the school day." p. 251
Mesibov & Howley (2003)	'Physical structure and organisation makes the classroom interesting, clear and manageable...' p.9 'The physical layout of the classroom is an important first step in assuring that a programme will be conducive to the learning styles, needs and sensory peculiarities of pupils with ASD.' p. 9	- Individual needs - Conceptual & sensory needs - Expectations - Independence - Reduce anxiety - Minimise distractions - Promote consistent and effective work - Promote learning
Organization of the Physical Environment Mesibov, Shea & Schopler (2005)	Degree & type differs for individuals - distinguishes between special education classrooms & 'regular' education classrooms' p. 40	'Physical structure and organization of all settings should make them clear, interesting and manageable' p. 39 - Physical layout - Physical boundaries - Organisation & placement of furniture - Visual cues e.g. labelling

		• Areas to work with minimum activity or distractions • 'safe haven' • Different areas depending upon age • Easy access to materials Other settings – e.g. home, job site
Schedules Schopler, Mesibov and Hearsey (1995)	*i)* Minimise problems of impaired memory or attention *ii)* Reduce problems with time and organisation *iii)* Compensate for problems with receptive language and obstacles to following verbal directions *iv)* Foster student independence *v)* Increase self-motivation 2 types: general classroom schedule & individual "help students understand and remember what to do during activities listed on the general schedule" p. 253	"... schedules accommodate difficulties with the concept of when and what the activity will be. Schedules explain to each student which activities will occur and in what sequence. Schedules also help students anticipate and predict activities." p.251 Visual reminders: first work, then play Follow directions independently. Understand & remember. Meaningful Assessment of curriculum needs Schedules for level of communication p.254 objects, picture, words "Each individual schedule needs balance, alternating new or difficult tasks with more enjoyable or easier tasks. Physically demanding activities are alternated with less active ones." p.255
Mesibov & Howley (2003)	'The TEACCH programme incorporates individualised daily schedules as a way of meeting... compelling needs. These schedules, if organised meaningfully with an understanding of each pupil's individual needs, can add order, predictability and organisation to their lives.' P. 10 '...indicate the sequence of events during the pupil's day. It is a critical factor in keeping pupils focused and enabling them to understand what will be happening to them.' p. 11 Schedules aid: Sequential memory, receptive language difficulties, facilitate transitions	Organisational systems for moving from place to place • Predictability & clarity • Reduce anxiety • Calmer & more cooperative behaviour • Meaning & understanding • Independence, 'feelings of autonomy', less prompt-dependent p.11 • Transitions • Routines • Way of organising pupils in the classroom

A predictable sequence of activities Mesibov, Shea & Schopler (2005)	'A fundamental principle of Structured Teaching is that the sequence of activities is predictable for the individual...' p. 41 Sequence of activities is communicated through visual means. p. 41	'Predictability helps the person understand his environment and also reduces the anxiety that can be caused by uncertainty and surprise...' p. 41
Visual schedules Mesibov, Shea & Schopler (2005)	'multiple reasons for the use of visual means to communicate the sequence of upcoming activities or events.' p. 41 • 'visual communication is more likely to be comprehensible and can remain accessible' • 'visual schedules can facilitate the transitions that often are so difficult... and result in many behavioral difficulties.' • help to achieve primary goal of becoming as independent as possible 'Our goal is that people with ASD accept changes in the environment because they can rely on the visual schedule to communicate what is going to happen and in what sequence.' p. 42	General class schedule & individual schedules Transitions, familiar routine – looking at a schedule Independence Reduce adult prompts '... promotes feelings of security, competence, and independence...' p. 41 'A 'visual' schedule can take many forms, depending on the skills and understanding of the individual learner.' p. 42 • Written lists (to do lists, appointment books) • Photographs & pictures • Concrete objects 'what comes next' p. 42 Free choice to strengthen communication skills, increase cooperation, self control and pleasure, make choices more meaningful Accept change: 'We do *not* want people with ASD to become attached to a routine; we want them to understand the schedule so that they can rely on it.' p. 42 Full, part day schedules dependent upon level of understanding and organization.

Routines & flexibility Mesibov, Shea & Schopler (2005)	Two reasons: i) provide another strategy for understanding and predicting events, decreases agitation and assists skill development ii) if not provided with routine, there is a tendency to develop own routines which are 'generally less adaptive or acceptable' p. 43	Transitions: 'Routines are especially helpful during transitions because these are the times that are most challenging for individual with autism, when behavioural difficulties tend to occur.' p. 43

Flexibility: '... should also incorporate an element of flexibility because this reflects the reality of our culture.' p. 43

Respect attachment to routines but should be 'gently challenged'

'The essential structure of the routine should remain predictable, but details should vary, so that the individual is led to focus on the overall structure rather than on the details.' p. 43 |
| **Work systems** Schopler, Mesibov and Hearsey (1995) | Communicate information about: Task to do How much "the work-study box and its contents are always on the left with the contents visible" p. 255 How students will know when they are finished "materials in work-study-area box has been processed and moved to the finish box, always on the right" p. 256 | "informs students of what to do while in their independent work areas" p. 255

Developmental considerations objects, pictures/numbers, written words

Individualisation according to educational needs and communication level |
| Mesibov & Howley (2003) | Organise specific activities

'Work systems are critical if pupils ... are to learn to work without adult assistance or direct supervision.' p.11 | Organisational systems for completing specific activities in a variety of different places Independence Know what's expected Organise self systematically Complete tasks independently What work, how much, how they know they are making progress, what happens when work is completed. p.11 Facilitates paired & group learning |
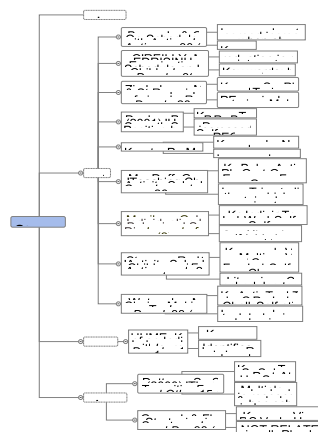
		- Make concept of finished concrete and meaningful - Gives sense of completion - Moving from one activity to another is more meaningful process and less anxiety provoking Different types: left to right, pictures/letters/numbers, written. Can increase independence – movement around room to collect and return work
Work/activity systems Mesibov, Shea & Schopler (2005)	To understand tasks or activities, to stay focused, to complete tasks independently Tasks vary, work system remains constant until independent, then used in 1 : 1 teaching session to learn new tasks and in independent work area to practice previous tasks independently. P. 44 'Work/activity systems provide organized strategies for approaching a variety of tasks and situations in a way that makes them meaningful. They address the confusion people with ASD often have with 'beginning', 'middle' and 'end' by allowing them to see that they are making progress while involved in activities, and by making the concept of 'finished' concrete and meaningful, which helps people experience a feeling of satisfaction and closure when a specific activity is done.' p. 45	Organizational systems that provide answers to four questions: i) *what* task, ii) *how much* work, how many tasks, *how long* will activity last,, iii) how will individual know what *progress* is being made and that the activity is *finished*, iv) *what happens next* after the work is completed p. 43 - 44 Visual, dependent upon individual level of understanding. Written, pictures, symbol, colours, numbers, objects Teach following work system for completing tasks: 1 : 1 teaching session using 'individualized combination of demonstration, hand-over-hand assistance, visual prompts, simple verbal cues, social encouragement, and desired activities at the end of the session.' p. 44 Predictability, less anxiety Generalisation, transferring system to variety of activities in wide range of settings.
Visual Information Schopler, Mesibov and Hearsey (1995)	Task organisation "mechanisms for teaching our students to look for instructions rather than follow the general tendency to complete a task the way they think it should be done." P. 259	"... organisation of materials provides visually clear guidelines on the positional relationship between the parts and task completion. Such jigs (or blueprints) are helpful to students because they offer instructions in a way easiest for them to understand. They clarify task requirements, sequences, relevant concepts" p. 259

		Functional level, individualisation adapted to different levels of developmental functions, individualised according to needs: objects, pictures, colours, numbers, words
Mesibov & Howley (2003)	'ST is also important when thinking about and creating the activities or work tasks themselves. Each task should be visually organised and structured to minimise anxiety by maximising clarity, understanding and interests.' p.12 'Visual instructions are essential components of work tasks. They provide visual information to pupils with ASD that explain on their level of understanding exactly what is required for task completion.' p. 13	3 components: visual clarity, visual organisation & visual instructions VC – clarify components of task, expectations – task completion minimal anxiety VO - distribution & stability of materials so pupils not distracted or disrupted (sensory disorganisation), order materials in attractive, orderly & minimally stimulating way. Break spaces down into smaller components VI – jig, visual representation, written expectations. Understanding, flexibility (essential for effective learning & vocational & community functioning.
Visually structured activities Mesibov, Shea & Schopler (2005) **Visual Information** Mesibov & Shea (2010)	Make tasks clear, meaningful and comprehensible. - Visual instructions – essential components of all tasks so individual knows what they are supposed to do, teaches flexibility - Visual organization – promotes learning, reduces distractions through even distribution and stabilizing materials, organize materials in attractive, orderly, and minimally stimulating fashion - Visual clarity – help students to identify important components and features 'Structured Teaching relies strongly on using visual information to promote engagement in productive activities and to reduce the confusion and distress that can be caused when too much language processing is	'... traditional education techniques for introducing new tasks and teaching new skills are often not very effective for individuals with ASD. We have found that because of the visual perceptual strengths of individuals with ASD, engaging them in learning activities can best be accomplished using tasks that are visually very clear and meaningful to them.' p. 45 'Visual information is a key element of physical structure, schedules, instructions for activities, communication, and reminders about expectations and limits.' p. 573

	required.' p. 573 'Visual information is conveyed in various ways depending on the developmental skills of the individual, ranging from concrete objects for learners at very early developmental levels to written "to do" lists and reminders for adolescents and adults with average or superior intelligence.' p. 573	

Appendix 4 Extract of literature mind map

Appendix 5 Extract of tabular literature map

Reference	Key words	Methodology	Findings	Notes
Bryan, L. & Gast, D.(2000) 'Teaching On-Task and On-Schedule Behaviors to High-Functioning Children with Autism Via Picture Activity Schedules.' *Journal of Autism and Developmental Disorders* 30 (6) 553 - 567	Schedule (or work system?) On-task, off-task Definitions p.556 On-task on-schedule: completion of each step, visually attending, looking at schedule, using materials as designed, transition On-task, no schedule: as above, visually attending to work materials Off-task: not using materials appropriately, manipulating materials but not visually attending e.g. tactile, self-stim with objects, inappropriate behaviour, refusal, tantrum, stereotypical behaviours, not engaging in activities or using materials.	Resource base, 4 children 3m 1f participant detail p.555 ABAB design Daily session (language/literacy and art) p.557 No book baselines, generalisation condition, observations plus social validity Pupils taught to use schedule with graduated guidance. Taught to complete 4 step task using task analysis. Manual prompts from behind – prompts recorded: orienting shoulder towards materials, prompt from behind, light touch. Graduated guidance P.558, prompts gradually faded, teaching condition ended on schedule 80% 3 consecutive days. Reliability p.558: inter-observer agreement, teacher fidelity to planned procedures, training provided, procedural reliability data gathered. Social validity used Likert scales to measure perceptions of teacher, TA and SALT.	Efficiency results p.562 On-schedule results: Measured % steps completed correctly on activity schedule (work system?). Immediate and abrupt changes in level of performance' p.559. Increase with book, decrease no book. On-task results: % on task with scheduled materials. p.562 effectiveness of graduated guidance procedure replicated across 4 ch. Intersubject replication; intrasubject replication demonstrated with both dependent variables with each student. Generalisation data 100% increase replicated 4 consecutive days Social validity p. 563 Divided opinions regarding whether picture schedule was responsible for students' learning Agreement increases independence and could be used in other classrooms. Disagreement regarding ch could only learn with 1:1	Schedule or work system???? Good paper for review of other relevant articles to follow-up Refers to physical structure pp. 555 – 556 Task detail (familiar, novel but similar) p.556 Used line drawings and symbols **Why?**

			teacher prompts	
			Agreed could be used for all students and that they are useful classroom tool.	Suggests further research impact of schedules on spontaneous social interaction and observational learning. Students' motivation and enthusiasm p.566
			Consistent change of opinion following observing students working independently.	Quote p.566 suggests use for other subject areas.
Dettmer, S., Simpson, R., Smith Myles, B. & Ganz, J. (2000) 'The Use of Visual Supports to Facilitate Transitions of Students with Autism.' *Focus on Autism and Other Developmental Disabilities.* 15 (3) 163 - 169	Visual supports Transition Schedules Sub-schedules (work systems?) Portable schedule Attention Understanding Sequence/organise environment	2 ch m 7yrs (32 months), 5 yrs (50 months) autism + intellectual disability. ABAB design; observations 'to evaluate the effectiveness of visual supports in decreasing the amount of time spent transitioning the two children from one activity to another' p. 164 Measured baseline Ongoing intervention: verbal prompts (instruction and redirection), physical prompts (hand over hand), proximity control (no definition). 95% interobserver agreement during intervention phase. Participant 1: Car schedule/portable schedule/ line drawings	Less time to respond to information to transition Reduction in verbal prompts Reduction in handling to move Reduction in response time p.167 Aggression & tantrums in both boys when schedule not used quotes p. 167 Anecdotal evidence re reduction in echolalia p. 167 Increased independence 1 child.	Used multiple visual supports: schedule, sub-schedule (work system), visual information

		Participant 2: (home -ed programme) Portable line drawings Sub-schedules and finished box 'work time' Timer while engaged in favoured activities.		
Dooley, P., Wilczenski, F. & Torem, C. (2001) 'Using an Activity Schedule to Smooth School Transitions.' *Journal of Positive behavior Interventions,* 3 (1) 57 - 61	Activity schedule Transitions PECS Pre-school Behaviour	Single participant M 3ys PDD diagnosis Behaviours: dangerous, disruptive, kicking, biting, crying, screaming. Spec Ed pre-school class T + 2 TAs Functional assessment methods and observation p. 58 Assessment: recorded perceived functions, environmental factors, antecedent conditions, actual consequences. Counted incidents of problem behaviours during periods of activities (story, snack, recess, work, interactive). T and TAs counted instances of disruptive and compliant behaviours throughout study. 100% inter0observer agreement. Coefficients of agreement p. 58 Baseline functional assessment – transitions identified as antecedent to behaviour problems.	'... dramatic decrease in problem behaviors and increase in compliance during transitions...' p. 59 Independent management of behaviour by child. P.59 Maintained throughout school yr (follow up reports from teacher). T & TAs 'found the PECS easy to implement and compatible with their classroom management style.' P. 59 'Interactions between the teachers and Chris became more positive and allowed more time for learning.' P.60 Social and communication goals. Transferred to home.	Review of positive behavioural approaches p. 57 Behaviour definitions p. 58 They describe introducing PECS as 'simple curricular change' p.59 – but is it? Or is it form of instruction change? Not clear how these views were gathered. Limited 'weak experimental evidence' p. 59 Pretzel not an 'active ingredient.' Claims clinically significant outcomes: 'developing receptive language skills and fostering self-control' *Presumes* reasons for maintenance of cooperation and self-control as natural reinforces as a result of compliance and teacher approval p. 60 - limitations due to making such a presumption, ignores any other strategies put in place.

		Intervention: PECS & pretzels! Line drawings/pictures. Transition signalled with lights off and verbal cue. 3 weeks observations as in baseline phases. Then moved to PECs only.		
Ganz, J. & Flores, M. (2008) 'Effects of the Use of Visual Strategies in Play Groups for Children with Autism Spectrum Disorders and their Peers.' *Journal of Autism and Developmental Disorders,* 38 (xx) 926 - 940	Pre-school, playgroup Visual strategies Peers Scripts Verbal communication Unscripted speech	Group 1: 1 child ASD 2 peers Group 2: 2 ch with ASD & 1 peer 3m aged 3 – 6, diagnosis of autism or PDD-NOS Participant details pp. 927 – 928 Private pre-school for typically developing ch. Play themes, taking into account t preferred interests and familiar activities. Scripts for each theme. 4 weeks, 30mins per day, 4 – 5 days per week. Changing criterion, single-subject design, see p. 930-931 for further detail. Baseline – followed by intervention; peers given instructions, participants given scripts p.931 Samples of scripts p. 933 e.g. Look at the dolphins! Procedural integrity p. 932; inter-observer reliability p. 933 Data collected interval recording, use of scripted and/or non-scripted phrases p. 932		NOT RELATED to ST or TEACCH, but supports use of visually based interventions. Reference to lit visually based intervention p. 926 Problems recruiting to 2 play groups p. 927 Recruitment p. 927 Play behaviours increased , context related language p. 937; functional relation between visually based intervention and play related language.
HUME, K. &	Work system	3 participants all male 6,7,20 good	Increased on-task behaviours	Defines WS p.1166

ODOM, S. (2007) Effects of an Individual Work System on the Independent Functioning of Students with Autism. *Journal of Autism and Developmental Disorders,* 37**,** 1166 - 1180.	Task engagement Behaviour Independent work & play	descriptions p.1168 – 1169 Non-verbal, severe Play area in classroom University library Clear research qs p.1168 ABAB withdrawal of treatment design p.1170 (baseline 1, WS 1, baseline 2, WS 2, maintenance phase. Identifies dependent variables p.1172 and observational procedures & inter-observer agreement p.1172 Considers treatment integrity p.1171 Experimental control p. 1173 Social validity pre and post questionnaire and IEPs p. 1173 & 1176 Scale 1 – 5 rate agreement with statements. IEPs checked goals of intervention matched needs.	Reduced adult prompts Increased independent work and play for all 3 participants. Social important outcomes. Links to social validity measurement p.1172 All agreed increased independence, reduced off task behaviour, teacher prompting reduced, 'often' worked or played more. 'Such an intervention package might be implemented as a single instructional technique in a classroom or as one component of a comprehensive instructional	Curricular goals p. 1166 Defines on-task behaviour p.1166 Illustration of WS p. 1171 Ethical issues? Good observer rating form for treat meant fidelity. P. 1178 'Neisworth & Wolfe define social validity as the perceived worth of an intervention...' p. 1172 No protocol guiding type and frequency of prompting. P.1177 Impact of investigator in

			model, as is the basis of the TEACCH program' p.1178	room, intervention and video ??
				Which variables responsible for behavioural gains?
				Identified components of work system as: minimizing visual and auditory distractions, reducing mobility in throughout classroom, organzing materials, using visual cues, reducing the field of choices, finished and what's next.
Krantz, P., MacDuff, M. & McClannahan, L. (1993) 'Programming participation in family activities for children with autism: Parents' use of photographic activity schedules.' *Journal of Applied Behavior Analysis,* 26, 137 - 138	Notebook activity schedules Engagement Disruption Social initiation	3 x m (6,7,8 yrs)	Increased social engagement, social initiation and decreased disruptive behaviour in all participants	
Kurt, O. & Parsons, C. (2009) 'Improving Classroom	TEACCH Constant time delay (CTD) Behavioural	5 students, 3 severely autistic Target skills: name fruits, make hot drink, identify classmates, washing up, discriminating male/female	Four out of five target skills learned Positive opinions of adults	Combined behavioural with structure plus mixed methods

Learning: The Effectiveness of Time Delay within the TEACCH Approach.' *International Journal of Special Education,* 24 (3) 173 - 185		Observations/contemporaneous notes; questionnaire		
MacDuff, G., Krantz, P. & McClannahan, L. (1993) 'Teaching Children with Autism to use Photographic Activity Schedules: Maintenance and Generalization of Complex Chains.' *Journal of Applied Behavior Analysis,* 26 (1) 89 - 97	Behavioral intervention Activity schedules Photographic On-task behaviour On-schedule behaviour Engagement: self-care, work & leisure Functional skills Generalised skills	4 m 2 x 9yrs, 11, 14 DSM-III-R criteria for autism + diagnosis from outside services. Dev.al age 3 – 5 Descriptions of participants p.90 Informed parental consent Setting: community based Teaching-Family model p.90 living room, family room and bedrooms. Multiple base-line across participants design Aim: to assess effects of 2 component intervention package (photos + graduated guidance) acquisition, maintenance and generalization of complex response chains. P. 90 Dependent variables: *on-task* visually attending to materials, looking at photo schedules, manipulating materials appropriately, transition from 1 activity to another. *Off-task* used materials in manner other than that which they were intended, manipulated material but no visual attention, inappropriate behaviour	On-task: baseline, considerable variability across sessions, 1 boy almost never scored on-task p. 93 Increased on-task with each teaching session (means of 99 and 97%). 'high and stable on-task performances' p.93 On-schedule – no scores in baseline for any of the boys. Means of 90+% at all stages. P.93 following teaching. No prompts during maintenance, re-sequencing or generalization phases. P. 96	Refers to reliance on prompting p. 89 therefore behaviours do not generalise or persist over time. Fail to exhibit responses spontaneously. Problems with 'acquiring lengthy response chains' p.89 Useful refs p. 89 Descriptions of photo schedule p.91 – **all the same** format but with different activities. Tries to limit interventions to isolate those which are responsible for skill development. Discussion p.96 All boys sustained engagement, frequently changed tasks, moving to different areas with no prompts. Does not indicate limitations of study and does not identify

		(tantrums, aggression, stereotypies), did not engage in activities or use materials. *On/off schedule* engaged in activity but book showing different page. p.91 Independent variables Verbal contact, gestures/gestural prompts, manual prompts *Measurement procedures* 60-s momentary time-sampling *Experimental design* multiple base-line across participants *Experimental conditions* 60min sessions p. 92; baseline (first instruction then no prompts) Teaching of schedules p.92, graduated guidance Maintenance, no prompts, re-sequencing of schedules, no prompts and no teacher. Generalization, no teacher, novel leisure activities p. 93 *Inter-observer agreement* – p. 93		areas for further research. Refers to other articles picture prompt training.

Appendix 6 Features of trustworthiness

Features of reliability, validity and trustworthiness (adapted from Bassey, 1999: 75 and Creswell, 2014: 201 – 202))	Steps taken in this investigation
Clarify bias	Potential for bias acknowledged from the outset and addressed in chapter one and four.
Prolonged engagement with data sources & persistent observation of emergent issues	Observations & interviews conducted over four school terms and iterative approach to analysis sustained throughout data gathering & beyond (see timeline)
Triangulation of data leading to analysis	Constant comparisons between data sources
Sufficiently detailed account/rich, thick description to convey findings	Case studies, including quotes from the data
Present negative or discrepant information	Negative examples from observations included, e.g., chaotic environment, not using schedules, differences of opinion
Audit trail	'Chain of evidence' documents: data trail, fieldwork notebooks; diary
External audit	Case study three given to teacher who commented: *You have clearly identified our priorities for the children in the class and accurately recognised our aims and aspirations for the children - to become as independent as possible, not to rely on prompts to communicate and to develop a desire to interact socially - through our use of structured teaching and other strategies in the classroom. This is a trustworthy account of the approaches we use to facilitate these aims for teaching and learning and life beyond school.*

An Investigation into 'Structured Teaching' for Pupils who are on the Autism Spectrum and who attend Special Schools

Marie Howley

Code of Ethics

This Code of Ethics will govern the conduct of the research project and will be adhered to at all times. The code of ethics is subject to scrutiny and approval by the School of Education Research and Consultancy Committee (SERCC) at the University of Northampton.

This Code is informed by the principles established in the Revised Ethical Guidelines for Educational Research (2004) issued by the British Educational Research Association (BERA)

Confidentiality and anonymity
The researcher recognises the rights of all professional colleagues, parents/carers and children who participate in the research to have their confidentiality protected at all times. Pseudonyms will be used in the written report. The researchers will protect the sources of information gathered from interviews, observations and other data collection methods.

Personal details will be kept confidential and separate from the data, and stored in a locked filing cabinet or password protected computer. Participants will be informed that their personal details will only be kept for the sole purpose of the research and will be destroyed 12 months after the completion of the research. All data will be stored securely.

Consent
Voluntary informed consent will be sought before any questionnaires and interviews are conducted with any respondent as part of the research process. In the case of children this consent will be sought through schools and parents/carers and obtained in writing. Participants will be informed of the aims and nature of the research by an information sheet.

Right to withdraw
All participants in the research (including children) will be informed of their right to withdraw from the process at any time and their record of participation will be destroyed.

Contact details of the researcher will be provided for participants to obtain further information.

Vulnerable groups: safeguarding and protecting
The researcher will work in accordance with Articles 3 and 12 of the United Nations Convention on the Rights of the Child and will ensure that

the best interest of children is served at all times. Where appropriate, children will be facilitated to give informed consent in addition to the consent given by parents or carers. Children will be presented with information in an 'autism friendly' way (e.g. using visual supports, comic-strip conversations) in order to provide opportunities for them to communicate their willingness, or not, to take part. Familiar adults will collect data from children and will be instructed to cease the process if a child shows any signs of unwillingness to take part or anxiety. A protocol for gathering data from children will be devised to ensure parity between data gatherers, both in relation to processes of gathering data and in safeguarding children.

Feedback and Dissemination
The researcher is under an obligation to describe accurately, truthfully and fairly any information obtained during the course of the research.

There is an obligation to incorporate accurately data collected during the course of this research into the text of any report or other publication related to the research, and to ensure that individual opinions and perceptions are not misrepresented.

All participants taking part in the interview study will be sent a copy of the transcription to check it is an accurate representation of their narrative.

All participants will be given the opportunity to receive feedback on the results of the studies. Findings will be presented in accessible formats for all participants, including children.

Appendix 8 Information leaflet and consent form

Information leaflet for Schools:

An Investigation into 'Structured Teaching' (TEACCH) for Children on the Autism Spectrum

This research is being undertaken by Marie Howley as part of postgraduate research study, leading to PhD, and is supervised by staff from the School of Education at the University of Northampton. The research focuses upon a particular interest in aspects of classroom practice and children on the autism spectrum. In particular, since the introduction of 'TEACCH', and more specifically 'Structured Teaching', into Northamptonshire in 1990 many aspects of the approach have become embedded in practices for teaching children on the autism spectrum, both in specialist and mainstream settings. However there is, to date, little research evidence which systematically explores the impact of the approach. In addition, as teachers are encouraged to become eclectic in their approaches to teaching children on the autism spectrum, so there is little guidance as to how to achieve this.

The purpose of this research is therefore to: i)identify existing understanding and implementation of 'Structured Teaching' strategies for teaching children on the autism spectrum in key stage 2 in one local authority and ii) determine how 'Structured Teaching' is used within a context of developing eclectic classroom practices.

Definitions - For the purpose of this research

- *Autism spectrum* refers to children with a diagnosis of autism or Asperger Syndrome

- *Structured Teaching* refers to: physical structure, schedules, work systems and visual directions as advocated by TEACCH

At this stage, the following research questions have been identified:

- What has been the impact of 'TEACCH' training upon special and mainstream primary schools in one local authority?
- How are Structured Teaching strategies being implemented?
- What do teachers and other stakeholders identify individuals are learning through the use of Structured Teaching?
- What do children think about Structured Teaching strategies?

Data will be gathered using a variety of methods including:

- An initial questionnaire to survey use of approaches in key stage 2
- Interviews with SENCos, DSP managers, advisory teachers, classroom teachers and teaching assistants to explore particular themes in greater depth

- Interviews with children (in consultation with schools and parents) which it is hoped will generate bespoke techniques for gathering the views of children on the autism spectrum
- Consideration of relevant documentation
- Observations in classrooms

Participants in the research will be drawn from mainstream, DSPs and special schools, thus reflecting diverse needs and practice across the autism spectrum.

All information gathered as part of the research will be subject to a code of ethics and will be treated in the strictest confidence. The ethical statement enclosed informs you of storage of data, anonymity and confidentiality and your right to withdraw at any time.

I do hope that you feel able to contribute to this research as I believe that there is a wealth of experience in teaching children on the autism spectrum in Northamptonshire; it is intended that this research will provide a systematic exploration of practices in order to generate guidance and exemplars of good practice for wider dissemination. Your contribution will greatly assist in developing guidance for schools in establishing a framework for eclectic practice for children on the autism spectrum.

Your contribution is greatly valued, thank you.

If you require any further information, please contact me at:

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School of Education
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Boughton Green Road
Northampton NN2 7AL

Telephone: 01604 892761

Email: marie.howley@northampton.ac.uk

An Investigation into 'Structured Teaching' (TEACCH) for Children on the Autism Spectrum: Informed Consent

If you are willing to take part in this research, please complete the consent form and return, together with your completed questionnaire to Marie Howley in the SAE provided.

I am willing to take part in this research and have been made aware of the purpose of the research and the ethical code. I understand that I have the right to withdraw at any time and that all information provided by me will be confidential.

Signed _____ Date _____

Please print name _____

Name of school _____

Please be assured that your responses will be treated in the strictest confidence. Information provided will be seen only by the researcher (Marie Howley).

Appendix 9 Questionnaire first draft

An Investigation into 'Structured Teaching' (TEACCH) for Children on the Autism Spectrum

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Since the introduction of 'TEACCH', and more specifically 'Structured Teaching', many aspects of the approach have become embedded in practices for teaching children on the autism spectrum. The purpose of this research is to: i) identify existing understanding and implementation of 'Structured Teaching' strategies for teaching children on the autism spectrum and ii) determine how 'Structured Teaching' is used within a context of developing eclectic classroom practices.

Definitions - For the purpose of this research:

- *Autism spectrum* refers to children with a diagnosis of autism or Asperger Syndrome

- *Structured Teaching* refers to: physical structure, schedules, work systems and visual directions as advocated by TEACCH

This questionnaire is intended to be completed by Special Educational Needs Coordinators (SENCo), DSP managers and classroom teachers of children on the autism spectrum in key stage 2. The questionnaire should take no more than xx minutes to complete.

Responses will remain anonymous and will be treated in the strictest confidence. At no point during this research will any link be made between the responses provided and the respondent. The research abides by an ethical code which is attached for your information, together with an information leaflet and a consent form. Please return the completed consent form and questionnaire to:

Marie Howley
CESNER
School of Education
University of Northampton
Park Campus
Boughton Green Road
Northampton NN2 7AL

1. Type of school

- o Mainstream primary

- o Mainstream primary with DSP for children with SEN

- o Mainstream primary with DSP for children with autism or Asperger syndrome

- o Special school

2. Position of person completing this questionnaire

- o SENCo

- o DSP manager

- o Class teacher

- o Other (please specify)

2b) Number of years teaching children on the autism spectrum

3a) Number of children in school in key stage 2 on the autism spectrum

Boys   **Girls**

3b) Number of children in DSP (if applicable) **in key stage 2 on the autism spectrum**

Boys   **Girls**

3c) If you are a class teacher, please indicate year group:

Number of children in your class on the autism spectrum:

Boys   **Girls**

4a) Please indicate which TEACCH and/or 'Structured Teaching' training you have completed, you may tick more than 1

- o   In-service training
- o   TEACCH 3 day seminar
- o   TEACCH 5 day hands- on workshop
- o

- o   TEACCH advanced
- o   Other (please specify)

4b) What other training have you completed in relation to teaching children on the autism spectrum?

Section C: Structured Teaching – classroom strategies

5a) Please rate the following:

	Do not use	Occasionally use	Use often	Always use
I use Structured Teaching for children who are on the autism spectrum	❑	❑	❑	❑
Physical structure	❑	❑	❑	❑
Schedules	❑	❑	❑	❑
Work systems	❑	❑	❑	❑
Visual information (organisation, clarity and instructions)	❑	❑	❑	❑
I use Structured Teaching for children who are not on the autism spectrum	❑	❑	❑	❑

If you have indicated that you use Structured Teaching with children who are not on the autism spectrum, please indicate which of the 4 components you use and why.

5b) In your opinion, in what ways do any of the above contribute to learning for children on the autism spectrum and why do you think this is the case?

5c) In what ways do any of the above affect behaviour of children on the autism spectrum and why do you think this is the case?

Section D: Other approaches

6a) Please indicate which of the following, if any, you use on a regular basis (you may tick more than 1)

- Alternative communication systems e.g. Picture Exchange Communication System (PECS)
- Behavioural strategies e.g. task analysis, backward chaining, errorless learning
- Intensive interaction
- Music interaction

- Social skills groups
- Social stories or articles
- Comic-strip conversations
- Buddy systems
- Circle of friends
- Play-buddies
- Other (please indicate)

6b) How do you select which approaches to use?

6c) In your opinion, which approaches do you find most helpful for children on the autism spectrum and why?

Finally…

7. Would you consider supporting further research in the area of classroom practices for children on the autism spectrum, through the use of: interviews? Yes ☐ No ☐

If you have answered 'Yes' to question 7, please email marie.howley@northampton.ac.uk or include your name and address on a separate piece of paper and include it with the questionnaire when it is returned. Please be assured that no attempt will be made to link any questionnaire response with any individual or organisation. **Thank you for your contribution, it is greatly appreciated.**

Appendix 10 Initial draft of letter to Head Teachers

Dear *(insert HT name)*

PhD research: An Investigation into 'Structured Teaching' for Children with Autism Spectrum Disorders

I am writing to invite your school to take part in research into classroom practices for children on the autism spectrum. I have recently enrolled as a part-time, post-graduate research student at the University of Northampton with the intention of completing a PhD. As a teacher, I gained many years' experience teaching children on the autism spectrum and as a teacher educator I continue to specialise in the area of autism education. My long-term interest in autism education and classroom practices has inspired my research focus which explores i) the use of 'Structured Teaching' as advocated by the TEACCH approach and ii) the increasing recognition that an eclectic approach is necessary to meet the needs of individual children. As TEACCH was first introduced in the United Kingdom in xxxxxxx, it seems appropriate for this research to explore how the approach has subsequently been used and developed in xxxxxx schools, in order to develop insights which may inform guidance relating to 'good practice' to be disseminated on a wider platform.

Please find enclosed x copies of an information leaflet outlining the aims of the research, together with an ethical statement which indicates procedures in place to ensure the research is undertaken in accordance with British Educational Research Association (BERA) code of ethics.

I would very much appreciate it if your school would participate in this research, initially through the completion of a questionnaire (x copies enclosed). If you are willing for your school to take part in this research, please sign the consent form enclosed. The questionnaire(s) should be completed by the following members of staff:
- SENCo or DSP/Unit manager
- any Key Stage 2 class teacher who has a child on the autism spectrum in his/her class
- teaching assistants who support pupils in Key Stage 2 who are on the autism spectrum.

Participants are also asked to sign the permission form (enclosed) to give their consent. Completed questionnaires and consent forms should be returned to me by (date) in the reply envelope provided.

I would like to thank you in anticipation of your support and look forward to your reply.

Yours sincerely

Marie Howley
Senior Lecturer: SEN and Inclusion

Appendix 11 Record of amendments to questionnaire

Actions: Pre-test and Miniature Pilot March 2010

Sample: Teachers on MA Education course: Special school (3), DSP (1), Mainstream (3)

Average time to complete 15 mins

Amendments

Questionnaire	Actions
Emphasis to highlight role q 3a, b, c, e	Sample changed to special schools, questions amended April 2010
Q 1 'please tick' add 1 only	Amended April 2010
Q s add 's' to position as person completing may have more than 1 role.	Qs about role altered due to change in sample April 2010
Q 3a underline <u>number</u> to avoid ticks from people in a rush	Amended April 2010
Q 3 clarify how many qs to answer (if dual role)	
Q 4a insert tick box Add months	
Q 5 consider wording Add not sure Add comments box	Added 'not sure' and comments box April 2010
Q 6a and 7a insert not sure to rating scale?	Added 'don't know' to rating scale April 2010

Actions: Feedback from PhD Forum

Questionnaire	Actions
Use of 'should' on page 1	Amended April 2010
Q1a align boxes	April 2010
Q2a signpost which next question to go to	No action taken
Q4b • Consider indicating blocks of time or years e.g. 1990 – 1995 • Clarify TEACCH	• Done • Done

training UNC Division TEACCH • Add 'are you a TEACCH trainer	• Done
Q 5 consider removing 'or advise others'	Done
Q6a add scale to show extent of agreement	Rating scale added from strongly agree to disagree, also indicating 'not sure'
Q6c extra s on help; extra ??	removed
Q8a number items Q8b indicate number	Done, and explanation added to make completion quicker and easier
Q8c consider wording of q (how do)	Re-worded
Q9 Insert 'any other comments' box	Done
Q9 becomes Q10	Done

Feedback and actions log: Main Pilot Special School

5 class teachers & 2 teaching assistants

Time to complete 10 – 15 mins; no changes suggested on the information leaflet.

Questionnaire	Actions
Q1b 1c who to ask for this info?	Removed 1b 1c – *need to investigate how best to collect data re numbers of pupils*
Q3 clarify which qs to answer	Done – simplified so all respondents complete each q
Q 5 example of strategies box	Added box for respondents to give examples of how they use components of ST
Q5 frequency descriptors circle or √?	Included info to √
Q6a 7a circle or tick?	Included info to circle 6a 7a to √6b

Appendix 12 Questions for individuals who piloted the questionnaire

<u>An Investigation into 'Structured Teaching' (TEACCH) for Children on the Autism Spectrum in Special Schools</u>

PILOT questionnaire and information about the research FEEDBACK FORM

1. Is the information leaflet clear? If not, please indicate which aspects are confusing.

2. How long does the questionnaire take to complete?

3. Is it clear which questions you should complete in relation to your specific role?

4. Are any of the questions difficult to understand?

5. Any suggestions for improvement?

Thank you!
Marie Howley

Appendix 13 Supporting Documentation and Final Questionnaire

Letter to Head Teachers of special schools, following telephone conversation

Dear

Post-Graduate Research: An Investigation into 'Structured Teaching' (TEACCH) for Children on the Autism Spectrum who Attend Special Schools

Further to our conversation, I would like to thank you for agreeing to xxxxxxx participating in this research project. Please find enclosed copies of an information leaflet outlining the aims of the research, an ethical statement which indicates procedures in place to ensure the research is undertaken in accordance with British Educational Research Association (BERA) Code of Ethics, the questionnaire and consent forms.

I am delighted that staff from xxxxxxx are able to participate in this research, initially through the completion of a questionnaire. The questionnaire is intended to be completed by any teacher or teaching assistant who has regular, direct contact with pupil(s) on the autism spectrum – this includes both autism specific classes and classes of children with varying SEN. Participants are asked to complete the questionnaire and consent form and place in the envelope provided and I have also included a consent form for you to sign please. I will collect completed questionnaires and consent forms when I come to school for the focus group on July 1st. Please do not hesitate to contact me if you have any queries about the research.

Thank you for supporting this research and I look forward to working with you and your staff as the project progresses. Please contact me to discuss any training or classroom consultancy that would be helpful to you and your staff as I would like to offer my services as a means of thanking the school for its support.

Yours sincerely

Marie Howley
Senior Lecturer: SEN and Inclusion
Tel 01604 892761
Marie.howley@northampton.ac.uk

Information Leaflet

An Investigation into 'Structured Teaching' (TEACCH) for Pupils on the Autism Spectrum who attend Special Schools

Marie Howley

Who is conducting the research?

I am undertaking this research as part of postgraduate research study, leading to PhD, supervised by Professor Richard Rose, School of Education, University of Northampton. The research focuses upon my particular interest in aspects of classroom practice and children on the autism spectrum who attend special schools. Since the introduction of 'TEACCH', and more specifically 'Structured Teaching', into Northamptonshire in 1990 many aspects of the approach have become embedded in practices for teaching children on the autism spectrum. However there is, to date, little research evidence which systematically explores the impact of the approach. In addition, as schools are encouraged to become eclectic in their approaches, by combining elements of different approaches, there is little guidance as to how to achieve this successfully.

Research Purpose

The purpose of this research is therefore to:

i) Identify existing understanding and implementation of 'Structured Teaching' strategies for teaching and supporting children on the autism spectrum in special schools.

ii) Determine how 'Structured Teaching' is used within a context of developing eclectic classroom practices.

Definitions - For the purpose of this research

- *Autism spectrum* refers to pupils with a diagnosis of autism, autistic spectrum disorder, Asperger Syndrome

- *Structured Teaching* refers to: physical structure, schedules, work systems and visual directions as advocated by TEACCH

Research Questions

At this stage, the following research questions have been identified:

- What has been the impact of 'TEACCH' training upon special schools in one local authority in the UK?
- How are Structured Teaching strategies being implemented?
- What do teachers, teaching assistants and other stakeholders identify individuals are learning through the use of Structured Teaching?
- What other approaches are schools using to teach/support children who are on the autism spectrum?

How will information be gathered?
Information will be gathered using a variety of methods including:

First...
- An initial questionnaire to survey use of approaches in special schools (enclosed)

Then...
- Interviews with autism provision coordinators, classroom teachers and teaching assistants to explore particular themes in greater depth
- Collection of the views of parents and children
- Consideration of relevant documentation
- Observations in classrooms

Finally...
Participants in the research will include staff working in special schools who have direct contact with pupil with autism, parents and pupils.

All information gathered as part of the research will be subject to a code of ethics and will be treated in the strictest confidence. The code of ethics enclosed informs you of storage of data, confidentiality and your right to withdraw at any time.

I do hope that you feel able to contribute to this research as I believe that there is a wealth of experience in teaching pupils who are on the autism spectrum in Northamptonshire; it is intended that this research will provide a systematic exploration of practices in order to generate guidance and exemplars of good practice for wider dissemination. Your contribution will greatly assist in developing guidance for schools in establishing a framework for eclectic practice for pupils who are on the autism spectrum.

Your contribution is greatly valued, thank you.

If you require any further information, please contact me at:

Marie Howley
Senior Lecturer
CESNER
School of Education
University of Northampton
Park Campus
Boughton Green Road
Northampton NN2 7AL

Telephone: 01604 892761

Email: marie.howley@northampton.ac.uk

Code of Ethics

An Investigation into 'Structured Teaching' for Pupils on the Autism Spectrum who attend Special Schools

Marie Howley

Code of Ethics

This Code of Ethics will govern the conduct of the research project and will be adhered to at all times. The code of ethics is subject to scrutiny and approval by the School of Education Research and Knowledge Transfer Committee (SERKT) at the University of Northampton.

This Code is informed by the principles established in the Revised Ethical Guidelines for Educational Research (2004) issued by the British Educational Research Association (BERA)

Confidentiality and anonymity
The researcher recognises the rights of all professional colleagues, parents/carers and children who participate in the research to have their confidentiality protected at all times. Pseudonyms will be used in the written report. The researchers will protect the sources of information gathered from interviews, observations and other data collection methods.

Personal details will be kept confidential and separate from the data, and stored in a locked filing cabinet or password protected computer. Participants will be informed that their personal details will only be kept for the sole purpose of the research and will be destroyed 12 months after the completion of the research. All data will be stored securely.

Consent
Voluntary informed consent will be sought before any questionnaires and interviews are conducted with any respondent as part of the research process. In the case of children this consent will be sought through schools and parents/carers and obtained in writing. Participants will be informed of the aims and nature of the research by an information sheet.

Right to withdraw
All participants in the research (including children) will be informed of their right to withdraw from the process at any time and their record of participation will be destroyed.

Contact details of the researcher will be provided for participants to obtain further information.

Vulnerable groups: safeguarding and protecting

The researcher will work in accordance with Articles 3 and 12 of the United Nations Convention on the Rights of the Child and will ensure that the best interest of children is served at all times. Where appropriate, children will be facilitated to give informed consent in addition to the consent given by parents or carers. Children will be presented with information in an 'autism friendly' way (e.g. using visual supports, comic-strip conversations) in order to provide opportunities for them to communicate their willingness, or not, to take part. Familiar adults will collect data from children and will be instructed to cease the process if a child shows any signs of unwillingness to take part or anxiety. A protocol for gathering data from children will be devised to ensure parity between data gatherers, both in relation to processes of gathering data and in safeguarding children.

Feedback and Dissemination
The researcher is under an obligation to describe accurately, truthfully and fairly any information obtained during the course of the research.

There is an obligation to incorporate accurately data collected during the course of this research into the text of any report or other publication related to the research, and to ensure that individual opinions and perceptions are not misrepresented.

All participants taking part in the interview study will be sent a copy of the transcription to check it is an accurate representation of their narrative.

All participants will be given the opportunity to receive feedback on the results of the studies. Findings will be presented in accessible formats for all participants, including children.

Consent form

<u>An Investigation into 'Structured Teaching' (TEACCH) for Pupils on the Autism Spectrum who attend Special Schools</u>   Marie Howley

I have read the information leaflet and ethical code provided and have been informed of the purpose of the research. I am aware that I can withdraw from the research at any time and that all responses will be treated in the strictest confidence.

I agree to participate in this research study.

Signature: **Date:**

Name:

School:

Final Questionnaire

<u>An Investigation into 'Structured Teaching' (TEACCH) for Pupils on the Autism Spectrum who attend Special Schools</u>

Definitions - For the purpose of this research:

- *Autism spectrum* refers to pupils who have a diagnosis of autism, autism spectrum disorder or Asperger Syndrome

- *Structured Teaching* refers to: physical structure, schedules, work systems and visual directions as advocated by TEACCH

Since the introduction of 'TEACCH', and more specifically 'Structured Teaching', many aspects of the approach have become embedded in practices for teaching pupils on the autism spectrum. The purpose of this research is: i) to identify existing understanding and implementation of 'Structured Teaching' strategies for teaching pupils on the autism spectrum in special school settings and ii) as schools increasingly use a mix of approaches, to determine how 'Structured Teaching' is used within a context of 'eclectic' classroom practices. The research will produce guidance and exemplars of good practice.

This questionnaire is intended to be completed by *autism provision co-ordinators/managers, teachers and teaching assistants* who teach and support a pupil/pupils who are on the autism spectrum in special school settings. The questionnaire takes approximately 15 minutes to complete.

Responses will be treated in the strictest confidence. The research abides by an ethical code which is enclosed for your information, together with an information leaflet about the first stage of the research. *Please place the completed questionnaire and consent form in the envelope provided by* <u>25th June 2010</u>; *envelopes will be collected week beginning 28th June 2010*

Marie Howley
Senior Lecturer
School of Education
University of Northampton
Boughton Green Road
Northampton NN2 7AL

If you have any questions, please contact me at the address above, or telephone 01604 892761, or email marie.howley@northampton.ac.uk
THANK YOU

Section A: School Information

1a) School phase (√ all which apply)

- o Primary ☐
- o Secondary ☐
- o All age ☐
- o Residential ☐

2a) Position of person completing this questionnaire (√ all which apply)

- o Autism co-ordinator or manager ☐
- o Class teacher ☐
- o Teaching assistant ☐

Other (please specify)

2b) <u>How many years</u> have you taught or supported pupils on the autism spectrum? (please √)

- o Less than 1 ☐
- o 1 - 5 ☐
- o 6 – 10 ☐
- o More than 10 ☐

3a) Please indicate year group(s) of pupils in your class:

3b) Number of pupils in the class

Boys   ☐   Girls   ☐

3c) Number of pupils in the class who are on the autism spectrum

Boys   ☐   Girls   ☐

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Section B: Structured Teaching: TEACCH Training

4a) Please indicate TEACCH and/or 'Structured Teaching' training you have attended; please √ all that apply in relevant year box(es)

	1990 - 1995	**1996 - 2000**	**2001 - 2005**	**2006 - 2010**
In-service training				
Initial Teacher Training (e.g. workshop)				
Training as part of accredited courses provided by University				
Introduction to TEACCH (Local Authority – e.g. NIAS twilights)				
Introduction to TEACCH (Autism Societies e.g. National Autistic Society, Northants Society for Autism)				
Division TEACCH 3 day seminar				
Division TEACCH 5 day hands- on workshop				
Division TEACCH advanced				

Other (please specify)

4b) Are you a TEACCH trainer?   YES ☐   **NO** ☐

Section C: Structured Teaching – classroom strategies

5) Please indicate if you use any of the following components of Structured Teaching with <u>pupils who are on the autism spectrum</u>: (√ all which apply)

	Do not use	Occasionally use	Use often	Always use	Not sure
Physical structure	☐	☐	☐	☐	☐
Schedules (visual timetables)	☐	☐	☐	☐	☐
Work systems	☐	☐	☐	☐	☐
Visual information (visual organisation, clarity and instructions)	☐	☐	☐	☐	☐

Please give examples of how you use any of the above components:

6a) *'Structured Teaching helps pupils who are on the autism spectrum to learn'*

Please rate your level of agreement with this statement by circling the relevant item:

Strongly agree   Agree   Don't know   Disagree   Strongly disagree

6b) *'Structured Teaching helps pupils who are on the autism spectrum to learn'*

Please rate your level of agreement with this statement for each of the learning areas below. Please √ all which apply:

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Communication and literacy skills					
Mathematical and number skills					
ICT capability					
Social skills					
Working with others					
Reflecting on learning skills					
Problem solving and decision making skills					
Study and organisational skills					
Personal and emotional skills					

6c) In your opinion, in what way(s) does Structured Teaching help pupils on the autism spectrum to learn?

7a) 'Structured Teaching helps to manage the behaviour of pupils who are on the autism spectrum'

Please rate your level of agreement with this statement by circling the relevant item:

Strongly agree   Agree   Don't know   Disagree   Strongly disagree

7b) In your opinion, how does Structured Teaching help to manage behaviour?

8a) Have you attended training in any of the following? (√ all which apply):

1. Alternative communication systems e.g. Picture Exchange Communication System (PECS)	
2. Behavioural strategies e.g. task analysis, backward chaining, errorless learning	
3. Play therapy	
4. Intensive Interaction	
5. Music interaction	
6. Social skills groups	
7. Jig-Saw approach to group work	
8. Social Stories or Articles	
9. Comic-strip Conversations	
10. Buddy systems	
11. Circle of Friends	

Other (please specify)

8b) Do you combine Structured Teaching with any of the above approaches? Please indicate which approaches by inserting the appropriate number, e.g. if you combine Structured Teaching with Intensive Interaction, write 4 in the box below:

8c) If you combine approaches how is a particular combination for a pupil decided?

9) Do you have any other comments relevant to this research?

10) Finally, would you be willing to contribute further to this research (e.g. interview)?   Yes ☐ No ☐

If you have answered 'Yes' to question 10, please provide your contact details below; your responses will be treated in the strictest confidence.

Thank you for your contribution, it is greatly appreciated.

Appendix 14 Follow up letter to Head Teachers of Special Schools

Dear

Post-Graduate Research: An Investigation into 'Structured Teaching' (TEACCH) for Children on the Autism Spectrum who Attend Special Schools

I would like to thank you and your staff for taking the time to complete my initial questionnaire. I have received a total of 9 questionnaires from xxxxxxx; if there are any additional completed questionnaires still in school, would you please let me know and I will arrange to collect them.

I will be analysing the data over the coming weeks and using this to plan the next stage in data collection. Some members of staff have indicated their willingness to take part in future data collection, for which I am very grateful; I will contact individuals towards the end of the Autumn term to make arrangements for interviews.

Please find enclosed a consent form and some questions about numbers of staff who have regular direct contact with pupils on the autism spectrum; I would be grateful if you would complete the details required and return to me in the enclosed SAE.

Once again, many thanks to you and your staff and I hope that you all a have a lovely summer break.

Yours sincerely

Marie Howley
Senior Lecturer: SEN and Inclusion
Tel 01604 892761
Marie.howley@northampton.ac.uk

Appendix 15 Questionnaire codes (presented in the order in which they arose)

E Make sense of environment
U Increase understanding
PI Process information
A Reduce anxiety
AS anxiety/stress
RD Limits distractions/reduce over-stimulation
O Organisation organise tasks clarity of tasks organise day
UE understand expectations
D Differentiation V
I Independence
SE self-esteem
CN Reduces confrontation
B behaviour
S feeling safe
CR calm relaxed
R routines
CD change/difference
BN boundaries
Is instructions
INF information
RP repetition
ST structure
SK skills
EG engagement
CA complete activities
PT predict
F flexibility
C control
M motivation
LO learning opportunities
CURR curriculum
SB subjects
R rules
CM communication choices needs
EM emotion
RL readiness to learn
AC access
ST structure
SS social skills
CY consistency
CH choice
MG meaning

Appendix 16 Structured Teaching examples

Code	Physical structure	Examples
E	Defined areas: furniture	Screens, furniture to 'create defined areas in the classroom'
E RD		Work station routine area' independent work areas low-stim work areas
E SB S CR BN ST RD	Defined areas	Literacy, numeracy and other curriculum areas. Chill out area Snack area Group area Quiet area Different areas of classroom used for specific activities. Clear work/leisure boundaries. The classroom is set out in areas, e.g. work, circle time, play area, using screens, book cases, drawer units furniture set the same all the time, pupils bring own chair to circle time area Defined areas using screens and furniture clearly defined and labelled areas Work stations, one to one work tables allocated areas for activities Walls are mainly clear – no jumble for pupils to see.

Code	Schedules	Examples
CM, ST A O DV	Individual schedules	Rebus/pcs coloured symbols/words First...then All day Written Daily schedule Individual mini schedules Smaller individual schedules; break down activities into first then Schedule for stressful times e.g. assembly Schedules at all work stations every child has a daily schedule and use either objects, symbols, photographs or words only 1 pupil has an individual schedule (words) The whole class is set up so each child follows an individual schedule individual work bays with schedules One pupil on individual written schedule Each pupil on the spectrum has their own workstation and visual timetable. The school day is put up in symbols and each change in the curriculum involves pupils checking their schedule and posting their symbols in the appropriate box. One pupil has a written schedule which he ticks when completed. We use schedules to show the whole days lessons etc. Some of our ch need symbols and words and some are just words.
O OD	Class schedule	Large/symbol

OT OD R		Class timetable Class schedule throughout day Large class schedule Class timetable Visual class schedule always up Daily visual timetable Visual timetable (including in integration with mainstream nursery) Whole class schedule for each activity each day at circle time we say 'hello' and go through the daily timetable with coloured symbol' other pupils use whole class symbol timetable for the day large symbols per class schedule Class schedule (large cards) Visual timetables (Whole class timetable on a day to day basis)
I CD	Weekly	The pupil makes own weekly diary each Monday showing main activities and any changes to schedule.
OT	Mini schedules	Mini schedules for tasks within curriculum. Half day widget symbol schedule, top down with moveable arrow. If any of our ch are behaving inappropriately, we show them a mini schedule, so they can see where they should be and what they should be doing. Mini-strips for outside the classroom
OD	First, next	First next cards First/then board Now and next
I CM I	Transition	Carry transition cards to destination Symbols (PECS) for total communication and movement around school (specific pupil)
OD	Timetable	Timetable with schedule cards Schedules to structure day every day other pupils use whole class symbol timetable for the day daily timetable
WB CD	Portable schedules	Portable for going out/doing something different
Code	**Work systems**	**Examples**
I O CH	Independent work station with system	Picture/number system/ left to right Own work area but will not allow pictures/symbols near him Work system during independent work Individual work table. Shared in pairs, facing each other working L-R, in and out place for work. Ch have own work stations. In work stations ch work through 2 – 5 trays each containing an activity, working from left to right and using a finish tray. Left to right system with 3 tasks and large finish box Individual work stations for working on own. Specified work station for 1:1 teaching. Short work sessions then choose
LB I O	Independent work station with system	they all have individual work stations that are used daily Each child has an individual work station using

Code		Examples
		pictures/numbers to match tasks, ch work left to right individual work bays with schedules
		Each pupil on the spectrum has their own workstation and visual timetable. Within the work bay the pupil has a coloured work system for individual independent tasks.
O CH	Work system	Each child has an individual work station using pictures/numbers to match tasks, ch work left to right organised and structured tasks work system every day in work stations doing work independently, from trays moving work to finished tray Work choose Reward work with a choice of toy.
Code	**Visual information**	**Examples**
CH EM CM	Communication	Choose board Emotions and feelings board Cues cards to indicate needs Communication card/book to communicate feelings PECS used throughout the day – individual and group work. symbols (PECS) for total communication and movement around school
B INF CURR CH B SS CURR	Visual cues	Quiet, sitting Visual cues cards for behaviour Class/room signs; photos of staff Symbols and writing visual cards to support all pupils throughout the day. They vary on individual needs, so some photos, some symbols, some written etc. Visual for assemblies Visual reminders about making the right choices etc (traffic lights & personal versions) Class photos when taking turns in games/computer time. Visual information around school, in lessons at all times.
CM	Labelled resources	Symbols/words
CM DV IS	Visual instructions	WWS, communication in print, instructions/worksheets Structured lessons with visual support Instructions for various activities e.g. cooking some visual instructions (based on SCERTS) models to support learning Written instructions, reminders Visual symbol instructions to carry out a variety of tasks
Cm	Communication	Feelings/emotions cards symbols using rebus for PECS Choose boards Feelings boards PECS, choose boards Feelings/emotions cards For group work one pupil has visual information provided wherever possible in clear concise language appropriate for his level of comprehension. We encourage our ch to take their PECS books about with them, so that if they have a worry or problem

		they have got the opportunity to go through their book and hopefully find a symbol or word that will help us understand what they are struggling with. Clear instructions, keep to minimum of words and as simple as possible.
DV Cm	Visual cues	quiet symbols are used Symbol cards
TS Is DV	Visual instructions	worksheets and instructions are made using WWS (writing with symbols) Each child has an individual work station using pictures/numbers to match tasks, ch work left to right For group work one pupil has visual information provided wherever possible in clear concise language appropriate for his level of comprehension. Clear instructions, keep to minimum of words and as simple as possible. visual instructions i.e. maps, jigs, symbol cards
	Routines	
R LB CURR		Group activities have a routine element e.g. song, simple repetitive language. Physical activity e.g. dance at regular intervals throughout the day. each day at circle time we say 'hello' and go through the daily timetable with coloured symbols

Appendix 17 Questionnaire themes and categories

Teaching and Learning	Learning behaviours	Behaviour Wellbeing
U Understanding	**EG engagement** focus, concentration	**NIS negative inner states**
UE understand expectations		A Anxiety/stress
MG meaning	**O Organisation**	F Frustration
	OT organised tasks	CN confrontation
TS Teaching strategies	OD organise day	OL overload
DV Differentiation (visual)	OS organisational skills	
IS instructions	R routines	**PIS positive inner states**
P prompting	F flexibility	SE self esteem
RF reinforcement		S feeling safe
RP repetition	**E Learning environment**	CR calm relaxed
RS rules	E Make sense of environment	RL readiness to learn
CY consistency	RD Reduce distractions/reduce over-stimulation	Conf Confidence
		M motivated
CU Curriculum	BN boundaries	SI special interests
SB subjects		
LO learning opportunities		**AU autonomy**
SK skills		UE (B) understand what is expected/acceptable behaviour
SH self-help skills		CL Control
SSK social skills		CM Communication
		CH choice
		I Independence
		TN transitions
		CP Coping strategies
		IB improved behaviours
		RB reduce behaviours
		BS behaviour strategies

Appendix 18 Combining approaches: Decisions

Decision	School/respondent code	Reasons for decisions
Individual need	AT3	'needs basis'
	A T5	'dependent on need'
	B T10	'combinations depend on the needs of the pupil'
	B T2	'according to need of individual child, their learning styles...'
	B T3	'level of communication skills... emotional needs... cognitive skills'
	D T1	'according to need.'
	E T2	'Based upon individual need, looking at what is right for that particular child. Differentiating the approach/approaches to suit the child. All the time bearing in mind that "when you've met 1 child with autism... you've met 1 child with autism!'
Assessment	D T11	'Due to individual needs and requirements'
	B T5	Introduce approach & assessment of results
	B T7	Through assessment information gathering about the ch, what has been successful, what has caused anxiety, where the ch is developmentally, what their motivators are etc.
	E TA1	'observation'
Others who are involved in making decisions		
Parents	A TA3	'I work with parents...'
	D TA3	'discussion with parents' 'annual reviews'
	D TA10	'through consultation with staff and parents'
Other adults in school	A TA8	'With the senior leadership team responsible for behaviour/autism, class teacher, speech and language therapist.'

External agencies	A TA8	'For work systems and schedule, for self-help skills, group activities I implement these in conjunction with class teacher.' RGTA8
	C TA1	'Discussion with teacher, other LSAs who work with and any other professionals involved'
	C TA1	'May be in consultation with speech therapist, decided by class teacher.'
	E TA1	'advice from other professionals'
	D TA8	'staff meetings' 'annual reviews'
	D TA9	'By adopting an approach which is individualised to the students needs, I am able to observe the student and discuss with staff team which approaches to include'

Appendix 19
Extract: Observation template *with Robson's (2002) observation dimensions*

School B Case 3		**Date:** 15.3.12
Observation focus *(Event & goals)* Use of structure: schedules, work systems and tasks Transitions, independence and choice **Adults** *(Actors)* Class teacher, TAs 1 & 2 **Children** *(Actors)* A, C, D, E, F (Absent B & G)		
Times AM	**Narrative observations** *(activities, objects, acts, goals, feelings)*	**Codes**
9.00 – 9.05	Morning routine underway when I arrive. Children C, E & F working independently at work bay. Children A & D working one to one with TAs 1 & 2. A and TA 1 at group table, D and TA 2 at work bay in corner of class. Teacher moves around work bays, observing children as they complete tasks. Note all 3 are independent: locate work using work system, complete tasks which are mainly matching literacy and numeracy, place finished work on shelf. All 3 are engaged and on task when I arrive.	R I *OBS* I, OT, OS SK OS, EG *ONT*
9.05 – 9.08	Child F becomes distracted by my presence, carries on with task but keeps looking over to me. Repetitive phrases "when is she going? How long is she here?" Teacher introduces me to child F who then continues with tasks.	*DIS* CM A?
	Child A finishes work with TA 1 and told to "check schedule". A goes to schedule independently, takes symbol card and transitions independently to play/quiet area. Comes out after few seconds and approaches me, touches my knees, wanders away and around classroom. Lies on floor in quiet area.	CA, IS I TN, E DIS ?? *OFT*
9.10 - 9.15	Child C completes tasks independently, checks schedule and transitions to work with TA 1.	I, ST TN
	Child E stands at work bay. Prompted by TA 2 to sit, sits down and completes tasks, uses number work system. 1. Picture/word matching (nouns), 2. Inset puzzle (transport), 3. Picture/word matching (adjectives), 4. Inset puzzle (toys). TA 2 verbally praises then prompts "finished, now black work". E transitions to group table with prompts from TA 2.	P ST, OT, SK SI P P TN
	Note: TA 2 tells me that "1:1 work is called 'black work' in all of the autism classes to achieve consistency as children move up the school".	CY
	Child F wanders classroom after completing work. No follow on activity. Teacher verbally prompts to black work.	DIS P

(Space and objects recorded on class room layout)

Appendix 20 Extract: Amended observation template

School A, case 1		**Date: 30.3.12**
Observation focus: swimming		
Adults: Teacher, TAs 1 & 2		
Children: A, B, C, D ,E, F, G, H (whole class)		

Times AM	Narrative observations	Code	Th	Memos
9.30	Children enter pool one at a time, teacher and 1 TA in pool, teacher calls each child's name. Calm, low arousal, no anxieties.	CR LA, UE (B)	WB TL (E)	Note ch. RL
	Visual instructions – symbols and words - referred to as the schedule by the class teacher, presented in a left-to-right sequence (reading direction) and provide the instructions for each step in the lesson: sing with hoop; splash feet; push ball with nose; blow egg flip; blow bubbles; push and glide; pick up sinker; choose water toy. These are referred to frequently by the teacher who uses concise accompanying phrases to communicate with the class, e.g.., "splashing feet finished, now time for swimming", "next on schedule, push a ball with your nose" , "sinkers and then it's choose time".	DV, IS, SCH, SYS IS R RP CM	TL (TS)	Routines & rules in lesson, familiar to ch. Check adults' perceptions of R & RS Compare with IS in classroom
	Children splash feet until teacher says "splashing feet finished, now time for swimming", points to schedule. Children allowed to move around in the water, no instructions at this stage. Adults move between children, but no directions. After 5 mins, TA on pool side collects small balls and gives one to each child. Teacher demonstrates "push ball with nose". Children copy. Child-led interaction * Teacher and child F push ball with nose back and forth to each other' F splashes and looks at teacher, teacher splashes then pauses, looking at F; F laughs and splashes; F stops splashing and looks at teacher, teacher splashes and says "ready, steady, splash"; teacher stops splashing and says "ready, steady... pauses, looks at F; F laughs and splashes when teacher says "go". Interaction continues for aprox one minute then F moves away.	CM, R, SCH, R CH MD CHL II R Cm Rel	TL (TS) CU	Check for II techniques in other lesson obs. Ask about this in interview.

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Appendix 21 Phase one interview questions and prompts

Main questions	Prompts
I am interested in how you and your team use Structured Teaching approaches with your class. Could you explain which aspects you use and give examples of how you use them?	Ask about each component if not raised by T
Which of these do you believe to be most useful and why?	
How do you think ST impacts children's behaviour?	• Why? • Which components do you think are most important to manage behaviour?
I am also interested in how ST supports learning – how do you use ST to support learning?	• Which components support learning? Why? • How does ST teach learning behaviours? • Learning – individuals; groups • Are there any particular subjects that you use ST to support learning? • What outcomes have you seen for children as a result of using ST?
I am interested in how decisions are made about ST strategies for individual children – how do you decide which components to use for individuals?	What do you take into consideration to inform decision-making?
I am interested in tasks presented in work systems – how do you decide on tasks for individuals?	• How is progress with tasks monitored? • Are tasks linked to IEP (or other) targets? • How do you decide when to add new tasks?
Finally, what other approaches are you using alongside ST?	No prompts at this stage – next interview

Appendix 22 Phase one interview: additional probe questions

- What do you think are the most important outcomes for the children?
- Why are these important?
- Do you think ST impacts children's 'well-being' and if so, in what ways?
- What aspects of wellbeing do you see as the most important? Why?
- I noticed that children do not always check their schedules. Are there any particular reasons for this?
- I noticed that you use ST strategies during whole class lessons. In what ways does this impact learning?
- What would you say are the most effective ST strategies in relation to children's wellbeing?

- Who makes decisions about ST strategies? Who is involved in making those decisions?

Appendix 23 Phase two interview questions and prompts

I have observed a variety of strategies being used in your classroom, can you tell me a bit about these?	• Prompt with particular approaches which have been observed if not mentioned by interviewee
Which do you think work well together and why?	• Can you give an example
What are the benefits of these approaches?	• Can you give an example for one of the children?
Which, if any, of the strategies support children's learning?	• Can you give an example for one of the children?
Which, if any, of these strategies support children's wellbeing?	• Can you give an example for one of the children?
I'm interested in your XXX approach and wondered if you could tell me what the benefits are to children who take part in those XXX sessions?	• Can you give an example of the benefit for one of the children?
Are there any challenges or conflicts in making use of a variety of strategies?	• Why do these strategies conflict? • Are there any strategies you would not use? Why not?
How do you decide which combination of strategies to use for individual children?	• Who is involved in decisions?
What do you think are the most important outcomes for children when using these strategies?	• Ask about learning, behaviour and wellbeing if not mentioned.

Appendix 24 Observations and interview codes and categories

Structured Teaching strategies	Combined approaches
PS physical structure SCH schedules VTT visual timetables PTT portable timetable SYM symbols WSYS work system NSYS number system FSYS filing system PIC pictures PH photos WD word WT written WS work station LB Labelling LCG limit change COMB combined BS base WK work ACT activities LE leisure RL real-life	SENS sensory PECS II intensive interaction PB play-buddies REL relationship approaches INT (interaction approach) SH Sherborne movement SS social stories

Teaching and Learning	Wellbeing	Decisions
U Understanding UE understand Expectations MG meaning Cm communication	**NIS negative inner states** A Anxiety/stress F Frustration CN confrontation OL overload OS over stimulated	KN know (child) ID individuals INTU intuitive TE trial and error
TS Teaching strategies DV Differentiation (visual) Cm communication IS instructions P prompting RF reinforcement RP repetition RS rules CY consistency Md models	**PIS positive inner states** SE self esteem S feeling safe CR calm relaxed RL readiness to learn Conf Confidence M motivated SI special interests	CHL child-led OBS observe (child) AST assessment COLL collaborative CHF child-focussed

CU Curriculum	AU autonomy	
SB subjects	SA self awareness	
LO learning opportunities	AO awareness of others	
SK skills	UE (B) understand what is expected/acceptable behaviour	
MT matching		
RC recognising		
PR progression		
INC incremental (progression)	CL Control	
PST posting	CM Communication	
SH self-help skills	CH choice	
SSK social skills	I	
SH Sharing	Independence	
GP group	TN transitions	
REL relationships	CP Coping strategies	
	IB improved behaviours	
	RB reduce behaviours	
Learning behaviours	BS behaviour strategies	
EG engagement focus, concentration	TH thinking	
	A ability	
O Organisation	SC success	
	F flexibility	
OT organised tasks	RSK take risks	
OD organise day	ID individuals	
OS organisational skills		
R routines		
E Learning environment		
E Make sense of environment		
RD Reduce distractions/reduce over-stimulation		
LA low arousal		
BN boundaries		

Appendix 25 Case study one: Interviews and observations

Teachers		Teaching assistants	
Interview 1 focus: structure:	50 minutes	One group interview:	40 minutes
Interview 2 focus: other approaches: 50 minutes		Informal conversations during classroom & outside observations	

Observation term and length	Context	Focus
Term 1: *Structured Teaching* 60 mins	Structured independent work	Structured Teaching in place for each child: • Classroom plan & physical structure • Schedules • Work systems • Visual information
30 mins	Structured independent work	• Schedules • Work systems • Visual information
Term 2 *Structured Teaching & other approaches*		
30mins	Morning arrival Independent work	Routines Use of structure by individual children: learning & behaviour Sensory regulation strategies, individual children
30mins	Swimming	Structure Visual information Visual communication
20mins	Independent work	Use of structure by individual children on return from swimming; learning & behaviour
Term 3 *Structured Teaching & other approaches*		
15 mins	Sensory circuit	Use of sensory circuit on morning arrival
20mins	Circle time	Routine & structure Communication
20 mins	Snack & transition to outside play	Communication & structure
20mins	Independent work	Use of work system, independent tasks, visual cues Sensory regulation

	One-to one teaching	Literacy & numeracy
20mins	Afternoon routine	Routine, visual cues, communication
15mins	PE & interaction	Whole class activities: parachute, songs & movement
30mins	PE & interaction	Communication & interaction, sensory, emotional regulation
	Outside sensory circuit	Sensory circuit
	One to one Sherborne movement inside	Communication, relationships, visual communication
15mins	Snack	Communication & interaction, visual supports
Term 4	Independent work	Structure: schedules, work systems and visual cues

Appendix 26 Case study one: Structured Teaching components

Structured Teaching component	Types of strategies	Contexts
Physical structure *See appendix 26 for classroom layout*	• Individual work bays • Shared work space • Shelves to locate work and place finished work • Teaching table • Group table • Whole class teaching area • Sensory room adjacent to main class • Smart board	Classroom
Schedules	• Class schedule symbol/word Individual schedules: • Symbol/word • Written • First… then • Portable first… then cards	Throughout activities during all observations.
Work systems	• Left to right, finished shelf • Matching systems: colours, pictures, numbers • Shared work space; labelled drawers to return finished work • Written work system	Independent work
Visual information	• Visual cues: symbol/word • Visually structured tasks: organisation and clarity • Visual instructions • Visual communication	Independent work Teaching one to one, group and class lessons Routines Snack Visual cues placed around classroom and school building

During each observation period, observations of Structured Teaching components were recorded in order to determine which components of the approach are used (research question 1) and in what types of context (research question 2). Appendix 25 summarises the Structured Teaching components observed over the course of four school terms and demonstrates use of each component as determined by the TEACCH approach (Mesibov *et al.,* 2005). Key

features of Structured Teaching strategies used in this class are summarised for each component (appendix 25).

Physical structure

Each child has a named work bay; one work bay is shared by two children at different times of the day. Work bays are divided by screens to reduce distractions (see appendix 26).

Schedules

Schedules are provided for all children; schedules are presented according to understanding with 5 children using a top to bottom symbol/word schedule, two children using a written schedule and 1 child using 'first…then' board. Transition to schedules is verbal and children remove activities which are finished, whilst two children cross off activities on a written list. A symbol/word class schedule is displayed on a wall which is referred to during whole class teaching.

Work systems

Matching work systems are used by five children, two children use a 'to do' list and collect and return finished work to drawer, one child is learning to use a left to right system with TA sitting on left and handing child tasks. Table 8.1 summarises the schedule and work system for each individual child.

Summary of schedule and work system for each child

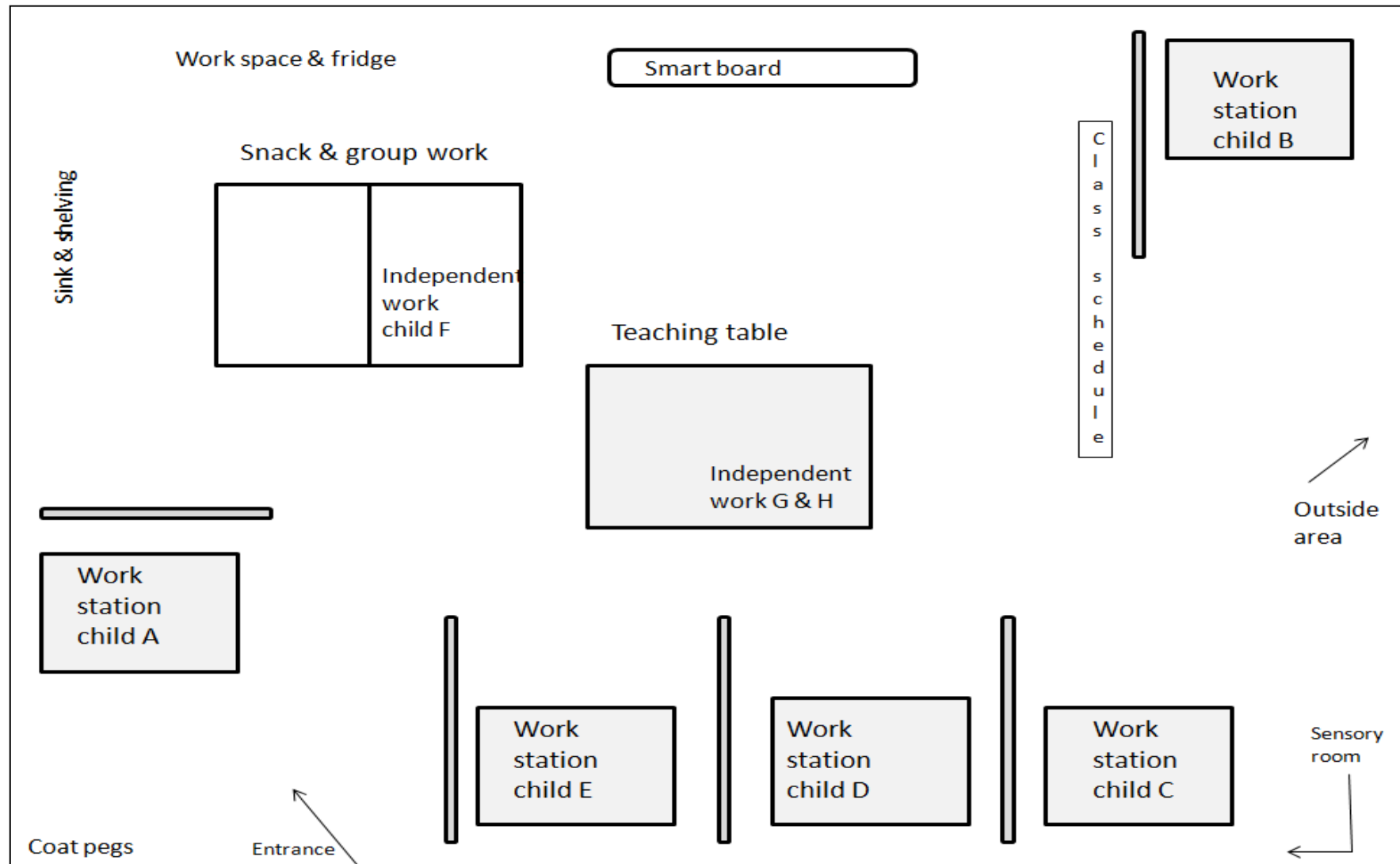| Child	Schedule	Work system
Child A female	First… then symbols	Learning left to right system
Child B female	Symbol/word	Matching
Child C male	Symbol/word	Matching
Child D male	Symbol/word	Matching
Child E female	Symbol/word	Matching
Child F male	Symbol/word	Matching
Child G male	Written schedule	To do list; folders; collect work from labelled drawer and return when finished
Child H male	Written schedule	To do list; folders; collect work from labelled drawer and return when finished

Visual information

A wide variety of visual cues using pictures, words and symbols are used within the classroom and throughout the school building. Visual information and cues are included as part of Structure Teaching. Visual cues are used during group and class activities, during routines such as 'hello' time and within taught lessons. During these routine activities, a

variety of visual communication cues are used to support the activity, for example during the morning greeting children talk through the class timetable, toady's weather and identify 'class jobs', all of which are supported with visual cues.

Independent work tasks are visually structured so that, for some children, the instructions for how to approach a task are evident in the organisation of the task materials. Visual instructions are included in some tasks and during group and whole class teaching. Visual cues and supports are evident throughout the classroom, available for children to use at all times (see appendix 28).

Appendix 27 Case study one: Classroom Layout

 screen/schedule/shelf

Work space & fridge

Smart board

Snack & group work

Sink & shelving

Independent work child F

Class schedule

Work station child B

Teaching table

Independent work G & H

Outside area

Work station child A

Work station child E

Work station child D

Work station child C

Sensory room

Coat pegs

Entrance

Appendix 28 Case study one: visual cues and supports

Visual cues and supports around the classroom

- Visual instructions e.g., washing up instructions
- Visual school rules (written, symbols + positive phrases)
- Visual cues e.g., "I am thirsty" available in snack area
- Line up instructions
- Photos for jobs
- Visual traffic lights: feelings + photos
- Visual sentence strips e.g., on classroom door "please open the door"
- Photo/words lunch menu
- "Tell me" visual cues
- Visual cues for children to self-assess

Visual communication 'morning greeting'

Visual cues for communication	Examples
Symbol/words	Class schedule
Symbols/words	Days of week
Visual highlighter cue	Weekly timetable with visual cue highlighting 'today'
Pictures/symbols/words	Weather
Symbol/word/photographs	Jobs list

Visual communication at snack

Visual cues for communication	Examples
Picture snack menu	Visual snack menu. Communication routine supported with visual cues; adults pause and wait for children to communicate.
PECS book	Some children have PECS books and bring them to table without being prompted
Sentence cards	Sentence cards used to prompt requests e.g., *Xxxx (teacher's name) pour blackcurrant*
Tell me	Tell me boards with symbols to select

Structure and visual communication during swimming lesson

Structure and communication	Examples
Physical structure	Bench to wait and for transitions
Routine	Song routine, links to schedule Routine for getting in pool 1 at a time
Schedule & visual instructions	Symbols/words on wall for all to see, presented left to right
Visual communication strategies	PECS I want Tell me
Visual cues	Resources available in lesson
Behaviour reminders	Symbol/word reminders and pool rules

Appendix 29 Case study two: interviews and observations

Interviews

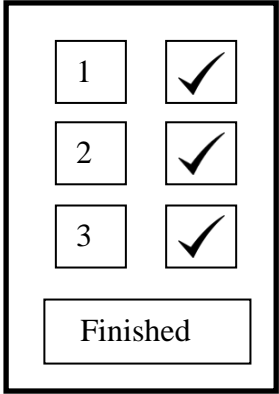| Teacher 1	Teaching assistants
Informal conversations during classroom observations	Informal conversations during classroom & outside observations
Teacher 2	
Interview covering structure and other approaches	

Observations

Observation term and length	Context	Focus
Term 1 *Structured Teaching* 30mins	Morning routine/circle time Structured independent work	Structured Teaching components
Circle time & register AM 15mins	Structure	Routine and visual structure
AM 30mins	Maths	Visual structure
AM 15mins	Snack	Routine, structure, communication
AM 15mins	Outside playtime	
Term 2 *Structured Teaching & other approaches* 30mins	Independent work	Routines Use of structure by individual children; learning & behaviour
30mins	Play-buddies	Structure, visual information Communication & interaction
Term 3		
Term 3 *Structure, other approaches* 20mins	Morning routine	Routine & structure

	Carousel: reading, table-top games, play	Sensory circuit Communication & interaction
15mins	Circle time	Communication & structure
10mins	Getting ready for PE	Routine, visual structure
10 mins	PE warm-up in hall	Routine, structure, communication & interaction, emotional regulation
20 mins	Transition to gym, large apparatus	Routine, structure, communication & interaction, emotional regulation
10mins	Transition to hall Parachute	Routine, structure, communication & interaction, emotional regulation
10mins	Snack	
AM 15mins	Outside playtime	
Term 4 *Structure, other approaches, curriculum*		
20 mins	Morning routine	Routine, visual cues, sensory circuit, emotional regulation, communication & interaction
40mins	Literacy	Visual cues, instructions,
10mins	Rewards Transition to lunch	Visual cues Routine and structure

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Appendix 30 Case study two: Structured Teaching components

Structured Teaching component	Types of strategies	Contexts
Physical structure *See appendix x for classroom layout*	2 individual work bays 1 table facing wall, not screened 5 children work at separate tables but not screened work bays - Drawers to locate work and place finished work - Teaching table & group tables moved during lesson - Whole class teaching area - Curtained quiet area - Smart board - Rocking chair - Walking machine	Classroom
Schedules	Whole class schedule symbol/word No individual schedules	Routines and transitions: morning routine; circle time; introduction to lessons;
Work system used by all children 	Labelled drawers to collect and return work Matching number work system contained in trays and folders	Independent work
Visual information	Visual cues: symbol/word Visual instructions Visual communication	Independent work Teaching one to one, group and whole class lessons Visual cues placed around classroom and school building

Key features of Structured Teaching strategies used in this class are briefly summarised below:

Physical structure

Two children have named work bays which are screened to reduce classroom distractions, one child works at a table facing a wall, but not screens and five children work at individual tables around the classroom (see appendix 30). The classroom structure is changed according to activities. For example, following an independent work session, while children are with the class teacher the TAs move the tables to form small group tables ready for maths lesson. A sensory circuit is incorporated into the classroom as part of morning routine activities. This demonstrates a flexible approach to the physical organisation of the classroom. According to TA 1, a curtained quiet area is used by children who need time to "self-regulate" and "de-escalate".

Schedules

A symbol/word class schedule is displayed on a wall which is referred to during whole class teaching and to discuss the day's timetable. Children do not have nor use individual schedules. The whole class schedule is the main strategy, together with verbal instructions, to provide information about 'what, when and where'. Changes to the whole class timetable are made by adults as needed and children inquire about these changes when they notice them on the schedule. Instructions for transitions between activities are mainly verbal.

Work systems

Children transition independently around there classroom and collect work from named drawers. This includes the two children using screened work bays. Tasks are provided in trays and folders and matching number work systems are include in the trays and folders. These are laminated cards and children tick off finished activities using a dry-wipe pen.

Visual information

Tasks, including worksheets, are visually structured and include symbols and written instructions. A wide variety of visual cues using pictures, symbols and words are used within the classroom and throughout the school building. Visual information and cues are included as part of Structured Teaching and are used during group and whole class teaching, during routines such as 'circle' time and morning sensory circuit. During routine activities, a variety

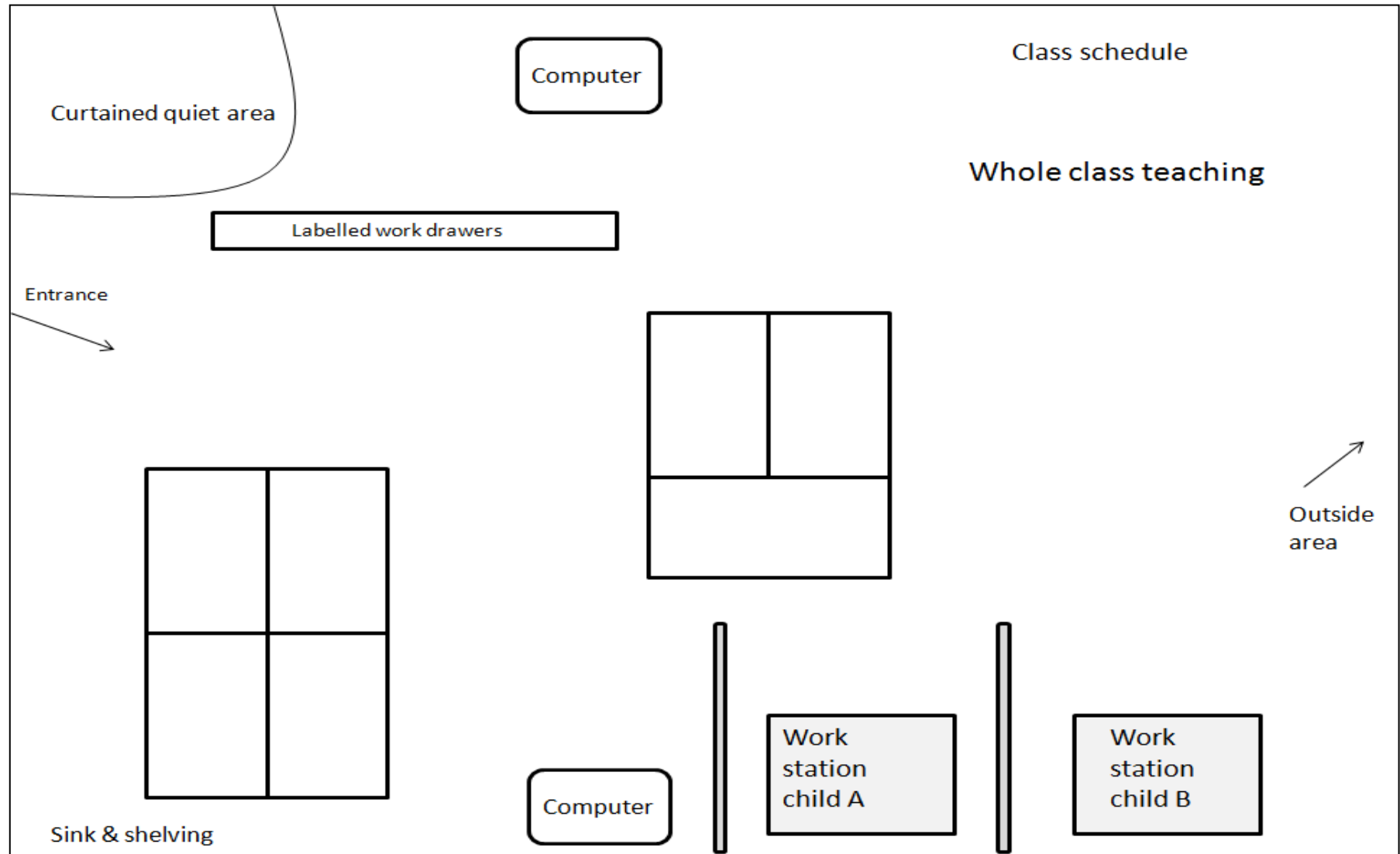of visual communication cues are used to support the activity, for example during the morning greeting children talk through the class timetable, toady's weather and identify 'class jobs' and rewards, all of which are supported with visual cues. Visual cues support class discussions including changes to the timetable and also to discuss emotions at regular intervals throughout the day.

Independent work tasks, small group work and whole class teaching include visual instructions, mainly consisting of symbols and words. Visual cues and supports are evident throughout the classroom and are readily available for children to use at all times; appendix 32 identifies the types of visual information available. Visual instructions include symbols and words which are used to support curriculum lessons.

Appendix 31 Case study two: Classroom Layout

Curtained quiet area

Computer

Class schedule

Whole class teaching

Labelled work drawers

Entrance

Independent work
Child D

Independent work
Child E

Independent work
Child F

Independent work
Child C

Independent work
Child G

Outside area

Independent work
Child H

Independent work
Child I

Computer

Work station child A

Work station child B

Sink & shelving
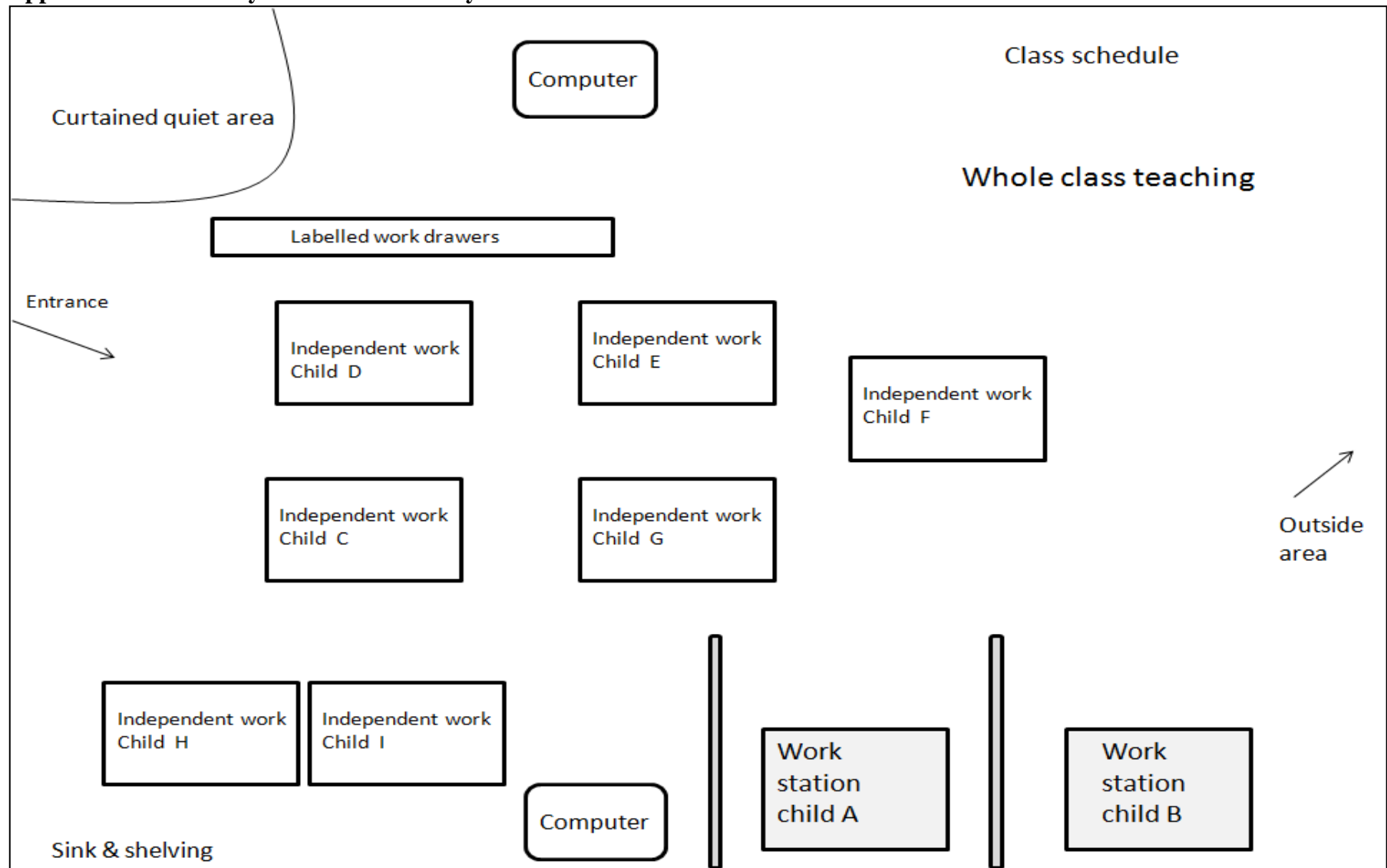
Rearranged layout for group work and snack

Curtained quiet area

Computer

Class schedule

Whole class teaching

Labelled work drawers

Entrance

Outside area

Sink & shelving

Computer

Work station child A

Work station child B

Appendix 32 Case study two: Visual cues and supports

Visual cues around the classroom

- Visual instructions e.g., washing up instructions; cooking instructions
- Visual school rules (written, symbols + positive phrases)
- 'Line up' instructions and visual cues; photos to show line-up order which varies each time the class lines up
- Names and photos for jobs
- Visual cues (symbols/words) to promote positive behaviours, e.g., 'quiet', 'no pushing', 'no hands in trousers'
- Traffic lights emotions indicator; emotions symbols
- Visual cues for self-assessment: 'How did we do?' Symbols/words: good, ok, could do better
- Visual cues: 'Tell me' on both classroom doors; symbols/words for key words and phrases (asking for help, asking for toilet); symbols/words for feelings
- Visual timers
- Visual count-down for warnings
- Symbol/words golden rules: we could, we should
- If I get stuck I could… ask for help, use my brain, use my eyes
- Symbols/words on door to outside playground to remind children what they need depending on the weather (e.g., coat, sunglasses)

Appendix 33 Case study three: interviews and observations

Summary of data collection: interviews and observations

Interviews

Teacher		Teaching assistants	
Interview 1 focus: structure	60 minutes	Focus group interview	30 minutes
Interview 2 focus: other approaches	50 minutes	Informal conversations during classroom observations	

Observations

	Context	Focus
Term 1 Structured Teaching 20mins	Structured independent work & one to one teaching	Structured Teaching in place for each child: • Classroom plan & physical structure • Schedules • Work systems • Visual information
20mins	Religious education	Use of visual structure to support teaching and learning
10 mins	Morning greeting routine	Structure and visual communication, routine
15mins	Snack	Communication & structure
30mins	Morning routine	Use of structure by individual children
	Structured independent work	Learning & behaviour
	1 to 1 teaching	
15 mins	Group hello time	Structure, communication
15 mins	Snack time	Structure, communication
Term 2 Structured Teaching & other approaches 15 mins	Structured independent work/ numeracy & literacy independent work	Structure: learning & behaviour

20 mins	Numeracy small group work	Structure, learning & behaviour, communication
Throughout above (35 mins)	Interaction sessions	Communication Interaction between individual children, teacher and TAs
10 mins	Interaction session for 1 child with peer from another class	Communication between child and peer
15 mins	Snack	Structure, routine, communication, behaviour
10 mins	Timetable disruption: activity changed to singing	Structure & routines
	End of day	
Term 3 *Structured Teaching, class lessons*		
15 mins	Independent tasks in work bays	Structure & routines
20 mins	Science group table	Science lesson – whole class
15 mins	Snack	Structure, routines, communication
Term 4 Structured Teaching, class lessons		
30 mins mins	Structure	Structure and routines
20 mins	Music	Music lesson – whole class
15 mins	Snack	Structure, routines & communication
20 mins	Drama	Whole class lesson, structure, routine, communication & interaction

Appendix 34 Case study three: Structured Teaching components

Structured Teaching component	Types of strategies	Contexts
Physical structure *See appendix 34 for classroom layout*	• Individual work bays • Shelves to locate work and place finished work • One to one teaching • Group table • Circle zone • Leisure/choosing area • Blinds at windows • Minimal displays • Smart board	Classroom
Schedules	Class schedule All day and part day individual schedules • Pictures • Symbol/word • Written	Throughout activities during all observations.
Work systems	Matching systems (colours, pictures, numbers)	Independent work
Visual information	Visual cues: symbol/word Visually structured tasks: organisation and clarity Visual instructions Visual communication	Independent work Teaching one to one, group and class Routines Snack Visual cues placed around school building indicating locations

Key features of Structured Teaching strategies used in this class are briefly summarised below:

Physical structure

Each child has a named work bay, including two children who do not have autism; one work bay is shared by two children at different times of the day. Work bays are divided by screens to reduce distractions (see appendix 35).

Schedules

Part day and full day schedules are provided for all children with autism and one who does not have autism; schedules are presented according to understanding with five children using a top to bottom picture/word schedule and one child using a full day written schedule. Transition to schedules is verbal and children remove activities which are finished, whilst one

child crosses off activities on a written list. A symbol/word class schedule is displayed on a wall which is referred to during whole class teaching.

Work systems

Matching work systems are used by 6 children and one child uses a filing tray work system. Summary for each child:

| Child	Schedule	Work system
Child A (male)	Picture/word	Matching pictures
Child B (female)	Picture/word	Matching numbers
Child C (male)	Picture/word	Matching numbers
Child D (male)	Picture/word	Matching numbers
Child E (male – not ASD)	Picture/word	Matching numbers
Child F (male)	Written top to bottom	Filing tray
Child G (female – not ASD)	No schedule	Matching colours/pictures

Visual information

A variety of visual cues using pictures, words and symbols are used within the classroom and throughout the school building. Visual cues are used during group and class activities, during routines such as 'hello' time and within taught lessons.

Independent work tasks are visually structured so that, for some children, the instructions for how to approach a task are evident in the organisation of the task materials. Visual instructions are included in some tasks and during group and whole class teaching

In addition to Structured Teaching components, class routines are used throughout the day including a morning greeting routine and end of day routine. During these routine activities, a variety of visual communication cues are used to support the activity, for example during the morning greeting children are encouraged to indicate how they feel today by completing an 'I feel ....' sentence strip choosing from a selection of symbol faces.

Appendix 35 Case study three: classroom layout

▭▭▭▭▭ = screen/schedule/shelf

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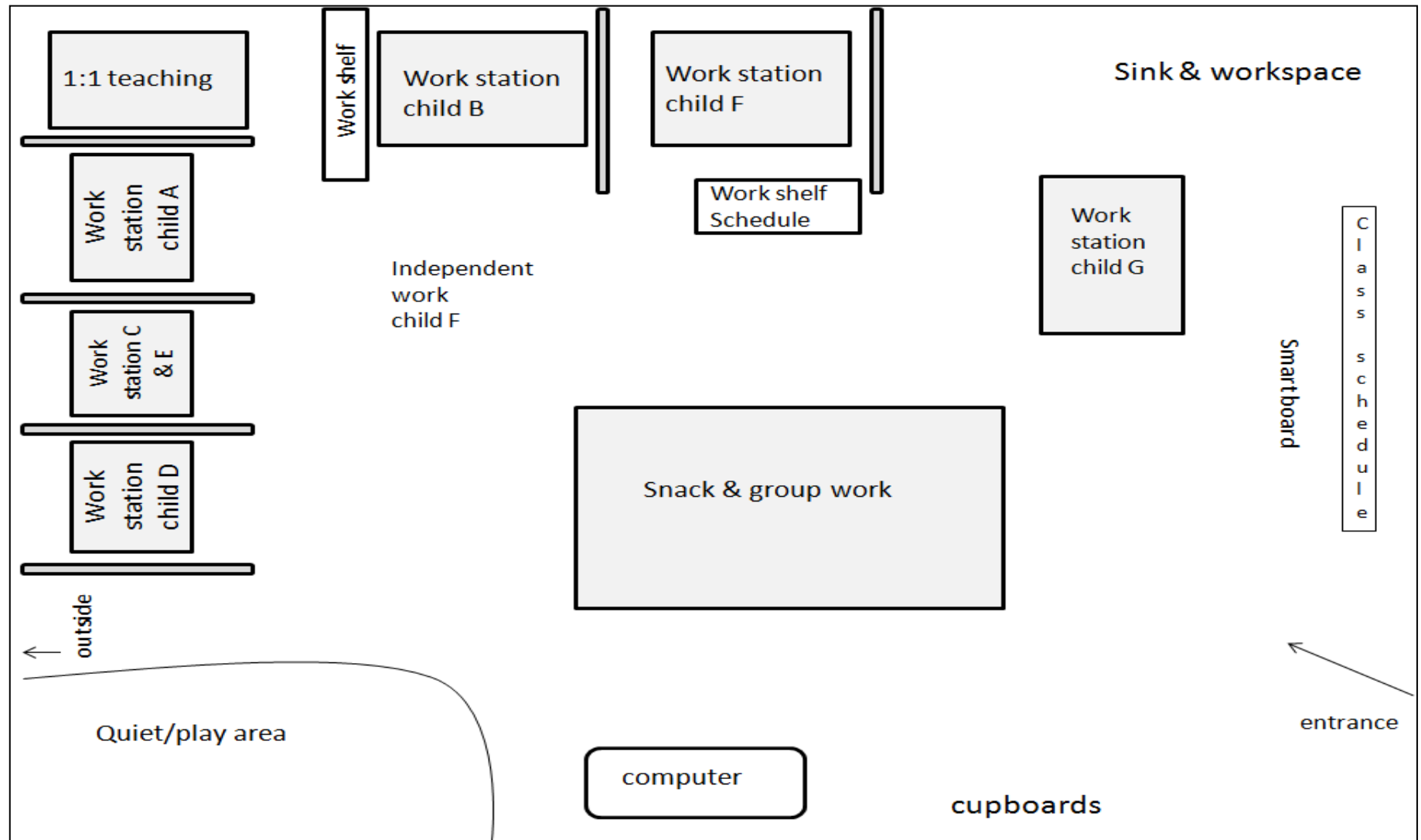
Appendix 36 Case study three: visual cues and supports

Visual communication 'morning hello routine'

Visual tools for communication	Examples
Visual cues for date and weather	Communication routine, adults pause for children to communicate.
Calendar	Yesterday crossed out, "it's gone".
Picture/name board	*"Who's here today?"* Children identify picture and names.
Symbols of faces to show feelings "I feel … " sentence strips	Children asked individually; routine songs.

Visual communication 'snack'

Visual tools for communication	Examples
Picture snack menu	Visual snack menu showed to all children "What's for snack today?" Communication routine supported with visual cues; adults pause and wait for children to communicate.
PECS book	Child A makes "I want banana" using sentence strip, gives to TA. Child B makes "I want yoghurt" using sentence strip, gives to TA. Child C makes "I want apple", gives sentence to teacher and says "apple".
Objects	Child A give banana skin to teacher who says "thank you", pauses then prompts with sentence strip "I want…"; child A makes "I want yoghurt".
i-pod	Child E brings i-pod to snack and uses communication app to make requests and choices.

Visual differentiation strategies: religious education lesson

- Objects
- Pictures/symbols/words
- Structured matching tasks

Visual differentiation strategies: science lesson

- Symbols/words: adjectives
- Number cues
- 'I see ….' sentence strips
- Animal picture matching tasks
- Matching zoo signs to animals
- Power point slides
- Structured matching tasks

Appendix 37 Case study four: interviews and observations

Interviews

Teacher	Teaching assistants
Interview 1 focus: structure 50 minutes	Informal conversations during classroom observations
Interview 2 focus: other approaches 30 minutes	

Observations

	Context	Focus
Term 1 *Structured Teaching*		
30mins	Structure	Structured Teaching in place for each child: • Classroom plan & physical structure • Schedules • Work systems • Visual information
10mins	Assembly	Visual structure & routine
15 mins	Independent work	Use of structure by individual children
10 mins	Snack	Visual structure & communication
Term 2 *Structure & other approaches*		
30mins	Structured independent work	Use of structure by individual children Learning & behaviour
	Group table activity	Painting
10mins	Circle time	Structure, communication and interaction strategies
15mins	Snack	Structure, communication
Term 3 *Structure & play*		
30mins	Structured	Structure: learning & behaviour

	independent work	
	1:1 teaching	Structure: learning
20 mins	Play area	Structure, communication & interaction, behaviour
15mins	Snack	Structure & communication
Term 3 *Structure & play*		
AM 15mins	Group time, hello routine	Structure & routines, communication
30mins	Independent work	Structure: tasks & targets
	1:1 teaching	Structure, routines, communication
	Group table activity: sticking	Structure & communication
	Outside play area	Structure, communication & interaction, behaviour
Term 4 *Structure & other approaches*		
30 mins	Independent work & 1:1 teaching	Structure & independence
20 mins	Discussion with class teacher in classroom	Wellbeing scale
Levels of involvement descriptors
IEP targets

Appendix 38 Case study four Structured Teaching components

During each observation period, observations of Structured Teaching components were recorded in order to determine which components of the approach are used and in what types of context, summarised below:

Structured Teaching component	Types of strategies	Contexts
Physical structure *See appendix 38 for classroom layout*	4 Individual work bays (ch share on rota) - Shelves to locate work and place finished work - Screens divide work bays & provide transition area - One to one teaching table - Group table - Relax/play area - Circle time area/whole class - Smart board - Outside play	Classroom Outside play area
Schedules Note TOBI = true object-based icon	Class schedule 3 symbol/word 4 TOBI + symbol/word 1 TOBI (child leaves room and works 1:1 elsewhere) First… then boards All adults carry TOBIs in shoulder bags at all times	Throughout activities during all observations.
Work systems	Left to right work systems Picture/symbol 'to do' list on left of table	Independent work
Visual information	Labelled resources pic/sym Choose pic/words in play area Snack: pic/sym choice boards PECS	Independent work Play area Snack Hello routine

| | Switch/sym/words | Visual cues placed around school building indicating locations |
| | Days of week & weather | |

Physical structure

Four work bays are shared by children on a rota basis planned by the teacher. Work bays are divided by screens to reduce distractions (see appendix 39).

Schedules

Part day schedules are provided for all children. Schedules are presented according to understanding: four children use part day 'true object based icons' (TOBIs) presented top to bottom on transition screen; 3 children use part day symbol/word schedules presented top to bottom; one child is shown TOBI and works outside in other areas of the school on 1:1 basis. Name/picture/colour card used to transition to schedule; children remove TOBI or symbol/word from schedule and take to activity. A symbol/word class schedule is displayed on a wall which is referred to during whole class teaching.

Work systems

Left to right work systems are used by 4 children, picture/symbol 'to do' list placed on left of table for 3 children. 1 child is supported 1:1 and completes activities in quieter areas in the school.

Summary for each child:

Child	Schedule	Work system
Child A (female)	Symbol/word	Matching pictures 'to do' list
Child B (male)	TOBI/symbol	Left to right
Child C (male)	TOBI handed to him/showed to him	Works 1:1 outside classroom in quieter areas
Child D (male)	TOBI/symbol	Left to right
Child E (female)	TOBI/symbol	Left to right
Child F (male)	Symbol/word	Matching pictures 'to do' list
Child G (female)	Symbol/word	Matching pictures 'to do' list
Child H (male)	TOBI/symbol	Left to right

*Visual information*

A variety of visual cues using pictures, words and symbols are used within the classroom and throughout the school building. Visual cues are used during group and class activities, during routines such as 'hello' time and within 1:1 teaching.

Independent work tasks are visually structured so that the instructions for how to approach a task are evident in the organisation of the task materials. Visual instructions are included in some tasks and during group and whole class teaching.

In addition to Structured Teaching components, class routines are used throughout the day including a morning greeting routine. During these routine activities, a variety of visual communication cues are used to support the activity, for example during the morning greeting children are encouraged to communicate using a variety of visual supports including switch, pictures, symbols and words.

Appendix 39 Case study four: classroom layout
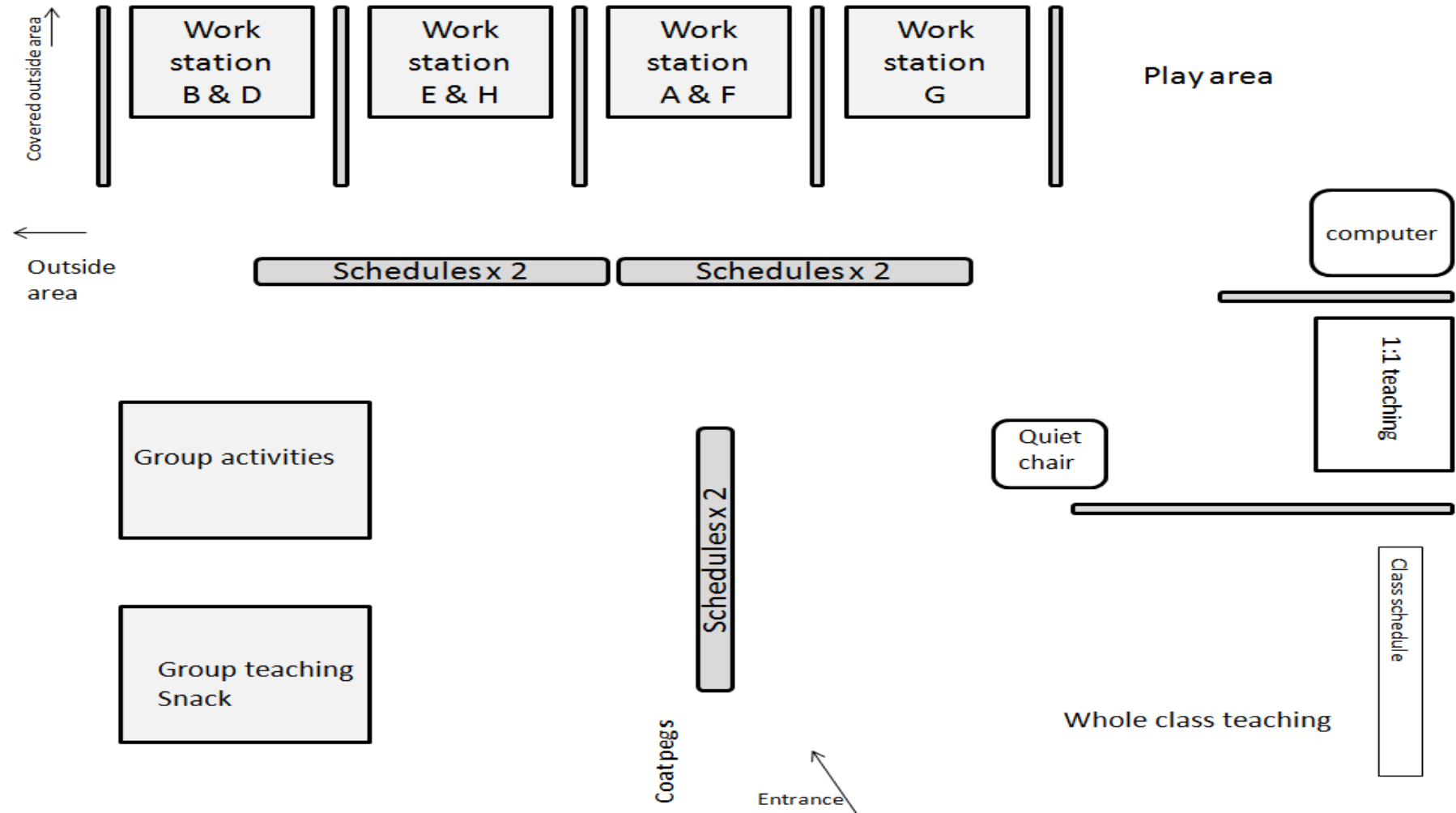
Appendix 40 Case study four: visual tools for communication

Visual communication routines and strategies: circle time

Visual tools for communication	Examples
Picture/word cues for days of week	Communication routine, 'what day is it today?' song, with actions. Adults pause for children to communicate
Pictures/Symbols/words/switch	Visual choices of routine songs
Picture/word cues for weather	Look out of window, match weather card
Routine song	*Pack away* song
Name cards	Name cards given for transition to check schedules

Visual tools for communication

Visual tools for communication	Examples	Contexts
Visual choice boards (children B, D, F, H)	Linked to activities: • songs • materials/resources • food/drink • toilet	• Circle time, pack away, goodbye • Curriculum lessons e.g., Art, number • Snack • Self-care
PECS Communication sentence strips (children A, F, G)	• I want • I need • I hear • I like • I feel	Sentence strip linked to activities e.g.: • Snack • Materials/resources • Music lesson • Variety e.g., circle time, snack • Circle time
Objects (child C)	To make requests	Snack – choice of 2

Appendix 41 Leuven wellbeing and involvement scales

The Leuven Scale for Wellbeing Available at: http://www.plymouth.gov.uk/documents-ldtoolkitleuven.pdf

Level	Wellbeing	Signals
1	Extremely low	The child clearly shows signs of discomfort such as crying or screaming. They may look dejected, sad, frightened or angry. The child does not respond to the environment, avoids contact and is withdrawn. The child may behave aggressively, hurting him/herself or others.
2	Low	The posture, facial expression and actions indicate that the child does not feel at ease. However, the signals are less explicit than under level 1 or the sense of discomfort is not expressed the whole time.
3	Moderate	The child has a neutral posture. Facial expression and posture show little or no emotion. There are no signs indicating sadness or pleasure, comfort or discomfort.
4	High	The child shows obvious signs of satisfaction (as listed under level 5). However, these signals are not constantly present with the same intensity
5	Extremely high	They may be lively and full of energy. Actions can be spontaneous and expressive. The child may talk to him/herself, play with sounds, hum, sing. The child appears relaxed and does not show any signs of stress or tension. He /she is open and accessible to the environment. The child expresses self-confidence and self assurance.

The Leuven Scale for Involvement

Level	Involvement	
1	Extremely low	Activity is simple, repetitive and passive. The child seems absent and displays no energy. They may stare into space or look around to see what others are doing
2	Low	Frequently interrupted activity. The child will be engaged in the activity for some of the time they are observed, but there will be moments of non-activity when they will stare into space, or be distracted by what is going on around.
3	Moderate	Mainly continuous activity. The child is busy with the activity but at a fairly routine level and there are few signs of real involvement. They make some progress with what they are doing but don't show much energy and concentration and can be easily distracted.
4	High	Continuous activity with intense moments. The child' activity has intense moments and at all times they seem involved. They are not easily distracted.
5	Extremely high	The child shows continuous and intense activity revealing the greatest involvement. They are concentrated, creative, energetic and persistent throughout nearly all the observed period.