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Narrative, Autism and Mainstream Secondary Schooling in England: Issues in Assessment, Inclusion and Intervention

Lucy Jane Carey

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15 MAY 2008

Thesis submitted in partial fulfilment of the requirements for the degree of
Doctor of Philosophy at the University of Durham

School of Linguistics and English Language
University of Durham
2007



No part of this thesis has been previously submitted for a degree at the University of Durham or any other university.

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For Mum, Dad and Chloe.

Acknowledgements

Firstly, I would like to thank my supervisors Sue Leekam and Randal Holme for their thought provoking discussions, support and encouragement throughout the last four years. Thanks must also go to my examiners, Martha Young-Scholten and Alan Dyson, for their insightful comments and stimulating discussion.

Many thanks also to all the participants, teachers and schools who volunteered time and energy to this project. In particular, staff and students in the SEN Centre at Heaton Manor Comprehensive School and the Language and Communication Unit at Kenton Comprehensive School. Also, thank you to Lorna-Jane Elliot for helping with the data collection.

I would also like to thank all of the staff in the Department of Linguistics at Durham University, especially Angela Taylor, Sara Hallowell and Mike Davenport for their dependable support; and members of the NEAR research group for their contributions to this work. Thanks also to Lesley Stirling for donating her time and sharing her thoughts on my work; and to the ESRC for their financial support (ESRC Grant: PTA-030-2003-00310)

Thank you to all my friends, especially Lieve Van Espen, James Garland, Aarti Nayudu, Michelle Sheehan and Jose da Angela for their constant support, friendship, humour, generosity, endless supply of tea and cakes, and for making my time in Durham fun!

Tremendous thanks also to all my family who have been a great support throughout, especially to my sister, Chloe, for reminding me that doing a PhD proves I must be mad; and to my parents whose encouragement in everything I have done, and unerring support and belief in my abilities throughout my life has enabled me to fulfil my ambitions. Thank you for reminding me that anything is possible!

Finally, very special thanks to Richard Martin for his wise words, sense of humour, proofreading, love of fine food, and above all resolving my midnight worries! I am very grateful for all you have done.

Abstract

Narrative research has been the focus of investigation for many years and has provided insights in to communication, the development of society, individual identity, and psycholinguistics. In recent years, interest in the narrative abilities of individuals with autism spectrum disorders (ASD) has developed and the field has advanced rapidly.

This thesis investigates the abilities of high-functioning individuals with ASD with regard to narrative structure in the context of inclusive practice within mainstream schooling in England. It is motivated by the implementation of inclusive education policies and focuses on using the abilities of children and young adults with ASD to overcome their weaknesses. This positive view of ASD forms the ethos of this thesis and the data it presents.

The discussion encompasses research from the fields of Education, Psychology and Linguistics to develop the initial investigation into the level of structural narrative abilities in high-functioning individuals with ASD. Through an investigation which uses Labov's (1997) framework of analysis, these initial studies identify impairments in the narrative structure produced by these individuals. In addition, this initial analysis identifies the potential impact of elicitation techniques on the narrative data yielded. These results are discussed in relation to the existing research, to inclusive practice, and their implications for the intervention study undertaken as part of the current research.

The intervention presented in the second part of this thesis aimed to provide teaching staff with an additional tool in order to meet the needs of high-functioning individuals with ASD in mainstream, inclusive education. As such, the intervention design is unobtrusive and flexible in its application. The results of case study analyses for five high-functioning individuals with ASD are inconclusive but nonetheless highlight the importance of individualising interventions where possible. They reveal that whilst three individuals benefit from the intervention, two do not. Further discussion identifies several areas for the development and further research of the techniques used. In particular, it is suggested that more discrete task levels reflecting more discrete ability levels would enable the intervention to remain applicable in inclusive classrooms whilst providing additional support at a variety of levels. These conclusions are related to inclusive practice, and recommendations and implications for future research are highlighted.

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Glossary of Commonly Abbreviated Terms

A-levels: National examinations taken the end of secondary schooling. The majority of students are aged 18.

ASD: Autism Spectrum Disorder.

DSM-IV: The Diagnostic and Statistical Manual of Mental Disorders produced by the American Psychiatric Association. This is an internationally recognised manual which outlines diagnostic criteria for every recorded mental disorder.

GCSEs: “General Certificate in Secondary Education”. National examinations taken at the end of compulsory secondary education. The majority of students are aged 16.

IEP: Individual Education Plan. Implemented in Primary and Secondary schools to ensure that the needs of individual children with special educational needs are met.

LEA: Local Education Authority. The governmental authority responsible for education at a local level.

SEN: Special Educational Needs.

TD: Typically Developing

Chapter 1 : Introduction

This thesis aims to explore the area of narrative abilities in children with autism by focusing on the overall structure of the narrative as suggested by Labov & Waletzky (1967). This approach allows the narrative form to be analysed through quantitative methods as well as qualitative methods. This allows the aspects of the narrative to be measured on their occurrence or recurrence, therefore enabling interventions to focus on missing forms, or forms that demonstrate limited usage. This thesis approaches narrative and autism spectrum disorders (ASD) from an otherwise neglected viewpoint and in doing so raises some interesting questions. As a result of this new view of the area, the thesis addresses four research questions. Research Question One: what is the level of global narrative abilities in high-functioning individuals with ASD? Research Question Two: do elicitation tasks affect the performance of individuals with regard to global structure of written narrative? Research Question Three: can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme? Research Question Four: what is the most appropriate way to research written narrative abilities of high-functioning individuals with ASD? In order to answer these questions, the thesis presents four novel studies which have been designed for this purpose.

The interest in narrative stretches far beyond that of literary fiction due to its function in everyday communication, socialisation, and its potential application almost every facet of academic study. It is clear, therefore, that narrative skills are not only essential for the academic success of an individual but also their success in society and their ability to relate to others. The area of narrative and autism has received significant attention in recent years from not only linguists but also psychologists, therapists and educational specialists. Much of this has seen narrative as a vehicle for accessing other

areas of interest, linguistic or otherwise. The current study aims to return the study of narrative back to the analysis of its specific linguistic features with the aim of learning more about them and their relationship to autism. In doing so the study intends to uncover the true narrative abilities of individuals with autism as well as highlighting the potential for using such insights to enhance teaching skills. With this intention in mind, the current thesis presents an exploratory analysis of the methodological issues surrounding both the investigation of narrative abilities in ASD groups and narrative interventions in a mainstream, inclusive system. The intervention comprises the main focus of the current thesis and is viewed by the author as a quest into the improvement of narrative structural abilities, an area which is neglected in existing literature. As a result, the analysis and recommendations are limited in their immediate application. However, the results yielded do provide motivation for further investigation and highlight areas of concern for future research. To allow comparison between the current study and previous work on narrative structure, the analysis will examine the potential influencing factors which may affect the portrayal of the narrative abilities of these individuals. The thesis is organised into the following chapters.

Chapter 2 situates the current research in the field of inclusive education. In doing so it first describes the educational policies in force in England today with regard to inclusive practice. It then moves on to discuss some of the ways in which schools in England have adopted these policies. Finally it discusses the potential role of narrative intervention in promoting inclusion and inclusive practice.

Following this, Chapter 3 reviews the autism literature with regard to general impairments, diagnosis and language impairments. It highlights research which has developed the understanding of this disorder in the last two decades and identifies areas which may be of relevance to the current discussion.

A review of the narrative literature with regard to typically developing individuals is presented in Chapter 4. This review discusses the development of narrative abilities in typically developing children and discusses possible frameworks for the analysis of narrative structure.

Chapter 5 addresses the existing research carried out in the area of narrative and autism, aiming to mesh together findings coming from a variety of academic disciplines. This chapter presents the findings of narrative and autism research before bringing together the literature presented in previous chapters in order to formulate the research questions for the thesis.

Chapter 6 presents the first three studies in the thesis. These studies address Research Question One and Research Question Two. The findings from these studies are discussed and implications identified for the intervention study which follows and inclusive practice in England.

The review of previous interventions for individuals with ASD presented in Chapter 7 highlights the lack of intervention techniques for high-functioning individuals with ASD as well as the lack of interventions focusing on written language. As such, it further establishes the place of the current research within the field of narrative and intervention techniques. The chapter also summarises the methodological issues raised by a variety of intervention approaches with a variety of aims. In doing so, it identifies areas to be addressed in the methodology of the intervention study presented in Chapter 8. The intervention methodology and results are presented in order to establish whether impairments can be reduced and, as such, to directly address Research Question Three.

Finally, Chapter 9 presents a further discussion of the findings presented in the thesis and offers suggestions for further development. In addition, it proposes implications for

inclusive practice and highlights the wider application of this thesis with regard to the education and development of high-functioning individuals with ASD.

This thesis concludes that individuals with ASD are impaired in areas of narrative structure and that elicitation tasks have an impact on the composition of narrative structure. In addition, it is acknowledged that, although the principles for an intervention should remain the same throughout a cohort, it may be that specific consideration of individual differences is required to accommodate and utilise the individual differences observed in order to make an intervention in this area more successful. In particular, a more detailed range of task levels to reflect more discrete division of ability levels may be required when working with high-functioning individuals with ASD. It is also concluded that analysis of the intervention study using qualitative methods may provide a more comprehensive understanding of the processes involved.

The main focus of this thesis is the aim of exploring new ways of investigating the development of narrative abilities in autism. It also contributes to the search for ways to intervene more successfully with children with autism attending mainstream schools that was undertaken in the intervention design. This particular aim has provided the research with many challenges and has highlighted many of the difficulties faced when carrying out research with this group. It should also be noted that this thesis has attempted to look for new ways of studying the development of narrative in autism and new ways in which to construct interventions for children studying in mainstream schools. This has imposed some limitations on the study such as the limited numbers of individuals in mainstream schooling and, in some cases, limited knowledge of autism. Most significantly, it has required the investigation to be compatible with a mainstream school environment thus producing an approach which is appropriate for inclusive

practice and addresses the problems inherent in any work carried out in this area.

Finally, it should be noted that whilst the current investigation was motivated by inclusive policies and was carried out within an inclusive educational setting, this thesis does not examine the appropriate nature of inclusion for individuals with ASD.

Chapter 2 : Inclusion and Education in England

In recent years the UK government has implemented policy to promote inclusion in society as a whole and to ensure that children have equal opportunities to succeed in life. As part of this policy, the government has restructured special educational needs (SEN) provision in England to promote the inclusion of individuals with SEN in mainstream schooling where appropriate. This has resulted in specialist schools becoming facilities for more severely affected individuals. Norwich (2002:3) reports that more than half the children with a SEN Statement of Needs are in mainstream education, thus highlighting this transformation. The implementation of inclusive education in England provided the motivation for this thesis as the author's experience of individuals with ASD in mainstream schools highlighted the opportunity to develop a tool which would facilitate inclusion of these individuals, and would complement the already extensive range of resources at the disposal of mainstream teachers overall. As certain features associated with ASD may present specific challenges in mainstream education (e.g. a desire for routine and a dislike of change), it is suggested that additional teaching tools designed specifically for high-functioning individuals with ASD in mainstream education would be valuable. Whilst it is acknowledged that the policy of inclusion is controversial and debate is ongoing (Dyson and Millward, 2000; Arid, 2001; Thomas and Loxley, 2001; Dyson *et al.*, 2004), this chapter does not argue the case for or against the implementation of the inclusion policies, but instead intends to situate the research presented in this thesis within the current education climate in England.

With this in mind, this chapter begins by briefly outlining the development of the policies on inclusive education present in English education policy. It then presents examples of the ways in which these policies have been accommodated within

mainstream schools to provide an inclusive environment for education and, in particular, ways in which schools have promoted the inclusion of individuals with ASD. Finally, this chapter highlights the role of narrative in promoting successful inclusion for these individuals and aims to identify the possible opportunities for narrative interventions with individuals with ASD in inclusive mainstream education.

Before beginning this discussion, however, it is important to define the meaning of 'Individuals with Special Educational Needs'. In accordance with legal definitions given in the SEN Code of Practice (DfES, 2001:6-7), this discussion views an individual to have special educational needs if they have a learning difficulty (considered to be a physical or mental disability or greater difficulty learning) which requires additional support above the support given to pupils in general.

2.1 Inclusive Education Policy in England

Since the 1944 Education Act, inclusion and the role of mainstream education in the provision of SEN has existed as an integral part of the education system in England (Dyson and Millward, 2000:4). However, prior to the formalisation of inclusion by the current UK government, inclusion was restricted. Many schools used 'streaming', 'grouping', or one-to-one support to facilitate inclusion and taught an altered syllabus which included life and social skills. Therefore, although children with SEN were being integrated in a mainstream school in a physical sense, the opportunities open to them remained restricted and the expectations of them were often limited. The formalisation of inclusion has resulted in the systematic development of guidelines and support networks to facilitate and guide its implementation (Dyson and Millward, 2000:2). This section aims to highlight some of the key changes that have led to the implementation of the current inclusion policy and the systems that are currently in place to support inclusive practice.

The introduction of the National Curriculum in 1988 required each child to receive the same level of education in the same predefined areas. This resulted in a change to the approach adopted by many schools with regard to SEN, and has also had an impact on specialist schools (Dyson and Millward, 2000). The National Curriculum set out in a standardised level of education for all children regardless of their individual additional requirements and it put the onus on the schools to provide this (Dyson and Millward, 2000:7). Although this was in itself a controversial issue, it did provide motivation for schools to include SEN pupils more actively and supplied schools with a benchmark objective (Dyson and Gains, 1993:157). As noted by Dyson and Gains (1993:157), the approach to SEN had begun to change by 1993. The previous structural, division-led approach, seen to be founded on the view that inclusion would raise a series of predictable issues requiring formulaic responses, was changing to a more process-led approach (Dyson and Gains, 1993:157). This new approach was not only more interested in the unique features of a problematic situation but also examined and reconstructed the processes which led to the situation itself (Dyson and Gains, 1993:157). It therefore required greater adaptability, deeper study of the situation and a more reflective approach which would enable it to be more flexible in its application.

In 1994, the UK government produced a Code of Practice for SEN which introduced the mandatory position of Special Educational Needs Co-ordinator (SENCO) for every school. The SENCO was a position intended to align a school's approach to SEN with the formalised system required of all schools in England (Dyson and Millward, 2000:10). The SENCO was allocated the responsibility for the identification and assessment of SEN, and appropriate provision for individuals within a typical classroom setting (Dyson and Millward, 2000:10). This required a whole school approach and good relationships between the SENCO, their SEN team and the other staff within the

school (Dyson and Millward, 2000:10). This document set out the standards of practice required in every school in relation to SEN provision, and ensured regularity of provision (Dyson and Millward, 2000:10).

The Salamanca Agreement was also published in 1994 (UNSECO, 1994). This agreement was reached by 92 governments at the World Conference on Special Needs Education. It highlights a global commitment to inclusion and states that all children should have the fundamental right to an education which allows them the opportunity to succeed and learn. In addition, it states that “regular schools with... [an inclusive child centred pedagogy]... are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all” (UNSECO, 1994). Furthermore, it recommends that parents and children should be involved in decision-making processes relating to education provision.

Aligning the UK with the Salamanca Agreement, the Disability and Discrimination Act (Department for Education and Employment, 1995) required schools to make arrangements for the inclusion of students with disabilities to ensure their equal treatment and provided facilities to assist access. This required schools to consider reasonable adjustments to facilitate both physical and academic access in order to ensure equality. This Act began to promote inclusive practice further.

In 1997, the government produced “Excellence for All Children” (Department for Education and Employment, 1997). This offered formal guidance to schools in order to meet the needs of children with SEN, and marked another stage in the evolution of the formal requirements for inclusion in mainstream education in England. It clearly stated that mainstream schools were to increase provision for children with SEN and undertake inclusive educational practices to ensure that every child was given the same

opportunities regardless of their additional needs. It is important to note that inclusion in England is focused on providing appropriate education and opportunities based on individual abilities and needs, and, therefore, does not exclude the possibility for specialist educational provision if it is appropriate. With this in mind, this publication explicitly states that in exceptional circumstances there may be “compelling reasons” for providing education outside of the mainstream environment (1997:44). This has further required mainstream schools to provide a flexible approach to learning for the benefit of all individuals, which also takes into account individual differences (Dyson and Millward, 2000:12).

In 2001, the SEN and Disability Act, which amended the 1996 Education Act, was passed (Department for Education and Employment, 2001a). It states that there should be no discrimination in a school’s admissions process on the basis of disability and provided a further legal framework within which individuals with a disability are guaranteed equal opportunities in education (Department for Education and Employment, 2001a:paragraph 28A). This has given parents and children with SEN a greater say their choice of school. The Act states that all children should be educated in mainstream schooling unless this is to the detriment of the individuals or other pupils, or against the wishes of their parents. It also requires parents to be informed of any special educational provision that is made. The Act puts more emphasis on mainstream schools and required them to make reasonable adjustments to accommodate SEN students.

In 2001 the government updated and amended their Code of Practice for SEN provision (Department for Education and Employment, 2001b). In addition to echoing the provisions outlined in the SEN and Disability Act (Department for Education and Employment, 2001a), the Code also provides more choice for the parents of those with

SEN with regard to educational provision, and further insists that the SEN of an individual should typically be met in mainstream settings. The Code also introduces Individual Education Plans (IEPs), which state the needs of individuals with SEN, and, in some cases, adaptations to pedagogy which require a flexible and reflective approach to teaching.

In 2004, the English government introduced the Every Child Matters agenda (ECM) (Department for Education and Employment, 2004) which requires all services to work together to ensure that all children, from birth to the age of 19, are given support to be healthy, stay safe, enjoy and achieve, make a positive contribution, and achieve economic well-being. This policy is not directed at schools alone but places new emphasis on the collaboration of different services. The Common Assessment Framework (CAF), introduced in 2006 to support ECM, provides mainstream schools with a generic assessment tool to encourage early identification of SEN, and promotes the collaboration of multiple services. In addition, it encourages the cooperation of services and delegation of resources to support inclusion and early intervention. This emphasises the standards identified in “Removing Barriers to Achievement” (Department for Education and Skills, 2004) and aims further to facilitate the inclusion of children with SEN in mainstream schools. Also promoting inclusion, the Children’s Act (2004) requires schools to provide effective and accessible services to students with disabilities and their families.

The most recent policy addition is the amended 2005 Disability Discrimination Act (including the Disability Equality Duty) which updates the 1995 Disability Act. Whilst it focuses on general inclusion and prevention of discrimination in society, it does have implications for school. Primarily, it promotes inclusive practice in schools indirectly by requiring that disabled persons’ disabilities are accounted for and accommodated as

well as requiring the promotion of positive attitudes and the inclusion of individuals with disabilities in public life. This requires all public bodies, including schools, to take a more proactive approach to the promotion of equality. Specifically, the Act requires schools to ensure that all children with SEN are able to achieve their potential and are not limited by their disability (this includes both mental and physical disabilities).

English legislation has been repeatedly revised in the last decade to accommodate the changing attitudes towards disability, human rights and equality worldwide. In particular, international consideration of education issues (exemplified by the Salamanca Agreement (1994)), has raised the profile of SEN provision in the international arena and provided additional impetus for change in the English education system. It is suggested that a more comprehensive understanding of disability and a focus on the abilities of individuals has also encouraged governments to update policies to reflect this development. A continued rise in the profile of this topic and future developments which promote further understanding of SEN and disability may also inform future education policies and related legislation which would see the existing Acts amended further to reflect such understanding. As our understanding of SEN evolves so should our legislation and provision to ensure we provide as best we can for young people in Education.

In summary, schools have been required to adapt their provision for individuals with SEN in accordance with the developing legislation. In addition, the education of individuals with SEN in England is a topic of significant debate and has resulted in widespread training for teachers and support workers to ensure that they are able to accommodate these individuals affectively and, thus, facilitate inclusion. There have been many government initiatives to ensure that education in England reflects the recommendations of the Salamanca Statement. Therefore, inclusive practice and equal

opportunities are at the forefront of the education system in England. The following section highlights some of the resultant approaches to inclusive practice within mainstream education.

2.2 Ways of Promoting Inclusion in Mainstream Schools in England

The aim of this section is to present some of the many ways in which inclusion is being addressed in mainstream schools in England. The purpose of this section is to enable the current research to be situated within the context of existing interventions and inclusive practices within schools in England. The section first highlights some of the general approaches that have been implemented and then discusses the issue of inclusion for individuals with ASD and approaches specific to this group of SEN pupils.

2.2.1 Inclusive Practices

There are several different aspects of inclusion which need to be addressed in mainstream education. This section highlights some approaches to some of the main challenges for inclusion of individuals with SEN. These approaches are sourced from the literature and have also been observed in action by the current author in mainstream schools in the North-East of England. Although this is not intended to be exhaustive, it aims to offer examples of the approaches taken within schools in England and, thus, further situates the current thesis.

2.2.1.1 Peer Relationships

One area of inclusive education, which has received a significant amount of attention, is the development of peer relationships for individuals with SEN. This highlights the fact that the opportunities inclusive education offers extend beyond academic gains to social, personal and professional development. For individuals with SEN, inclusion provides the opportunity to participate in all school activities. As well as receiving wide

and varied experiences, they are given opportunities to take mainstream assessments (i.e. GCSEs and A-Levels) which may not have otherwise been available to them (Florian and Rouse, 2005:160). This is positive in itself and the implications reach far beyond immediate academic gains, providing further opportunities in the future with regards to career development and personal achievement. In addition, through participation in mainstream schooling, the child is afforded the opportunity to build relationships with typically developing peers and extend their social knowledge and awareness. As highlighted by research in peer-modelling and peer relationships, this contact is an important factor in the social development of the individual (Frea, 1995:60). Without this contact, it is conceivable that an individual may struggle to develop in this area. Furthermore, Frea (1995:60) states that truly inclusive education which encourages social inclusion provides natural opportunities for peer modelling (see Section 7.1.1.1). These structured settings enable a child to succeed in developing socially appropriate behaviours (Jenkins *et al.*, 1989:420). Importantly, it is essential to acknowledge that “physical integration does not necessarily foster social integration” in the promotion of inclusion (Rogers, 2000:406).

Research in this area has highlighted that the development of successful peer relationships can be problematic for some individuals with SEN which may, in turn, lead to an increased risk of isolation (Dyson *et al.*, 2004; Florian and Rouse, 2005:157). It has been shown that children with SEN are more likely to be disliked by their peers (Gertner *et al.*, 1994; Florian and Rouse, 2005:157). This rejection may lead to isolation and thus result in the child not being effectively integrated within the school society. This therefore challenges schools to be truly inclusive and to ensure that all children enjoy school and learning. In order to address the problem, it is important to make a distinction between true inclusion and physical inclusion (Rogers, 2000; Florian and

Rouse, 2005:157:160), and to identify individuals with SEN who may require additional support in social inclusion and development. There are many interventions (some of which are discussed in Chapter 7) which provide ways to improve the social inclusion of individuals with SEN within their peer groups. As discussed further in Chapter 7, positive peer interaction is crucial in developing social skills and, therefore, support and intervention in the area of peer interaction will greatly benefit children with SEN. Techniques such as 'Circle of Friends' (see Chapter 7) allow peers to become involved in the development of social skills for the child with SEN. They also promote group work and understanding in peers, and facilitate personal development for all individuals involved (Goldstein *et al.*, 1992; Kalyva and Avramidis, 2005). Furthermore, the implementation of whole class and whole school inclusive practices has been found to improve the educational experience of all pupils regardless of ability (Carey, 2007). Inclusion aims to provide equality for all individuals regardless of background or impairments. Thus, it is not just restricted to those with SEN but extends to all children within the school community (DFEE, 1997). Apart from enabling children to gain a better understanding of the variety of individuals in society and thereby preparing them for their adult lives, the adoption of inclusive practices within a school can have a positive effect on the teaching of all pupils (Norwich, 2002:3; Florian and Rouse, 2005:161). Hart (1998) describes the introduction of 'circle time' to improve the experience of inclusion for one individual with SEN. The introduction of this technique afforded the target individual equal opportunities to contribute which was particularly important as this individual had specific problems communicating and collaborating with their peers. However, in addition to increasing participation for that individual, the approach resulted in improved pair and group work for all children, and improved relationships within the class as a whole. This example demonstrates the potential

positive impact that changes made with the intention of promoting inclusion can have for all the individuals involved.

2.2.1.2 Behavioural Challenges

In addition to peer relationships, some children with SEN may have a variety of behavioural difficulties which can impact upon their functioning within mainstream education. Children may have high anxiety or fixed coping strategies which do not easily transfer to a mainstream environment. In addition, they may require an explicit set of rules, or may have self-regulation issues relating to time management or long-term planning (Smith Myles, 2005:8-9). These difficulties are often cited as problematic for inclusion (Smith Myles, 2005) and, in some cases, will prevent the child being taught in an inclusive environment. However, strategies can be taught to help control these behaviours, or procedures implemented to accommodate them, and in many cases these are successful. Functional analysis of behaviour is one way in which unwanted behaviours can be reduced (Frea, 1995) (see Section 7.1 for further discussion). This intervention technique responds to unwanted behaviour by identifying the function of that behaviour and providing the individual with an alternative which is more successful for the child and more appropriate to the situation. It should be noted that this approach has been linked to increases in linguistic and communicative ability, thus having advantages in addition to improvements in behaviour. By using this technique within mainstream settings it may be possible to increase the chances of individuals remaining in mainstream settings, and thus promote their inclusion in tasks which would otherwise present significant challenges.

2.2.1.3 General Approaches to Inclusion

In addition to changes specifically related to peer relationships and behavioural challenges, there are changes which are made by whole schools to promote inclusion.

One of the widely reported changes concerns the role of Learning Support Assistants (LSA) (Florian and Rouse, 2005:158; Logan, 2006; Logan and Feiler, 2006). This has been used to promote inclusion whereby all children are treated equally and there is no distinction between children with SEN and their typically developing peers (Florian and Rouse, 2005:160). By making LSAs subject-specific and placing them within the class for the assistance of all children, there is no identification of or special treatment for the child with SEN. Support is, therefore, equally available to the whole class. By using LSA in this way a school is able to promote true inclusion and equal opportunities for all, thereby improving the school's performance as a whole (Florian and Rouse, 2005:160).

In addition, the requirement for all schools to accommodate all individuals with "reasonable adaptations" (Department for Education and Employment, 2001b) means that a more flexible approach to teaching is required. This new approach is, in some cases, accompanied by overall positive changes (Florian and Rouse, 2005:154; Logan, 2006; Logan and Feiler, 2006) as it requires good practice throughout the school and curriculum (Nind, 2005:4). Furthermore, Nind suggests that SEN teaching and inclusive practice may generally be seen as good practice which, when adopted, will benefit all individuals involved (2005:4).

Another example of inclusive practice is the use of individual learning plans (IEP) and annual reviews of progress for every child. This decouples the preparation of Individual Education Plans (IEP) from the provision of special support (Norwich, 2002:4). This reduces the 'speciality' of SEN arrangements, provides a forum for identification of individuals with SEN, and ultimately establishes good practice across the school.

An inclusion technique which has been recently piloted in several schools in the North-East of England is the use of Neuro-Linguistic Programming (NLP) and positive language in order to encourage all pupils to have a positive attitude to learning and contribute to school and classroom life (Carey, 2007). It has also been used to improve behaviour and cooperation in children with SEN by presenting children with an alternative positive action to replace the unwanted behaviour they are displaying (e.g. "Please walk!" replaces "Don't run!"). A report on the experiences of these schools has indicated that this approach was successful for many of the classes and individual pupils involved (Carey, 2007). The report also highlights the impact of management in facilitating inclusion and identifies several situations in which a whole school approach co-ordinated by school management was required to improve the situation further (Carey, 2007). This further emphasises the importance of whole school approaches to inclusive practice.

Finally, effective inclusion requires every member of teaching staff to have a high level of knowledge and understanding. Although training and staff development as part of continued professional development plans is high on school priority lists, the motivation of staff has been considered variable with regard to SEN pupils (Dyson and Gains, 1993:155). It is suggested that the training of teachers and specialist support staff in schools, gives rise to best practice and the delivery of high quality education to all individuals regardless of their needs (Dyson and Gains, 1993), and this can be seen in schools today. One way to ensure that expertise available to teachers is used as effectively as possible and high levels of knowledge are maintained is the development of cluster schools which share expertise and, therefore, provide access to a wide knowledge base (Dyson and Gains, 1993:166-7). This approach enables all schools to

have access to the knowledge they require in order to provide effective education for the wide range of SEN that is seen in mainstream schools in England.

2.2.2 The Inclusion of Individuals with ASD in Mainstream English Education

In addition to the general approaches outlined above for the promotion of inclusion for individuals with SEN, there are several techniques reported in the literature which have been implemented specifically for the inclusion of individuals with ASD. One such adjustment observed by the current author in a mainstream secondary school in the North-East of England involved an individual with ASD who had a particular dislike of crowded, noisy environments. Within the school the only occasion where the pupil was unable to remove himself from such an environment was during the change of classes when the corridors were loud and full of pupils moving between lessons. The pupil in question was unable to cope with this situation which frequently resulted in him taking refuge in the SEN centre and, therefore, missing significant proportions of the following lesson as staff calmed him down. In order to combat this situation and enable to individual to remain in an inclusive setting, it was agreed with all his teachers that he would be allowed to leave his lesson a few minutes early, walk to the SEN centre, wait until the corridors were clear and make his way to his next lesson. This adaptation was reported by his teachers to be very successful, reducing the overall anxiety of the individual and resulting in significantly less disruption to his participation in lessons. This adaptation promoted the inclusion of this individual within the mainstream environment by making a small but highly significant concession which required minimal input from teaching staff.

Another reported technique to enable individuals with ASD to access the curriculum is highly structured teaching. This concept originates from the TEACCH intervention (Treatment and Education of Autistic and related Communication-handicapped

Children) (National Autistic Society, 1993; Mesibov and Howley, 2003) (see Section 7.1.2 a for further discussion) and focuses on explicit organisation within the classroom whilst promoting the identification of clear goals for individuals with ASD. This approach emphasises the use of the strengths of individuals with ASD to overcome weaknesses and thus limit the number of challenges an individual with ASD may encounter in their everyday educational experiences (Mesibov and Howley, 2003:9). One example of how this may be implemented concerns the explanation of a task to a whole class. By ensuring that the explanation and goals of the task are clear and by ensuring that all children know what is required of them within the task, confusion, potential frustration and miscommunication can be avoided. This adjustment may be beneficial for the child with ASD as well as their typically developing classmates. As with the previous example, this is not resource intensive and thus can be easily implemented by an individual teacher within a classroom setting. As this technique is also unobtrusive, it will offer support to the child with ASD without segregating them from the rest of the group, thus further promoting inclusion.

Whilst the above adaptations do not require significant resources, there may be changes which require more staff time or additional teaching materials. In addition, not all changes directly promote inclusion. One example of such a change was observed during the compilation of this thesis. The situation within physical education for an individual with ASD had reached a point where it was no longer viable to the student to continue in these lessons (as agreed by the teacher, SEN staff, the pupil and their parents). As a result, it was arranged that the pupil would spend these lessons within the SEN centre receiving additional help with homework or particularly challenging subjects. Whilst this resulted in the individual being removed from the class and thus not participating in the full curriculum, it also resulted in his continuing enrolment with

the school and thus promoted his involvement in an inclusive mainstream environment in other lessons at a higher level. With regard to additional materials, the use of writing frames and a variety of task levels have been highlighted as successful ways to promote inclusion, as have peer-mediated instruction and peer-modelling in the cases of individuals with ASD.

It should be noted that the implementation of the interventions discussed in Chapter 7 could also help the inclusion of children with ASD into mainstream environments.

Whilst certain interventions may require intensive support, others are unobtrusive and require minimal input both financially and in terms of time from school staff, and thus may be particularly suitable for mainstream educational environments.

Finally, the approach adopted by the TEACCH programme, which uses an individual's strengths to overcome any areas of potential weakness, is widely advocated in the literature as the most appropriate way to address the effects of any impairments which an individual with ASD may display (Baron-Cohen *et al.*, 1986; Happé, 1999; Diehl *et al.*, 2006). By using this approach creatively, challenges that arise may be overcome, thereby minimising disruption and promoting inclusion.

2.3 Narrative Intervention and Inclusion

The final section of this chapter aims to highlight the potential impact of narrative intervention in mainstream schools and its links to inclusion, focusing particularly on the potential connection between improving an individual's experience of inclusion through improving their narrative skills. Through this discussion, the section provides a wider focus for the current thesis and highlights the potential implications of research presented in the following chapters.

As well as being part of the academic curriculum in England, narrative is a cultural linguistic phenomenon and contributes to individuals' communication on a daily basis.

As such it provides significant opportunities to develop communicative skills as well as expression of one's identity and sense of self in society; this is further discussion in Chapter 4. Narrative intervention, therefore, provides significant opportunities to reduce the impact of communication difficulties in individuals with ASD in both academic tasks and social situations within the school community (impairments are discussed in detail in Chapter 3). Reducing these impairments and limiting potential frustration by providing individuals with the tools to express themselves and succeed can therefore facilitate the inclusion of individuals with ASD.

Academic requirements related to narrative production exist explicitly within the literacy curriculum. However, as English underpins the school curriculum overall, success in this curriculum area can be transferred to many other subject areas. This is particularly clear when the recording of science experiments is considered. These reports often have a strict format which must be followed and should include specific information. Whilst this type of narrative is often explicitly defined, this is not the case for other areas of the curriculum where narrative techniques may be more freely employed by individuals. Thus, by employing robust narrative strategies in English lessons, other areas of the curriculum may also benefit. In addition, success often results in growing confidence for individuals and, for students who find English lessons frustrating, success in one area may encourage further effort to achieve in others. Frustration, which is seen in many individuals with ASD (Frith, 2003:110), and possible task avoidance can lead to disruptive behaviour in some cases. At this point, additional support implemented in a whole class situation could enable the individual to continue to participate in the class, and may ultimately reduce the level of one-to-one support required. Thus, the improvement of the academic achievements of an individual with regard to narrative may maintain the inclusive environment as a viable option in which

the full curriculum remains open to these individuals, thereby increasing their opportunities for success further and enhancing their future career opportunities.

Whilst academic achievements are valuable and may have an impact on performance within the classroom as a whole, the potential social improvements are also valuable. Narrative is a tool employed by individuals within everyday conversation which forms the heart of communication in society (Peterson and McCabe, 1991:29). Thus, improvements in narrative skills and understanding could have a significant impact on an individual's inclusion in the school community. The problems of inclusion for individuals with language and communicative impairments (discussed in Section 2.2), further highlight the importance of communication skills in the development of peer relationships which are an essential part of a child's development and can play a significant role in promoting of full inclusion (see Section 7.1.1.1 for a discussion of peer-led interventions). It is suggested that, through the development of narrative skills, children can be provided with an enhanced communicative ability which can carry over into peer relationships. In addition, the skills required for narrative composition (discussed in detail in Chapter 4) may increase an individual's awareness of the expectations of communication partners. This is particularly true of high-functioning individuals with ASD who, for example, have the ability to empathise or include discussion of emotions in communication, but neglect to include it (see Chapter 5 for further discussion). It is suggested that, by further developing the narrative skills of these individuals, it may be possible to increase their understanding and awareness of communicative expectations and thus promote their inclusion in their community. In addition, for high-functioning individuals with ASD, detailed and advanced narrative interventions would also offer the opportunity to allow them to develop their skills of evaluation and abstraction. This, in turn, would allow them to view narrative

communication as more than the relaying of facts but as part of the development of self-identity and empathy within a situation. In addition, as narrative offers the opportunity to explore a vast range of situations and emotions, it also allows for the development of understanding of more complex or subtle emotions which have been identified as problematic for this group (Capps *et al.*, 1992:1177), (see Section 3.2 for further discussion). Furthermore, narrative intervention could offer the opportunity to develop the techniques required to accommodate communicative partners or audiences, and tailor communicative acts to accommodate individual or situational requirements.

Another application of improved narrative abilities which may result from narrative intervention is the use of social stories (Rowe, 1999; Del Valle *et al.*, 2001). The impact of this intervention technique, which is used to teach individuals with ASD about social conventions and communication, may be enhanced by an improvement in narrative skills. Increased narrative abilities may enable individuals with ASD to more easily generalise the skills they learn from social stories to additional situations not covered by the social story intervention. This would, therefore, facilitate their inclusion within society.

As suggested by the above discussion, narrative intervention has significant potential to improve the inclusion of individuals with ASD, and of high-functioning individuals with ASD whose impairments are subtle but significant in nature (Solomon, 2004:271). The current thesis aims to develop a technique which is unobtrusive and can be implemented to aid both the academic and, through further research and development, the social inclusion of high-functioning individuals with ASD in mainstream environments.

2.4 Conclusion

This chapter has outlined English policy on inclusion in education and has highlighted several examples of inclusive practice which have been implemented in English schools. It has situated this thesis within current English mainstream education practices and, thus, has enabled the current investigation to be seen in the context in which it was conceived. In addition, it has highlighted the potential role of narrative intervention in inclusion practices, thus identifying the area of inclusive practice which this thesis is focused upon. The initial motivation behind this thesis was the observation that whilst high-functioning individuals with ASD are able in many areas, they also present challenges within a mainstream classroom. The current investigation aims to provide teachers with non-intrusive techniques to improve narrative by providing additional support for individuals with ASD without singling them out for unneeded special treatment. These techniques have been designed for use in the whole class setting and will utilise writing frames and topics to provide both a variety of task levels and a flexible approach to lessons. It is hoped that these techniques will contribute to the larger process of supporting all children with ASD. The objective is to facilitate their inclusion in mainstream classrooms whilst building on their strengths to improve their weaknesses and thus overcome the challenges posed for individuals with ASD by inclusive education.

Chapter 3 : Autism

This chapter aims to situate the current research in the field of autism and provide information about the nature of the disorder and the impairments that are present, both generally and linguistically. This section does not provide an exhaustive review of the substantial and rapidly advancing body of research surrounding autism but provides an adequate background in order for it to be fully understood with context of the present study.

3.1 What is Autism?

Autism is a developmental disorder usually detected within the first 3 years of life. There is no known single cause and, to date, no cure has been found. As the history of the research into autism reveals, there has been a progression of understanding of autism, which continues today. The initial identification by Kanner (1943) and Asperger (1944, translated by Frith 1991) indicated that autism was a fundamental disorder that was present from birth and which presented characteristic problems as a product of cold parenting (Kanner, 1943:42). Kanner (1943) highlighted echolalia, obsessive and stereotyped behaviour as features of autism. In addition, he identified that children with autism had a different relation to people in comparison to typically developing individuals and, conversely, a good relation to objects (1943:38). Whilst many of the identifiable behaviours are still recognised in the disorder today, the understanding of the causes of autism are significantly different and the belief that impaired parenting causes autism has been rejected. The modern understanding is that autism is a spectrum disorder which is more prevalent in males (male:female ratios for autism are 4:1; Asperger syndrome 15:1) (Frith, 2003:65), and is comprised of a triad of impairments. This triad comprises of impairments in social interaction, communication, and restricted

which is associated with a rigid, repetitive pattern of stereotyped behaviours and limited imagination (Wing, 1996:327). Throughout the spectrum there are varying levels of impairments and these impairments appear along a continuum (Frith, 2003:203).

Therefore, whilst all individuals with ASD share core characteristics, they also differ significantly in the level of their abilities resulting in a diverse population (Rice *et al.*, 2005:15). As the focus of this thesis is high-functioning individuals with ASD i.e. those individuals who are at the high-functioning end of the autism spectrum and are functioning in society relatively successfully, this review will focus on the abilities of these individuals.

There is currently no genetic assessment to detect autism, although familial links are currently being investigated (e.g. Happé *et al.*, 2001; Tager-Flusberg and Joseph, 2003; Castermans *et al.*, 2004) and increased frequency of ASD in family members is acknowledged in both autism and Asperger syndrome (American Psychiatric Association, 1995:69, 76). As such, the diagnostic criteria are important in standardising diagnostic methods. Accurate and consistent diagnostic criteria provides researchers with reliable diagnoses from which to compare research findings and provides some guarantee of the relative homogeneity of the group (outside of the heterogeneous nature of a spectrum disorder such as autism) (Lord and Risi, 2000:15). More importantly, however, diagnosis allows access to specialist help for individuals and their families (Lord and Risi, 2000:15). By receiving a diagnosis of ASD, the family not only have access to specialist support in the form of speech therapist, child psychologists and additional support in school but also the support of other families in similar situations through support groups and charities such as the National Autistic Society (Volkmar and Klin, 2005:9). This increases the support received by the child

and their family, thus, increasing individuals' chances of a positive outcome (Evans *et al.*, 2001:ii).

The American Psychiatric Association in their DSM-IV diagnosis criteria (1995:69) state that all of the following symptoms must be present and must have been present from early childhood for a diagnosis of autism to be given. The criteria are relative to the developmental level of the individual and children receiving a diagnosis using these criteria are considered to have 'core autism'.

1. A qualitative impairment of social interaction (relative to developmental level). Manifestations of this can be poor use of eye contact or lack of personal relationships.
2. A qualitative impairment of both verbal and non-verbal communication abilities. This can be seen in delayed language acquisition, lack of speech or lack of spontaneous play relative to the appropriate developmental level.
3. A significantly restricted or stereotyped range of interests and activities in relation to developmental level. This may be demonstrated in repetitive movements, limited imagination or restricted or unusually specific interests.

In addition, children must show impairments in one of the following areas before the age of three: social interaction, the use of language for social communication or symbolic or imaginative play. It should be noted that the guidelines clearly state that all three of these criteria must be met for a diagnosis of autism to be given. It is also important to highlight at this point that many individuals with autism also have other co-occurring impairments such as Attention Deficit Hyperactivity Disorder and Fragile X Syndrome which can complicate diagnosis and treatment (American Psychiatric Association, 1995:68).

As stated above, it is important to recognise that as autism is a spectrum disorder, there is a wide range of ways in which these core impairments are manifested. Therefore, whilst the triad of impairments is used as the basis for diagnosis and is present in all individuals with autism, the extent to which these features are present varies greatly across the spectrum (Wing, 1996; Frith, 2003). It should also be noted that although 'core autism' makes up the majority of the spectrum, Pervasive Developmental Disorder - Not Otherwise Specified (PDD-NOS) and Asperger Syndrome (AS) are also considered to be part of the spectrum (Frith, 2003:13; Volkmar and Klin, 2005). Whilst there is debate regarding the inclusion of additional disorders such as Specific Language Impairment and Pragmatic Language Impairment on the spectrum (Botting and Conti-Ramsden, 1999; Lord and Risi, 2000:12), there is little disagreement about the inclusion of cases of high-functioning autism and cases of AS (Lord and Risi, 2000:13). It should be noted that Asperger Syndrome (AS) has distinct diagnostic criteria which, whilst being broadly similar to the criteria for autism, does have some important differences. The DSM-IV criteria state that all of the following should be present for a diagnosis of Asperger syndrome to be given.

1. A qualitative impairment in social interaction (relative to developmental level). Manifestations of this can be poor use of eye contact or lack of personal relationships.
2. A significantly restricted or stereotyped range of interests and activities in relation to developmental level. This may be demonstrated in repetitive movements, limited imagination or restricted or unusually specific interests.
3. No clinically significant delay in language or cognitive development and appropriate levels of interest in their environment, development of self-help skills and adaptive behaviour.

The important distinction between autism and Asperger syndrome is the lack of developmental language delay in Asperger syndrome individuals, although literal interpretation of language and communication difficulties are noted in both groups (Eisenmajer *et al.*, 1996). Whilst this remains part of the diagnostic criteria, research has highlighted the possibility that criteria do not fully address the linguistic abilities of Asperger syndrome, which may develop atypically in early development (Howlin, 2003) and may fail to distinguish individuals with autism and Asperger syndrome diagnosed later in development (Eisenmajer *et al.*, 1998). Another distinction between autism and Asperger syndrome is that there is no requirement for the existence of onset prior to three years old with regard to impairments of social interaction and symbolic or imaginative play. This high-functioning end of the spectrum, which encompasses both high-functioning autism and AS, presents particular difficulties in diagnosis, identification of impairments, and intervention as impairments are subtle (Ochs and Solomon, 2004:139; Solomon, 2004:271; Stirling and Barrington, In Press:6). The subtle nature of impairments allows the disorder to go undetected in some cases due to coping mechanisms employed by the individual which may enable them to appear to be functioning normally.

Following recent research (reviewed in Chapter 5), this thesis will consider Asperger syndrome and high-functioning autism within the same high-functioning group as, although there are presently different diagnostic criteria for these disorders, they are considered within the research literature to perform as one group (e.g. Baron-Cohen *et al.*, 1997; Losh and Capps, 2003). These high-functioning individuals are at the more able end of the autism spectrum and are able to function independently in society. Although they have language and communication problems, as stated above, these are subtle and can go undetected in everyday life (Twachtman-Cullen, 2000:225; Solomon,

2004). As such for the purposes of this thesis these individuals will be referred to as high-functioning individuals with Autism Spectrum Disorders (ASD).

Autism is a developmental disorder and is, therefore, present throughout the life of the individual. As a result, it is possible for impairments to vary throughout stages of development. Recent research has identified both continuity and change in the ASD symptoms of individuals with autism. Whilst some impairments may disappear with developmental progression, 'new' impairments may be identified later in development (Frith, 2003:1). In effect, as an individual develops the manifestations of autism may change and, although autism affects development, development also affects autism (Lord and Risi, 2000:14).

Through examination of symptoms in adolescence, it has been found that whilst the diagnosis of ASD remains correct as the child develops, the severity of the symptoms are reported by parents as less severe in adolescence (McGovern and Sigman, 2005:405). In addition, it has been found that a significant proportion of the development of language and cognitive skills occur between early and mid-childhood and development slows down dramatically in the following stages of childhood (Sigman and McGovern, 2005:21). These variations mean that the age of individual must be taken into account during diagnosis. Such changes through the course of development have to led to some clinical testing measures initially appearing to be effective in early diagnosis, but through follow-up studies have been identified as failing to diagnose a significant number of individuals who are subsequently diagnosed (Lord and Risi, 2000:14). As a result, it has been suggested that for early diagnoses (which are preferred by many professionals as they allow early intervention (Moore and Goodson, 2003:47)), the most effective method is the use of specialist overall clinical

judgement and not the use of specific clinical testing measures (Lord and Risi, 2000:26).

3.2 General Impairments

As highlighted above, individuals with autism have impairments in three core areas; communication, social interaction and restricted interests. This section highlights some of the general impairments found in autism, Section 3.3 discusses linguistic impairments in more detail.

3.2.1 Social Interaction

It is well documented that individuals with ASD find socialising problematic. They typically avoid eye contact, have impaired joint attention and have impaired abilities in expressing complex emotions for example embarrassment or pride (Capps *et al.*, 1992:1177). In addition, individuals with ASD have problems recognising facial expressions and expressing emotions (Hobson, 1986), demonstrate problems interpreting expressive gestures (Lord, 1995:1374), and have problems interpreting cues from eye contact (Baron-Cohen *et al.*, 1997:813). Furthermore, recent research suggests that although individuals have as many opportunities to socialise with siblings and parents as typically developing (TD) peers, there are qualitative differences in how that interaction is carried out. One such study highlighted the increased use of physical contact used by mothers to initiate social contact with their child with ASD when compared to a TD sibling (Doussard-Roosevelt *et al.*, 2003). It highlighted that whilst the same number of attempts were being made to establish social contact with the child, qualitative differences could be identified (Doussard-Roosevelt *et al.*, 2003:277). In addition, Siller and Sigman (2002) found that parents who synchronise their behaviour to that of their child with ASD during play sessions had children who developed superior joint attention and language skills over a sixteen year period. This further

highlights the potential impact early social encounters can have on the development of a child with ASD. Furthermore, it has been suggested that a compounding issue for social development is the nature of contact opportunities individuals with ASD provide for others which has been found to be limited in nature both socially and linguistically (Tager-Flusberg *et al.*, 2005:335).

3.2.2 Joint Attention

Joint attention is triadic in nature and defined as the sharing of attention between an adult, a child and an object (Charman, 2003:315). Research into TD individuals has suggested that the development of triadic attention, which is acquired at 6-12 months old (Charman, 2003:315), is based upon the development of dyadic attention such as the attention paid when the child's name is called (e.g. Striano and Rochat (1999)).

Research has also found that joint attention abilities predict linguistic abilities in TD individuals (Charman, 2003).

This socio-communicative skill has been identified as related to developmental impairments in both social and language skills (Charman, 2003:315; Jones and Carr, 2004:13) and, thus, has a marked affect on the development of individuals with autism. There has been a substantial amount of research in the area of joint attention and ASD in recent years that has identified a lack of joint attention or delay in its development. This impairment has been described as one of the most reliable predictors for a diagnosis of autism (Leekam and Ramsden, 2006:185). In addition, gains in language in later life are predicted by responsiveness to and initiations of joint attention (Sigman and McGovern, 2005:21).

In a recent investigation into the dyadic attention and joint attention impairments in ASD, Leekam and Ramsden (2006) found that children with autism were impaired in both initiating and responding to joint attention cues and initiated eye contact less

frequently. Another investigation of joint attention revealed that the impairments and delays seen in both joint attention and dyadic attention were specific to individuals with ASD and were not found in either of the control groups (TD and developmentally delayed) (Leekam *et al.*, 2000). The reason for the specific impairment is an area of some controversy in the current literature and discussion is ongoing. Although this debate is not directly relevant to the current discussion, it is valuable to briefly outline two main viewpoints as they enable the research on joint attention to be understood in the wider context. One view of joint attention postulates that problems with joint attention stem from a core impairment in interpersonal engagement which results in the child not engaging with the other person and, thus, not sharing attention with them (Leekam *et al.*, 2000:272). The alternative view of joint attention impairment is that it may provide the foundation for theory of mind (discussed in 3.2.6.1) and, thus, result from the same underlying impairment. Therefore, although children with autism are able to understand that people are looking at objects, they are unable to form a representation in which two people are looking together at the same object; this is described as the shared attention mechanism (Baron-Cohen, 1995:64-69).

In summary, joint attention is impaired in individuals with autism and is considered a good predictor of overall diagnosis as well as linguistic development. There are still many questions surrounding the underlying reasons for impairment in this area and further research will enable a better understanding of the development of joint attention in TD individuals, individuals with ASD and ASD impairments overall.

3.2.3 Behaviour

In addition to impaired joint attention, individuals with autism can also have significant behavioural problems. These range in severity from hyperactive and socially embarrassing behaviours to tantrums and aggressive behaviour towards themselves and

others (Wing, 1996:103-127). Whilst these behaviours can be problematic in their own right, they are also detrimental to the development of the child, and the quality of life of the individual and their family (Moes, 1995:81). As a result, this is an area of focus for intervention studies (as discussed in Chapter 7) to ensure that other areas of the child's life are not impaired by these inappropriate behaviours (e.g. language development or general education).

Other types of inappropriate behaviour are also common, predominantly in childhood. For example, repetitive behaviours such as spinning a toy car wheel for long periods can replace an interest in symbolic play (Kanner, 1973). In addition to repetitive behaviours, many individuals with ASD have restricted interests in inanimate objects, commonly known as 'obsessions'. Any topic or item can become a focus of interest for an individual with autism, for example, train timetables, cartoon programmes or characters, or a need for order in their immediate surroundings (for example, making sure all the cupboard doors are closed 'correctly'). As highlighted by Asperger (1991), interests in inanimate objects often override interest in human interaction.

In addition, some individuals with autism have tactile or auditory aversions (Frith, 2003:10) which, for more able and older individuals with autism, may prevent them from functioning in their everyday lives (for example they may dislike noisy or crowded places which may present problems for social and educational inclusion).

3.2.4 Savant Abilities

Alongside impairments, some high-functioning children with autism have abilities which surpass those of typically developing children. These individuals are, in all other areas of development, significantly impaired. However, in their area of ability they demonstrate a superior knowledge. Although not specific to autism, and despite comprising only 5% of all individuals with autism, approximately 50% of all people

with savant abilities also have a diagnosis of ASD (Frith, 2003:146-7; Happé, 2005:640). Areas of savant abilities are frequently linked to music, calculation, drawing or memory. For example individuals may have perfect pitch (Happé, 2005:644), demonstrate knowledge of the day of the week for any given date past, present or future, or be exceptionally good at playing a musical instrument (Frith, 2003:146). As highlighted by Frith, although the process required to achieve these savant skills is unknown, the noted intense concentration without distraction and lack of need for social interaction would provide perfect conditions for the “single-minded pursuit” of a skill (Frith, 2003:149).

Finally, it should be noted that whilst truly exceptional cases are rare, many individuals with ASD show less prodigious abilities alongside impairments, such as the ability to complete a jigsaw as well as showing an enhanced ability in the use of logic, pattern identification and rule application (Happé, 2005:640). These areas of strength provide high-functioning individuals with autism an ability to succeed in their life despite their impairments. Furthermore, by identifying the abilities of individuals with ASD, it may be possible to use them to help develop compensatory strategies, a technique which has partly motivated this thesis. It is suggested that by using an individual’s abilities to reduce their impairments, intervention strategies can be developed which are rewarding and unobtrusive, thus, also facilitating the inclusion of individuals with ASD. This issue is discussed further in Chapter 6 and Chapter 8.

3.2.5 Imitation and Mirror Neurons

A recent area of research in autism is imitation. Related to the understanding of self and other which has been identified as problematic for individuals with autism in relation to theory of mind, the ability to imitate has also been identified as impaired in individuals with autism. Rogers (2000) found that individuals with autism have

impairments in imitating the actions of other people. Furthermore, Meyer and Hobson (2004) found that when asked to copy the actions of another, children with ASD did so but without copying the style or orientation in which it was done, i.e. tapping with the stick but not on their shoulder as the researcher had done on her body. In a further study, children with ASD were asked to show the researcher where on her body she should put the sticker. Whilst all of the TD children pointed to their own body at least once, over half of the children with ASD didn't point to themselves at all (Meyer and Hobson, 2004:221). This difference was further marked when the researchers body was blocked by a screen and the researcher had shown the child a 'point to herself' gesture (where the researcher pointed to herself and indicated for the child to copy). In this case, there was no change in the propensity of the ASD children to point to themselves, however, controls showed a marked difference (Meyer and Hobson, 2004:18). Meyer and Hobson (2004:221) suggest that the ability of individuals with autism to adopt the psychological and communicative stance of another is impaired. In addition, they suggest that this process of identification of others provides grounding for the development of theory of mind in children.

A related and new area of research which has come to the forefront of the field in recent years is the investigation of mirror neurons in autism. Originally identified in monkeys, mirror neurons can be defined as neurons which fire in response to observed or imitated actions in others (Dapretto *et al.*, 2006). Importantly, the neurons that are active during observation of a task are the same as those which would activate if the individual were to copy the actions of those they are observing (Oberman *et al.*, 2005). Although single neurons cannot be identified in the human brain, areas of activity have been isolated (Dapretto *et al.*, 2006). Recent research examining the response of these neurons in reaction to emotional expressions has revealed that individuals with ASD

show less mirror neuron activity while observing the emotions of others (Dapretto *et al.*, 2006). This has led to the suggestion that the 'mirror neuron system' in individuals with ASD may be impaired (Dapretto *et al.*, 2006). This finding is supported by Oberman *et al.* (2005) who found that the mirror neuron activity of individuals with ASD varied significantly from controls when completing observation tasks. Specifically, the ASD group demonstrated mirror neuron activity only when self-initiated motions were performed but not when the same motions were observed in others. The TD group, on the other hand, showed activity for both observed and performed motions. They also conclude that individuals with ASD demonstrate a deficit in their mirror neuron activity (Oberman *et al.*, 2005).

This evidence suggests that individuals with autism are impaired in imitation abilities and react in a neurologically different manner to the activities of others. As narrative is a socially motivated and a culturally acquired aspect of language (see Chapter 4), it could be suggested that imitation of narrative examples presented to them may not be used in the same way by individuals with ASD as is seen in TD individuals. However, research which includes linguistic stimuli is required to develop this further. This is a new and developing field with some exciting findings and potential to provide a significant new understanding of ASD. Whilst this very brief overview has highlighted the main findings of this field, further investigations with regard to reactions to linguistic stimuli may provide a deeper understanding of the impairments seen in ASD with regard to language and communication.

3.2.6 Theories Related to Autism

The following section aims to outline two of the main theories linked to autism and their relevance to this thesis. Before beginning this discussion it should be noted that whilst the theories do attempt to offer an underlying mechanism for autism they are not

mutually exclusive as each theory offers an underlying explanation for a different aspect of the impairments seen in ASD. Thus, the two theories can be considered simultaneously. Whilst a debate on the issue of core underlying impairments in autism is outside the remit of this thesis, it is important to highlight the contributions these theories make to the wider understanding of ASD, and the predictions they make for linguistic and, more specifically, narrative performance.

3.2.6.1 Theory of Mind

Identified as an impairment in individuals with ASD, Theory of Mind (ToM) refers to the ability to understand or comprehend the beliefs, perspectives and emotions of others (Baron-Cohen *et al.*, 1985). It has been well documented that individuals with ASD have some degree of impairment in this area. These impairments are most marked in a reduced ability to identify the motivations or beliefs of others and to read and understand emotions. It has also been noted that even those individuals with ASD who are able to pass theory of mind tasks continue to demonstrate impairments in everyday situations (e.g. narrative (Baron-Cohen *et al.*, 1985; Bruner and Feldman, 1993)).

It is important to note that the recognition of basic emotional states is not problematic for individuals with ASD but identification of more subtle emotions and facial expressions can be problematic (Hobson, 1986; Capps *et al.*, 1992:1177).

One of the most well known tests to establish ToM abilities is the Sally-Ann test (Baron-Cohen *et al.*, 1985). In this test, the subject is presented with two dolls, Sally and Ann. Sally has a basket; Ann has a box. Sally has a marble. Sally puts the marble into her basket and goes out for a walk leaving the basket with Ann. Ann takes the marble out of the basket and puts it into her box. Sally comes back and wants to play with her marble. The subject is then asked "Where will Sally look for her marble?". In order to demonstrate ToM the individual must recognise that although they saw Ann

move the marble, Sally did not and, therefore, she will expect the marble to be in the place where she left it, i.e. in the basket. If the individual does not have ToM they will not be able to distinguish their knowledge, reality and the beliefs of Sally and they will state that Sally will think that the marble is in the box. Whilst typically developing children at the age of four to five successfully demonstrate ToM abilities and identify that Sally believes that the marble is in the basket where she left it, the majority of children with ASD do not demonstrate this skill until later in life (the exact ages varies widely depending upon an individual's level of functioning) (Baron-Cohen *et al.*, 1985). There is a small group of individuals with autism who do demonstrate these abilities. However, when tested on second order ToM tasks which ask the individual to state what Character 1 believes Character 2 believes, they show impairments. For example, a boy and a girl are playing. The boy wants to go outside so he puts his ball in a box. While he is outside the girl moves the ball from the box to under the bed but she does not know that the boy has been watching her do this through the window. When the boy comes back into the room where will the girl expect the boy to look first? If the child demonstrates second order ToM they will say in the box. If they do not they will say under the bed (Astington *et al.*, 2002:135).

Due to its interpersonal focus, theory of mind has been an area of interest in the study of narrative abilities in individuals with ASD and has been the focus of many investigations (e.g. Tager-Flusberg and Sullivan, 1995; Capps *et al.*, 2000; Losh and Capps, 2003). The implications of impairments in theory of mind relate to an inability or impaired ability to interpret the actions, reactions or emotions of others, the motivations for actions and emotions and the discussion of states of mind different to one's own. As highlighted in Section 5.2 these abilities are integral to successful narrative production, not only in order to accommodate the audience and react to their

needs, but also to interpret and accurately report and explain the belief states of the characters involved in the narrative (Capps *et al.*, 2000).

In summary, ToM offers an explanation for the social and interpersonal impairments seen in individuals with ASD. Importantly for this thesis, it also offers an underlying cause for some narrative impairments which can be seen in high-functioning individuals with ASD. This will be discussed further in Section 5.2.

3.2.6.2 Weak Central Coherence

Weak Central Coherence (WCC) was first postulated by Frith (1989:98) to account for the impairments and abilities of individuals with autism by suggesting that they have the same origin, something which previous theories had failed to do (Happé, 2005:640). The theory is derived from the concept that all typically developing individuals have a tendency to process globally and show a propensity to “pull information together [...] at the expense of detail” (Happé, 2005:640). In other words, typically developing individuals tend to process information in order to derive the gist and central coherence by default. Individuals with ASD, on the other hand, have been found to have a tendency for WCC or, in other words, focussing on detail at the expense of “pulling information together” (Frith, 2003:161). This theory does not suggest that individuals with ASD are incapable of global processing. They are, for example, able to take global visual context into account (López and Leekam, 2003) but that it is not their ‘default’ processing style. As a theory, WCC accounts for the ‘piecemeal’ approach to information processing and the focus on detail seen in individuals with ASD (Solomon, 2004:257).

Support for this theory has been found in several studies. Visio-spatial studies using block design tasks from the Wechsler IQ tests (WASI and WISC) (Wechsler, 1999) in which individuals are required to replicate the pattern presented to them on a series of

blocks have found that individuals with ASD outperform controls (Shah and Frith, 1993; Jolliffe and Baron-Cohen, 1997). In addition, their IQ test scores demonstrate a skewed profile in which individuals excel at visio-spatial or performance tasks but perform poorly on linguistic based tasks (Happé, 1994b; Rice *et al.*, 2005:15).

Additional support for WCC is offered by Shah and Frith (1993) who manipulate the block design task by presenting the task in two ways. The first group of participants (both TD and ASD) were presented with the original block design task, the second group (both TD and ASD) were presented with a manipulated task in which the shapes were shown segmented prior to the participant attempting the task. By implementing this manipulation, the effect of segmental (or local) processing over a global processing default would be identified as highlighting the segmented shapes would aid local processing if this was not the default approach. As predicted the manipulation did not have an effect on the ASD group but significantly improved performance in the TD group. It is suggested by Frith (1989:99-100) that this supports the proposal that children with ASD have WCC but that this may produce enhanced skills in certain areas, i.e. local processing. Other studies have used embedded figures tests which require the individual to identify a shape within a pattern (Jolliffe and Baron-Cohen, 1997). These studies have also found this task to be an area of ability for individuals with ASD, and Frith (2003:155) also highlights these abilities as support for WCC.

With regard to verbal and semantic coherence, research using homograph tasks has found that children with autism do not use linguistic context to produce the correct pronunciation of a homograph (Happé, 1997; López, 2001; López and Leekam, 2003). Recent research comparing the use of visual and linguistic contextual information by individuals with ASD aged 13;10 revealed that individuals can process globally when pictures are used to give context (López and Leekam, 2003). However, these same

individuals are unable to use context when linguistic context is presented (i.e. homographs) (López and Leekam, 2003). The investigation (López and Leekam, 2003) presented several tasks in which the context was provided by a picture or other visual stimuli. During these tasks, both the typically developing children and children with autism showed an improved response time when the visual context shown prior to the object picture was related to the object which followed, thus, demonstrating that both groups account for the global context in which the object is introduced if that context is not linguistic (López & Leekam, 2003). However, in the tasks which required the correct pronunciation of a homograph to be produced through the integration of the linguistic context, individuals with ASD did not use the context to determine the correct pronunciation and produced the most frequently used homograph. Lopez and Leekam (2003:298) conclude that the impairment is not general but specific to a complex linguistic context in which sentence information is used to disambiguate homographs. In relation to WCC, these findings support the previous findings regarding homographs (Happé, 1997) but suggest that, when specifically primed with non-linguistic stimuli, children with ASD are capable global processing.

Finally, it has been suggested that WCC results in impairments in global processing and, therefore, could impact upon the narrative and conversational abilities of individuals with autism. Briefly, it is suggested that the tendency not to strive for gist of meaning results in a lack of inclusion and use of contextual information and failure to make relevant inferences (Norbury and Bishop, 2002). In addition, it has been suggested that whilst narrative introductions, which require a gist or summary, may be possible, the application of these introductions to guide the global structure of the narrative is impaired (Solomon, 2004:262). This will be discussed further in Section 5.3.1.

In summary, WCC offers an explanation for the abilities as well as the impairments present in ASD and highlights the idea that impairments can be advantageous.

Furthermore, it suggests that individuals with autism have a different, not deficient, cognitive process and thus, different approaches and the exploitation of abilities to improve areas of weakness may prove beneficial for successful intervention design.

3.2.6.3 Summary

This section has highlighted two theories which aim to offer an account of some of the impairments in autism. As stated above they are not mutually exclusive and offer explanations for different areas of impairments in ASD. With regard to the current study, these theories have specific relevance when discussing narrative abilities of individuals with ASD and as such, they will be referred to throughout the thesis.

3.2.7 Conclusion

In conclusion, this section has discussed a wide variety of issues surrounding the study of autism. It has aimed to give the reader a brief but broad overview of research in this rapidly advancing field with the aim of situating the current research within the wider field. Issues surrounding social interaction, lack of theory of mind and WCC all play a role in the narrative abilities of individuals with ASD and as such will be referred to throughout the following discussions. In addition, savant abilities and the premise of WCC in accounting for both the impairments and the abilities of individuals with ASD support the initial motivation for this thesis and, therefore, will also form the basis of the discussions presented throughout this thesis. The following section discusses the linguistic impairments seen in autism and aims to further situate the current study in the field.

3.3 Language and Autism Spectrum Disorder (ASD)

This section discusses the findings within the literature with regard to the general language abilities of individuals with ASD. The aim is to highlight areas of general linguistic weakness that may have an impact on narrative abilities as well as providing context for the current study. This section will not, therefore, directly discuss the narrative abilities of these individuals as these will be addressed in Chapter 5.

3.3.1 General Issues Relating to Language Development

There has been a considerable amount of research in recent years surrounding the way in which individuals with autism acquire language and the impact this acquisition has upon future prognosis. Children with ASD have been found, at a very young age, to have different communication experiences to TD children. Their language acquisition begins later and progresses at a slower rate than that of TD children. This slower progress has been identified as significant in the diagnosis of ASD and is prevalent in many children with ASD (Tager-Flusberg *et al.*, 1990). However, as stated above, current diagnostic criteria allows for a diagnosis of ASD to be received without language delay (in the case of Asperger syndrome (AS)). It is important to note at this point in the discussion that, due to the spectrum nature of ASD, language abilities within this population are diverse. Whilst some high-functioning individuals with ASD have relatively preserved language with regard to core linguistic abilities (i.e. syntax, morphology and phonology), between 25-50% of individuals with ASD do not acquire language at all. This figure varies depending on the measure of language, as whilst some studies view language as producing more than five words daily, others require evidence of syntactic awareness or grammatical sentences (Lord and Paul, 1997; Lord *et al.*, 2004a; Rice *et al.*, 2005). For individuals whose language does not develop,

augmented communication and intensive therapy is often used to encourage communication (verbal and non-verbal) (see section 7.1.2.3.5).

For those children who do develop language, there has been considerable evidence to suggest that linguistic impairments are evident from an early age. Research into the communicative abilities of individuals with ASD has found that children who receive a diagnosis of ASD later in development are described retrospectively as having atypical language development at a young age (Tager-Flusberg *et al.*, 2005:341-2) highlighting considerable impairments in communication. It is suggested that the communicative abilities of these individuals highlight them as different communicators to TD individuals and that they may pay attention to different aspects of language (Lord, 1995). With this suggestion in mind, children with ASD have been reported to be less responsive to the voice of their primary carer (Lord, 1995:1374) and to the sound of their own name early in development (Lord, 1995:1378). In addition, research has found that the development of linguistic comprehension in individuals with ASD is also delayed in comparison to production and, thus, children are able to produce more than they can comprehend.

As discussed above, it has also been suggested that the social impairments exhibited by these individuals may compound the linguistic impairments in communication by resulting in a lack of opportunities to communicate or by providing different opportunities as a result of their responses to others (Tager-Flusberg *et al.*, 2005:335). This link is further reinforced within the intervention literature where it has been found that children develop a large proportion of their communicative abilities in collaboration with their peers (see Chapter 7 for discussion) and thus, peer interaction is essential. However, if a child with ASD is unable to effectively interact with their peers, or engages in a way which discourages their peers from engaging with them (e.g.

through displaying disruptive or aggressive behaviour), this avenue for the acquisition of communicative abilities may be impeded.

As discussed above, existing research in autism and language development describes the trajectory of language development as following a typical path and processes of development for formal aspects of language (i.e. syntax, morphology and phonology) despite the impairments within the disorder, however the rate at which it proceeds is delayed (Tager-Flusberg and Calkins, 1990:603; Tager-Flusberg, 2000b:13:13). In other words, although the children with autism are delayed in commencing their language acquisition and continue to develop at a slower rate, they follow the path of development seen in TD individuals. This does not mean that they are acquiring language in a uniform manner but that the variation seen within the group is within the expected range of variation for TD individuals. One area where this variation can be seen to be outside of the TD range is with regard to Mean Length of Utterance (MLU) (discussed further in Section 3.3.2). The development of MLU is seen to increase with age and linguistic ability in TD individuals. However, in autism it has been found to reach a plateau (Tager-Flusberg, 2004). This suggests that children with ASD are acting atypically with regard to the development of a longer MLU, however, as they follow the same trajectory of development until this plateau, this has been considered to be atypical but not highlighting a different trajectory (Tager-Flusberg, 2004).

In addition to language delay, approximately 25% of all individuals with ASD experience linguistic regression at 2 to 3 years old (Lord *et al.*, 2004b). This linguistic regression, thought to be specific to ASD, can be accompanied by regression in their social abilities (Lord *et al.*, 2004b) and is a distressing development for parents of children with ASD who, until this point, viewed their child developing typically (Tager-Flusberg *et al.*, 2005:342). Limited research into the effect of linguistic regression on

the prognosis for language ability has concluded that minimal links between regression and linguistic prognosis can be identified. Specifically, children who display linguistic regression demonstrate a lower Verbal IQ (VIQ) than those who do not (Richler *et al.*, 2006). As the regression is often measured by retrospective questionnaire studies, further research is required in this field to fully establish any possible long-term implications of linguistic regression (Richler *et al.*, 2006).

The final issue which should be addressed with regard to language development in general is the prognosis of children with ASD who have language delay. Research suggests that children with ASD who develop functional language by 5 years old are more likely to have a positive linguistic outcome than those who are less linguistically developed at this age. An individual's language level at 5 years old is considered to be a good predictor of the future linguistic abilities of the individual (Paul and Cohen, 1984). This is an important finding for intervention design and implementation as intervention before this stage could significantly improve the outcome and prognosis for the child (Lord, 2000). This has been highlighted in the intervention research (discussed in Chapter 7), which recommends early intervention for individuals with ASD for both behaviour and language (Lord, 2000). In addition, interventions implemented after the age of 5 may use this information to focus their energy and provide the correct levels of support for individuals.

In summary, this section has briefly highlighted some of the general issues surrounding the language development of individuals with ASD and the impact they have on the overall development of the child. These issues, although broad in scope, are intrinsically linked to the current thesis as the area of narrative and narrative abilities builds upon the early communicative and linguistic development of an individual. The

following sections will address, in detail, the areas of general language abilities in which individuals with ASD demonstrate both abilities and impairments.

3.3.2 Syntax, Lexicon and Reading

The area of syntax has been found to be relatively unimpaired in high-functioning individuals with ASD and has been described in the literature as broadly intact although significant variation between individuals has also been noted due to the heterogeneous nature of the disorder (Tager-Flusberg, 2000b). The issue of pronoun reversal (e.g. using 'I' to refer to someone else when 'you' is required) has, however, highlighted one area which is particularly problematic for individuals with autism. Although pronoun reversal is present in the acquisition of language in TD individuals, its presence is prolonged in the acquisition of some individuals with ASD and, thus, is considered atypical. Research has shown that the errors made by individuals with ASD occur, on average, in 13% of all pronouns used and that these errors reduce and cease as the child becomes more linguistically advanced (Tager-Flusberg, 1994). Whilst, the reason for this impairment is unclear, the most common explanation relates to a child's ability to conceptualise self and other and understand broader discourse roles (Loveland, 1984; Tager-Flusberg, 1993). This impairment is also linked to the wider social and communication impairments related to problems with theory of mind (discussed in sections 3.2.6.1 and 5.2). In addition, pronoun reversal has also been linked to problems with perspective shifting and theory of mind which have been found in individuals with ASD (Loveland, 1984).

Another area of syntax which has been highlighted as atypical is the development of Mean Length of Utterance (MLU) mentioned briefly above, MLU is commonly used as a measure of syntactic ability and complexity, and has been found to plateau in children with ASD (Tager-Flusberg, 2000b:14). In addition, when measured by IPSyn (an

alternative measure of syntactic ability), MLU was found to overestimate the ability of individuals who had scored highly (Scarborough *et al.*, 1991). This further analysis revealed that high-functioning individuals with ASD used a more restricted set of syntactic constructions and asked fewer questions than originally predicted by the MLU scores. It was concluded that MLU was not a good measure for syntactic ability and that scores in the IPSyn identified restricted syntactic variation which suggests impairment in this area of productive syntax.

Another area of syntax identified as problematic for some individuals with autism is tense marking. Roberts *et al.* (2004) find that a subgroup of children with autism who present with specific language difficulties show impairments in grammatical morphology with regard to third person and past tense marking. They found that language impaired children with ASD performed better than results for a Specific Language Impairment (SLI) group published by Rice *et al.* (1995). However, the difference in age is suggested as a possible reason for the apparent difference in results as the ASD group were older than the SLI group. When the data were compared to a longitudinal group from the same study (Rice *et al.*, 1995) who were matched on chronological age, the study found that the ASD group performed worse than the SLI group. This result suggests that the impairments in tense marking exist for longer in the ASD group (Roberts *et al.*, 2004:441). However, these findings contradict those reported by Botting and Conti-Ramsden (2003) who find that the past tense abilities of ASD and SLI children aged 10 years old showed no significant differences. The lack of agreement between these studies could be attributed to the different tasks used to test past tense abilities and different criteria for inclusion in SLI and ASD groups may also have affected the results gained. Further research is required in this area to resolve these contradictory findings.

Investigations into the lexical abilities of individuals with autism reveal this to be an area of advanced ability. The use of obscure words often surprises those working with these individuals as the level of lexical knowledge far surpasses that of their other linguistic abilities as well as those of their TD peers. This is particularly true for individuals with Asperger syndrome who often demonstrate a pedantic use of rare or obscure words which are exacting in their meaning (Ghaziuddin and Gerstein, 1996). In addition, idiosyncratic words which are often similar to words within their mother tongue have been noted in some individuals with ASD e.g. “commendment” for “praise” or “cuts and blueses” for “cuts and bruises” (Tager-Flusberg *et al.*, 2005:344). Although this feature has been found in other children who have developmental impairments, the frequency of use is significantly higher in ASD groups. Furthermore, only children with ASD have been found to use phrases and neologisms where the original root was not clear (Volden and Lord, 1991).

Investigations into the categorisation of words by children with ASD have revealed that whilst they appear to categorise the words in the same way as their TD peers (Minschew and Goldstein, 1993), they do not use this information to aid the completion of retrieval or organisation tasks (Tager-Flusberg, 1991).

Research has also identified that certain word classes may be underrepresented in individuals with ASD. Findings reveal that mental state terms are not used as frequently as expected by the ASD group in comparison to the TD participants (Tager-Flusberg, 1992; Tager-Flusberg and Sullivan, 1994), in particular those terms which referred to cognitive states (e.g. know, think).

Reading has also been identified as unproblematic for high-functioning individuals with ASD. It is also frequently self-taught from an early age when it is promoted by an early interest in letters and numbers (Loveland and Tunali-Kotoski, 1997). High-

functioning individuals with ASD demonstrate literacy abilities which match their developmental levels (Loveland and Tunali-Kotoski, 1997), thus, this area of academic ability has been identified as a relative strength (Tager-Flusberg *et al.*, 2005:354).

Interestingly, research has highlighted that written material can be helpful in interventions for high-functioning children with ASD and written scripts, social stories, reminder cards and lists have all been used to promote social skills in these individuals (Rowe, 1999; Del Valle *et al.*, 2001; Howley and Arnold, 2005; Tager-Flusberg *et al.*, 2005:335). However, high-functioning children with ASD can have problems with comprehension in long texts e.g. narratives (Wahlberg and Magliano, 2004), which may stem from the impairments noted in their abilities to use relevant background information to resolve lexical ambiguity (López and Leekam, 2003) (narrative will be discussed in detail in Chapter 5).

It should be noted that there is a small minority of individuals with autism who demonstrate exceptional reading skills and are identified as hyperlexic (Grigorenko *et al.*, 2003:1082). Whilst hyperlexia is not synonymous with autism and can occur in other disorders, it is more prevalent in this population than anywhere else. Hyperlexia is seen in children whose reading ability far exceeds their other abilities and demonstrates excellent word recognition (Nation, 1999:338). In addition, children with hyperlexia also show a strong interest in words, in both reading and writing, and a significant difference in excellent identification skills and poor comprehension skills (Nation, 1999). This skill is often marked by impairments in other areas of ability both linguistic and cognitive (Nation, 1999).

In summary, lexical development appears to be a strength of individuals with ASD, overall, although problems with theory of mind may impact the use and understanding of mental state terms. Reading is also a strength for high-functioning individuals with

ASD and can be used to develop other areas of weakness e.g. social skills and appropriate behaviours. With regard to syntactic abilities, research reveals variation within the ASD population with regard to syntactic impairments. Due to the spectrum nature of autism and the variation in the groups investigated, it has been suggested that the impairments in syntax may only pertain to subgroups with the spectrum. Overall, however, the syntactic abilities seen in autism are described as being similar to those seen in typical development rather than dissimilar and so impairments are viewed as minimal. It is important for the current thesis to highlight the fact that high-functioning individuals with ASD have been described as having intact syntax and thus, not presenting significant impairments in this area. This knowledge will enable a focus on narrative ability and allow for the presumption that syntactic ability will not be problematic (language levels will, of course, be established prior to testing).

3.3.3 Prosody and Phonology

The prosodic impairments present in individuals with ASD are among the most noticeable in autism. Intonation has been noted as sing-song (Fay and Schuler, 1980:43; Tager-Flusberg, 1993), varying widely in pitch (Peppe *et al.*, 2006:1777) and monotonous in quality (Fay and Schuler, 1980:43). This variation in quality has been linked to the individual's emotional state (Fay and Schuler, 1980:43), however, it is now understood to be an impairment in understanding the function of prosody and intonation (Peppe *et al.*, 2006). Other unusual features also noted in the speech of children with autism are nasality, hoarseness and poor volume control (Pronovost *et al.*, 1966) and whispering (Fay, 1969:43).

Stress placement, expressing emotion, attitude and affect, highlighting syntactic phrasing, and highlighting sentence type (i.e. statement or question) have all been identified as functions played by prosodic features (Peppe *et al.*, 2006:1778-9).

Therefore, impairments in this area can present significant problems in everyday communication. Individuals with ASD have also been found to rely less on the prosodic cues provided by interlocutors in conversations and although the reasons for this are unclear, impaired comprehension of the prosodic features, and, therefore, their importance in communication, has been suggested as a cause (Tager-Flusberg *et al.*, 2005). Furthermore, although children with ASD have been found to recall stressed words more frequently than unstressed words, performing as TD individuals do (Frith, 1969), they are less able to use stress cues within conversation to ascertain meaning (Frith, 1989). In addition, individuals with ASD have been found to misplace stress in their own production (Peppe *et al.*, 2006:1786). More broadly, comprehension of utterances has also found to be impaired as a result of problems interpreting prosodic features as well as conveying meaning through prosody in their own utterances (Peppe *et al.*, 2006:1788).

Research with regard to phonology, apart from prosody, in individuals with ASD has found this area of linguistic development to be broadly intact, however, more vocalisation errors are produced by these individuals than their TD counterparts, producing errors in a larger proportion of syllables when compared to TD individuals. These errors result in atypical voice quality but do not effect the expression of syllables (Sheinkopf *et al.*, 2000).

Whilst impairments in prosodic ability have been identified in all individuals with ASD, high-functioning children have been found to have more marked impairments in this area although this may be a reflection of their more frequent use of language in a wider range of social situations. From data collected in parental interviews, the parents of high-functioning children with ASD were more likely to report an unusual tone of voice when asked about their child's speech (Eisenmajer *et al.*, 1996). In addition,

Shriberg *et al.* (2001) found that a third of the high-functioning individuals with ASD studied had speech and articulation problems and many of the participants were found to have a nasal or high pitched tone to their voice. Furthermore, Koning and Megill-Evans (2001) found that individuals with Asperger syndrome used prosodic information least and were least able to identify emotions using prosodic cues. It should be noted that unusual use of prosodic features both in production and comprehension may be particularly problematic for this group of high-functioning individuals with ASD who have subtle impairments, as the results of this impairment can be interpreted by others as patronising, depressed or disinterested (Peppe *et al.*, 2006:1777). Thus, it may compound social and communication problems already present and hinder the development of relationships (Tager-Flusberg *et al.*, 2005:335).

In summary, prosodic features of language appear to be impaired for individuals with ASD in both comprehension and production; this is especially true for high-functioning individuals with ASD. These impairments present a particular problem for the high-functioning group as they compound social impairments. Future investigations and interventions in this area should consider the possible improvements that could be made and approaches that could be taken in order to reduce the impact of this impairment.

3.3.4 Echolalia

The area of echolalia is one which has received a large amount of attention with regard to ASD and is often cited as one of the linguistic impairments seen in autism (Tager-Flusberg and Anderson, 1991; Frith, 2003). Echolalia is the repetition of a phrase said by somebody else which mimics both the words and the prosody of the utterance (Tager-Flusberg *et al.*, 2005:346). Echolalia is often present in the development of TD children, but the prolonged presence of echolalia in children with ASD makes their language development atypical (Fay, 1969). However, extended

echolalia is not a universal feature of ASD and has been noted in other groups of children (e.g. blind children and some typically developing children) (Yule and Rutter, 1987:236). Two types of echolalia have been identified: delayed echolalia, which is repetition of a phrase which is repeated sometime after the initial utterance, and immediate echolalia, which is an immediate repetition in a parrot-like fashion. Initially, it was thought the echolalia had little communicative function and should be prevented through corrective training which also teaches the value of selective imitation (Lovaas, 1977:28, 180-1). However, further research has highlighted that in many cases the echolalic utterance (both delayed and immediate) does hold some communicative function (Prizant and Duchan, 1981; Prizant and Rydell, 1984; McEvoy *et al.*, 1988).

Immediate echolalia, which has been linked to low levels of expressive language but not mental or chronological age, has been found to be more likely to occur if the child does not know how to respond to an utterance, does not understand what has been said (McEvoy *et al.*, 1988), or has no other way to sustain an interaction (Landa, 2000:131). It has also been described as highlighting a different conversational style in children who have limited expressive language (Tager-Flusberg and Calkins, 1990). Prizant and Duchan (1981) investigated the use of immediate echolalia in school and home settings through videotaped sessions. They found that the echolalic utterances were used to fulfil seven different functions in communication. Of these seven functions four were identified as directly linked to linguistic functions (turn taking, declaratives, requests and yes-answers) and two were identified as having cognitive functions (rehearsal and self-regulatory). The final category was a non-focused echolalic utterance. Prizant and Duchan's (1981:244) analysis revealed that whilst turn taking utterances were the most common (accounting for 33% of echolalic utterances), the least used function was the non-focused echolalic utterance. These findings revealed that immediate echolalic

utterances were, in the majority of cases, performing a function and communicative functions were more frequent than non-communicative functions. They also highlight the individualistic nature of echolalic utterances and the importance of making individual judgements with regard to interventions which intend to address echolalic language.

Delayed echolalia has also been found to hold communicative functions in some cases. Prizant and Rydell (1984) investigated the use of delayed echolalia by children with ASD in communicative situations with people familiar to them. They found that whilst the function appeared to be variable, there were instances where the communicative function was very clear (i.e. in order to obtain an object the child desired). They state that the communicative function was more frequent when the child came to understand that their actions could have a direct effect on the actions of others (Prizant and Rydell, 1984:190). In addition, they also identified metaphorical and conversational functions (e.g. turn-taking and verbal completion) within echolalic utterances. Prizant and Rydell (1984) conclude by highlighting that the function of echolalic utterances they can be viewed on a continuum of communicative function and that, whilst for some delayed echolalia the function is unclear, there were instances in which the communicative function was explicit.

Finally, investigations into the function of echolalia with regard to syntactic development have revealed that echolalic utterances do not help to develop syntactic ability. Tager-Flusberg and Calkins (1990) analysed the linguistic production of individuals with ASD and found that the non-echolalic utterances produced by each individual were more syntactically complex than the echolalic utterances produced by the same individuals (Tager-Flusberg and Calkins, 1990:591). They conclude that

imitation does not facilitate grammatical development (Tager-Flusberg and Calkins, 1990:603).

In summary, although not present in all individuals with autism, echolalia is a salient feature of the language development of individuals within this population. It is clear from the research that this apparent 'parrot-like' language does hold communicative meaning and is, therefore, important for the development of communicative skills. However, it does not seem to benefit the syntactic development of these individuals. By acknowledging the communicative purpose of echolalia, a better understanding of the linguistic development of individuals with autism can be developed. Through this enhanced understanding, interventions are better able to improve an individual's communication skills by using linguistic strengths to improve weaknesses.

3.3.5 Pragmatics

Pragmatics is defined as knowing what to say to whom, how much to say, and when to say it (Hymes, 1971). In other words it is the ability to "understand and use language in socio-communicative contexts" (Diehl *et al.*, 2006:88). Pragmatic impairment has been described as a primary impairment in ASD and as such is impaired in all individuals with ASD regardless of their place on the spectrum and independent of the existence of other linguistic impairments (Lord and Paul, 1997; Landa, 2000). Ochs *et al.* (2004:147) have described a "cline of competence" in the pragmatic domain for individuals with ASD which identifies turning taking as least impaired and understanding social norms and expectations as most impaired in individuals with ASD. In addition, recent research has suggested a link between pragmatic impairment and prosody (Peppe *et al.*, 2006). However, despite these findings, pragmatic impairment is not currently included among the diagnostic criteria (Landa, 2000:125). This section aims to briefly highlight the pragmatic impairments that have been identified within the

ASD population and is, therefore, not an exhaustive review of this rapidly advancing field.

Individuals with ASD have been widely described as demonstrating problems integrating linguistic information (both outside of and within a current conversation) with their existing knowledge of the real world (Lord, 1985:268-9). Thus, they demonstrate impairments in introducing new information within conversational settings (Bruner and Feldman, 1993). In addition, they are less likely than TD individuals to interpret sentences by applying the knowledge they possess about the real world and what is probable, thus preventing them from drawing the correct conclusion i.e. did the girl dress the dolly or did the dolly dress the girl? (Tager-Flusberg, 1981).

A requirement for accurately introducing new information is the understanding of the shared information between the speaker and the audience. Children with ASD are unable to account for the knowledge of their audience and identify which information others require in order to understand the conversation (Lord *et al.*, 1989; Tager-Flusberg *et al.*, 2005). Furthermore, whilst TD and Down Syndrome (DS) controls show a significant increase in topic related responses which introduce new information as their language abilities develop (as measured by MLU), the individuals with ASD show no change suggesting that not only is the introduction of new information problematic for these individuals, the frequency of these attempts is lower than TD peers (Tager-Flusberg and Anderson, 1991:1129). In addition, Tager-Flusberg and Anderson (1991) find that differences between groups were only evident in the older participants. This highlights for the TD and DS control groups, increasing language levels correlate to increasing pragmatic abilities. For the ASD group, however, this is not the case and increases in language levels are not accompanied by increases in pragmatic abilities. Tager-Flusberg and Anderson (1991:1130) suggest that this impairment may be linked

to impaired theory of mind and that understanding that you can provide new information for your interlocutor may be linked to increased attempts to include new information.

In addition to introducing new information, text organisation (both oral and written) has also been identified as problematic for individuals with autism. Individuals with autism have been identified as having problems with Weak Central Coherence (WCC) (as discussed in Section 3.2.6.2) and, as such, have been found to be impaired in global structure organisation. Research has shown that the organisation of topics and subtopics is impaired in ASD (Landa, 2000). In addition, applying macrostructures which are important for organising, and reducing and understanding complex information. As a result, planning texts is particularly problematic for individuals with ASD suggesting impairments in the execution of discourse (Solomon, 2004).

Conversational context has also been found to impact upon the performance of individuals with ASD. Research suggests that children with ASD are more able to stay on topic within a conversation if a highly structured yes/no question situation is presented to them (Wetherby and Prutting, 1984). A more structured interaction results in children with ASD being more productive. Conversely, less structure results in increased problems (Tager-Flusberg and Anderson, 1991). The familiarity of the audience is also identified as a factor in conversational competence and children with ASD have been found to communicate more in a situation with someone they are familiar with (Tager-Flusberg and Anderson, 1991).

In addition to problems regarding production, comprehension of pragmatic features is also documented as problematic for individuals with ASD (Twachtman-Cullen, 2000). Problems understanding discourse and conversational contexts, interpreting verbal and non-verbal information (Tager-Flusberg, 2000b) as well as problems interpreting the

pragmatics of an utterance (Tager-Flusberg and Anderson, 1991:1123) have been identified alongside problems interpreting and making inferences (Happé, 1994a). However, a recent study has identified that for high-functioning individuals with ASD, it is the presence of autism behaviours, rather than diagnosis itself which has been linked to an impaired ability to interpret inference, i.e. not all high-functioning individuals with ASD demonstrated impairments in inferencing (Norbury and Bishop, 2002). In addition, Paul and Cohen (1985) find that individuals with ASD have an impaired ability to interpret or infer the intentions of a speaker without the presence of direct cues. This impairment could have a significant impact on the social development of the individual as lack of ability to read these subtle, underlying messages can result in misunderstandings and failures in communication. Comprehension strategies used by TD children have been found to be employed less effectively by individuals with ASD (Paul *et al.*, 1988). It is, therefore, suggested that interventions to improve these skills may help to reduce this impairment and provide individuals with ASD with a coping strategy to limit misunderstandings.

In summary, this section has provided a brief overview of the pragmatic impairments present in ASD. Pragmatic impairments are a fundamental impairment within autism and are reflected in the communicative problems experienced by all individuals with autism regardless of linguistic ability. It has been suggested that true productivity relies on pragmatic abilities and is an essential part of everyday communication (Landa, 2000:149). Therefore, pragmatic impairments will be of significant interest with regard to narrative production in the current study. Impairments which demonstrate a lack of knowledge of audience and possible impairments in organisational abilities are those which will have most bearing on the current thesis and will be referred in the following chapters.

3.4 Conclusion

This chapter has presented a discussion of the research undertaken in a relatively new and rapidly advancing field of ASD. The discussion has highlighted the abilities and impairments of individuals with ASD and has focused on the high-functioning individuals within the spectrum. Impairments in the areas of joint attention, behaviour, theory of mind, and general language impairments have been identified, whilst abilities both savant and more general cognitive approaches in the area of WCC have also been highlighted. As stated above, this focus on the abilities as well as the impairments of individuals with ASD will continue throughout the thesis. The possible implications of the abilities identified in this section will be investigated and the general ethos highlighted by Frith (1989) which promotes the consideration of positive aspects and attributes within ASD reflects the ethos of this thesis. Through providing a brief but thorough overview of the area, it is intended that the novel research presented in this thesis is situated within the wider investigation of ASD and the interconnected areas of research. The following chapters present research conducted in the area of narrative, and narrative and autism. The thesis then presents the novel investigations which form the focus of the remainder of this work.

Chapter 4 : Narrative

Following on from the previous sections, which have aimed to contextualise the current investigation in the areas of autism and inclusive education, this section aims to provide a context for the current research within the field of narrative. It does not intend, therefore, to provide an exhaustive review of an extensive field but aims to review the key research in this area with regard to this thesis. This review aims to further identify the role of the novel aspects of this study within this field.

With this in mind, this section highlights the issues surrounding the definition of a narrative and the types of narrative that have been discussed in the literature. The chapter then discusses the development of narrative abilities in the typically developing population with specific reference to structural narrative abilities. Finally, this section presents three main frameworks for the analysis of narrative structure and their suitability for the current investigation. In concluding, the section highlights why further research in the area of narrative structure is valuable and the benefits that can be gained.

Before beginning this discussion, however, it is important to address the issue of oral versus written narrative research. The majority of research into narrative has focused on oral traditions with limited investigations of written narratives produced by laypersons (i.e. not literary novelists). Due to the unrehearsed and unedited nature of the narrative tasks presented in this thesis, the research into oral narrative production is considered relevant to the current discussion. As a result, research from both written and oral narrative research is presented in the discussions on narrative in this thesis. To ensure clarity, where applicable the mode of narrative delivery will be clearly stated and any issues with regard to hypotheses identified where appropriate.

In addition, the focus of this thesis is on narrative as a communicative tool and its spontaneous structure. As a result, research in the area of literary criticism has been excluded from this discussion due to the inherently different nature of the narratives produced. It is proposed that findings in this area would have limited value due to editing and additional processes involved in the production of published literature. In addition, the artistic licence afforded to literary texts often results in an exploitation of common narrative structures (e.g. providing no orientation and beginning the narrative with character speech) for effect. Any limitations as a result of this exclusion are addressed where appropriate.

Finally, it should be noted that whilst it is acknowledged that the terms ‘narrative’ and ‘story’ are construed by some to represent different entities, these terms will be used synonymously within the current discussion.

4.1 What Constitutes a Narrative?

This issue is one which has been raised by many researchers examining narrative and has resulted in many different definitions of narrative. This section aims to highlight some of the varying definitions of narrative, the types of narrative that are considered in the literature and the differences between narrative and descriptive texts, an issue central to the current discussion.

4.1.1 Defining a ‘Narrative’

One element of a narrative which is agreed upon throughout the literature is the requirement for a temporally ordered sequence of events which represent the sequence of events observed (for real life narratives) or imagined (for fictional stories). This temporal sequence is considered to be a central requirement for a narrative (Labov and Waletzky, 1967; Stein and Glenn, 1982; Peterson and McCabe, 1991:47; Linde, 1993; Labov, 1997). Labov and Waletzky (1967) cite this as central to their overall definition of a narrative as a retelling of past events by “matching a verbal sequence of clauses to

the sequence of events which actually occurred” (1967:20). Maintaining the temporal sequence is necessary to ensure that the listener or reader has an appropriate knowledge of the events that have taken place in order to fully understand the situation. If the temporal sequence is violated, problems in comprehension and cohesion occur.

Linde (1993:106-7) further demonstrates this, stating that without a sequence of events there is no narrative. She states that the “skeleton of any narrative is a sequence of past tense main clauses” (1993:106). It should be noted that this does not preclude the use of other tenses but argues that the scaffolding of a narrative is constructed as a sequence of past tense clauses. It is presumed, therefore, that the sequence of events within the narrative reflects the sequence of events as they have occurred in real life, thus, if the sequence is incorrect the message may be misconstrued. Example (1) demonstrates this.

(1)

- a. I backed the car into a tree and I got flustered.
- b. I got flustered and I backed the car into a tree.

(Linde, 1993:107)

This example demonstrates that the linguistic order of events (i.e. the order they appear in the text) is iconic or expected to represent the temporal sequence of events as they occur in the ‘real world’. It also suggests that the linguistic sequence of events can indicate a causal relationship between the events. This becomes even clearer if (2) is considered:

(2)

John called a doctor. Mary fell down and hurt her arm.

In this example, it is unclear why John is calling the doctor as the event of Mary falling and hurting herself has yet to occur. This demonstrates that in order for the sequence of events to be fully understood the temporal sequence must be respected and

maintained. In a narrative, the maintenance of the temporal sequence is expected by socio-pragmatic norms worldwide and has been recorded as a focus of concern for amateur story creators (Tannen, 1979). Furthermore, the requirement for the temporal sequence can only be ignored in unique circumstances, e.g. novel writing where the author is free to exploit the written form to some extent. In addition, any violation of the sequence results in more problematic parsing and comprehension, thus reinforcing its importance within the narrative (Tannen, 1979). From the above discussion, and following from Linde's (1993:106) description of a narrative, it is suggested that the temporal sequence forms a 'skeleton narrative' around which additional narrative elements may be added. This is also suggested by Labov and Waletzky (1967) and reaffirmed by Labov (1972:360-1) who states that a minimal narrative consists of two "temporally ordered" Complicating Action clauses whilst "the skeleton of a narrative" is a series of temporally ordered Complicating Action clauses.

Whilst there is a consensus in the literature with regard to the temporal sequence, there are differing views as to what, if anything, should be included alongside the 'skeleton' in order to produce a complete narrative and why, if other elements are required, does a temporal sequence not produce a narrative itself?

In defining a narrative, Labov and Waletzky (1967) suggest the narrative performs two functions: referential, providing the temporal sequence, and evaluative, narrating the sequence (1967:41). In order to perform these functions three sections must be present: the Orientation section (providing the background and setting information), the Complicating Action section (representing the temporal sequence), and the Evaluation section (providing the narrators' views on the narrative) (1967:33). However, as part of their narrative data collected as part of a corpus of oral narratives originally collected to

examine sociolinguistic aspects of American English, they cite the following example as representative of a narrative.

(3)

“(Were you ever in a situation where you were in serious danger of being killed?) Yes. (What happened?) I don’t really like to talk about it. (Well tell me as much about it as you can?)

Well, this person had a little too much to drink, and he attacked me, and a friend came in, and she stopped it.”

(Example from Labov and Waletzky, 1967:16, italics added)

The section in italics is the full story and is a temporal sequence of events without any Orientation or Evaluation. This demonstrates that the facts of a story can be imparted to a listener without any other information providing the context is clear. As Labov and Waletzky include this example, it can be concluded that although the Evaluation and Orientation sections of narratives are deemed by Labov and Waletzky to be a core part of the narrative, they do not consider them essential for a narrative to be relayed. The narrative above gives very little Orientation and Evaluation and, therefore, there is very little detail about the circumstances surrounding this event. However, this apparent contradiction can be resolved if it is also considered that Labov and Waletzky (1967) state that the Complicating Action section within a narrative (also the Complicating Action clauses defined in Labov (1997)) provide the basic framework for a narrative but alone produce only a simple ‘serial type’ narrative which constitutes the temporal sequence (1967:32). These events could be considered, therefore, to be a basic description of what happened and not a narrative in a true ‘narrated’ sense. Thus, they are referred to as composing a ‘skeleton narrative’, essential for the narrative to exist but better if it is embellished with other, additional elements. The ‘skeleton narrative’ raises questions in the reader’s mind that are not answered by the narrative and, in that sense, there is clearly something missing. It also does not actively involve the reader in the story and, thus, is not engaging.

Labov and Waletzky (1967) do consider 'skeleton narratives' to be narratives of a very basic form, they also state clearly that a complete narrative must consist of Orientation, Complicating Action and Evaluation and so any narrative which lacks any of these parts is immature. This view of narratives focuses on the varying complexity of narrative forms and, thus, whilst Labov and Waletzky do consider 'skeleton narratives' as narratives, they also state that in order for a narrative to be more complex, and therefore mature, it must include also Orientation and, in particular, Evaluation sections within the narrative.

Bruner and Feldman (1993), however, do not regard 'skeleton narratives' as narratives at all, but identify them as a description of the events. They state that narratives without scene setting (Orientation) and Evaluation are descriptions and, therefore, not narratives. They state that reporting events is not the same as composing a story and that, in the group of children they examined with autism (see Section 5.1 for further discussion), it was clear that there was a difference between describing events and narrating events. They identify this additional narration as the 'act of storytelling' (Bruner and Feldman, 1993:285). It can be suggested, therefore, that 'skeleton narratives' are a description of the events alone with no additional information and, thus, they are not a narrative but a description of a situation. This is an important distinction for the current research as it is expected that a child with autism can represent the facts of a situation or event but may have problems with narration (see Chapter 5).

Stein (1982) dedicates a significant discussion to the definition of narrative and highlights the importance of defining such an entity before furthering the discussion of narrative in any direction. She provides three popular definitions of a 'minimal' or, following the label described above, 'skeleton' story (1982:489). The first of these

definitions is Prince's (1973:110) 'state-event-state' definition which requires that a story has at least "three conjoined events" with the second event being active whilst the other two are stative. It should be noted that, much like Labov and Waletzky (1967), Prince does not consider the feelings of the protagonist essential in producing a 'skeleton' story (1973).

The second of the definitions presented by Stein (1982:498) is the goal-based definition which requires that a story contains a protagonist who attempts to achieve a goal. This definition, originally from work by Stein and Glenn (1979b), requires that there are four sections to a narrative: a setting where the protagonist is referred to, an initiating event or response, an attempt to achieve the goal and finally the consequence of the attempt. Stein (1982) compares this definition to Prince's highlighting several main differences, the most significant of which is the requirement for an animate character to be referred to. Also inherent in a goal-oriented approach to narrative are goal-directed actions. Despite the differences between Prince (1973) and Stein and Glenn (1979b), the two definitions do not contradict each other, rather that the goal-based definition proposed by Stein and Glenn (1979b) can be seen as an extension of the basic state-event-state definition proposed by Prince (1973).

The final definition presented by Stein (1982) is that offered by Mandler and Johnson (1977) who, in addition to Stein and Glenn's definition above, also require that the final consequence also has a moral included within it. Importantly, Mandler and Johnson's (1977) definition also allows for a non-goal based definition in which there is a reaction rather than an attempt to achieve a goal. This reaction can be emotional or an unplanned reaction to the events that are unfolding. Although a purely goal-based definition, such as that described by Stein (1982), does account for many narratives, there are narratives in which there is no goal and the actions of the protagonist are unexpected (for example,

a character falling over). This additional definition allows for the variety of narratives that can be seen in everyday life as well as those which tell of exceptional goal based plots. In these cases, the story may be told to convey the feelings of the protagonist and not for the protagonist to achieve a goal as such.

In summary, this section has highlighted the issues surrounding defining narrative and identified several existing definitions. These definitions, although not uniform, are broadly compatible and the issue of temporality is highlighted as central to narrative throughout. What is debated, however, is the level of detail and use of complementary elements required for a minimal narrative to be achieved. This results in definitions which range from requiring nothing other than the temporal sequence or Complicating Action (Labov and Waletzky, 1967) to those which require Evaluation and Orientation (Bruner and Feldman, 1993) or settings and consequences (Stein and Glenn, 1979b) in order for narration to occur. This debate is valuable when considering the narrative abilities of an individual as it allow a discussion of the extent to which these narrative requirements have been met. The current research follows the definition presented by Bruner and Feldman which states that Complicating Actions (plot) alone are not sufficient for a narrative to be considered complete but that they should be presented alongside Orientation and Evaluation of the situation in order to engage the reader. This definition is adopted in the current research in order to distinguish between a fully formed narrative and a simple relaying of the facts in a story which could be considered a description of events. However, following Labov and Waletzky (1967), it is agreed that it is the inclusion of the other elements of the narrative that gives the narrative a mature quality and, thus, it is the extent to which these elements are successfully used which determines the maturity of the narrative. In essence, this definition avoids the issue of what constitutes a minimal narrative and focuses on the maturity of the

narrative and the use of the other narrative elements in order to embellish the facts and produce a narrative that is more than a minimal or 'skeleton' narrative. In addition, it is acknowledged that, in order to produce a mature narrative, an individual should account for the knowledge of the reader, making judgments about the appropriateness of the information they include and, therefore, about what information they choose to exclude (Scollon and Scollon, 1981:127; Beach and Bridwell, 1984:191).

As Bruner and Feldman's definition is one of the more flexible definitions discussed above, it also allows for any contribution from the individual to be included within the study and examined on its merits in contrast to comparable narratives. In the case of autism, this is extremely useful as it allows any attempt at the task to be credited. The only requirements for it to be classed as a narrative under this definition are inclusion of the core events in a temporal sequence and attempts to achieve narrative quality through the inclusion of the other elements, no matter how minimal that attempt may be. By allowing this basic definition, it is predicted that all participants will offer something which is considered to be a narrative and will be eligible for inclusion in the intervention. It is perceived that by employing this definition of the term 'narrative' any confusion will be avoided and the focus of the current investigation reaffirmed.

4.1.2 Types of Narrative

In addition to the question of what constitutes a narrative, there is the issue of the types of narrative that are available to individuals. The first distinction that should be made is the difference between oral stories and written stories. It is agreed within the literature that written stories, and written language in general, are more difficult for children to produce for reasons of mode (i.e. it takes longer for a child to write) and higher processing demands due to multiple cognitive abilities are required (Collins, 1984:204; Danielewicz, 1984:258). In addition, a written story requires more abstract thinking, a better knowledge of the reader in order to accommodate their beliefs and

prior knowledge, and the ability to engage the reader without the non-linguistic cues that are available when telling oral stories (Collins, 1984:203). Written narratives have been described as a solitary medium due to the lack of online feedback from the audience which can be used by the narrator in oral narratives to inform their planning and telling of the narrative (Stromqvist *et al.*, 2004:360). Taking all of these differences into account, it could be said that whilst oral stories are context dependent as they use cues from the immediate environment, written stories are context independent as they do not have access to any of these cues (Collins, 1984:203). Research into the differences between speaking and writing has found that the development of written narrative skills does not coincide with beginning to write. In other words, children continue to think as if they were telling a story orally regardless of mode until their teenage years (Stromqvist *et al.*, 2004:394). A significant finding for the current discussion is that children have been found to think in the same way for speaking and writing until the age of 15 when a distinction is developed between ‘thinking-for-speaking’ and ‘thinking-for-writing’ (Stromqvist *et al.*, 2004:394). This suggests that improvements in written narratives may be able to be transferred to spoken narratives. This is not the focus of the current thesis but highlights an area for potential future development. This will be discussed further in Chapter 9.

In addition to narrative mode, several types of narrative have been identified. Loveland and Tunali (1993) highlight the four main types of narrative which are examined within the literature on narrative abilities: ‘recitals’ (retellings of stories); ‘informative narratives’ (stories specifically to convey information); ‘script narratives’ (narratives about typical events i.e. daily routine); and ‘storytelling’ narratives (narratives of fictional and real-life events in temporal sequence with a resolved plot). Loveland and Tunali (1993) also suggest that these narratives form a hierarchy of

difficulty with 'recitals' as the easiest to produce and 'storytelling' as the hardest due to the lack of predefined variables (i.e. events and temporal sequence). The differences between these categories are widely acknowledged within the literature as they all impose different cognitive loads (Berman, 2004:262). In addition, it is acknowledged that telling fictional stories is different to telling real-life stories as fictional narratives require an ability to imbue characters with feelings, reactions and emotions to a greater extent than in real-life stories in which the narrator must, in most situations, be true to the events and reactions which took place. Furthermore, it has been found that the different contexts these different types of narratives imply means that the teller is utilising different abilities in the areas of maintaining reference and accurately identifying shared knowledge (Berman, 2004:269-70). The issue of effect of context has been identified as significant in narrative production and narrative abilities and is discussed further in Section 5.4.1.

An additional type of narrative identified relevant for the current discussion forms a significant part of the discussion which occurs during pretend play sessions in order to organize the events in the scene that children are acting out (Sachs *et al.*, 1984). This type of narrative plays a direct role in a child's development. Using narrative to work out the problems and disagreements which occur within the narratives helps to develop their understanding of the world. As such, it requires a different set of abilities to other narrative situations, requiring negotiation, problem solving and narrative management skills in order to be successful (Sachs *et al.*, 1984).

Whilst the above discussion highlights several different types of narrative and narrative situations, it is important to note that the majority of the literature on narrative abilities focuses on narratives which are included in two of these categories, either 'real-life stories' or 'recitals' of stories either from books or well-known folk tales. The

current thesis considers the effect of narrative type and task on individual performance and the implications for measuring an individual's narrative abilities.

4.2 Cultural Variations in Narrative

Narrative is a culturally defined use of language and, whilst some aspects of narrative remain limited to the same possibilities e.g. the mode of delivery, there are aspects of the narrative which are markedly different from culture to culture (Aksu-Koç *et al.*, 2001). This section aims to briefly highlight some of those cultural differences and emphasise the importance of cultural norms in this area of narrative ability before the stages of narrative development are discussed.

Narrative is an inherently cultural form of language which has existed in oral tradition for thousands of years (see Darnell, 1989) and plays a major role in interaction within society (Peterson and McCabe, 1991:29). It enables individuals to compose their version of reality, understand their place in society (Daiute and Nelson, 1997:215), and ultimately, make sense of the world in which they live (Hudson and Shapiro, 1991:103). This definition of a culturally defined language is akin to the definition of a 'frame' given by Goffman (1974:11, 511) who suggested that experience and the organisation of discourse could be analysed through frames. With this in mind, it is not surprising that narrative styles and, therefore, the expectations of narrative (both oral and written) vary across cultures (Scollon and Scollon, 1981:6). Culture has been described as giving meaning to all behaviours within society, including linguistic behaviours and, therefore, has a significant impact on behaviour that is present within a language (Ochs, 1979:208). Furthermore, it has been found that the patterns of narrative, and communication, are stable within societies and are resistant to change (Scollon and Scollon, 1981:192). This means that narrative styles and communicative norms remain unchanged from generation to generation.

With this in mind, it is interesting to note that the overall structure of narrative does not vary between cultures (Scollon and Scollon, 1981:108). However, it has been found that, with regard to structure, the evaluative comments provided by the narrator are, in many cultures, somewhat removed from the “backbone of the narrative action” (Scollon and Scollon, 1981:111). This is in line with Labov and Waletzky’s (1967) definition of narrative structure (discussed in 4.1.1 and 4.4.3) which highlights the central nature of the temporal sequence of events or ‘Complicating Action’ (see Section 4.4.3 for a full discussion of the framework).

However, there are some subtle differences between cultures. Scollon and Scollon (1981) examined the narrative culture of Athabascan (a Native American language) and identified oral narratives as the product of interaction with an audience under specific conditions. They found that in Athabascan adapting the story to the audience had a greater importance than maintaining the words used in the original story. As a result, they found that when an individual was telling the same story in both Athabascan and English, they changed how the story was told in order to accommodate the new audience (Scollon and Scollon, 1981:115). The example given by Scollon and Scollon (1981:115) is a story in which a character sees a gun and wants to buy it. In the American English version the representation of this is “How much is the gun?” “Five Dollars” but in the Athabascan version this is represented as “I wonder if that gun over there might possibly be for sale?” (Scollon and Scollon, 1981:115). This is interesting not only because it demonstrates the cultural differences of narrative expectations but also because it stresses the significant role culture plays on language representation and the acquisition of narrative skills in order to follow the narrative tradition. In addition, Scollon and Scollon (1981) found that although the temporal sequence remained representative in both languages, the sequence of the additional information differed.

Furthermore, they noted that narrative length, the content expected by the audience, the order in which the content was provided, and the organisation of the content into appropriate themes were also dependent on cultural norms. They concluded that narrative production is dependent on cultural and social norms. Therefore, in countries where different cultures live side by side, there is the opportunity for misunderstanding due to differing expectations of the requirements of a narrative. This further highlights the culturally specific nature of narrative, its role in communication and the role of learning from others within one's own culture. With this in mind, it is clear that the provision of a definition of narrative is one which should ensure that, whilst being specific enough to identify a narrative it does not become culturally bound. All of the definitions discussed above allow this flexibility and can, therefore, account for narrative regardless of culture.

Many other researchers have also identified the link between culture and narrative. Narratives have been described as embodying a "schema for the organisation of experience" and form part of a child's social experience of language (Hymes, 1996 :121). In addition, Tannen (1979:178) highlights the importance of culture stating that the way we organise the world reflects the culture in which we live. Thus, the way we represent events in a narrative is affected by the culture in which we live and the consequent development of our narrative 'schema'.

Bartlett (1932) was one of the first to postulate schematic understanding of the world and defined an individual's understanding of the society in which they live in terms of schemas. He postulated that schemas were built from events and experiences, and could be described as an active organisation of past events (1932:201). Bartlett (1932) suggested that schemas were developed through gaining a general impression of an experience and allocating it to a schema. Furthermore, he postulated that schemas were

constantly being adjusted to accommodate new information and were, therefore, never static (1932:201). Bartlett noted that schemas allow for appropriate responses to novel situations which have the same features as previously experienced situations (1932:201). Furthermore, he postulated that all similar experiences were not perceived as individual entities but as one unified mass which could inform future responses, thus resulting in an inherently culturally specific behaviour (1932:201). Bartlett suggested that a schema is developed when behaviour is seen to be to have a specific order or regularity (Bartlett, 1932:201). Order and regularity of form, as highlighted in Sections 4.1 and 4.3, are salient features which define a narrative. As such, although Bartlett did not define a narrative schema, schema theory has particular resonance in this area, and has been applied with regard to narrative structure and narrative development (e.g. story grammars (Stein and Glenn, 1979a) which are discussed further in Sections 4.3 and 4.4.2).

Galda (1984:109) has noted that children's interactions with adults aid their development of narrative skills and structural abilities, thus, further emphasising the impact of social interaction on the development of narrative structure. Not only are certain aspects of narrative culturally specific, the acquisition of these aspects is done through social interaction and exposure to narrative within cultures. Furthermore, Strömquist and Verhoeven (2004:5) state that narrative retelling tasks is complex in the cognitive and cultural demands which must be accommodated. The choices the narrator has to make when retelling a narrative require the individual to use their knowledge of the cultural norms to arrange and successfully represent the story they have been told. Finally, Slobin, whose larger body of work attests to the links between culture and language, also notes that cultural norms have an influence on the narrative production of individuals (2004:219). From narrative data collected using Meyer (1974), he discusses

how oral narrative production is shaped by the cultural values, perceptions and expectations of the narrator and their audience, thus highlighting the importance of culture on the development and use of narrative abilities.

It is evident from this brief summary of an extensive body of research that the narrative form and our acquisition of it is influenced by the culture in which we live and portrays our understanding of the world. As discussed above, this exposure and influence plays an important role in the development of these narrative skills and, as such, is a central consideration for the current research.

4.3 Narrative Abilities of Typically Developing Individuals

The narrative abilities of typically developing individuals have been well documented within the literature. The current section aims to discuss some of the main developmental stages in the acquisition of narrative abilities and, in particular, the development of structural aspects of narrative within the typically developing population.

4.3.1 Narrative Development in the Typically Developing Population

As the above discussion of culture implies, narrative is an important social tool which provides a valuable forum to teach the values and standards in society and, therefore, is an important tool of socialisation (Applebee, 1978:52-3). It is a way of making sense of the somewhat chaotic and random emergence of events by enabling them to lead to a larger conclusion as described by Bartlett's (1932) schema theory (see Section 4.2). The development of this linguistic tool has, therefore, been of interest to researchers in many fields. This section highlights the main findings in the areas of both comprehension and production of narratives in general, before discussing the development of narrative structure in detail.

It is important, at this point in the discussion, to make a distinction regarding the definitions of cohesion and coherence. For the purposes of the current discussion coherence is defined as the global organisation and structure of the narrative and is applied above the level of the sentence. Cohesion, on the other hand, is defined as the use of linguistic elements at a local level to express the content of an utterance. It is acknowledged that there is some debate within the literature regarding the differentiation of cohesion and coherence as cohesion falls within coherence in a hierarchical sense. However, the remit of this thesis requires that these definitions are adopted without debate. To acknowledge a possible interaction between the two levels of textual construction, the effects of sentence level construction on the overall coherence of a text will be addressed through discussion of sentence level impairments in autism (Chapter 5).

Research into the production of oral narratives has found that by 5 years old children are able to produce well organised and sequential narratives (Berman, 1997:73-4; 2004:263) although their narratives rely heavily on the interaction with their adult partner and the scaffolding that their partner provides (Berman, 1997:73-4). However, whilst they are able to accurately represent the narrative sequence and structure, their narratives appear to be constrained by a lack of developmental maturity. Thus, narrative development is acknowledged to continue to adulthood (Berman, 2004:275), although this is affected by the level of education an individual receives. It is not until 9 years old that children are able to create an “explicit global structure” and include references to the characters’ states of mind (Stromqvist and Verhoeven, 2004:10). In addition, older children have been found to produce more coherent oral narratives with superior structures, an ability which has been considered a function of age. Thus, older children demonstrate better structural abilities (Berman, 2004:263). Berman (2004:269) states

that narrators who are more able can give “independent evidence of a well-developed schema”. Furthermore, she suggests that lexical development may not mature until late adolescence and, thus, the ability to accurately and maturely represent narrative content may be limited until that point (Berman, 2004:275).

Coherence, broadly defined as the overall, hierarchical, global organisation in the content of a narrative, is an important part of narrative abilities and ensures that a narrative can be easily followed by the listener or reader (Hickmann, 2004:282). Hudson and Shapiro (1991:102) suggest that the development of a more coherent narrative can be attributed to three main elements: relevant content knowledge, an understanding of the concept of a narrative, and an increase in the ability to coordinate content knowledge and episodic structure. It is suggested within the literature that narrative coherence is guided by two types of macrostructure, scripts and narrative schemas, which provide the child with a cognitive model with which to develop narrative output. It is suggested that these schema are a representation of complex events which enable to child to adequately organise the events they observe or create and produce a meaningful output (Hickmann, 2004:283-4). A script is defined as a tool through which one is able to relay the events of a typical or familiar routine, e.g. what a child does when they are getting ready for school. These scripts have a conventional, culturally agreed sequence which the individual’s schema guides. It has been found that children’s use of cohesive devices increases significantly when producing narrative in the context of scripts (Hickmann, 2004). Conversely, the story grammar is designed to guide a much more varied range of topics and experiences which may indeed be completely novel. Research in the area of schemas finds that when participants are asked to recall structurally ordered stories the recall rate is higher than it is when structurally disordered stories are recalled (Hickmann, 2004:283). In addition, recall

tasks involving stories with missing units finds that participants, in their recalled version of the story, replace the missing units and, therefore, complete the structural sequences (Hickmann, 2004:283). This evidence has been used to postulate that the structures for narratives hypothesised by Labov (Labov and Waletzky, 1967; Labov, 1972, 1997), Stein (1982) and more abstract goal-based structures (Stein and Glenn, 1979b) are psychologically real and refer to cognitive schemas. Hickmann (2004:283) states that this evidence demonstrates a “strong temporal [underlying] structure” which can be called upon to repair incomplete narrative input when retelling a narrative, a finding which can be seen in children as young as 5 years old. Hickmann (2004:283) states that the presence and use of a story schema can be identified in spontaneous and elicited narratives of very young children. Furthermore, Berman and Slobin (1994), in their examination of oral story retellings from the ages of 5 to adulthood, find that alongside the ability to demonstrate a story schema early in development, differentiation of plot components is seen in all the age groups they examined (i.e. 5, 7, 9 and adults). In addition, Trabasco and Rodkin (1994) find that the ability to consistently provide all of the narrative components found in adult narratives (identified as Onset, Unfolding and Resolution in their application of Labov and Waletzky (1967:86)), is not present in children’s narratives until the age of 5 years old. Narratives produced by very young children are inconsistent, with individuals missing out some elements such as Resolution and discussion of internal states (identified by Labov and Waletzky as Evaluation). It is noted, however, that these very young children are able to mend such gaps if they are provided with scaffolding to help them do so.

With regard to cohesion, defined as the use of linguistic elements to express content, it has been found that although children as young as three-years old are able to use cohesive devices, they do not reach adult competence until they are 10 years old.

Hickman (2004:283) states that the use of many cohesive devices continues to develop after the initial acquisition at 7 or 8, as the child develops knowledge of the conventions of use e.g. how to mark information as 'given' or 'new' (Halliday and Hasan, 1976). Hickmann states that the development of narrative is a bottom-up process whereby development is driven by external stimuli (2004:285) which promotes and defines a narrative style. The influence of the social surroundings on an individual are, therefore, linked to strong cultural influence on acquisition of these skills. Furthermore, Hickmann suggests that the development of cohesive devices is markedly affected by the macro-structures of coherence. She states that scripts enable the child to relay a familiar routine (usually orally) which, in turn, allows the facilitation of discourse skills. As highlighted above, it has been found that children demonstrate an earlier use and mastery of cohesive devices in scripts with predefined content (e.g. what they do in the morning to get ready for school) than in overall narrative production, suggesting that the limited content of a script allows the child to devote more cognitive resources to the development and refinement of cohesive devices, thus facilitating their development (Hickmann, 2004:287). In addition, it is suggested that the coherence of a narrative, provided by the ordering of events, may be intrinsically linked to the cohesive devices used to achieve this successfully (Hickmann, 2004:287). This, therefore, suggests that coherence and cohesion develop side by side and that, although a child has developed a schema to guide production, they also rely on the linguistic cues which identify information status (Hickmann, 2004). Thus, examination of one cannot be independent of the other if a true picture of narrative abilities is to be obtained (Hickmann, 2004).

With regard to cultural influences upon acquisition, Snow and Imbens-Bailey (1997) find that the development of oral narrative skills grows out of conversation and that the narrative development of children is strongly supported within society. Following

Labov and Waletzky's (1967) framework, they identify Orientation and Evaluation as the most essential elements of a narrative to ensure "pragmatic effectiveness", the most difficult elements for young children and the most supported by adult conversation participants. Snow and Imbens-Bailey (1997) state that the understanding of event sequences occurs before the understanding of points of view, which occurs alongside theory of mind development at the age of 5 (see Section 3.2.6.1). Whilst Snow and Imbens-Bailey acknowledge that parents provide help with the sequential aspects of the narrative (Complicating Action (Labov and Waletzky, 1967)), the emphasis of parental support is on the Orientation and Evaluation sections of the narrative. Parents provide scaffolding for psychological aspects of the narrative (points of view or emotions i.e. Evaluation) and historical aspects (previous shared knowledge i.e. Orientation). In addition, Snow and Imbens-Bailey (1997) find that by the age of 5 years old children are able to identify which information is required for Orientation and what is already known (the shared historical information). Pre-school aged children are unable to successfully identify this and tend to underestimate prior knowledge providing too much Orientation (Snow and Imbens-Bailey, 1997:202). In addition, incorporating elements of both Orientation and Evaluation is arguably one of the most challenging areas of narrative development and occurs after years of collaboration with adults (Snow and Imbens-Bailey, 1997). To successfully achieve an appropriate level of Evaluation the child must assess what the listener knows, assess how they might be expected to react to the story, and provide the correct factual information, changing perspective if necessary. Parents can use their in-depth knowledge of the child's life and experiences development to help the child to take another person's perspective in the manner that evaluation implies. In doing so, they are actively scaffolding the child's larger capacity for narration.

Although narrative production has been identified as developing well into adolescence, the identification and comprehension of narratives appears to be mastered at a younger age. By the age of 10 years old children are able to accurately distinguish narrative texts from descriptive-expository texts (unfinished stories and scripts) (Espéret, 1991; Berman, 2004:275; Berman and Katzenberger, 2004:59), thus demonstrating a comprehensive understanding of genre differences and audience expectations. Further to this finding, Espéret (1991), finds that children at the age of 5 years old are able to distinguish unconnected sentences from narratives.

Research has also found that there is an age-related development in the understanding of fictional narratives as 'make-believe' (Applebee, 1978:52). Applebee (1978:52) finds that whilst children at 6 years old are not sure whether the characters are real and half of those children involved in the study suspected that they probably were, by the age of 9 years old children are able to recognise the characters as fictional. This demonstrates a more mature understanding of the narrative as fictional and removed from 'real-life' and reflects the development of ToM. Furthermore, Applebee (1978:118) finds that children also develop their abilities in generalising the narrative and narrative outcomes. He highlights that whilst young people aged 15 years old are able to see what might have been and go beyond the information given, generalising it to a wider context, children aged 9 years old are less able to achieve this. Specifically, he found that whilst young people aged 15 realise the wider implications of the situation, younger children do this to a lesser degree (Applebee, 1978:122).

Finally, research has identified the development of the use of content in narrative production. Hudson and Shapiro (1991:101) highlight that whilst younger children (5 years old) are described as telling stories which involve overcoming an obstacle by

asking for help, children aged 8 years old focused more on conflicts between characters and 10 year olds involved more deception and counterattack.

4.3.2 Narrative Structural Abilities in the Typically Developing Population

Research into narrative structure has established that there is a clear structure to narratives produced by typically developing adults (Labov and Waletzky, 1967; Stein, 1982; Blyth *et al.*, 1990; Cameron *et al.*, 1995). It has been concluded that there is a systematic way in which a narrative is structured and developed by the narrator for their audience. The structure is considered so salient that Hudson and Shapiro (1991:105) state that in order to 'narrativise' events, the narrator has to shape the events and content knowledge into the appropriate narrative structure. It should be noted that narrative structure refers to the way the narrator organises narrative in everyday life and is not the same as the structuring of a literary text (Stein and Glenn, 1982:259). Work by Labov (Labov and Waletzky, 1967; Labov, 1972, 1997, 2006) indicates that there is a structure to a spontaneous story, which enables the participants to follow the story.

Applebee (1978) outlines six stages of structural narrative development which he notes as having a "striking resemblance" (Applebee, 1978:57) to Vygotsky's stages of concept formation which are outlined in his work *Thought and Language* (1962:59-67). By doing this Applebee highlights the interconnections between cognitive development and narrative development. These stages can be seen in children's narrative development until the age of five and represent a development from the relaying of unconnected information to interconnected episodic events in narrative production. Due to the age group being considered (5 to 10 years old), the theory is based on oral data, however, Applebee makes no distinction between oral and written forms. The first stage identified is the 'heaps' stage (Vygotsky, 1962:59; Applebee, 1978:57) during which children group items together by extending the concept they have learnt in an

unpredictable fashion. With regard to narrative this stage sees the representation of pieces of information which, although they could produce a story, are not structured in order to do so (Applebee, 1978:57-58). The second stage in narrative development as identified by Applebee is 'sequences' (1978:59). Appleby links this to Vygotsky's 'associative complexes' stage (1962:62), which is part of the major phase of concept development identified by Vygotsky as 'thinking in complexes' (1962:61). This stage shows the elements gaining actual bonds. In non-narrative terms this could be the grouping of objects based on similar attributes e.g. a red large object might be grouped with a red object and a large object. With regard to narrative, this is the linking of events as a result of similarities and not causal relationships. The third stage is the 'primitive narrative' (1978:62), linking this to Vygotsky's 'collections' (1962:63) stage, Appleby describes narratives that link complementary things together. Much like shoes and socks might be viewed as complementary items, the elements in these narratives are linked as a result of their complementary relationship e.g. a character being bad followed by what the child understands as complementary to this situation, i.e. punishment, but not beginning a sequence of bad events for the characters. The fourth stage is labelled 'unfocused chains' (1978:63-4) which Appleby links to Vygotsky's 'chain complex' (1962:64). In this stage, the narrative elements are linked by an attribute, however, the attribute is constantly changing. If this is considered in terms of linking objects a child could link a small red object with a small blue object and then link that to a large blue object. In terms of narrative, this results in a story which, although all of the elements are linked together, has a lack of focus and direction to the narrative text as a whole. These narratives are not only difficult to follow, they also present a vast amount of information very rapidly and, therefore, require significant processing. The penultimate stage of narrative development described by Applebee is

described as 'focused chain' (1978:64-5) and linked to a 'pseudo concepts' stage postulated by Vygotsky (1962:66). These narratives produce a linked chain which has a continued focus following the adventures of the protagonist. Applebee highlights that this is a popular story structure for adult fiction. The final section of narrative development described as 'narratives', which in comparison with 'focused chains' is an expansion of the central focus for the narrative which provides links based on complementary attributes in a focused manner. This is the most advanced stage described by Applebee and is described as the complete concept. As such it does not refer to any of the Vygotskian stages (1978:65-6). The analysis and data collection carried out by Applebee involved 120 children with 30 in each of four age groups (2 year olds, 3 year olds, 4 year olds and 5 year olds) indicated that sequences were the most used by 2 year olds and focused chains being the most used by 3, 4 and 5 year olds. In addition, there is a sharp increase in the demonstration of the 'narratives' stage with no instances of this structure at age 2 and 20% of 5 year olds demonstrating its use. This study provides a unique representation of four age groups and their development of narrative structure. However, although the data are valuable for that age range no predictions can be made past 5 years old. The results suggest that the development of, at least the causal links and cohesion in narrative are maturing at the age of 5, but that the development is not complete.

Cameron *et al.* (1995) examine the impact of cohesion on the overall level of children's written stories. They examined 50 9 year-old children from Canada and asked 25 to write a 'free story' using 3 cartoon pictures to help them. The other 25 were asked to write a story using the same pictures to help them but before they wrote their own narrative they were read a model version of the story. They labeled this condition the 're-write' condition. The study demonstrates several interesting findings. Firstly, that

the increased use of cohesive devices, such as reference, cohesive ties and coordination, (Halliday and Hasan 1976) considerably improves stories (Cameron *et al.*, 1995:260). Secondly, that the manipulation of the test environment has a marked impact upon the story produced, specifically the children who were exposed to the model story produced shorter stories which varied less in length and use of syntactic constructions (Cameron *et al.*, 1995:266). Cameron *et al.* (1995:257) also note that narratives produced by the children who had heard the model story closely imitated its structure, length, use of cohesion and syntactic complexity. In addition, they found that the 're-write' condition supported the narrative production of the children with regard to use of cohesive devices and resulted in holistically better stories (as rated on their 5-point scale with good inter-rater reliability). They conclude that not only does the correct use of cohesion improve the narrative produced but that story rewriting following a 'model story' is also a good way to support children's story writing. Importantly for the current discussion, the model story is found to have a considerable effect on the narratives produced. This finding has potential application in the development of narrative intervention (discussed in Chapter 8). In addition, it is noted that the effect of a model narrative should be accounted for in the investigation of narrative structure as it has the potential to affect the narratives produced and, thus, yield unrepresentative data. These issues are discussed further in Chapter 5.

Berman (2001) considers the introduction of the scene that surrounds and embeds the narrative (Orientation in Labovian terms). She examined oral narrative abilities across a range of age groups (three-, five-, and nine year olds and a groups of adults) in both Hebrew and English using a wordless picture book by Mayer (1974). Berman (2001) finds that children at 9 years old can set the scene to near adult competence. The development of description and the mean length of utterance (MLU) of descriptive

phrases also increase as the individual grows older. In Labovian terms, whilst a child aged 9 can successfully use Orientation phrases in their narrative, their MLU continues to develop until adulthood. However, further research into narrative structure has identified the conclusion section of narrative as problematic for children aged 9 years old. Norbury and Bishop (2003:288) find that children aged 9 are unable to give an adequate conclusion to a story suggesting, that the development of a global structure has yet to be completed.

Research in the area of story grammar assumes that the development of narrative is guided by an underlying form and that this form is utilized in both the comprehension and recall of narratives. Whilst children aged 9 to 11 years old are consistent in their use of a story schema (Merritt and Liles, 1987), it has been suggested that children as young as 7 years old demonstrate knowledge of a story schema (Stein and Glenn, 1982:257). In order to test the hypothesis and examine the development of these narrative schema, Stein and Glenn (1982) report on two experiments which tested the narrative structural abilities of the children aged 7-8 and 10-12 years old. The children were asked to participate in both experiments. The first required the children to construct story sequences from the elements they were presented with. These elements originated from a complete story designed for the task which had been mixed up, thus the order and structure of the story were lost. There were three stories included in the task and two versions of each story. Whilst each version contained the 6 core elements of the story (see discussion of story grammar below), one version of each story had all temporal or referential markers removed so that no clues to structure were available to the child. This was referred to as the 'markers deleted' version. The results from this experiment reveal that although the 7-8 year olds had a limited knowledge of the story grammar, the 'markers deleted' context identified that 10-12 year olds are able to complete more of

the narrative. In order to establish whether the 7-8 year olds performed at a lower level on this task as a result of their story grammar knowledge and not a shorter concentration span or more limited short-term memory, a production task was designed.

This second experiment involved children aged 5;4, 8;6 and 11;5 years and required the children to write a story using a story 'stem' created for the experiment. The story stems included contextual information designed to influence the whole story. There were three different stems and every child was asked to complete a "good" story for each stem. The order of the stories was randomized so that effects of practice could be identified independent of theme. Stein and Glenn found that although the use of the basic episodic structure outlined by the story grammar theory increased with age (50% of 5 year olds used the structure, this increased to 72% for the 8 year olds), the differences in the age groups were not significant (1982:270). Through further analysis, they found that children as young as 5 years old were following a temporal structure which represented real-life events (Stein and Glenn, 1982:271). They also found that children are more likely to delete internal response information (i.e. information relating to the characters emotions, feelings and beliefs) than any other type of information (Stein and Glenn, 1982:275). This finding is consistent with recall investigations which find that this type of information is deleted even when the information exists in the original text and supports definitions of narrative which suggest that Evaluation enhances narratives but is not essential to convey the core storyline (Labov and Waletzky, 1967). Furthermore, these findings are supported by findings from Hudson and Shapiro (1991:118) which indicate that older children include more structural narrative elements than younger children. They also state that structural knowledge of narrative has a significant impact on narrative production (Hudson and Shapiro, 1991:124). Overall, the findings suggest that children as young as 5 years old are

capable of following a temporal and episodic structure. However, these individuals are also more likely to omit elements, in particular the internal response element (representation of character's emotions). These elements are required to fulfill the requirements of a story grammar framework (discussed in Section 4.4.2) and are more likely to be included as an individual matures. Stein and Glenn (1982:279) conclude that a young child's concept of a narrative may be too broad. This finding may be linked to the development of contextual awareness, understanding of narrative structure (Hudson and Shapiro, 1991:124), and an understanding of the wider implications of the actions and likely reactions to events (Applebee, 1978:122).

To summarise, this section has discussed some of the main findings relating to the development of narrative abilities in the typically developing population. There are several important findings for the current study. The first is the concept of an underlying narrative schema which, following Bartlett's schema theory (1932:206), is developed through exposure to examples of the narrative form. When examining how best to facilitate better narrative performance and development of more sophisticated narrative abilities, the idea of a schema can be employed to exploit the abilities that the children already possess. Second is the concept that experience of narrative and the help of adults are key factors in the development of narrative skills. As a result of pragmatic impairments, narrative features or structures contained in the input received by an individual with ASD may have not have been utilised or recognised. This issue will be important in identifying elements which may be problematic for children with ASD. Thirdly, the existing research has identified Evaluation and Orientation as more difficult aspects of the narrative for a typically developing child. This identifies an area which should be considered with regard to the abilities of individuals with ASD and highlights a potential area of impairment. Further consideration of impairments in ASD will

enable the research to predict whether these areas will also be problematic for individuals with ASD. The final conclusion to be highlighted in this section is the common structure narratives within the typically developing population, the acquisition of which appears not to be complete until later linguistic development. This will be critical in the design and analysis of the investigation of the narrative abilities of children with autism in comparison to their typically developing peers. The following section discusses the possible analysis frameworks for narrative structure in order to identify a suitable analysis for the narratives produced by high-functioning individuals with ASD.

4.4 How Can Narrative Structure Be Analysed?

This section aims to describe three possible approaches to investigating and analysing global narrative structure. The three frameworks will be summarised, following which a comparative discussion of the advantages and disadvantages will be presented and a framework selected for use in the current study.

4.4.1 Warren *et al.*'s Event Chain Analysis

Warren *et al.* (1979) postulate that a narrative can be divided into a series of inferences and event-chains through which the structure of the narrative can be examined. The three types of inferences they identify are 'Logical Inferences', which are the scaffolding for the narrative which the story is hung upon, 'Informational Inferences' which they describe as the 'floorboards' that link the logical inference together and let the audience know who did what. Finally, 'Elaborative Inferences' which are not required for the progress of the narrative but perform a 'decorative function' and are determined by the narrator's beliefs and the context in which the narrative is told (Warren *et al.*, 1979:27-8). Warren *et al.* (1979:26) state that these inferences may be marked or specified on the surface of the narrative or, in the case of

essential Logical and Informational inferences, they should be inferred through the propositions in order for the narrative to be understood. These inferences are viewed by Warren *et al.* (1979:27) as directly linked to the event chain analysis that they postulate and, therefore, must be considered alongside discussion of the event-chain analysis (see Warren *et al.* (1979) for a further discussion).

The event chain analysis postulates that narratives are made up of both inferences and seven types of propositions which represent the narrative (Warren *et al.*, 1979:31). The first of these types of propositions is a 'state' proposition which is described as an objective condition of the environment for any of the characters and can exist as a result of the actions within the story or independent from them. The second type is an 'event' proposition which is described as an occurrence which can be independent or as the result of a character's actions. The third type of proposition identified is an 'action' proposition which is described as a protagonist initiated action and is under their control. The fourth type is a 'cognition' proposition defined as "a mental act" which is voluntary and induced by the protagonist only. The fifth type of proposition is a 'display' proposition which is defined as an involuntary external movement of the protagonist and provides the opposite to an 'action' proposition. For example an action might be "Mary moved her arm" but a 'display' would be "Mary's arm twitched". The sixth type of proposition is an 'impulse' proposition described as a voluntary internal state of the protagonist and provides the opposite to a 'mental act'. For example "Mary remembered she had sandwiches" would be classified as 'mental state' whereas "Mary felt sad" would be classified as an 'impulse'. The final type of proposition postulated by Warren *et al.* is either a voluntary or involuntary 'goal' proposition that is held internally by the protagonist. Further to these definitions, they state that these propositions are linked together by logical inferences and rules exist for connection of

these propositions (Warren *et al.*, 1979:34). They state that only 'action', 'display', and 'event' propositions can cause physical events and only external events and states can be caused physically (Warren *et al.*, 1979:34). In addition, Warren *et al.* state that event propositions can be recursive in that one event can cause another. Furthermore, they highlight that context and content of the narrative will affect which propositions can cause other propositions and the correct selection must be made for a successful narrative (Warren *et al.*, 1979:34). However, despite these seemingly restrictive rules, they identify several things about event-chains which they believe make the framework suitable for the analysis of spontaneous narrative production. The most significant of these is that other than the above constraints there are very few restrictions on the combining of propositions. This allows for a wide variety of narrative structures and, thus, reflects the wide variety of themes and options available to the narrator (as discussed in section 4.1.2). In addition, Warren *et al.* state that whilst the categories they identify can be directly linked to 'story-grammar' analyses of narrative, they also permit multiple protagonists which can allow for dual-representation of the events in a narrative, something which they suggest is problematic for a story grammar analysis (Stein and Glenn, 1979a).

This analysis of story structure provides a detailed analysis of the components which comprise a narrative. The analysis offers a flexible approach and is, therefore, applicable to many different narrative contexts. However, despite this, it has been used very little within the developmental literature. This may be partially due to the complex nature of the full analysis which requires several layers of investigation and, in the case of some non-externalised inferences, may not always be compatible with data that is collected. Despite this potential problem, the above discussion highlights the wide range of narrative components which can be investigated through this analysis and that,

therefore, makes this analysis technique worthy of consideration within the area of atypical narrative development.

4.4.2 Stein and Glenn - Story Grammar and Story Schemas

Supported by the research discussed in Section 4.3.1 which relates to the cognitive processes of narrative construction and completion, Stein and Glenn have postulated 'Story Grammar' as a representation of the internal narrative schema. The network of categories they postulate are assumed by Stein and Glenn to refer directly to the way "processors" organise narrative information (1979a:58). The story grammar is comprised of rules which define different elements of the narrative. Stein and Glenn (1979a:59-66) outline 14 rules which are designed to represent the mental schema for the narrative structure. These rules guide the creation of an episodic structure and directly relate to the episodic elements discussed below.

- Rule 1 This rule requires the setting of the narrative to be provided. It is followed by a rule which allows the setting to be connected to the episodic system, 'the ALLOW rule'.
- Rule 2 This rule links the episodic structure to the setting and is the ALLOW rule. Use of terms such as 'and', 'then', and 'cause' allow more than one state or activity to be linked if required.
- Rule 3 This is the episode system and the use of 'and', 'then', and 'cause' link the events in the entire sequence together.
- Rule 4 Within each episode of the story causal links must be maintained.
- Rule 5 This rule links the occurrences, actions and events within an initiating event.
- Rule 6 The response to an event is motivated.
- Rule 7 Internal response to the event must be included and refers to the psychological state of the character after the event that has taken place in rules 5 and 6.
- Rule 8 This rule changes the situation in the plan sequence.
- Rule 9 This rule requires the internal plan of goals and sub-goals that are necessary to achieve the main goal to be included.
- Rule 10 Apply the plan.
- Rule 11 The cause of the attempt - was there a resolution.
- Rule 12 Initiate a link between the direct consequence and the reaction.

- Rule 13 Direct Consequence - the achievement of the goals, highlight any changes in sequence of events caused by character's actions and initiate a reaction to the consequence.
- Rule 14 The final category - Reaction - How does the character feel about the outcome.

These rules are postulated by Stein and Glenn (1979a) as representing the narrative organisation and structure within the mind or narrative schema. They provide the outline for a narrative which would allow for a wide variety of themes and approaches to the narrative form. In addition to these rules are the episodic relations which are also important within this framework. Four types of episodic relations are identified: the 'then' relation i.e. there is not a causal relationship between events but one sets the scene for the other to occur; the causal relation i.e. one event causes another; the 'and' relation where both events occur simultaneously and may cause to a third event; and finally, the 'embedded' relation where one event is embedded within another. Coinciding with the narrative rules, they identify six constituents which are required to form a narrative episode which is considered to be the most minimal form of narrative within this framework. These elements are outlined below.

<i>Setting</i>	Contextual information for the story and introduction of the characters.
<i>Initiating Event</i>	An event which initiates the storyline.
<i>Internal Response</i>	The emotion of the character and the goal which often includes the thoughts of the protagonist and identifies them as initiating an action.
<i>Attempt</i>	An action or series of actions in order to achieve a goal.
<i>Consequence</i>	The end state showing failure or success with respect to the goal.
<i>Reaction</i>	The protagonist's feelings about outcome and wider implications of goal achievement or non-achievement.

These elements are combined to form a narrative episode and, whilst the elements within an episode have a fixed structure, a narrative can combine more than one narrative episode and so episodes may be described as recursive.

As identified in Section 4.3.2, there have been many investigations and story recall tasks which attempt to provide support for this analysis as a representation of the mechanisms within the mind or narrative schema (Stein and Glenn, 1982:279). This provides support for the application of this analysis within the atypical population and may, through its application, highlight some areas of cognitive functioning that prove particularly problematic for certain populations. In addition, the wide application of this form as a way to analyse narrative is evident within the literature and it has been adopted in the area of literacy education to enable children to break down the information they are receiving and be more effective writers.

4.4.3 Labov's Narrative Analysis Framework

Labov and Waletzky (1967) suggested that narratives, in order to be coherent, acceptable and, therefore, successful, must follow a certain structure. From the data they collected through oral, real-life narratives elicited by asking provocative questions such as "Have you ever been a situation where you were in serious danger of being killed?", they tried to establish the structure that was employed by these individuals in order to ensure the coherence of their narrative. As a result of this investigation, they postulated a framework for structural narrative analysis. The analysis divides the narrative into six sections: Orientation, Complicating Action, Evaluation (as described in Section 4.1.1). The fourth part of the story is the 'Resolution' section which Labov and Waletzky define as the events in the narrative sequence which come after the Evaluation. If the Evaluation occurs last, the Resolution and Evaluation sections are merged. The final part of a narrative is an optional 'Coda', which concludes the story, brings the perspective back to the current moment and, if appropriate, delivers the moral. In addition to these sections, Labov and Waletzky postulate that clauses may also have a specific role to play in the coherence of the narrative. Whilst there are phrases within

narratives which are within the temporal structure, there are some which are not (Labov and Waletzky, 1967). It is suggested that these other types of phrases can be identified and separated by their grammatical function. Labov and Waletzky state that whilst independent clauses follow the temporal sequence, sub-ordinate clauses may be placed anywhere in the narrative and will not disturb the temporal sequence. These phrases are said to provide the Orientation for the narrative. Labov and Waletzky (1967) identify two types of clause, narrative clauses which maintain the “strict temporal sequence characteristic of narrative” (1967:22) and ‘free clauses’ which are free to move around the narrative as they wish. ‘Co-ordinate clauses’ are also identified by Labov and Waletzky (1967); these clauses may be freely interchanged without an affect upon the temporal sequence. Finally, Labov and Waletzky highlight ‘restricted clauses’; these clauses are identified as not being able to move around freely. They have a level of freedom, which can be seen as being between ‘free clauses’ and ‘narrative clauses’ in that they are able to move but are restricted in the distance they may move within the clause.

This analysis has been used in many studies of narrative, both oral and written (e.g. Engel, 1997; Snow and Imbens-Bailey, 1997; Losh and Capps, 2003) and has been recently reviewed by a collection of narrative researchers (Fleischman, 1997; Freeman, 1997; Holmes, 1997; Snow and Imbens-Bailey, 1997¹). One of the overwhelming themes of the discussions was the flexibility of this analysis and its applicability to many different types of narrative both written and oral, and spontaneous and elicited. This demonstrates that whilst the framework was only designed to account for the narrative structure observed in elicited oral, life narratives, it is applicable to many different narrative contexts. Furthermore, Engel (1997) highlights that Labov and

¹ see the *Journal of Narrative and Life History*, 1997 for further examples

Waletzky (1967) focused on finding lines of continuity between everyday narratives. She suggests that application of the analytic model with written narratives produced by school-aged children allows a further understanding of narrative development. Engel (1997) states that written narratives (as well as oral narratives) serve a social purpose and convey the feelings of the author. In addition, she states that they provide the opportunity to “convey[ing] important material” for child authors (Engel, 1997:233) and as such, are valuable tools of communication for children. This function of written narrative is of particular significance when considering individuals with ASD in inclusive education. As the written narrative provides additional time for the narrator to construct the narrative and express their feelings and beliefs, it offers a more accessible and less confrontational way to communicate any issues the child wishes to raise. Therefore, it is suggested that written narratives and written narrative interventions could be valuable tools in increasing communication skills in individuals with ASD and facilitating their inclusion in mainstream, inclusive education.

Labov and Waletzky’s (1967) framework has provided a foundation on which to build the understanding of structural abilities in narrative and has had the most significant impact in the area of understanding the path of narrative development (Snow and Imbens-Bailey, 1997:197). In addition, it is “the most general and most often cited account” of global story structure within this field of narrative development. (Hickmann, 2004:282). However, it has often been used to examine sections of the narrative, most notably the Evaluation Section, out of context (e.g. Tager-Flusberg and Sullivan, 1995) and whilst this type of application can lead to interesting results, it is not able to further inform the area of global structural analysis.

In 1997, Labov published an augmented version of the 1967 framework analysis which developed the definitions of the sections to relate to individual clauses.

Developing the previous framework's examination of the role of clauses, the 1997 analysis postulates that each individual clause could imbue one of three components, Orientation, Complicating Action and Evaluation. In addition, it suggests that these clauses can occur outside of their namesake sections. In practice, this results in the main body of the narrative comprising of Orientation clauses to provide additional information about the surroundings of the narrative scene, Evaluation clauses, to provide information about the emotions, reactions and beliefs involved in the narrative (both the characters', narrator's and potentially, the audience's), and Complicating Action clauses which provide the temporal structure or plot of the narrative (Labov, 1997) (see section 6.1.6.1 for a working description). In addition to these clauses, there is an Abstract which is defined as an initial clause which reports the entire sequence of events and an optional Coda which returns the narrative to the present time and provides a moral if appropriate. This amended version of the global structural framework allows for greater flexibility within the analysis and a more in-depth analysis of the clauses within the narrative. Unlike Labov and Waletzky (1967), this augmented framework allows the narrative to be more fluid and responsive to the context in which it is told. These elements, alongside the single level of analysis which is possible through this framework, make this an important tool for structural narrative analysis in the field of atypical narrative analysis.

Before concluding this section, it is important to note at this point that all of the frameworks allow other, non-typical structures to be utilised within the narrative if they are marked. This stresses the potentially unusual nature of narrative structure and allows the frameworks to be seen as a description of the typical narrative and not as providing an iconic framework in which all narratives should be structured.

4.4.4 Summary

This section has summarised three frameworks for the analysis of global narrative structure and has highlighted the positive aspects of each approach. Whilst all three approaches have demonstrated flexibility and adaptability to various narrative settings, the focus in this discussion now turns to their applicability within the current research. The requirement for the framework is that it should be robust in its description of narrative structure, be able to identify problematic narratives, and be well established within the field. In addition, it should allow analysis of narratives produced by an atypical population, specifically high-functioning individuals with ASD. This group provides a specific challenge with regard to linguistic analysis as the impairments present within the population are subtle and are often unidentified due to compensatory strategies developed by the individual. In order to select the framework for the current research, it is important to consider the areas of ability and impairment that can be predicted within the population. From the discussion in Chapter 3, it can be seen that children with autism present with impairments in the areas of inclusion of relevant contextual information and representation of others' thoughts, beliefs and viewpoints. These should be easily identified within the narrative using the framework that is selected. Finally, in the interest of continuity, the framework should allow itself to be adapted for use in an intervention setting. It should, therefore, be concise and accessible whilst accounting for this complex area of linguistics. As with any pedagogical framework, simplicity is also essential to allow effective application in a mainstream school setting.

With these considerations in mind, it has been decided that the amended framework postulated by Labov (1997) will be used in the current study. This will result in a clause-based analysis to allow for the most extensive and flexible analysis possible



whilst maintaining the 'simple' five accessible clause types which can be utilised easily within an intervention. In addition, it is noted that the definitions of Orientation and Evaluation clauses directly correspond to areas which one could reasonably expect an individual with ASD to demonstrate impairments (inclusion of relevant information and theory of mind respectively), whilst the definition of Complicating Action clauses refers directly to a predicted area of ability (parallel to a list of facts).

The comparison of the frameworks presented in this section has identified two main benefits of choosing Labov's (1997) framework for the analysis presented in the current thesis. First, only Labov (1997) provides a framework can be directly linked to impairments in ASD and, therefore, preferable for the analysis presented in this thesis. Second, whilst the other frameworks also provide a comprehensive analysis of narrative structure, they are more cumbersome in their application and cannot be easily reduced to several accessible stages. By dividing the narrative into five clause types, Labov's (1997) framework is notably more concise, an important consideration for the current discussion as the framework must be easily adapted for implementation in mainstream inclusive schools as part of a narrative intervention. As stated above, 'Story Grammars' are used within education to improve children's narrative skills; however, it is suggested that the direct adaptation of results for an accessible and unobtrusive intervention programme may be better served by an analysis which uses Labov's framework (1997).

This direct compatibility, alongside the relatively streamlined design of the framework will allow a thorough and effective analysis of the narrative abilities of this population. Finally, it is important to note that whilst the application of this framework in the area of narrative and ASD is a new, rapidly advancing field, its direct application within an intervention with individuals with autism is a novel addition to the area. It is

hoped that by applying this robust framework in a new forum for narrative structural analysis, the flexibility and applicability of the framework in this area may also be considered.

4.5 Conclusion

This chapter has highlighted the wide variety of narrative research that has been undertaken in the last 40 years, from the basic but complex task of defining the narrative to the development of narrative abilities and the structural aspects of narrative construction. Issues have been raised with regard to narrative and issues surrounding the approaches to be adopted in the current research have been addressed. Due to the remit of this thesis, this has not been an exhaustive discussion of all of the issues surrounding narrative research. Areas regarding literary criticism have been excluded due to the considerably different nature of narratives produced in the literary world. The focus of this thesis is the production of spontaneous or unrehearsed narratives by members of society, and the communicative and cultural function narrative plays in everyday life. As Labov and Waletzky state, original narratives produced by “unsophisticated” storytellers who have not told the story many times allow the fundamental structures of a narrative to be examined (1967:12). This view of narrative means that any discussion of literary narratives has limited significance as the writers of such narrative works are skilled and sophisticated users of the narrative medium. This has resulted in a discussion of narrative research with regard to developmental processes and structural aspects of narrative in written and oral narratives. As stated at the beginning of this chapter, the use of research based on oral narratives enables the discussion to follow the focus required. However, it may also present problems with regard to hypotheses developed from this discussion. This issue will be addressed in Section 5.5. What remains to be discussed, however, is the importance and value of continuing to examine an area which appears to have received so much attention.

Narrative has been described as one of the most important devices for human communication and one of the most significant domains of later language development (Stromqvist and Verhoeven, 2004:3). Bruner (1996:39) describes narrative as central to the development of “a personal world”, or in other words, the ability to see one’s place in society. Written narrative has also been identified as important for the development of communication skills (Engel, 1997). It combines requirements to consider the facts of a situation alongside the possible viewpoints of the audience, protagonists and other characters within the story as well as requiring the accurate provision of contextual information. The investigation of narrative abilities enables research to examine an individual’s abilities with regard to the skills outlined above which make narrative production a complex, challenging and ultimately fascinating area of linguistic development. This is made even more apparent when one considers the variation of abilities in typically developing adults from those who are simply unable to tell a compelling story to those for whom storytelling is a natural talent. It is, therefore, clear that narrative development and the production of an effective story involves complex skills which need to be balanced to produce the desired effect.

The focus for this thesis from the beginning has been to examine the interaction of young people with autism with typically developing individuals in the least intrusive manner. Children with ASD, as highlighted in Chapter 3, have significant difficulties in several of the areas from which narrative abilities draw, namely appreciation of other view points, expression of feelings and beliefs, and inclusion of appropriate additional information. However, they excel in the relaying of factual information. Therefore, narrative provides a potential forum through which to exploit an individual’s abilities in order to support their impairments in a subtle and sustainable fashion within mainstream education. This is the central ethos of this thesis and the work presented within it.

This thesis, therefore, aims to utilise this information in conjunction with that presented in Chapter 3 and with findings regarding the narrative abilities of children with autism (Chapter 5) to inform an analysis of needs and an intervention which extends this field of research into a new domain (Chapter 8). It is proposed that by amalgamating information from different disciplines, the best use can be made of the extensive knowledge and expertise in the areas of autism, education, communication and narrative abilities in order to support children within mainstream schools and provide them with a forum of communication where they feel comfortable, confident and able to achieve and enjoy learning.

The following section presents previous research in the domain of narrative abilities and individuals with ASD. This is then followed by chapters which describe an experimental study and an intervention study which, focusing on narrative structural abilities, aims to provide a framework within which high-functioning children with ASD can be supported and encouraged in mainstream settings.

Chapter 5 : Narrative and Autism

The previous chapters of this thesis have provided background information which situates the novel research in this thesis. In doing so, it has discussed the general and language specific impairments in autism as well as literature surrounding narrative development and analysis. This chapter has two aims, first to provide a review of the research carried out to date regarding the narrative abilities in autism with a particular focus on structural abilities. Second, to identify the gaps in previous research and formulate research questions which will draw together the research reviewed in the previous sections and the issues raised. The thesis will then go on to present the novel research conducted as part of this PhD.

5.1 Narrative Abilities of Children with Autism

This section presents a review of the existing literature in the area of narrative and ASD, both impairments and abilities, and aims to identify areas of particular relevance to the thesis.

High-functioning individuals with ASD have been found to use ‘triggered’ and ‘second’ narratives when contributing to conversations in naturalistic settings. A triggered narrative is a narrative which is brought on, and therefore linked to, something else within the conversation. For example, in data presented by Solomon (2004:268), a child, following on from a discussion about the behaviour of his friend towards their brother, begins a narrative about how he behaves towards his sibling. This example demonstrates the accurate use of contextual information which directly affects the narrative which is constructed. Second stories also require significant application of contextual information. Solomon defines second stories as a story told in response to a previous story (2004:268). An example given by Solomon is part of a conversation a

child is having with his father about how annoying his brother is. The child remembers that his father has lost his brother and triggers a second story by asking “Did you feel sad when your brother died?” (2004:269). Both second stories and triggered stories demonstrate a high level of contextual awareness. The use of context in order to initiate related narrative demonstrates the ability to take a different perspective whilst developing the theme of the conversation. They maintain the theme of the conversation and in doing so also maintain the gist of the conversation. The ability demonstrated here to take another’s perspective is remarkable when theory of mind impairments are considered (see Section 5.2). This ability indicates that high-functioning children with ASD are able, in certain contexts, to accommodate other perspectives. Furthermore, Solomon (2004:269) states that the perspective shift is done by these individuals in two ways, through empathy and, in the second example, as a result of their imagination being triggered by the father requesting the child to imagine what it would be like without his brother around. The child appears to accept this line of the conversation and shows that his is indeed imagining. Furthermore, Solomon (2004:269) suggests that the empathy and imagining may be essential in initiating a second story and are, therefore, integral to extended narrative discourse. It should be noted, however, that, whilst the shift is presented or followed by the child, the onus to continue in the appropriate manner from another perspective is on the adult in both examples. This could be a compensatory strategy used by the child to maintain a conversation with the skills that they have developed. This requires further investigation but does highlight an area of ability within the narrative skills of high-functioning children with ASD.

Coinciding with this is the importance of the interlocutor in these narratives, Solomon (2004) indicates that, due to the impairments seen in overall extended narrative construction, a good perceptive conversational partner is essential to maintain narrative

flow. This may help to overcome the global organisational problems seen in narratives produced by this group (2004:271).

Solomon's research highlights the fact that high-functioning individuals with ASD are using narrative in their everyday discourse (also noted by Stirling and Barrington (In Press)). The data collected in Solomon's study was not elicited but was collected at breakfast and dinnertimes as part of a larger corpus and then selected as a result of the narratives within the interactions. However, it should also be noted that the data also showed that the population is extremely heterogeneous and, whilst some children use narrative frequently within their discourse, others are more limited in their use. The overall use of narratives does not appear to be linked to VIQ scores (2004:259).

Solomon (2004:260) also found that while the children introduced both fictional and real-life narratives, the fictional narratives did occupy a larger proportion of the narratives produced. However, whilst this may support the concept that individuals with ASD have limited interest in personal interaction, it should also be noted that the fictional narratives were often focused on topic of special interest for the individual and co-constructed with the interlocutor with the child reciting sections of information by heart (2004:260). This suggests that the child is not telling the story for the first time and may be retelling the story to some extent. This may indicate a lack of global planning and organisation which would mean that the data collected would not be directly comparable to a narrative told for the first time (fictional or real-life).

This is an important finding with regard to intervention in this area as it identifies the importance of narrative in discourse and the role it plays in communication. As a result, it also emphasises the requirement for individuals to be able to use this area of language effectively. Solomon (2004:270) states that the attempts by these children at narrative discourse should be acknowledged separately from the success of the attempt and future

studies should present both abilities and impairments. That is to say that the fact that these children are attempting to initiate and participate in narrative discourse is worthy of note regardless of whether the approaches that they take are successful or impaired. This is also supported by Bedrosian *et al.* (2003:319) who found that children with autism bring skills in syntactic and spelling to written narrative tasks. This approach to narrative and autism, which examines both the abilities and the impairments of these individuals, is the ethos of this thesis. The abilities of these children are often masked or overridden by their impairments, however, as stated by Happé (1999) their successes are often more interesting and enlightening than their failures. In addition, Solomon (2004) highlights that the impairments of high-functioning individuals with ASD are subtle in nature and, therefore, the analysis of the successes and failures may be crucial in identifying problematic areas of narrative.

Bruner and Feldman (1993:282) suggest that high-functioning children with autism can understand stories but cannot retell them. Their comprehension of another's story was considerably better than their production of their own story, regardless of whether they were retelling a story immediately after hearing it or relaying a new set of events. Furthermore, findings revealed that these children could not apply what they had recognised in the stories (identified through a series of questions) when retelling the narrative to the researcher (1993:282). Contrary to predictions based on theory of mind deficits, the study found that although they could identify and understand deceit and lying within the stories that were told to them. However, these factors were not involved in their retelling of the story. These findings appear to suggest that it is the telling of the story that is problematic for children with autism and not comprehension of the content they are trying to express. This distinction suggests that whilst they have an analytic understanding of narratives, they are not intuitively using this information to develop a

larger schema or strategy to enable them to use this information. It is suggested that this may affect their development of narrative as a communicative tool and thus, individuals with ASD may benefit from explicit guidance. This is discussed further in Section 7.2.

Bruner and Feldman (1993:282) found that children with ASD demonstrate better conversational abilities in conversations which involve retelling a narrative immediately after they have heard it in comparison to conversations which discuss a film they have previously seen. They suggest that this is because the story's narrative framework helped the children to interpret events from the story that was told immediately beforehand (Bruner and Feldman, 1993:284). They also suggest that the structure of the story, alongside the interviewer's questions, helped to structure their retelling of the events in the story (Bruner and Feldman, 1993:284). This issue was also raised by Cameron *et al.* (1995), who found that typically developing children were able to produce more coherent written narratives when a model narrative was presented prior to the child being asked to tell the narrative themselves.

A post-test conversation that followed the testing between a high-functioning child with autism and the interviewer about a film the child had recently seen revealed the child's difficulties in retelling the story. The conversation consisted of two word answers with prompting from the interviewer and no free recall of the details or sequential events of the story itself.

Norbury and Bishop (2002:246) examined the oral narrative recall and inferencing abilities of individuals with Specific Language Impairment (SLI), Pragmatic Language Impairment (PLI) and ASD in comparison to TD individuals. During their investigation, they asked each participant to complete two tasks. During the first task the participants were told several oral narratives and after each narrative they were asked six questions: two literal, two requiring "text-connecting inferences" and two "gap-filling inferences".

After the final story had been told and questions answered, the children were asked to recall that final narrative aloud. They found that whilst there were no group differences for story recall, autistic behaviours were linked to poor inferencing. These findings support the findings discussed in Chapter 3 which highlight inferencing as a problematic area of communication for individuals with ASD. In addition, Norbury and Bishop (2002:246) state that the level of story recall, and potentially an individual's memory for a given text, is related to the level of story comprehension. It was also noted that the pragmatic and autism features seen in individuals with ASD separated the groups, and individuals demonstrating both autistic features and pragmatic impairment showed poorer comprehension of the narrative and, therefore, a lower level of story recall. Importantly, it was found that the PLI group did not show impairments in inferencing tasks or poor story recall suggesting that the impairments found were specific to the group demonstrating autistic behaviours and not reliant on pragmatic abilities alone. They conclude that inferencing improves comprehension and, therefore, supports a more stable mental model of the narrative which can then be implemented.

Another investigation of the development of story schema and narrative retelling abilities in autism is presented by Stirling and Barrington (In Press). As part of a case study, a child with ASD voluntarily retold (both orally and in written form) "The Three Little Pigs" and "The Billy Goats Gruff" a year after being exposed to the original narrative during a school activity. Stirling and Barrington (In Press) found that during both the written and oral retellings the child demonstrated a clear and established story schema of the narrative he had retold. During the oral retellings, the participant increased the level of the description between each retelling, each time embellishing it with more details and became more confident about telling the story which he himself noted as 'better'. Stirling and Barrington (In Press) note, however, that the stories

involved in the retellings were well-known tales which, they suggest, have been “well-honed” and, thus, may be more suited to a retelling task than some previous materials (Stirling and Barrington, In Press:9) (the issue of elicitation materials is discussed in Section 5.4). Furthermore, they point out that the repetition of the same task may have affected the individual’s abilities and, alongside repeated exposure to stimuli, may have also helped the child to construct his schema. The child’s core abilities are, therefore, difficult to determine. Despite this limitation, it remains a valuable study and identifies possible areas for intervention for children with ASD (for example, narrative task repetition). In addition, Stirling and Barrington note that the child was interested in producing written stories and did so initially in a self-directed play session with no additional input (In Press). This is important to note as it demonstrates that some children with autism are interested in producing narratives and, through this interest, are able to demonstrate an understanding of the narrative process.

Losh and Capps (2003) examine the narrative abilities of high-functioning individuals with ASD and find impairments related to inferring and building upon causal relationships within storytelling tasks. They examined the individuals across two contexts and findings were similar in both the storybook context and personal narratives. In addition to problems with causal relationships, within the personal narratives the individuals were found to have difficulty when using more sophisticated characteristics employed by the typically developing control group.

There has been little work with regard to the use of direct speech in narratives produced by individuals with autism, however, within written stories it is a common feature. Nordqvist (2001) states that there is limited use of reported speech in children’s written narratives. She also suggests that the development of reported speech is linked to a development of theory of mind and that direct speech appears first when

development of theory of mind begins. This suggests that direct speech is a more advanced and enhancing feature of children's narratives. This research suggests that due to a lack of theory of mind and a delay in language and communication development, it is possible that direct speech would be problematic for individuals with ASD.

Furthermore, it suggests that only children who can pass theory of mind tasks should be seen to use reported speech. However, Stirling and Barrington (In Press:20) have noted that direct speech is an observable feature, thus, highlighting that it may be easier to use direct speech rather than attempting to report events which would require an interpretation and representation of the facts. It has been identified that high-functioning individuals with ASD find abstract elements of communication problematic and more observable features of language unproblematic (Tager-Flusberg, 2000b). As such, direct speech may provide an observable feature of communication that they can use to their advantage. It has been suggested, therefore, that for high-functioning individuals with ASD, direct speech may not be the enhancing feature of language which it appears to be in TD narratives but may be the only option available. Stirling and Barrington (In Press:20) highlight this by stating that direct speech data has unclear meaning when there is minimal evidence to suggest that other, less direct methods are available to the child. That is to say that a child with ASD may use direct speech not as a more sophisticated narrative feature but as the only option available to them. It is suggested in this thesis that this feature performs a different function for high-functioning individuals with ASD by providing them with a way to report the events of a narrative using the words of others. This means they do not have to integrate new knowledge into their own knowledge and then report the facts in their own words as well as providing the correct character reactions which they may have to infer from what has been said. Thus, rather than indicating a high level of ability and understanding, it is possible that, for these

individuals, it may be another coping strategy². This has significant implications for the future analysis of narrative abilities and further research is required to establish the role of this feature within the narratives of individuals with ASD.

In summary, this section has identified retelling, comprehension, introduction of new information, and use of a variety of evaluative phrases as problematic areas for individuals with ASD. These areas mirror the general language and communication impairments discussed in Chapter 3, thus suggesting a robust group of impairments. In addition, this section has highlighted the problematic area of direct speech within narratives produced by high-functioning individuals with ASD and has suggested that a new approach to this feature which warrants substantial further research. The following section discusses the structural differences seen in the narratives produced by individuals with ASD.

5.2 Narrative and Theory of Mind

There have been many links made between autism and theory of mind (ToM) (as discussed in Section 3.2.6). Due to the nature of narrative as a tool of communication motivated by the requirement to share information, it is reasonably suggested that ToM impairments may be linked to narrative impairments. The current section aims to discuss some of the findings in relation to narrative and ToM, and the implications for future research and intervention.

Aksu-Koç and Tekdemir (2004) discuss the role of ToM in narrative development and find that the period in development at which the children develop the ability to create narratives coincides with the period during which ToM abilities are developed. Narratives, defined as temporally-causally ordered, goal directed events experienced by a character, require the teller to have ToM or a knowledge of other's feelings in order to

² Thanks to Lesley Stirling for her valuable contributions on this matter during personal correspondence.

successfully communicate the narrative to the audience (Aksu-Koç and Tekdemir, 2004:307-8). Furthermore, Bamberg and Damrad-Frye (1991) state that ToM development is crucial for narrative development. In their analysis of oral narratives from TD individuals elicited using Mayer's *Frog, Where are you?* (1974) (a storybook used in many studies of narrative), Bamberg and Damrad-Frye state that evaluative understanding within narratives increases with age and can be synthesised with an understanding of ToM (1991:706).

Tager-Flusberg (2000b:126-7) discusses the main findings of studies which have explored oral narrative discourse in relation to children with autism. She states that in order to construct a 'good' story, the storyteller should be able to construct a "hierarchical structure" which relates to the thoughts, feelings and emotions of the main characters. Other studies in this area have found that individuals with autism use fewer mental state terms in oral narratives (Baron-Cohen *et al.*, 1986; Tager-Flusberg and Sullivan, 1995), are less able to judge the needs of the listener and produce more irrelevant utterances (Loveland *et al.*, 1990), cannot provide causal explanations for the stories in oral narratives (Tager-Flusberg, 1995; Tager-Flusberg, 2000b:127) and, in some cases, do not recognise the events in the story as representational of meaningful real-life events in both oral and written narrative (Loveland and Tunali, 1993).

Bruner and Feldman (1993:285) suggest that the problems that children with autism have with narrative (both oral and written) are a result of a lack of impulse to 'rework' life experiences into narratives. They suggest that what is lacking in children with autism is the ability to organise real-life events in a narrative way, thus creating a set of punctuated events. This leads Bruner and Feldman (1993:287) to believe that the deficit in question is not a failure to develop and use ToM to interpret social encounters "but a more general 'semiotic' deficit for organising narratives generally" (1990:287).

Children with autism are without a narrative “bent” (Bruner and Feldman 1993:287-8) and, thus, do not organise their own experience into canonical forms with which people and cultures regulate society (Bruner and Feldman 1993:278-8). High-functioning children with autism convert social experiences into a world of causally driven events (Bruner and Feldman, 1993:288). Bruner and Feldman (1993:285) state that the interpersonal interactions of high-functioning children with ASD give the impression that they are solving a maths puzzle and if given enough time (which society and conversational norms do not allow) would come to an ‘acceptable’ solution. In conclusion, Bruner and Feldman (1993:288-9) state that the lack of ability to organise life via narrative methods may be the underlying problem for autism and may underpin ToM.

Furthermore, Tager-Flusberg (1997:147) states that ToM is important to understand and express the intentions of the characters as well as their motivations, beliefs, and reactions which must all be included to present a convincing and engaging narrative. In addition, it has been found that children with autism are less able to provide an explanation for the actions of the characters within narratives whether they have created the narrative themselves or it has been presented to them (Tager-Flusberg and Sullivan, 1995). Tager-Flusberg (1997:148) concludes that ToM impairments are reflected in the difficulties children with autism have in producing a narrative. The difficulties she highlights vary widely from the “inability to perceive a related sequence of pictures or events as a coherent narrative, to limitations in producing a rich and complex narrative that places sequence of events in the story within a causal-explanatory framework.” (Tager-Flusberg, 1997:148).

Tager-Flusberg and Sullivan (1995) examine the narrative abilities and, specifically, the use of mental state terms in the oral narratives of children with autism,

developmentally delayed children and typically developing children. They used 27 children with ASD recruited from two specialist day schools and two control groups (a developmentally delayed group and a TD group), which were matched for production as well as comprehension skills (1995:244). The findings indicate no differences between the groups in narrative length, use of cohesive devices (e.g. reference and conjunctions), or mental state terms. Tager-Flusberg and Sullivan (1995:252) suggest that the lack of differences in these areas may be due to the close matching of the control groups for linguistic abilities in both comprehension and production and the unusually high level of abilities of the children with autism.

With regard to ToM abilities, their analysis highlights that the ASD group provide fewer appropriate explanations about the emotional states of the characters when probed about the emotional states of the characters in the narrative (Tager-Flusberg and Sullivan, 1995). Furthermore, they identify ToM abilities as directly correlated to narrative abilities only in the data collected from the individuals with ASD and not in data from either of the control groups. Tager-Flusberg (2000:127) states that these findings suggest individuals with ASD have difficulty successfully composing mature narratives and that these problems are closely linked to their ability in ToM tasks.

The correlation between narrative and ToM abilities has also been identified by Capps *et al.* (2000). They examine 13 children with ASD and compare their narrative ability with children with developmental delays (except those with Down Syndrome) and TD children matched on language ability. Both the children with autism and the children with developmental delays were selected from a larger cohort because they had sufficient language to create a narrative and participate in conversation with the researchers. They used Mayer (1974) to elicit oral narratives and analysed them for frequency of morphosyntactic errors, length and use of narrative Evaluation. Capps *et*

al. (2000:197) find that children with autism and those with developmental delays relied on a more restricted set of evaluative devices (e.g. character speech, hedges, negation, explicit discussion of characters cognition) and were less likely to discuss the causes of characters' emotions. Furthermore, they find that the narrative abilities of the children with autism are directly related to their ToM abilities, which is not seen in the typically developing children or children with developmental delays.

It has been found that whilst children with ASD have equal, and in some cases superior, abilities to retell sequences of events when they are descriptively or mechanically underpinned. This ability is not seen if the narratives that are being described have psychological understandings underpinning them (Baron-Cohen *et al.*, 1986). Baron-Cohen *et al.* (1986) found that when children were asked to order a series of pictures and to retell the story in conversation after the reordering, the children with ASD performed worse than controls when the understanding of the story elements relied on psychological criteria. However, when the understanding relied on behavioural or mechanical criteria, the individuals with ASD outperformed all the controls. The narratives produced by the majority of the ASD group in the retellings are described as "purely descriptive" (Baron-Cohen *et al.*, 1986:122), whilst the control groups frequently used mental-state terms and referred both explicitly and implicitly to the psychological states of the characters. This provides significant support for the effect of ToM abilities on the narratives produced and highlights the issues surrounding the use of mental state terms and inclusion of Evaluation. It should be noted that the individuals participating in Baron-Cohen *et al.*'s study are diagnosed as having 'core autism'; autism within the core spectrum of the disorder following the criteria given in Section 3.1. The finding that not all the children in the ASD group produced purely descriptive narratives suggests that high-functioning individuals with ASD may produce narratives

which are less affected by this change in the criteria for understanding described above. As Baron-Cohen *et al.* (1986:124) highlight, some high-functioning children with autism can pass both first and second order false belief tasks. If ToM is the only element affecting performance on narrative tasks, it could be suggested that these impairments may not be found in high-functioning ASD groups. However, Happé's (1994) findings suggest this may not be the case. She found that in a naturalistic oral narratives children with ASD were least likely, in comparison to TD and developmentally delayed controls, to provide contextually appropriate mental state explanations for characters' non-literal utterances. This was true for all participants including those who performed well on ToM tests prior to storytelling. In addition, Losh and Capps (2003) identify emotional understanding, and not theory of mind abilities, as related the use of evaluative devices in narratives produced by high-functioning individuals with ASD. They find that impairments in the use of evaluative devices demonstrated by high-functioning children with ASD are not related to either Verbal IQ or ToM abilities but were related to emotional understanding (2003:249).

Tager-Flusberg (1999) proposes that ToM may be divided into two sub-groups 'socio-perceptual' and 'social-cognitive'. Following this division, Tager-Flusberg (2001:184) suggests that the social-cognitive component of ToM is built upon the socio-perceptive component. In addition, she postulates that language has the biggest influence upon the social-cognitive component, which is developed around the same time that language acquisition begins. This suggests that children with autism who are impaired in social-cognitive ToM will have difficulties with the areas of narratives which require reflection of others' thoughts and beliefs. This is particularly challenging in narratives that are imaginative as the story-teller has to understand the feelings, thoughts and beliefs of not only the participants who are listening to the story but also

of the characters within the story so that the story is believable for others. With this in mind, Evaluation, Coda and Orientation (following Labov and Waletzky's (1967) definitions) could be identified as areas which will differ in the narratives produced by children with autism as they require an understanding of the thoughts and previous beliefs of the characters and audience.

In summary, there has been a considerable amount of research which has identified ToM abilities as influential in narrative abilities and narrative structure (specifically the use of Evaluation). Research demonstrates that although ToM abilities are reflected in narrative abilities, it has also been found that individuals who are able to pass theory of mind tests also demonstrate impairments in the representation of Evaluation in the narrative. This highlights that even the most able individuals with ASD show impairments in the evaluative aspects of narrative structure. Finally, it should be noted that it is suggested that individuals with ASD can understand and discuss the emotions of characters if prompted. This raises the possibility that although the ability to represent Evaluation in narrative may exist, and challenge may be in identifying Evaluation as a crucial part of narrative structure. As highlighted in Section 5.3.1 with regard to Weak Central Coherence (WCC), it may be that an intervention to change, or in this case, develop an individual's understanding of narrative may be beneficial in the case of ASD. Intervention possibilities are discussed further in Chapter 7. The following section discusses the narrative structural abilities of individuals with ASD.

5.3 Narrative Structure and the Abilities of Individuals with ASD

The ability of children with ASD to structure narrative is of particular interest in this thesis. The aim of the following section is to review the literature in this limited field in order to identify possible areas for future research. It is also intended that this review

will allow existing questions in the literature to be highlighted and discussed with regard to other areas of impairment and ability seen in individuals with ASD.

Children with ASD have been found to have problems retelling stories as a sequence of meaningful events (Baron-Cohen *et al.*, 1986) and have been described as having impairments in the “act of retelling” (Bruner and Feldman, 1993:274). Bruner and Feldman state that individuals with autism, both in dialogue and in speech in general, are unable to “encode the arguments of action into a structure” (1993:274). Although Bruner and Feldman (1993) then take this argument forward to discuss the development of ToM, this finding alone is valuable for the present discussion. The ordering and structuring of events is a key feature of narrative and has been found to be systematically robust within the typically developing population (Labov and Waletzky, 1967; Labov, 1997) and can be noted by anyone taking part in a conversation. If the speaker tells the story in a disorganised fashion or includes information at the end of the narrative that was expected at the beginning problems arise. The audience is left confused about the progress of the narrative and may, in fact, question the speaker in order to gain the additional information required. On a similar note, if the speaker provides too much information, the audience may find it increasingly difficult to follow the story or lose interest entirely. It is in these extreme situations that the importance of structure in dialogue, and in particular narrative, becomes clear. Bruner and Feldman state that structuring these events is problematic for individuals with ASD. They state that individuals with ASD seem unable not only to structure their own speech but also to have difficulty predicting the direction of others’ comments within dialogue (1993:274).

Norbury and Bishop (2003) examine the oral narratives of children 6 to 10 years old and compare children with ASD to children with SLI and children with PLI. The

narratives were elicited using *Frog, Where are You?* (Mayer, 1974). They found that the global structure of narratives from high-functioning children with ASD did not differ from the narrative structure of the control groups. However, Norbury and Bishop (2003) also noted that the development of structural narrative abilities occurs relatively late in children's development and that the ability to tell a fully structured story is not fully developed until the child is quite old. Specifically, it has been noted that typically developing children aged nine years old are still unable to give a mature conclusion to a story and in comparison to adult narratives, their narratives are not fully developed (Berman and Slobin, 1994:75; Norbury and Bishop, 2003:307). Norbury and Bishop (2003) conclude that the lack of difference between the two groups' narratives may be due to the age of the participants. They suggest that examining the narratives of adolescents may highlight differences in global structure as the typically developing children will have developed the ability to construct a narrative at this point. Norbury and Bishop (2003) also found that the local structure of the narratives did not differ between the groups, a finding supporting Tager-Flusberg and Sullivan (1995) who also identified no difference between the structure of narratives produced by control groups and those produced by children with ASD.

Diehl *et al.* (2006:88) conducted a study to examine oral narratives from children with ASD and typically developing children aged 8-9 years old. The children were played an oral version of *Frog Where Are You?* (Meyer, 1974) whilst looking at the pictures in the book and were told before hearing the narrative that story they would be asked to retell the story to the researcher (who left before the tape began playing) when they returned. Diehl *et al.* examined causal connections which were defined as the "direct relationship between two story events" (2006:91) which was tested by the requirement of event A to occur in order to allow event B to occur. They also analysed

the coherence of the narrative using the same rule and the causal chain which was defined as the sequence of events which are essential for the story. This correlates to Labov's definition of Complicating Action clauses (see Section 4.4.3). Their results reveal that length and syntactic complexity of the narratives produced does not differ between the ASD and TD groups. However, there are fewer causal links and a limited level of the coherence in the narratives produced by the ASD group in comparison to TD controls. Supporting findings from Solomon (2004) (discussed below), further analysis identifies that whilst children with ASD are able to recall the gist of the story (Diehl *et al.*, 2006:96), they are not able to use this to aid story retelling and thus their narratives are less causally connected (Diehl *et al.*, 2006:96). However, as these results go against the expectation that children with ASD are unable to identify the main events in the narrative, they suggest that this may be due to the high level of reoccurrence of causal links throughout the narrative. They suggest it is possible that memory and 'recency' bias has produced an artificially high score in this area and thus produced misleading results. Diehl *et al.* (2006:96) describe structure of the narratives produced by the ASD group as more like a list of events than a narrative. In addition, they find that the ASD group were twice as likely to produce narrative which include clauses with no causal links than the TD group (2006:96). In reviewing their methodological approach, Diehl *et al.* (2006:96) highlight that whilst a basic level analysis of length and syntactic complexity in narrative production reveals no difference between the groups, a more detailed analysis of structure reveals significant group differences in narrative structure. They conclude that there are quantifiable differences between the two groups with regard to narrative structure despite VIQ matching, suggesting that impairments are directly linked to narrative ability rather than overall language ability.

Diehl *et al.* (2006:96) note that their findings relating to syntactic ability and length support those of Tager-Flusberg and Sullivan (1995) and their findings regarding recall of basic components confirm those of Loveland *et al.* (1990). However, their findings relating to narrative structure contradict previous findings which found no group differences (Loveland *et al.*, 1990; Tager-Flusberg, 1995). Furthermore, they highlight that whilst previous studies have examined discrete elements of the narrative, their more comprehensive examination of causal structure allowed a deeper level analysis to be conducted (Diehl *et al.*, 2006:96). This approach is valuable with regard to high-functioning individuals with ASD which have been found to have subtle but robust impairments in the area of linguistic abilities (Solomon, 2004; Stirling and Barrington, In Press:6).

Solomon (2004) examines the structural abilities of individuals with ASD in spontaneous oral story-telling through examination of the narrative introductions produced by these individuals. The study investigates both real-life and fictional narratives produced by children aged 9 to 13 years old with high-functioning ASD in discourse settings. She finds that individuals with ASD are able to introduce both fictional and real-life narratives which she argues requires some knowledge and comprehension of the global structure. However, further analysis of the body of the texts revealed that these children are unable to apply this pre-organisation to the narrative body. Therefore, they often produce narratives which are not “globally organised over an extended period of discourse” (Solomon, 2004:253). She states that even if the introduction is correctly composed and performs the function of hierarchical organisation, this structure is not maintained throughout the narrative body (Solomon, 2004:271). Solomon (2004:261) also states that the Abstract (Labov and Waletzky, 1967) plays an important role in situating the oral narrative and, therefore, it projects a

macrostructure on the narrative itself. This macrostructure is not used by the ASD group who, despite using this section of the narrative in the typical fashion, fail to project the structure onto the narrative itself. She highlights that the difference in these abilities within one individual reflects the heterogeneous nature of the narrative ability within this group (2004:262). Furthermore, she identifies that this heterogeneity results in impaired global structure whilst local structure and aims are achieved (2004:261). Solomon (2004:271) identifies the requirement for gist development when compiling knowledge of macrostructures. Furthermore, she states that individuals with ASD demonstrate a lack of ability to interpret the gist of the narrative, reduce the information, and, thus, make the development of narrative structure possible. In addition, she suggests that the presence of these impairments offers some support for the theory of Weak Central Coherence (WCC) (Section 5.3.1). Typically developing children, on the other hand, are able to recall the gist of the narrative and apply this to their story schema in order to retell a story rather than remembering the surface structure of events (Stein and Glenn, 1982) (see Section 4.3 for discussion).

As discussed above, Stirling and Barrington (In Press) present a case study of an individual with ASD who produces both oral and written spontaneous narratives. They collected data from one high-functioning child with ASD who had an unprompted interest in narrative and voluntarily and rewrote the story of the *Three Little Pigs* which he had been exposed to at school a year previously. This was then followed by an oral retelling at the request of the researcher which the individual responded to and subsequently offered a third oral retelling. The initial point that they make is that the child's desire to engage in this research highlighted his own interest in narrative and storytelling. This supports Solomon's (2004) findings, which also indicated that high-functioning children with ASD are interested in narratives and use them in their

everyday life. Their analysis identifies that this individual demonstrates an understanding of the concept of telling a story and the episodic structure of a narrative which, they suggest, is evidence of a narrative schema (Stirling and Barrington, In Press:17). However, their analysis also identifies that, although the participant appears to have a grasp of the narrative schema, he identifies a limited number of explicit transitions between episodes in his retelling and lacks elaboration of the important aspects of the story (e.g. how the wolf gets into the house and gets burnt) (Stirling and Barrington, In Press:17). They state this suggests that despite demonstrating a narrative schema, this individual is not fully engaged with the causal structure of the narrative and this supports previous findings regarding impairments in explicit causal knowledge and causal links demonstrated by individuals with ASD (Stirling and Barrington, In Press:17).

5.3.1 Weak Central Coherence and Narrative

As discussed in Section 3.2.6.2, Weak Central Coherence (WCC) is a well-reported feature of ASD and has been linked to narrative structure in recent research which suggests that global narrative structure is problematic for individuals with ASD (Bruner and Feldman, 1993:278). WCC results in a propensity to process detail from a local rather than global processing stance. Happé (1999:2) states that children with autism have been found to be unable to comprehend the whole without a detailed knowledge of its constituents and are less likely to account for physical context within a situation. With regard to narrative, this results in impaired ability to identify and implement the gist of a story in order to guide the remainder of the narrative (Norbury and Bishop, 2002; Solomon, 2004). Furthermore, Solomon (2004) notes that individuals with ASD use compensatory strategies in their introductions. She found that during an introduction children with ASD used “local means” (for example, the name of a character or place)

in order to replace the requirement for providing the gist of the story which would require global awareness. In particular, the use of the gist to guide the structure of the narrative has been highlighted by Solomon (2004) as important in developing narrative structure (as discussed above). Although high-functioning individuals with ASD may be able, through the use of compensatory strategies, to identify some of the gist and represent it in the introduction of a story, they are not able to implement this in order to focus the main body of the story (Solomon, 2004). This impaired ability to identify the gist of a story and, thus, represent the overall structure and content, is important when considering the structural abilities of these individuals. As such, it suggests that individuals with ASD are likely to be impaired in their production of narrative with regard to the global structure.

Diehl *et al.* (2006) also find that individuals with ASD have an impaired ability to implement the gist in order to guide structure and produce narratives which appear more like a list of events (discussed above). They conclude that their findings are supportive of WCC theory as they show a lack of ability to process on a global level.

Finally, it is noted that WCC postulates only a tendency to process on a local level but not an inability to process on a global level. This suggestion has been supported by research which finds no impairment of contextual processing in non-verbal stimuli (López and Leekam, 2003). With this in mind, it is possible to suggest that a 'refocusing' of processing when narrative production is requested may enable individuals with ASD to use their local processing skills whilst developing the ability to look at the narrative globally and improve global structure.

5.3.2 Summary

In summary, this section has highlighted the ambiguous and contradictory findings reported in this limited field and whilst some studies highlight impairments in narrative

structure for individuals with ASD, others do not. As the focus of this thesis is the abilities of individuals with autism with regard to global narrative structure, the remainder of this chapter will focus on this discrepancy. In doing so, the sections have two aims, firstly, to identify whether it is reasonable to suggest that individuals with ASD may have an impairment in this area, and secondly, to identify possible reasons for this discrepancy and offer evidence to support this reasoning.

What is clear from the above discussion is that there is significant evidence from the literature on the impairments of individuals with ASD (discussed in Chapter 3) to support the hypothesis that global narrative structure is problematic for this group. However, it should be noted at this point that as there is a limited number of investigations into narrative structure and autism, all of the investigations into narrative discussed in this section investigate oral narrative production. Whilst there are many similarities between spontaneous oral and written narratives, here are some important differences in particular the additional planning time allowed in written narrative production. Therefore, any predictions for written narratives made on the basis of this research should be made with this in mind. This issue is discussed further in Section 5.5. The following section examines the effect of context on narrative production and the implications for data collection.

5.4 The Influence of Context and Implications for Research into Narrative Structure and ASD

The majority of the research examining narrative structure has involved "fixed-order" (storybook) stimuli (predominately Mayer, (1974) (e.g. Tager-Flusberg and Sullivan, 1995; Capps *et al.*, 2000; Losh and Capps, 2003; Diehl *et al.*, 2006)). However, if some of the wider evidence for the abilities of typically developing children and children with autism is considered, several issues arise with regard to the use of this elicitation technique. This section discusses how the impact context, both within the task and the

situation in which the task is administered, may have on an individual's narrative production. The discussion will then highlight the implications of this research with regard to previous data collection techniques, findings in the area of narrative abilities and the design of future elicitation tasks.

5.4.1 The Effect of Context

There is evidence to suggest that task context has an impact on an individual's performance. Hickman (2004) discussed the context of elicitation and the impact that the elicitation techniques have on the data yielded. She stated that the context of elicitation is extremely important and a major determinant of language use, thus, it may affect any data collected.

More specifically, there is a significant body of evidence that suggests that providing an individual with a model story affects, and may support, their implementation of narrative structure and task performance. As highlighted in Section 4.3.2. Cameron *et al.* (1995) found that context of elicitation had a significant impact on the data yielded. They found that when children are presented with a 'model story' they closely map the structure of that story when creating their own story. They found that the presentation of a model story, before asking the TD children to write their own, resulted in stories which varied less in length, used simpler syntactic constructions and closely imitated the model story. Furthermore, Cameron *et al.* (1995) demonstrate that presenting a model story is an effective way to support children's narrative composition. They conclude that the story re-writing task "facilitate[d] the children's writing process and, hence, resulted in higher quality writing" in both cohesion and global quality of the text (Cameron *et al.*, 1995:257). They found that the effects were immediate but were not extended past that experience.

In addition, Chen-Wilson (2003) uses “fixed-order” stimuli in order to examine the syntactic and lexical abilities of individuals. She found that using “fixed-order” stimuli removed the pressure of structuring the narrative and, therefore, allowed the individuals to provide an accurate representation of their syntactic and lexical abilities. Bruner and Feldman (1993) also found that children with autism could use the structure of a story they have just heard to retell the story using the same structure.

Furthermore, recent research has directly addressed the issue of the elicitation task in narrative analysis using TD individuals. It suggests that ‘variations in performance’ can be seen when different elicitation tasks are used (Aksu-Koç *et al.*, 2001:xvii). The difference between spontaneous narratives and narratives supported by pictures is cited as being of specific interest (Aksu-Koç *et al.*, 2001:xvii). In addition, Berman (2001:26-7) found that the development of setting information (Orientation in Labovian terms) for TD individuals was developed initially in fictional narrative, then in personal narratives and finally in narratives based on pictures. This finding is of particular importance for the current discussion as it highlights the importance of context in elicitation of data and the effect context may have on the conclusions drawn regarding a participant’s performance.

In summary, it is clear from the research discussed above that context and, specifically, the presentation of a model narrative, has a significant impact on the narratives produced. In particular, it has been found that the model narrative can support the narratives produced and, significantly for the current investigation, improve the global structure. It is argued here that the nature of the wordless picture book is that it is ordered in a certain way that cannot be changed (a fixed-order stimulus). Therefore, it provides a set global structure for the child to insert the events in the order that they are presented in the book. It can, in this sense, be likened to a model story and, thus, can be

expected to have a similar impact to a model story as identified above. The following section discusses the implications of this conclusion on current and previous research.

5.4.2 Issues Regarding the Research of Narrative Structure

As stated above, the existing research on narrative structure has been inconclusive and questions regarding the abilities of individuals with autism still remain. It is suggested in this thesis that individuals with ASD are impaired with regard to narrative structure despite the contrasting nature of research to date. The suggestion is supported by consideration of other impairments in ASD which have been well documented. This section aims to discuss possible reasons for the inconclusive state of research in this field to date and identify evidence presented in previous chapters which offers support for possible structural narrative impairments.

5.4.2.1 Support for Structural Impairments

Whilst the evidence presented in Section 5.3 and Section 5.4.1 highlights that global structure of narrative is problematic for individuals with ASD, the literature is inconclusive. Based on research findings in several more conclusive areas of literature, this thesis postulates that individuals with ASD are impaired in global organisation of narratives.

Research in Weak Central Coherence, and the associated research in narrative and WCC, has indicated that this general predisposition to process globally is impaired in individuals with ASD and local processing is dominant in this group. Research has identified that this tendency is especially prominent when linguistic stimuli is being processed (López and Leekam, 2003, discussed in Chapter 3). Research has also described impairments in identifying and using the gist of the narrative to aid implementation of narrative structure. These findings lend considerable support to the hypothesis that individuals with ASD may have impaired narrative structural abilities.

In addition, impairments seen in the inclusion of accurate and contextually appropriate new information (Tager-Flusberg and Anderson, 1991; Tager-Flusberg, 1994; Mitchell *et al.*, 1997; Tager-Flusberg, 2000a) also suggest that the inclusion of introductory information may be impaired individuals with ASD. This, it is predicted, would have a marked impact on narrative introductions, background information and the inclusion of Orientation clauses (Labov and Waletzky, 1967), a pivotal part of global narrative structure.

Another aspect of spoken language identified as problematic within the literature is conversation and the introduction of relevant new information within conversation (Loveland and Tunali, 1993) (see Section 3.3 for discussion). From existing research, it may be hypothesised that the use of Complicating Action clauses and Orientation may be problematic for adolescents with autism when they are constructing narratives. It is these areas which help the narrative to flow and help the audience to understand and believe the story. The inclusion of irrelevant extra information may cloud the main points of the story and this, coupled with the possible mis-introduction of Complicating Action clauses may cause the narrative to fail.

Finally, the impairments regarding 'self and other' understanding and ToM impairments are hypothesised to have a significant impact on narrative structure with regard to the inclusion of Evaluation clauses (Labov and Waletzky, 1967) and the use of evaluative devices, as has been suggested by previous research in narrative (Tager-Flusberg and Sullivan, 1995; Tager-Flusberg, 2001). This is also an integral part of narrative structure and, thus, impairment in this area would have a considerable impact on global narrative structure.

In the light of these research findings and the findings which directly identify problems with global narrative structure in individuals with ASD, this thesis postulates

that it is counter-intuitive to suggest that narrative structural impairments are not present in this population. It is also acknowledged that research in the area of narrative structure and ASD is limited and, thus, further research in this field would develop our understanding of narrative development, and ASD overall. The inconclusive nature of results in this area also requires further investigation. The following section presents several possible reasons for these inconclusive results.

5.4.2.2 Possible Reasons for Inconclusive Results with Regard to Global Narrative Structure

In the light of the above discussion which has offered support for the hypothesis that global structural impairments are present in the narratives of individuals with autism, the inconclusive nature of previous work must be addressed.

There are several possible reasons for differences within the literature. First, it is possible that, in this heterogeneous spectrum disorder, the groups reported are not comparable and may have different levels of communicative ability or have been exposed to interventions which support narrative. In a disorder such as ASD, this is always a possibility but limiting discussions to high-functioning individuals results in a more heterogeneous population. This is the case in the above discussion as, by the nature of the narrative tasks discussed, only the more able individuals are able to participate.

Second, it is possible that the measures of structure differ and, thus, whilst in some frameworks impairments may be seen, these findings may not be replicated in alternative frameworks. However, as the discussion in Chapter 4 revealed, many of the major components remain stable across frameworks. Therefore, although there are important differences between the frameworks, results reflecting the ability of individuals to produce a narrative should not be affected by such variations given the

general impairments of ASD (highlighted in Chapter 3). It is also possible that structural analyses have examined only one component of a framework (for example, Evaluation) and not narrative structure as a whole. Thus, the research has been unable to detect subtle differences in this population.

Third, it is possible that age differences in the participants involved in studies have resulted in some investigations comparing children who are too young and who have not fully developed narrative structure. It could be suggested that when one compares children with ASD to typically developing who have not fully mastered narrative structure, there might be insignificant differences between the two groups, suggesting that there are no narrative impairments in the children with ASD. As suggested by Norbury and Bishop (2003), it is possible that differences are only present at a later stage in development. This is a significant issue when investigating advanced linguistic abilities. As a result the current investigation followed recommendations made in the existing literature (Norbury and Bishop, 2003) and recruited participants over the age of 11.

Fourth, it is possible that the variety of aims that are addressed in the existing research may affect the data yielded and conclusions reached. For example, a considerable proportion of the research has not examined narrative for the sake of narrative structure alone but in order to, for example, examine ToM abilities in a more complex setting (Tager-Flusberg and Sullivan, 1995), and has then gone on to consider narrative structure with the same data. The methodology used may have been designed in order to achieve the main aim of the study and, thus, may have neglected the more subtle implications of data collection with regard to narrative structure. This may result in seemingly comparable studies yielding contradictory results.

Finally, it is possible that differences in the types of elicitation tasks has effect the data yielded and, thus, some studies see no group differences, whilst others identify important differences. As discussed in Section 5.4.1, it is the view of the current author that fixed-order stimuli function in a narrative task as a model story. These have been shown to effect and indeed support the narrative production of individuals. As many studies on narrative in the past have used Mayer's *Frog, Where Are You?* (1974) (see Stromqvist and Verhoeven, 2004; Tager-Flusberg and Sullivan, 1995), it is possible that findings relating to global narrative structure do not reflect the child's ability to create structure for their own narratives but simply reflect the ability to model their own story on a structure provided for them (reported in TD children (Cameron *et al.*, 1995)). In such cases, differences may be reduced or eliminated due to the propensity towards the mean reported in such tasks.

It is suggested here that the elicitation tasks which are used to collect narrative data whilst being highly suitable for syntactic or lexical investigations may be problematic when structure is being examined. It is hypothesised that 'fixed-order stimuli' may support the structure of the narrative and may, therefore, be masking the true abilities of these individuals. It must be noted at this point that the use of fixed-order stimuli is highly effective when the subject of analysis is not structure. It is also important to note that any findings which demonstrate "fixed-order" stimuli supporting narrative structure have the potential to inform an intervention task and so remain highly valuable, helping the narrative abilities of children with autism.

In summary, this section has identified support for the hypothesis that individuals with ASD do have impaired global narrative structure and has suggested possible explanations for the inconclusive results reported to date in this field. It is suggested that both the age of the participants and the elicitation techniques used in previous

studies have affected the results gained. The following chapter presents novel research which tests whether fixed-order stimuli have an effect on the narrative production of an individual and, in the light of those results, investigates whether individuals with ASD are impaired in the area of global narrative structure. Before concluding, however, this chapter will consider the possible alternatives to fixed-order stimuli and address the issues surrounding these alternative methods.

5.4.3 Elicitation of Narratives

If, as suggested in Section 5.4.2, fixed-order tasks are problematic for collecting data on global narrative structure, then we need to identify alternative elicitation methods available to researchers. The elicitation of narratives from children with autism is difficult due to their limited use of spontaneous speech and impaired pragmatic abilities. The majority of the existing research has used a storybook or selection of 'fixed-order' pictures, which have no words, in order to elicit a story (Tager-Flusberg & Sullivan 1995; Norbury and Bishop 2003). There are several benefits in using such a technique. First, it provides the child with an idea and replaces the need for imagination, which is also noted as impaired in individuals with ASD (Chapter 3), thus, avoiding the child being 'stuck for ideas'. Second, it ensures that the child will provide a minimum amount of data. Specifically, using the storybook, participants can be expected to comment at least once about every page. Finally, it can be easily manipulated to examine certain themes, for example, the use of mental state terms. All of these reasons mean that, in most circumstances, this technique would prove successful, however, examination of narrative structure may require another approach.

There are several possible alternatives which would avoid the imposition of a narrative structure on the narratives produced. For children with autism in mainstream schooling, it is possible that discussion of everyday events or a 'typical day' scenarios

may elicit a story, especially if the event is new, or is unusual on a specific day, for example, a birthday tea. This would limit data to real-life narratives and may not be suitable if the research requires the emotions of others to be discussed. Additional care may be required to ensure that all ethical considerations have been accounted for when using this tool and unknown issues which may upset the participant should be identified prior to data collection.

Second, using a single picture instead of multiple pictures to introduce an idea, character or scene could be used to elicit a narrative. This would also limit the impact of imagination on the narratives produced and allow for the child to develop the narrative as they wished.

Third, the introduction of a character around which the story will develop could also be used to elicit narratives. The character could be discussed, described and even drawn before the narrative began and brainstorming ideas of interests and adventures could provide a useful alternative to overcome imagination limitations.

Finally, themes can also be used to help the child to tell a story, this may involve the teacher or researcher giving the child a title such as “Marty the Mouse and His Day at the Park”, the child would then have to expand on this title in order to produce a story. This may be done through discussion, planning or brainstorming. Additionally, if the teacher or parent is able to provide the researcher with a topic which the child is interested in, then using this topic as a stimulus may also elicit a narrative. However, it is often the case that individuals with ASD employ their obsessive interest to provide a story and using this technique may increase the possibility of this happening.

Researchers should also be aware of rote narratives when using this technique as individuals may ‘learn’ a narrative to tell as a communication strategy or for their own entertainment.

Whilst these alternative techniques provide a way to elicit narratives without the imposition of narrative structure, the possible benefits of using fixed-order techniques should also be noted. As the model story has been found to support the production of narrative structure, the possible implications for pedagogy and intervention are significant. This tool could be used and adapted to suit a wide range of individuals using various levels and formats of presentation to accommodate many ability levels and ages. This possibility is returned to in discussion surrounding the intervention presented in this thesis (Chapter 8). This is an important question for future research and holds significant potential benefits for the area of autism and narrative. Whichever method is employed, the same techniques should be used with control groups, thus, allowing for comparison and analysis using a narrative frameworks.

5.5 Summary

This chapter has discussed the oral and written narrative abilities and, in particular, the structural narrative abilities of individuals with ASD. It has found that individuals with ASD are impaired in the areas of narrative recall and comprehension as well as the introduction of new information and the use of evaluative devices. In addition, it has highlighted the links between narrative and WCC and ToM which are also widely reported to be impaired in individuals with ASD. Finally, reporting the gist of a narrative and, potentially, using narrative structure have also been identified as impaired. Through this identification of impairments and consideration of the frameworks presented in Section 4.4, the decision to use Labov and Waletzky's framework (1967) with Labov's 1997 amendments has been further supported. The areas of Evaluation and Orientation reflect impairments in the use of evaluative devices, impairments in ToM (Evaluation) and the introduction of new information (Orientation). In addition, the areas of Abstract and Coda require an ability to identify

the gist of a narrative, whilst the area of Complicating Action is paralleled representing the facts of the narrative and, thus, could be seen as a strength in high-functioning individuals with ASD. It is hoped that through using this framework, which has, to the author's knowledge, been implemented in full only once in the literature in this field (although analysis of spontaneous written narratives has been done several times), impairments predicted in narrative structure will be identified. This will, therefore, also allow an intervention to be implemented accommodating the framework alongside the strengths of individuals with ASD to achieve the maximum potential outcome.

This chapter, through combining evidence from more general literature on autism, has attempted to offer a reason for the contradictory findings within existing research in the field of global narrative abilities of individuals with ASD. It has, therefore, postulated that elicitation tasks may be supporting narrative production and, thus, masking impairments in global narrative structure and yielding misrepresentative data.

Finally, the research into narrative and autism is primarily focused upon the oral narratives produced by individuals with ASD. This is likely to be due to the age of the participants (many of the studies use participants under 10 years old) and the difficulty writing presents to individuals of this age. Increased time for planning and a potentially slower speed of thought processing in a written narrative allow the author to consider the construction of their narrative more carefully and provide opportunities for online editing in a way that is not possible during oral narratives. However, it has been acknowledged that writing narratives is significantly more challenging than telling a story in a conversational setting as cues and immediate feedback available in an oral narrative cannot be used to adjust the way in which the narrative is delivered (Loveland and Tunali, 1993). This may have encouraged researchers to focus on oral narratives in a group where communication and written language may be problematic. This has

resulted in a limited number of investigations which discuss the written narrative abilities of individuals with ASD. Therefore, following previous written narrative research in this field (Stirling and Barrington, In Press), many of the hypotheses and research questions which are drawn from the literature are drawn from a body of research which included oral narrative abilities alongside general cognitive and linguistic abilities. The aim, therefore, has been to draw conclusions from the existing research and formulate research questions based on this research. However, although it is not predicted to be prohibitive for the development of the current research, the possibility that research into oral narratives may not be directly applicable to written narratives must be acknowledged. This issue will be returned to in the Chapter 9.

The following section discusses the research questions to be considered in this thesis. The thesis will then present the novel research carried out in order to address these questions.

5.6 Research Questions

The research presented in this thesis is motivated by the inclusion of high-functioning individuals with ASD in mainstream schools in England. As such, it aims to provide teachers with an additional tool to further facilitate the inclusion of these individuals within the classroom. As highlighted in Chapter 2, written narrative interventions have been identified as offering a way to achieve this aim by using a small aspect of the mainstream curriculum to enable teachers to facilitate the inclusion of these individuals. In order to investigate the application of these intervention techniques, the research presented in this thesis has been carried out in mainstream schools. This has enabled full consideration of the challenges inherent in working with these individuals in an inclusive environment. It is hoped that by carrying out research in this setting and addressing the methodological issues that this raises an appropriate and accessible

intervention will be developed. In addition, although the remit of the thesis does not extend beyond written interventions, it is suggested that these techniques may be further developed to improve the oral narrative and communication skills of high-functioning individuals with ASD, thus further facilitating inclusion. It is important to emphasise at this point that, whilst the research presented in this thesis has been motivated by the inclusion of high-functioning individuals in mainstream schools, it does not argue for or against the practice of inclusive education. Rather, it aims to offer a way to facilitate the inclusion of these individuals.

The research and evidence presented in the previous chapters identify several questions for novel investigation in this thesis. Consideration of the general, linguistic and narrative impairments in autism, and the frameworks for narrative analysis raises questions with regard to the structural narrative abilities of individuals with ASD. In particular, research identifying WCC and impairments in ToM in these individuals, and research regarding the effect of context on narrative ability (specifically the effect of a model narrative highlighted by Cameron *et al.* (1995)), suggests that individuals with ASD may have impaired structural narrative abilities. However, research in the area is inconclusive, and, thus, has been identified as requiring further investigation. In addition, as this thesis aims to develop a narrative intervention to improve the abilities of high-functioning individuals with ASD, identification of any impairments is essential in order to establish the needs of these individuals and, therefore, inform the intervention design. This has generated the first research question of this thesis, which will be addressed in Chapter 6.

Research Question One: What is the level of global structural narrative abilities in high-functioning individuals with ASD?

The second research question has been prompted following the discussion in this chapter regarding the effects of elicitation techniques. This, alongside the inconclusive results for narrative structural abilities, has led the current discussion to suggest that narrative elicitation tasks (i.e. task context) may be affecting the data yielded.

Research Question Two: Do elicitation tasks affect the performance of individuals with regard to the global structure of written narrative?

This question will inform the intervention in this thesis by identifying any changes in narrative performance (positive or negative) through cross-task comparison. Therefore, it will also inform the type of task to be employed in the intervention design. In addition, it is hoped that the current question will allow the study to establish an appropriate baseline measure for participants and alongside Question One establish any areas of impairment and ability for individuals with ASD in narrative structure. This question will be addressed in Chapter 6.

The third question for this thesis is directly related to the intervention study described in Chapter 8 and aims to establish the success of the intervention techniques presented in this thesis. The answers for Research Questions One and Two will inform the answer to this question, which will be addressed in Chapter 8.

Research Question Three: Can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme?

The fourth and final question for this thesis relates to the overall methodological approach to this thesis and is motivated by the paucity of research in the area of written narrative and ASD. This question has also been motivated by the existing research in TD narrative abilities, narrative analysis and the general, linguistic and narrative

abilities of individuals with ASD highlighted above. This question will be addressed in Chapter 9.

Research Question Four: What is the most appropriate way to research written narrative abilities of high-functioning individuals with ASD?

In summary the four research questions for this thesis are:

Question One: What is the level of global structural narrative abilities in high-functioning individuals with ASD?

Question Two: Do elicitation tasks affect the performance of individuals with regard to global structure of written narrative?

Question Three: Can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme?

Question Four: What is the most appropriate way to research written narrative abilities of high-functioning individuals with ASD?

These research questions will be used to provide a focus for the investigations presented in this thesis and the discussion of methodological design and results. As such, they will be addressed in the following sections and individual hypotheses will be presented prior to each investigation as appropriate.

The following sections of this thesis present the study conducted in order to answer the research questions and to design an intervention in order to improve the narrative skills of high-functioning individuals with ASD in inclusive mainstream schooling.

Chapter 6 : An Investigation into the Narrative Abilities of High-Functioning Adolescents with ASD

This chapter presents the first three novel experiments conducted as part of this thesis. Each section will present the appropriate hypotheses for the research questions outlined in Section 5.5 and will discuss the implications of the research findings with regard to hypotheses. The aim of this chapter is to present the findings of these initial investigations and highlight their implications and relationship to the intervention study which they were designed to inform. The chapter will also discuss the wider implications of these investigations. As the research questions are addressed by multiple experiments, conclusions regarding the overall implications of findings for the research questions, and implications for intervention will be discussed in the conclusion of the chapter. Finally, it is important to note that any reference to narrative components in this section refers directly to the clause definitions defined by Labov's (1997) amendments of Labov and Waletzky's (1967) framework for narrative analysis as described in Section 4.4.3.

6.1 Study One: Structural Narrative Abilities of High-functioning Individuals with ASD

6.1.1 Research Questions and Hypotheses for Study One

This section presents the methodology and findings for the initial investigation into the narrative structural abilities of high-functioning individuals with ASD. The main aim of this first experiment is to address the initial research question, "What is the level of global structural narrative abilities in high-functioning adolescents with ASD?". Based on previous research outlined in Chapter 3, Chapter 4 and Chapter 5, it is hypothesised that adolescents with ASD will have impaired global narrative structure. Specifically, based on research examining ToM and general narrative abilities, it is

predicted that these individuals will have an impaired use of Evaluation clauses resulting in these clauses being less frequent in the narratives of the ASD group than the TD group. In addition, based on previous findings regarding the impairment seen in high-functioning individuals with ASD when providing adequate background information, it is predicted that Orientation clauses will also be limited. Finally, it is predicted that the use of Complicating Action clauses will be higher in the ASD group due to their abilities in providing factual information.

The second research question which will be addressed in this section is: “Do elicitation tasks affect the performance of high-functioning individuals with ASD with regard to global narrative structure?”. It is hypothesised that, following research regarding model narratives and the effect of context (Section 5.4.1), the elicitation task will have an effect on the global structure of narratives produced. Furthermore, it is suggested that, following model story research, the more structured task will result in improved global structure. It should be noted that this section will offer only preliminary findings with regard to this question and that a full discussion and investigation is presented when the question is addressed in further detail in Experiment Three.

It is important to note that due to the nature of previous research in this area, the hypotheses for all research questions (and, thus, all experiments) are supported by both oral and written narrative research. As such, it is possible that negative findings with regard to the hypotheses may be as a result of the difference in mode. This is not anticipated to be prohibitive but is worthy of comment and will be returned to during discussion of the results in the conclusion of the chapter.

6.1.2 Methodology

6.1.2.1 Participants

Seventeen high-functioning individuals with ASD (henceforth the ASD group) and a comparison group of 25 typically developing individuals (henceforth the TD group) were initially recruited for this study. The participants were 12 to 14 years old (see Table 6.1). The ASD group was recruited through several local mainstream secondary schools and one specialist unit catering for individuals with ASD. All of the young people had received a diagnosis of autistic spectrum disorder from their GP or specialist practitioner based on DSMV and ICD-10 criteria prior to inclusion in the study. The participants were initially selected on the basis of this prior diagnosis and their general ability as assessed by teachers within their school. The sample was then tested with the complete, 4-part Wechsler Abbreviated Intelligence Scale (Wechsler, 1999) (henceforth WASI) which provided a full IQ score as well as verbal and performance IQ scores. Individuals below the normal range of ability as determined by the WASI (Wechsler, 1999) were then excluded from the study (i.e. those participants with a full IQ lower than 85). The TD control group was recruited from one local secondary school and, after testing, it was established that all of these participants were within the normal range of IQ as determined by the WASI. None of these young people had a history of language problems and all were native speakers of British English.

Table 6.1: Age and IQ Data for Full Sample

		TD	ASD
		n = 25	n = 17
Chronological Age (in years)	M	14.00	13.35
	SD	0.29	0.93
Full Scale IQ (FSIQ)	M	110.76	100.82
	SD	13.20	13.07
Performance IQ	M	105.52	104.35
	SD	9.56	14.24
Verbal IQ	M	113.56	97.71
	SD	15.96	13.94

6.1.2.2 Matching

To ensure that differences between the two groups could not be explained by ability or language factors, a matched sample was selected, matched on the basis of Verbal IQ (VIQ). The typically developing individuals were selected as exact matches (1 or 2 scores either side was allowed if required) until all 15 of the participants with ASD had been matched to a typically developing comparison. For the ASD group, 2 students were removed as they could not be easily matched to the TD group (this was a result of limited numbers of TD individuals with a VIQ under 88 whilst 3 individuals with ASD had a VIQ below 88 and so not all could be directly matched). The range of VIQ for this matched group is 88 to 126 for the TD group and 80 to 126 in the ASD group (see Table 6.2).

Table 6.2: Age and IQ Scores for Matched Group³

		TD	ASD
		n=15	n=15
Chronological Age	M	13.87	13.27
	SD	0.35	0.88
FSIQ	M	102.53	102.73
	SD	8.47	12.73
Performance IQ	M	100.87	104.67
	SD	7.42	14.24
Verbal IQ	M	103.50	100.33
	SD	10.95	12.03

6.1.3 Design

A 2 (context; single picture, multiple picture) by 2 (theme; 1, 2) by 2 (group; ASD, TD) between subjects design was used. The dependent measures were the number and percentage of each of the narrative components (Orientation, Evaluation, Complicating Action, Coda and Abstract). The participants were randomly allocated to one of the four pictures and the researcher also attempted to ensure even numbers in each group.

Unfortunately, the absence of several of the participants on testing days, as well as the withdrawal of one participant due to other school commitments, meant that this was not possible. These changes resulted in the groups being divided as shown in Table 6.3 for the full sample and Table 6.4 for the matched sample (columns 'TD' and 'ASD' give the number of young people in each group in each context).

³ As measured by the WASI (Wechsler, 1999).

Table 6.3: Group Assignment for Picture and Theme (Full Sample)

		Group	TD	ASD
		Number	n=25	n=17
Multiple Pictures First	A Boy, a Dog and a Frog	1	6	6
	Frog, Where Are You?	3	7	5
	<i>Multiple Picture Total</i>			13
Single Picture First	A Boy, a Dog and a Frog	2	6	3
	Frog, Where Are You?	4	6	3
	<i>Single Picture Total</i>			12

Table 6.4: Group Assignment for Picture and Theme (Matched Sample)

		Group	TD	ASD
			n=15	n=15
Multiple Pictures First	A Boy, a Dog and a Frog	1	3	5
	Frog, Where Are You?	3	5	4
	<i>Multiple Picture Total</i>			8
Single Picture First	A Boy, a Dog and a Frog	2	4	3
	Frog, Where Are You?	4	3	3
	<i>Single Picture Total</i>			7

6.1.4 Materials

Participants were provided with the illustration(s) (see appendices) and task description (see Section 6.1.6) before the story-writing task began. Each child was either provided with multiple pictures in a fixed-order, storybook form (see Appendix Two and Appendix Five) or a single picture (see Appendix Six and Appendix Seven). Half of the participants received these pictures in Theme 1 (pictures edited from A Boy, a Frog and a Dog (Mayer, 1967) shown in Appendix Two and Appendix Six) and half received them in Theme 2 (pictures edited from Frog, Where Are You? (Mayer, 1974) shown in Appendix Five and Appendix Seven). Table 6.3 and Table 6.4 provide the exact figures. All pictures were drawn by the same illustrator, were for the same target

audience, and were considered to be of the same level of complexity. These books, although originally intended for a younger audience, allowed a narrative to be presented in picture form without having to remove any text. If books intended for older children had been used, text would have been removed from the story and information about the story would have been lost. It was important for this study that the pictures could stand alone and provide all the information required for the story without any text as text may have influences the participants narrative production. It was decided that the front covers should not be included in the multiple picture context but should be used to provide a picture for the single picture context. This allowed continuity in the style of picture and illustrator across all text contexts.

6.1.5 Ethical Approval

Consideration must be given to ethics in any research which involves human participants. With this in mind, prior to any testing ethical approval was obtained from the University of Durham Ethics Committee for the current research. This ethical approval aims to protect the participants from any long-term harm as well as protecting the researcher from any unjust accusations of causing harm or distress to the participants. Thus, the tasks were designed and carried out in a way that conformed with University Guidelines and in a manner that would protect the subjects from any potential harm or distress. Participants were recruited on a voluntary basis and no participant was discriminated against during the testing process (i.e. all students who volunteered were involved in the project). Participants were informed that they could end their involvement at any time without any questions being asked. In addition, they were told that the task results were anonymous and that full anonymity would always be maintained. They were also informed that the data would not be used for any purpose other than that of research. To ensure that the participants were able to ask any further questions, they were all given the name and contact details of the researcher. Finally, as

the participants were all under the age of 16, they were asked to complete and return a consent form to be signed by their parent or guardian prior to testing taking place (Appendix One). These were duly signed and returned by all the participants' parents.

6.1.6 Procedures

The participants were given 30 minutes to write a complete story using the pictures as inspiration. In the multiple picture conditions, each participant was also allowed a maximum of 10 minutes prior to writing the story, to look through the pictures before they began to write. The participants had full control of the stimulus materials throughout the task and were able to consult them as frequently as they felt necessary. They were therefore able to look backwards and forwards through the book as they wished. The instructions for the task were:

“Look at the pictures you have been given. Use these picture(s) to create a new story that you have not written before. You can develop the story in any way you like. You have half an hour to finish your story”.

During the task, other than reading the instructions to the participants, there was no input from the experimenter or any member of school staff. All participants were told when they had 5 minutes remaining to allow them to complete their story.

6.1.6.1 Coding

All coding was completed by the researcher. Coding guidelines were defined at the start of the investigation and were referred to throughout the coding process to ensure uniform application.

Narrative Length

To ensure that length did not affect results by yielding more tokens from the TD group than the ASD group, the data were initially examined as percentages. As Chapter 4 discussed, Labov & Waletzky's (1967) framework is one of proportions not absolutes

and so an examination of percentages of the narrative components in relation to the whole also allowed proportions to be easily investigated.

Structural Analysis

Narrative structure was coded under Labov & Waletzky's (1967) framework with the amendments in Labov (1997) included as discussed in Chapter 4. Each clause was assigned a function according to the guidelines provided in the framework. A clause, following Losh and Capps (2003:242), was defined as a verb and its arguments, for example, "the boy climbed onto the log" was coded as one clause whereas "the boy climbed onto the log and looked all around for the frog" was coded as two clauses. Embedded clauses were coded as clauses in their own right as they were often performing a different function to the main clause they preceded, for example "The boy, who had a big hat on (*Orientation*), jumped into the pond (*Complicating Action*)". Alongside the five main areas of Labov's (1997) framework (Abstract, Orientation, Complicating Action, Evaluation, Coda, Direct Speech) was also coded as a separate part of the narrative structure. This was to allow for the alternative cognitive role reporting Direct Speech plays in the narrative. In the case of ASD, this could, for example, reduce the amount of skill required to convey the emotions of a character. It was, therefore, considered by the author that Direct Speech was performing an alternative function to the other narrative components⁴. In addition, as has been discussed in Section 4.4.3, this analysis coded for the clause types identified by Labov's (1997) analysis, and did not consider the sections of the narrative postulated by Labov and Waletzky (1967). Furthermore, it was considered, following Labov's (1997) discussion of the framework, that whilst the Abstract and Coda had a fixed location

⁴ Stirling (personal correspondence) has, independent of this study, made the same assumption regarding speech and also considers Direct Speech as an element additional to the five narrative elements described by Labov (1997).

within the narrative (namely at the beginning and end, respectively), the Orientation, Complicating Action and Evaluation clauses could occur in any order within the main body of the narrative and it was also considered that these elements were recursive. Unlike previous studies, this study coded only for frequency of clause type (Table 6.5) and did not subdivide any of the categories further as the focus of the investigation was on global structure and not variety of functions each clause performed. In addition to these areas of narrative, gender and diagnostic status were also included within the coding guidelines.

Table 6.5: Definitions Used in Coding Structure Adapted From Labov (1997).

Orientation: Orientation clauses included those which provided additional information which was required to set the scene or orient the reader to the setting and environment of the story (e.g. “the moon was high in the sky that night” or “the boy was wearing a big black coat”).

Evaluation: Evaluation clauses included those which provided information about the feelings and thoughts of the characters, author or audience (e.g. “Timmy was happy”, “Don’t you think that is terrible” - where the latter is addressing the reader directly).

Complicating Action: Complicating Action clauses included those which provided the core plot of ‘skeleton’ (e.g. “The boy caught the frog”, “The frog jumped away”).

Abstract: Abstract clauses provided the introduction for the story. They are more common in, but not exclusive to, oral narratives (e.g. “Let me tell you a funny story”).

Coda: Coda clauses included those which provided information about the moral or overall conclusion to the story (e.g. “They all lived happily ever after”, “And that is why little boys shouldn’t chase frogs”).

Direct Speech: Direct Speech clauses provided direct quotations e.g. ”then the boy said, “why don’t we try to catch the frog?”.

Data Used in the Analysis

As discussed above, the aim of the study was to investigate group differences in the narrative components beyond differences in language ability in general to ensure that group differences would not simply reflect differences in linguistic ability. As a result, the main analysis reported below is based upon groups which were matched on VIQ (discussed in section 6.1.2.2) (n=15 per group). This sample will be referred to as the matched sample. In addition to this main analysis, an analysis of the full sample, which includes all participants, is also presented. A representative sample of the data is included in Appendix Two.

6.1.7 Results

It should be noted in the first instance that initial investigations of the data revealed that only four narrative components provided enough tokens for analysis. The areas of both Coda and Abstract provided a negligible amount of data for both the TD and ASD groups and have, therefore, been excluded from the analysis.

The study was designed to use ANOVA techniques in order to test for main effects and any interactions between group and the primary manipulation of multiple versus single picture. The secondary manipulation of theme was also designed to be analysed using ANOVA techniques. However, during data screening it was revealed that the data were not normally distributed in either the full or matched samples. The distributions of the full and matched samples for the areas of narrative considered in the current analysis are described in Table 6.6 and Table 6.7 below (see Appendix Two and Appendix Nine for graphical representations).

Table 6.6: A Description of the Data Distributions in Full Sample (Study One)

	TD Group	ASD Group
Complicating Action	Abnormal (positively skewed ⁵)	Abnormal (positively skewed)
Orientation	Abnormal (negatively skewed ⁶)	Abnormal (negatively skewed)
Evaluation	Normally distributed	Abnormal (positively skewed)

Table 6.7: A Description of the Data Distributions in Matched Sample (Study One)

	TD Group	ASD Group
Complicating Action	Abnormal (positively skewed)	Abnormal (positively skewed)
Orientation	Abnormal (negatively skewed)	Abnormal (negatively skewed)
Evaluation	Normally distributed	Abnormal (positively skewed)

As a result of the overall abnormal distribution of these data, non-parametric statistics were used and a series of Mann-Whitney U-tests were carried out for both the matched and full samples. The Mann-Whitney U-test is the equivalent to an independent t-test and tests the difference between two independent populations (Field, 2005:737).

The following results are based on the matched sample. All reported percentages refer to the percentage of narrative allocated to that part of the structure unless otherwise stated. As a result, each narrative produced has a total percentage of 100% which is then divided across the possible structural areas of the narrative.

6.1.7.1 Narrative Results for the Matched Sample

6.1.7.2 Theme

Prior to conducting a further analysis of narrative structure, the secondary manipulation of story theme was investigated. No significant difference was found between the 2 themes in any of the areas of the narrative (*All participants*: Orientation: U=94.00, ns; Complicating Action: U=102.00, ns; Evaluation: U=101.00, ns. *TD group*: Orientation: U=26.50, ns; Complicating Action: U=23.0, ns; Evaluation: U=24.0, ns. *ASD Group*: Orientation: U=18.5, ns; Complicating Action: U=18.00, ns; Evaluation:

⁵ A distribution where the majority of the scores occur at the lower end of the distribution and fewer towards the higher end of the distribution (Field, 2005: 745).

⁶ A distribution where the majority of the scores are clustered towards the higher end of the distribution and there are fewer towards the lower end of the distribution (Field, 2005: 745).

U=22.50, ns.). In addition, when split by condition, theme remained insignificant, therefore, the area of theme was collapsed for all following analyses.

6.1.7.3 Context

Following an analysis of theme, the primary manipulation of context was analysed prior to any further analysis of narrative structure. This analysis revealed that context was only significant for the typically developing group in the area of Orientation. No areas of significance were identified in for the ASD group (All: Orientation: U= 86.5, ns; Complicating Action: U=67.50, ns; Evaluation: U=102.00, ns. TD group: Orientation: U=10.5, $p<0.05$; Complicating Action: U=19.0, ns; Evaluation: U=24.0, ns. ASD group: Orientation: U=23.50, ns; Complication Action: U=16.5, ns; Evaluation: U=25.00, ns.). Therefore, all of the following analyses were divided by the primary manipulation of Context in order to accurately represent the findings.

6.1.7.4 Descriptive Statistics

The following results present the descriptive statistics for the diagnostic groups from the matched sample (as discussed in Section 6.1.2.1.) in relation to context differences and narrative components. The total scores (with context collapsed) have also been presented for both diagnostic groups to demonstrate the overall scores for each group.

Table 6.8: Context Differences in Narrative Component Usage (TD Group, Study One, Matched Sample)

		Multiple	Single	Total
Orientation	M	61.98%	69.43%	65.45%
	SD	6.71	7.30	7.76
Complicating Action	M	15.87%	12.39%	14.25%
	SD	5.62	4.05	5.10
Evaluation	M	12.00%	11.51%	11.77%
	SD	6.72	5.28	5.88
Direct Speech	M	8.12%	5.40%	6.85%
	SD	7.69	8.36	7.84

Table 6.8 presents the scores for the two picture conditions in the typically developing group. It can be seen that there is some variation between the two picture conditions in each group, with higher uses of Complicating Action clauses and Direct Speech and lower uses of Orientation clauses in the multiple picture condition. The area of Evaluation appears stable regardless of context. This variation suggests an effect of context as predicted. This will be analysed further in Study Three.

Table 6.9: Context Differences in Narrative Component Usage (ASD Group, Study One, Matched Sample)

		Multiple	Single	Total
Orientation	M	53.67%	50.10%	52.24%
	SD	19.33	14.62	17.21
Complicating Action	M	32.81%	23.92%	29.28%
	SD	23.45	19.45	21.65
Evaluation	M	3.45%	1.16%	2.53%
	SD	5.82	1.97	4.70
Direct Speech	M	6.36%	18.61%	11.26%
	SD	8.19	18.51	14.11

Table 6.9 demonstrates that the ASD group use more Complicating Action clauses in the multiple picture condition and more Direct Speech in the single picture condition. The areas of Orientation and Evaluation are also slightly higher in the multiple picture condition. These figures will be investigated further below.

Figure 6.1: TD Group Narrative Scores for Contexts (Study One, Matched Sample)

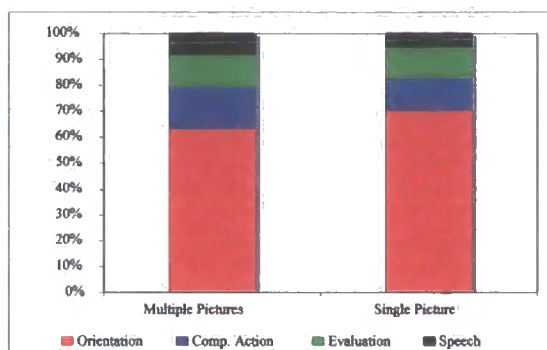


Figure 6.2: ASD Group Narrative Scores for Contexts (Study One, Matched Sample)

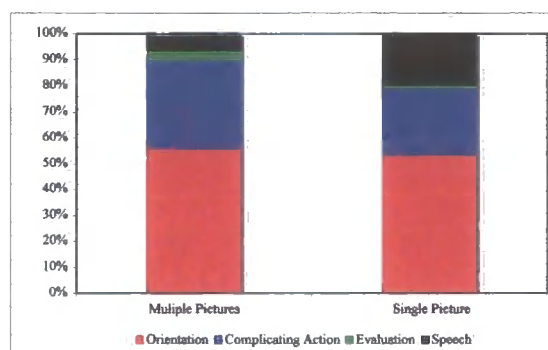


Figure 6.1 and Figure 6.2 depict the information in Table 6.8 and Table 6.9 graphically, and emphasise not only the difference in contexts for the TD group but also the difference between the diagnostic groups. These findings are examined further below using non-parametric statistics in order to determine their statistical significance.

6.1.7.5 Group Differences in Narrative Component Use (Matched Sample)

6.1.7.5.1 Single Picture First

Orientation

A significant main effect of diagnosis was found ($U=4.50, p=.018$) highlighting that participants with ASD demonstrate lower usage of Orientation clauses than the TD group (50.10% and 69.43% respectively).

Complicating Action

An examination of the percentages of use reveals that the ASD group use almost double the number of Complicating Action clauses in comparison with the TD group (23.92% and 12.39% respectively). Although this difference was not found to be significant for this context type ($U=13.0$, ns), it is suggested that this is a result of the small sample sizes in this investigation and, thus, does not accurately represent the difference in usage indicated by the percentages. Further analysis of this component is required to clarify potential group differences. With regard to the current study, this finding will be reviewed with respect to the other findings regarding the use of Complicating Action clauses, and a conclusion reached at the end of Study Two.

Evaluation

A main effect of diagnosis was found indicating that, as predicted, the participants with ASD used significantly less Evaluation than the TD group (1.16% and 11.51% respectively. $U=0.50$, $p<.003$).

Direct Speech

No statistical difference was found between the TD and ASD groups use of Direct Speech. However, it is noted that the ASD group use three times as much Direct Speech in their narratives than the TD group (18.61% and 5.40% respectively. $U=12.00$, ns).

Narrative Balance

As Labov and Waletzky (1967) postulated the global structure as a series of elements which are part of a whole, it is important to consider the composition of the narrative as a whole as well as its constituent parts. Figure 6.3 and Figure 6.4 demonstrate that the composition of the narrative is different for both the TD and the ASD groups.

Figure 6.3: Narrative Balance (Study One: TD Group, Single Picture, Matched Sample)

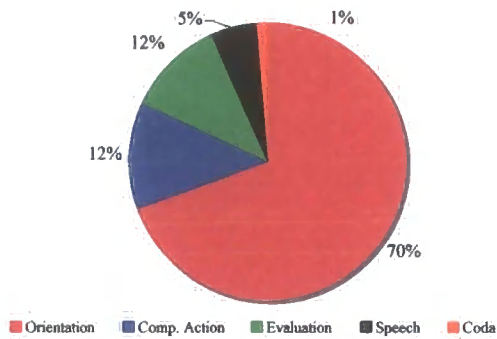
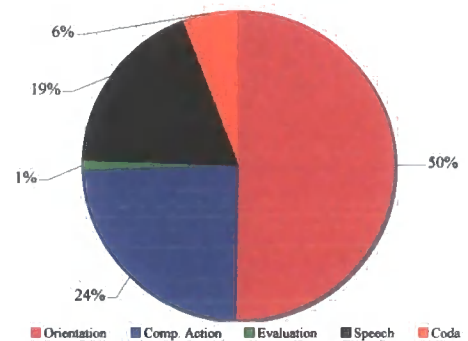


Figure 6.4: Narrative Balance (Study One: ASD Group, Single Picture, Matched Sample)



It should be noted that whilst there is a difference in the proportion of the narrative allocated to each of the components, there are some similarities in the overall hierarchy of those components. For both groups, Orientation clauses occupy most of the narrative followed by Complicating Action clauses. However, this is where the similarities end. Whilst the TD group uses equal Evaluation and Direct Speech and more Direct Speech than Coda, the ASD group uses more Direct Speech than Coda and more Coda than Evaluation. This information is important when considering the design of the intervention (Chapter 8) as this intervention aims to redress the balance in the narratives produced by individuals with ASD and result in narratives that demonstrate a similar balance to that produced by the typically developing individuals.

In summary, the findings for this analysis of the single picture condition demonstrate significant differences in both Orientation and Evaluation with the ASD group using fewer of these clauses as predicted. This suggests that these areas are problematic for individuals with ASD and thus, warrant intervention.

6.1.7.5.2 Multiple Picture First

Orientation

Whilst in the single picture context the ASD group was found to be impaired in the area of Orientation, this is not the case for this multiple picture context. Although the difference in percentage appears to suggest that a difference may be present, no significant difference was identified between the two groups (ASD: 53.67%, TD: 61.98%. $U=27.00$, ns). It is possible that a small group size has had an impact on the significance of this finding.

Complicating Action

Although a non-significant difference was observed in the single picture context, a significant difference between the TD and ASD groups was found in the multiple picture context, revealing that the participants with ASD used a significantly higher proportion of Complicating Action phrases within their stories (32.81% and 15.87% respectively. $U=13.0$, $p=0.02$). This suggests a more events-based narrative structure that neglects the additional information and focuses more on the events within the narrative. The difference in the results for the single picture and multiple picture tasks suggests that context may have an effect in the narratives produced. The multiple picture task appears to focus the child with ASD on the events. It could be suggested that when presented with a series of pictures the child with ASD recounts the scene and does not embellish it. It could also be suggested that being presented with a considerable amount of data requires a high level of processing which may overload the child with ASD. These young people are, therefore, unable to select important or essential events and thus report all of the events in the pictures.

Evaluation

A main effect of diagnosis was found indicating that, as predicted, the participants with ASD used significantly less Evaluation than the TD group (3.45% and 12.00% respectively. $U=9.00$, $p<.008$). This finding replicates those in the single picture context.

Direct Speech

No significant effect was found with regard to Direct Speech indicating that there is no difference between the TD and the ASD group with regard to Direct Speech (8.12% and 6.36% respectively. $U=27.00$, ns).

Narrative Balance

As seen in the single picture analysis, Figure 6.5 and Figure 6.6 demonstrate that the composition of the narrative is different for the TD and the ASD groups.

Figure 6.5: Narrative Balance (Study One: TD Group, Multiple Pictures, Matched Sample)

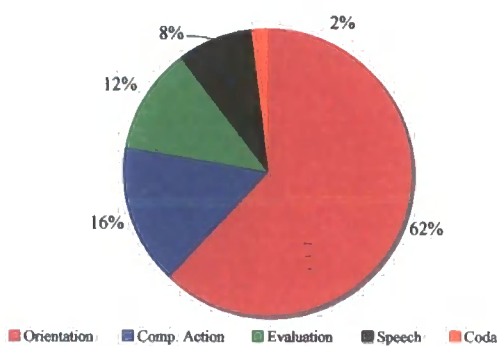
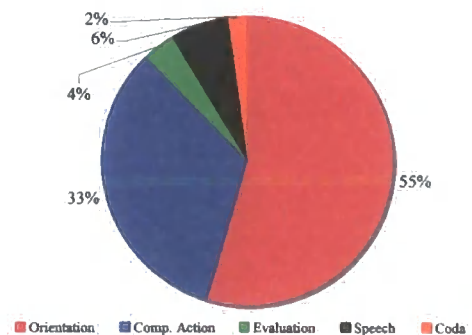


Figure 6.6: Narrative Balance (Study One: ASD Group, Multiple Pictures, Matched Sample)



The overall hierarchy of the narrative components is largely the same as that demonstrated in the single picture data. Whilst there are some similarities (the use of Orientation and Complicating Action are the major components for both the TD and

ASD groups) there are also some interesting differences between the groups. The TD group shows the same pattern as seen in the single picture task (Orientation, Complicating Action, Evaluation, then Direct Speech, then Coda), however, the ASD group present a different hierarchy to both the single picture and the TD group (Orientation, Complicating Action, Direct Speech, then Evaluation, then Coda). When combined with the single picture data, a change in hierarchy change can be seen. This appears to suggest the employment of Direct Speech to accommodate a reduction in Evaluation, however, the very small percentages make drawing any conclusions from this change problematic. These findings do, however, highlight an area of potential investigation for future research.

6.1.8 Narrative Results for the Full Sample

The results for the larger full sample were also analysed and it should be noted that although, contrary to the matched sample, no effect of condition was revealed, the analysis was split by context in order to allow comparison of results from the full and matched samples. It should also be noted that theme remained insignificant in this sample and all other results replicated those found in the matched sample. As a result, only brief descriptive statistics and findings for narrative components are reported.

6.1.8.1 Descriptive Statistics

The following statistics present a description of narrative component usage in this section with all analyses divided by context.

Table 6.10: Context Differences in Narrative Component Usage (ASD & TD Groups, Study One, Full Sample)

		Multiple TD	Multiple ASD	Single TD	Single ASD
Orientation	M	62.37%	52.12%	64.16%	50.10%
	SD	9.27	19.19	13.45	14.62
Complicating Action	M	15.20%	23.00%	11.70%	23.93%
	SD	5.36	22.31	3.37	19.45
Evaluation	M	11.54%	4.47%	9.44%	1.16%
	SD	5.96	5.92	5.89	1.97
Direct Speech	M	8.66%	9.63%	6.43%	18.61%
	SD	9.10	15.01	8.43	18.51

Figure 6.7: Comparison of context type and diagnosis for the full sample

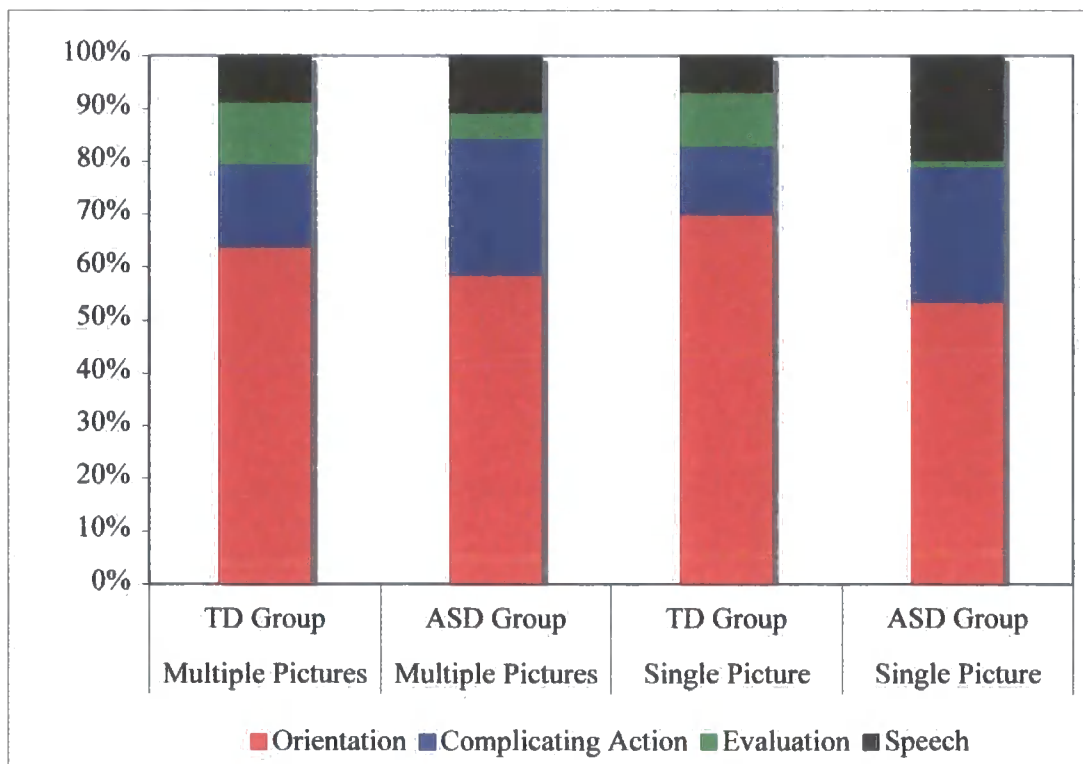


Table 6.10 and Figure 6.7 show results for Task 1 with theme collapsed. As demonstrated above the ASD group use more Complicating Action clauses, and less Orientation and Evaluation clauses in both context conditions. These findings are examined further below using non-parametric statistics in order to determine their statistical significance.

6.1.8.2 Group Differences in Narrative Component Use (Full Sample)

The following sections report the results for the full sample to allow for a comprehensive understanding of the data. All of these findings replicate those found for the matched group, thus, further supporting the results and discussion for the matched sample presented above.

6.1.8.2.1 Single Picture First

Orientation

A significant difference relating to diagnosis was found ($U=14.5$, $p=0.063$) highlighting that participants with ASD demonstrate lower use of Orientation clauses than the TD group (50.10% and 64.16% respectively), thus supporting findings in the matched sample and suggesting an impairment in this area of narrative for the ASD group.

Complicating Action

As in the matched sample results, the percentages of use for the ASD and TD groups are markedly different with the ASD group using nearly double the number of Complicating Action clauses as the TD group (23.93% and 11.80% respectively, $U=18.50$, ns). Although this difference was not found to be significant for this context ($U=18.50$, ns), it is suggested that this is a result of the small sample sizes in this

investigation. Thus, the level of statistical significant does not accurately represent the difference in usage indicated by the percentages. Further analysis of this component is required to clarify potential group differences. The implications of this finding are discussed in the light of the other results found in this study and Study Two, and a conclusion reached at the end of that section.

Evaluation

A main effect of diagnosis was found indicating that, as predicted, participants with ASD used significantly less Evaluation than the TD group (1.16% and 9.44% respectively, $U=5.50$, $p<.005$).

Direct Speech

Although no statistical difference was found between the groups, an analysis of the percentages reveals that the ASD group use almost three times as much Direct Speech in their narratives as the TD group (18.61% and 6.43% respectively. $U=21.00$, ns).

6.1.8.3 Multiple Picture First

Orientation

No significant effect of Orientation was found ($U=51.00$, ns), highlighting that participants with ASD demonstrate lower usage than the TD group (52.12% and 62.37% respectively). This finding, in comparison with the findings for the single picture context, suggests that both groups may be following the guidance in the stimulus and, therefore, possible differences are being masked by multiple picture stimuli. This issue is discussed further in Study Three.

Complicating Action

A main effect of diagnosis was found revealing that the ASD group uses a significantly higher proportion of Complicating Action phrases within their stories than the TD group (30.00% and 15.20% respectively, $U=99.00$, $p=0.02$). This suggests a more event based narrative structure that neglects the additional information in favour of what happens in the narrative. This is discussed further below.

Evaluation

A difference in groups was found indicating that, as predicted, the ASD group uses significantly less Evaluation than the TD group (4.47% and 11.54% respectively, $U=72.00$, $p<.006$).

Direct Speech

As in the matched sample no significant difference was found between the TD and ASD group with regard to Direct Speech (8.66% and 9.63% respectively. $U=61.00$, ns).

6.1.9 Summary and Discussion

There are two findings which should be highlighted from the above results. Firstly, the use of Evaluation clauses has been found to be consistently impaired in both contexts, a finding which is predicted by previous literature and the current study's hypotheses. Secondly, the ASD group demonstrate impairments in the use of Orientation clauses in the single picture context only and impairments in the use of Complicating Action clauses in the multiple picture context only. The higher use of Complicating Action clauses in the multiple picture context may, as discussed above, be due to several factors including the over reliance of young people with ASD on the factual information they are presented with. The higher use of this factual aspect of the

narrative structure may highlight the superior abilities of these young people in the ASD group to provide a description of events but not to “narrate” them (as suggested by Bruner and Feldman (1993)). Although this is different from the TD group, it does not necessarily mean this should be viewed as an impairment and may, in fact, represent a strength of the ASD group.

It should also be noted that although Complicating Action was only found to be impaired in the multiple picture context, it was found to comprise almost double of the narrative clauses in the single picture context for the ASD group in comparison to TD group usage. Due to the relatively small number of participants in this study, it could be suggested that, through further examination in larger groups, Complicating Action could be seen to be a strength of the ASD group. However, the effect of context must also be considered. This will be examined further in the following sections.

The impairment of Orientation in the single picture context appears to reflect the predictions of the literature which suggest that individuals with ASD have difficulties providing adequate background information. This difference between TD and ASD groups is not seen in the multiple picture context. It could be suggested that the context constrains the inclusion of Orientation for the TD group by providing pictures with limited guiding information. In addition, the multiple picture context may provide the required support and guidance for the ASD group thus allowing them to correct the impairment seen in the single picture context. In this case TD and ASD groups may produce the same amount of narrative Orientation. In other words, the TD group reduce their level of Orientation and the ASD group may increase their usage slightly thus the groups meet ‘in the middle’. Further examination of the percentages for the matched sample shows that limited movement in the direction of the mean does occur in the multiple picture context (see Table 6.11).

Table 6.11: Summary of Percentage Data of Orientation Clause Usage (Matched Sample, Study One)

	TD	ASD
Single Picture Context	69.43%	50.10%
Multiple Picture Context	61.98%	53.67%

In order to investigate this possible explanation further, this issue is discussed with regard to Studies Two and Three in the conclusion to this chapter.

Finally, Direct Speech has been identified as non-significant in all areas of analysis. However, it should be noted that the ASD group use three times the amount of Direct Speech in their narratives in comparison with the TD group in the single picture context. Given these findings alongside questions raised in existing literature, further research is required to enable a more comprehensive understanding of the narrative component. This will be discussed further below.

This section has addressed the questions raised by previous investigations of narrative structure. The following sub-sections present a preliminary discussion of these questions which will be developed as the additional studies in this chapter are presented.

6.1.9.1 Impairments in Narrative Components

The first question addressed in this section was whether individuals with ASD have impaired narrative structure. The above results suggest three of the major areas of the global narrative structure as identified by Labov and Waletzky (1967) are used atypically by the ASD group. While these results were different across the picture conditions, it can be said overall that the ASD group demonstrated higher levels of Complicating Action clauses (multiple picture only), lower levels of Orientation (single picture only) and significantly lower levels of Evaluation (both contexts) in comparison to the TD group. It can be stated, therefore, that the effective use of Complicating

Action, Orientation and Evaluation clauses may present challenges for the ASD group and affect the overall balance of the narrative structure. It should be noted that despite the atypical usage of the narrative components, the narrative hierarchy remains stable, suggesting subtle structural impairments in this group. This result provides support for previous research which has suggested that children with ASD over the age of 11 may demonstrate impairments in narrative structural abilities (Norbury and Bishop, 2003) as well as providing evidence to support the hypothesis stated in this thesis with regard to the wider literature discussed in the previous chapters.

6.1.9.2 The Effect of Context

The second question addressed was whether the task context has an effect of the performance of participants. The investigation has found preliminary evidence to suggest that context may have an effect on the narratives produced. Although the analysis of context only highlighted a statistically significant difference in the matched TD group in the area of Orientation (as stated in Section 6.1.7.3), a series of contrasting results were found in the multiple and single picture contexts in both the full and the matched samples. Whilst in the single picture condition the difference in the use of Orientation and Evaluation between the TD and ASD groups is found to be statistically significant and the differing use of Complicating Action is found to be non-significant, this is not replicated for the multiple picture condition. The latter condition demonstrates a significant difference in the use of Complicating Action and Evaluation and a non-significant difference in the use of Orientation between the TD and ASD groups. It can be stated, therefore that whilst Orientation and Complicating Action differ in significance according to context and that this requires further investigation, Evaluation is consistently impaired in the ASD group. This result supports previous research findings which suggest that theory of mind impairments are a robust

impairment in ASD (Baron-Cohen *et al.*, 1985; Happé, 1994a) and can be seen in narratives produced by individuals with ASD (Tager-Flusberg, 1997) . The result also supports research that highlights the effect of elicitation context on the performance of individuals (Hickmann, 2004) and, thus, may also support research which suggests a possible improvement in narrative structure when model narratives are presented within the task (Cameron *et al.*, 1995). These preliminary findings will be further examined in Study Three.

6.1.9.3 Summary

The above results and discussion have offered tentative answers to two of the research questions posed in this thesis. Regarding the question of whether high-functioning young people with ASD are impaired with regard to narrative structure, it appears that impairments are present in the area of evaluative clauses. In addition, depending on context, impairments are also seen in Orientation. It could be argued, however, that in the area of Complicating Action these young people demonstrate a superior ability to report factual information but lack the ability to narrate it. This will be examined in the following investigations. With regard to whether context affects the performance of individuals, it appears that some effect can be seen. Although this will be the focus of Study Three, preliminary findings highlight the need for further investigation of this question.

This section has provided evidence which will be carried forward to contribute to providing an answer to the research questions outlined in Section 5.6 which will inform the intervention study and affect the approach taken.

The following section presents the results for Study Two, which aims to provide further evidence with regard to narrative abilities in the ASD group. In addition, the data presented data allows a further investigation of the potential effects of context

through a within-subjects analysis of narrative performance. This investigation is the focus of Study Three.

6.2 Study Two: Structural Narrative Abilities of High-functioning Individuals with ASD

This section presents the findings from the second study conducted as part of this thesis. The methodology and findings are reported and compared to those described in Study One. The section concludes by addressing the implications of results generated by the research questions and hypotheses specific to this study (outlined below).

6.2.1 Research Questions and Hypotheses for Study Two

This study aims to offer evidence to answer the research questions below and provide data for the additional analysis presented in Study Three. As there is no variation in context in this study (all participants received single picture stimulus), the only research question to be addressed by this study is Research Question One: “What is the level of global structural narrative abilities in high-functioning individuals with ASD?”

Following research regarding the general and narrative abilities of individuals with ASD as well as previous findings on the requirements of narrative composition, it is hypothesised that the use of Orientation, Complicating Action and Evaluation clauses will be found to be atypical as described in Study One. Specifically, it is hypothesised that the ASD group will use more Complicating Action clauses, and less Orientation and Evaluation clauses in their narratives when compared to the TD group.

The data gathered from this study also allows a within-subjects investigation of effect of context and elicitation tasks to be examined as the methodology of Study One is directly replicated here. This, therefore, allows the two experiments to be directly compared. The analysis of this comparison is presented in Study Three (Section 6.3). The data from this study also allows the effects of repetition on the performance of individuals on a narrative production to be examined. This is of considerable value to

interventions in this field and will directly inform the intervention study to follow.

These results are also presented in Study Three.

6.2.2 Methodology

6.2.2.1 Participants

The present study included the same participants used in Study One (referred to in the remainder of this chapter as T1) for both the full and matched samples.

6.2.2.2 Design

A 2 (context: single picture at T1 vs. multiple picture at T1) by 2 (group: TD, ASD). The dependent measures were the components of the narrative as described in Section 6.1.6. Both the ASD group and the TD group were subjected to this design, as in Study One. The same experimental group divisions were used and so participants remained in the groups allocated to them in Study One. The study was then counterbalanced so that participants who had received Theme 1 in Study One now received Theme 2 in this study and those who had received Theme 2 now received Theme 1. This ensured that no individual completed the task with the same stimuli as they had received at T1 (i.e. no one saw the same picture twice).

6.2.2.3 Procedures

The current study used the same single picture tasks as were used in Study One (i.e. the cover pictures from Mayer (1967; 1974)). There was a 3-week time lag between the participants completing the task in Study One and the current task in order to minimise the possibility that they would remember and replicate their first story.

The same instructions as Study One were given for the current study, and again, during the task, other than reading the instructions to the participants, there was no input from the researcher or any member of school staff.

6.2.2.4 Coding and Matching

Both matching and coding procedures remained as they were in Study One. This resulted in the same individuals comprising the matched sample as in Study One, and ensured the coding techniques were compatible allowing comparisons to be drawn (See Appendix Two for samples of participant's narratives).

6.2.3 Results

As in Study One, the original intention for the design of this study was to use an ANOVA statistics to analyse the data in both the matched and full samples. However, as has been the case in Study One, the initial screening highlighted that the data were not normally distributed (see Appendix Ten and Appendix Eleven for details) and so a comprehensive series of non-parametric statistics (Mann-Whitney U-tests) were carried out. As seen in Study One, there were negligible occurrences for the narrative areas of both Abstract and Coda, therefore the subsequent analyses (for both the full and matched samples) examine Complicating Action, Orientation Evaluation and Direct Speech clauses only.

Table 6.12: A Description of the Data Distributions in Full Sample (Study Two)

	TD Group	ASD Group
Complicating Action	Abnormal (positively skewed ⁷)	Abnormal (positively skewed)
Orientation	Abnormal (positively skewed ⁸)	Abnormal (positively skewed)
Evaluation	Normally distributed	Abnormal (positively skewed)

Table 6.13: A Description of the Data Distributions in Matched Sample (Study Two)

	TD Group	ASD Group
Complicating Action	Abnormal (negatively skewed)	Abnormal (negatively skewed)
Orientation	Abnormal (positively skewed)	Abnormal (positively skewed)
Evaluation	Normally distributed	Abnormal (positively skewed)

⁷ A distribution where the majority of the scores occur at the lower end of the distribution and fewer towards the higher end of the distribution (Field, 2005: 745).

⁸ A distribution where the majority of the scores are clustered towards the higher end of the distribution and there are fewer towards the lower end of the distribution (Field, 2005: 745).

6.2.3.1 Results for the Matched Sample

6.2.3.2 Theme

Prior to conducting a further analysis of narrative structure, story theme was investigated. As in Study One, no significant difference was found between the 2 themes in any of the areas of the narrative. (TD: Orientation: $U=25.0$, ns; Complicating Action: $U=23.5$, ns; Direct Speech: $U=26.0$, ns; Evaluation: $U=24.0$, ns. ASD: Orientation: $U=25.0$, ns; Complicating Action: $U=26.0$, ns; Direct Speech: $U=26.0$, ns; Evaluation: $U=24.0$, ns). In addition, theme remained statistically insignificant when the analysis was split by condition. It was, therefore, concluded that theme was not significant in any of the categories and thus, as in Study One, it was collapsed for all the following analyses.

6.2.3.3 Context

To ensure that the data were fully understood, it was also important to account for the possible effect of experimental condition on the matched sample. No significant effect was found. (All: Orientation: $U=87.50$, ns; Complicating Action: $U=89.50$, ns; Direct Speech: $U=108.5$, ns; Evaluation: $U=93.0$, ns. TD: Orientation: $U=26.0$, ns; Complicating Action: $U=23.5$, ns; Direct Speech: $U=26.0$, ns; Evaluation: $U=23.5$, ns. ASD: Orientation: $U=16.5$, ns; Complicating Action: $U=16.0$, ns; Direct Speech: $U=25.0$, ns; Evaluation: $U=25.0$, ns.) Thus, contrary to the findings in Study One, context was not found to be significant here. However, to allow for comparison with the previous study and to minimise any possible misrepresentation of the data, the data for this study were separated into context categories for subsequent analyses.

6.2.3.4 Descriptive Statistics

This section presents the descriptive statistics for the ASD and TD groups for the matched sample in relation to group differences in narrative component usage.

Table 6.14: Narrative Component Usage (ASD and TD Groups, Study Two, Matched Sample)

		TD Multiple	ASD Multiple	TD Single	ASD Single
Orientation	M	64.49%	66.36%	71.63%	60.74%
	SD	20.36	26.21	8.97	6.71
Complicating Action	M	13.00%	23.77%	11.57%	26.91%
	SD	10.41	25.24	3.33	12.11
Evaluation	M	5.77%	1.73%	7.61%	2.54
	SD	2.56	2.63	5.84	4.22
Direct Speech	M	9.88%	3.95%	8.95%	3.73%
	SD	11.14	8.76	12.48	7.15

Figure 6.8: Narrative Component Usage (ASD and TD Groups, Study Two, Matched Sample)

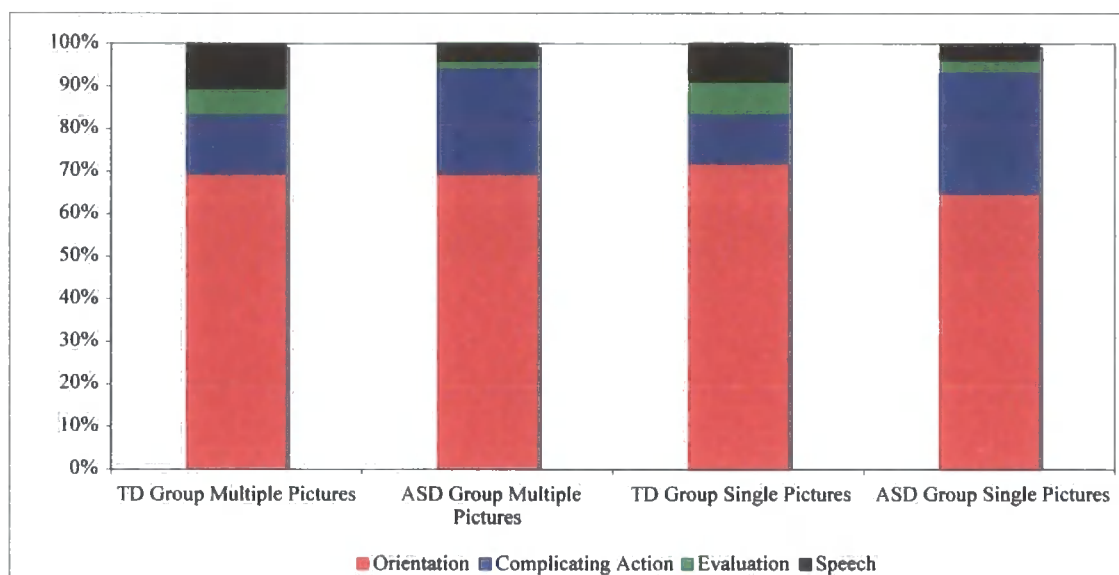


Table 6.14 and Figure 6.8 present the mean scores for each diagnosis group and highlight that the ASD group appear to demonstrate higher usage of Complicating Action clauses, and a lower usage of both Orientation and Evaluation clauses than the TD group. However, it should be noted that the difference between the groups with regard to the overall use of Orientation clauses is minimal. These results replicate those

reported in Study One. These findings are examined further below with non-parametric statistics (Mann-Whitney U-tests) in order to determine their statistical significance.

6.2.3.5 Group Differences in Narrative Component Use (Matched Sample)

6.2.3.5.1 Single Picture First

Orientation

A significant effect of diagnosis was found highlighting that the ASD group used fewer Orientation clauses within their narratives (60.74% and 71.63% respectively. $U=7.00$, $p<0.05$). This finding supports the finding in Study One and suggests an impairment in this area of narrative structure.

Complicating Action

A highly significant effect was also found in the area of Complicating Action reflecting the ASD group's higher usage of Complicating Action clauses when compared to the TD group (29.91% and 11.57% respectively. $U=1.00$, $p=<0.004$).

Evaluation

Contrary to predictions from the literature and the findings in Study One, there was a non-significant effect of diagnosis in the area of Evaluation in this context ($U=9.00$, $p=0.078$: ns). This suggests that both the ASD group and the TD group used the same amount of Evaluation within their narratives. However, the percentages indicate that there may be a small but significant difference here with the TD group dedicating three times as much time to Evaluation when compared to the ASD group (7.61% and 2.54% respectively). These percentages demonstrate the same trend in the use of Evaluation seen in Study One and predicted by the literature. It is suggested that small numbers of participants and small token numbers may have an effect on the outcome of statistical significance in this case. This will be discussed further below, however, further

investigations with larger groups of participants would be required to provide a useful conclusion here.

Direct Speech

As seen in Study One, there was a non-significant effect of Direct Speech ($U=13.00$, ns), suggesting that despite the differences in percentages shown in Table 6.14 (TD: 8.95%; ASD: 3.73%) both groups use similar amounts of Direct Speech in their narratives.

Narrative Balance

As in Study One it is important to consider the effect of group differences on the narrative as a whole. Figure 6.9 and Figure 6.10 demonstrate the mean narrative balance for the TD and ASD groups in the single picture first context.

Figure 6.9: Narrative Balance (Study Two: TD Group, Single Picture, Matched Sample)

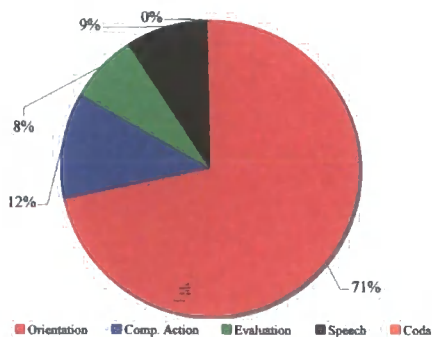
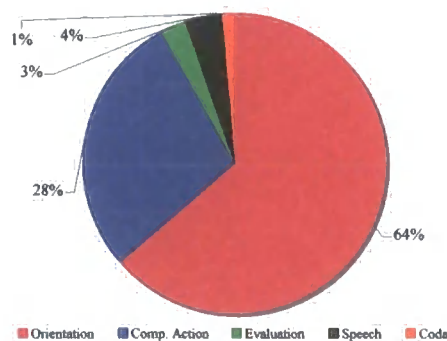


Figure 6.10: Narrative Balance (Study Two: ASD Group, Single Picture, Matched Sample)



Whilst the proportions are different for each group, Figure 6.9 and Figure 6.10 show that the overall hierarchy of the narrative structure is the same for both groups. This hierarchy highlights Orientation as the dominant component, followed by Complicating Action, Direct Speech, Evaluation and finally Coda. This finding has important implications for any analysis or intervention which considers narrative structure. It suggests that whilst the ASD group appears to have an understanding of the core

hierarchy required in a narrative, the relative proportions of narrative components within that hierarchy do vary. This highlights the subtle nature of impairments seen within the ASD group and emphasises the issues raised within the literature with regard to high-functioning individuals with ASD. The discussion will return to this issue in Section 6.4.

6.2.3.5.2 Multiple Picture First

Orientation

Although a significant difference was seen in the single picture first group (section 6.2.3.5.1), this was not the case in this group where no significant difference was seen between the narratives of the TD and ASD groups (64.49% and 66.36% respectively. $U=31.00$, ns). This finding replicates that of Study One.

Complicating Action

Replicating the trend identified in Study One and the single picture analysis in this study, the analysis of this component revealed that the ASD group use twice the proportion of complication action clauses than the TD group (23.77% and 13.00% respectively). Although this difference was not found to be statistically significant, it is suggested that this is a result of the small number of participants involved in this analysis and does not accurately reflect the percentage differences highlighted above. The higher use of Complicating Action clauses in the ASD group follows the overall trend of the results reported thus far. It is proposed, therefore, that this factor should remain of interest in the present investigation. Additional investigation with significantly larger samples would be beneficial in any further analysis of this component.

Evaluation

A significant effect of Evaluation was seen with the ASD group dedicating only 1.73% of their total clauses in contrast to 5.77% dedicated by the TD group ($U=13.00$, $p=0.024$), further highlighting Evaluation as problematic for individuals with ASD.

Direct Speech

A non-significant effect of Direct Speech was seen. ($U=20.00$, ns) further supporting the previous findings in this thesis which suggest that Direct Speech is not a factor of the narratives produced by the ASD group.

Narrative Balance

As in Study One, it is also important to consider the effect of the group differences on the narrative as a whole. Figure 6.11 and Figure 6.12 demonstrate the mean narrative balance for the TD and ASD groups.

Figure 6.11: Narrative Balance (Study Two: TD Group, Multiple Pictures, Matched Sample)

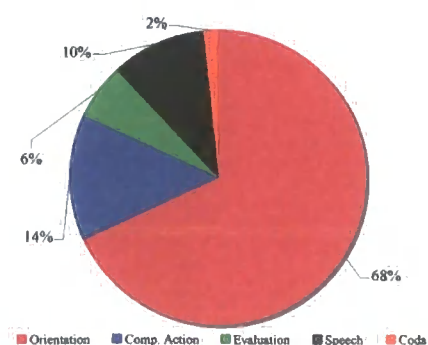
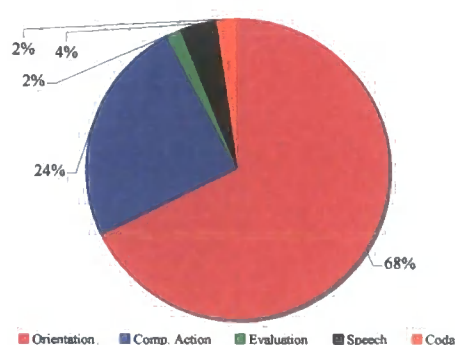


Figure 6.12: Narrative Balance (Study Two: ASD Group, Multiple Pictures, Matched Group)



Whilst the proportions are different for each group, the overall hierarchy of the narrative structure is the same. This hierarchy places Orientation as the majority component, followed by Complicating Action, Direct Speech, Evaluation and finally Coda. This finding is the same as that seen in the single picture first group and again

highlights the subtle nature of the issues surrounding high-functioning individuals with ASD with regard to linguistic impairments. As such, it has important implications for any analysis or intervention which considers narrative structure and will be used to directly inform the intervention presented in Chapter 8.

6.2.4 Results for the Full Sample

This section reports the findings for the full sample with regard to the narrative components and the differences between the two diagnostic groups. It should be noted that the findings replicate those presented above for the matched sample and, therefore, limited discussion is presented below.

6.2.4.1 Theme and Picture

As for the matched sample neither context nor theme were found to be significant factors. However, to allow a comparison with the matched sample, the data are divided by context.

6.2.4.2 Descriptive Statistics

Table 6.15: Narrative Component Usage (ASD & TD, Study Two, Full Sample)

		TD Multiple	ASD Multiple	TD Single	ASD Single
Orientation	M	69.45%	68.06%	70.84%	58.41%
	SD	17.32	25.29	11.22	8.69
Complicating Action	M	12.49%	21.81%	10.17%	31.00%
	SD	8.31	24.59	4.55	15.47
Evaluation	M	6.30%	2.39%	6.55%	2.18%
	SD	3.34	3.24	4.88	3.97
Direct Speech	M	7.29%	3.56%	12.29%	3.20%
	SD	10.51	8.35	12.96	6.68

Figure 6.13: Narrative Component Usage (ASD & TD, Study Two, Full Sample)

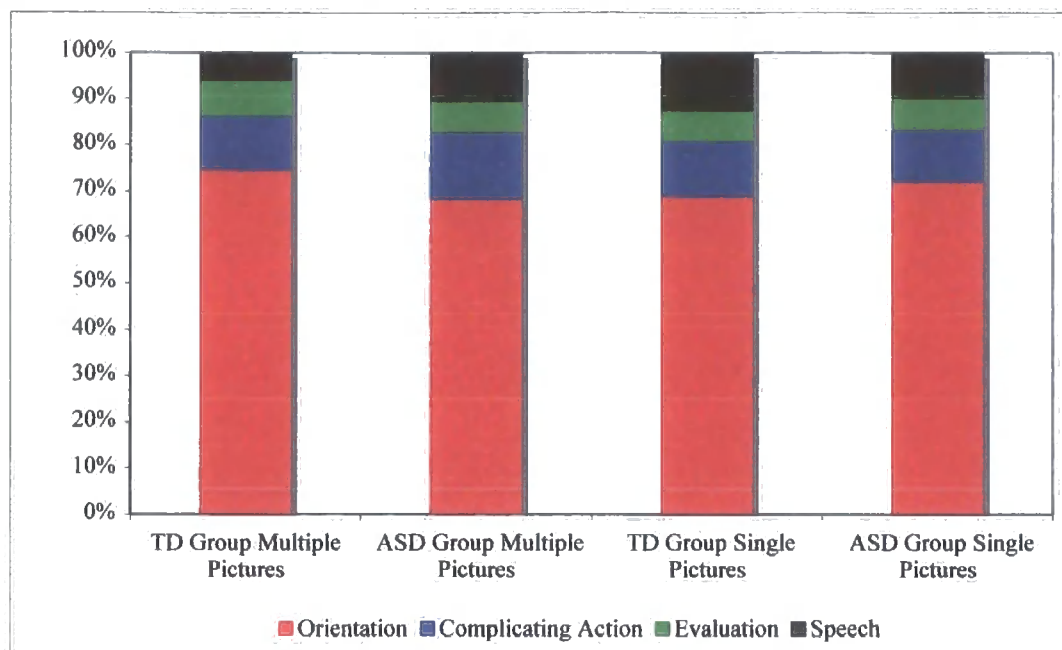


Table 6.15 and Figure 6.13 show the usage of narrative components for both diagnosis groups and highlight the differences present. The ASD group demonstrate a higher usage of Complicating Action clauses and a lower usage of both Orientation and Evaluation clauses in comparison with the TD group thus replicating the findings from Study One. These findings are examined further below with non-parametric statistics in order to determine their statistical significance.

6.2.4.3 Group Differences in Narrative Component Use (Full Sample)

6.2.4.4 Single Picture First

Orientation

A significant difference between the diagnostic groups was found, highlighting that the ASD group use fewer Orientation clauses than the TD group (58.41% and 70.84% respectively. $U=14.00, p>0.05$).

Complicating Action

As in the matched sample, a significant difference between the ASD and TD groups was also found in the use of Complicating Action clauses (31.00% and 10.17% respectively. $U=2.00$, $p>0.002$).

Evaluation

As in the matched sample and contrary to the predictions from the literature and prior analyses in the current study, no significant difference between the ASD and TD groups was found in the use of Evaluation clauses (2.18% and 6.55% respectively. $U=15.50$, $p=0.075$). As in the matched sample, it should be noted that there is a difference in the percentages used by the groups and, thus, it could be suggested that the small numbers of clauses involved in this area along with a limited number of participants in this group may mask the effect in this case.

Direct Speech

As in all other analyses in this thesis so far, despite a larger difference in proportional use, no significant difference was identified between the TD and ASD groups (12.29% and 3.20% respectively. $U=17.00$, $p=0.096$).

6.2.4.5 Multiple Picture First

Orientation

As seen in the matched sample and in Study One, there is a non-significant difference between the ASD and TD groups with regard to the use of Orientation clauses (70% and 72% respectively. $U=75.5$, ns).

Complicating Action

As seen in the matched sample, whilst the percentages reveal that the ASD group are using almost double the percentage of Complicating Action clauses than the TD group (22% and 13% respectively), this difference was not found to be statistically significant. It is suggested that the lack of statistical significance is a result of the small number of participants involved in this analysis and may not accurately reflect the percentage differences highlighted above. It is proposed, therefore, that this factor should remain of interest in the present investigation. Additional investigation with larger samples would be beneficial in any further investigation of this narrative component.

Evaluation

As seen in the matched sample, a significant effect of Evaluation was seen with the ASD group dedicating only 2% of their total clauses in contrast to 6% dedicated by the TD group ($U=33.00$, $p=0.014$), thus offering further support for the hypothesis that Evaluation as problematic for individuals with ASD.

Direct Speech

As in all previous analyses in this thesis, the use of Direct Speech clauses was found to be non-significant in this context (ASD: 4%; TD: 8%. $U=55.5$, $p=0.171$). However, it is noted that the percentages show the TD group using double the proportion of Direct Speech as the ASD group.

6.2.5 Summary and Discussion

Study Two had two main aims. First, to address Research Question One: “What is the level of global structural narrative abilities in high-functioning individuals with ASD?”, and second, to provide data for a comparative analysis with Study One in order to

enable the Research Question Three: “Can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme?”. This is addressed in Study Three.

Overall the results reported in this section support the findings in Study One and highlight the use of Orientation, Evaluation and Complicating Action clauses as atypical in the ASD group. Whilst the difference in the use of Orientation and Complicating Action clauses between the TD and ASD groups was found to be statistically significant in the single picture first group, the difference in the use of Evaluation clauses between the TD and ASD groups was found to be statistically significant in the multiple picture group. Therefore, overall this study supports the findings in Study One. These results are discussed further below.

6.2.5.1.1 Impairments in Narrative Components

With regard to the impairments of high-functioning individuals with ASD, it has been seen that overall the areas of Orientation, Complicating Action and Evaluation are areas which are highlighted as problematic for these individuals. This finding supports that of Study One and so further supports including these areas as a focus for further investigation and intervention. Results for Orientation replicate those found in Study One. However, results for both Complicating Action and Evaluation highlight several areas of difference in the findings of Study One and Study Two which require further discussion.

Complicating Action clauses demonstrated the same trend in both contexts in Study Two with the ASD group using double the proportion of clauses as the TD group. However, this difference was only found to be statistically significant in the single picture first group in this study. Comparing these results to those in Study One, although the trends are the same, Study One yielded results which found the difference

in Complicating Action to be statistically significant in the multiple picture context only. As the trend is clearly demonstrated in both studies, it is suggested here that the lack of statistical significance in this component is a result of small numbers of participants in each group and, thus does not accurately represent the percentage differences demonstrated between the groups. As this component has been identified as problematic in two of the four possible narrative tasks across the two studies and the high percentage differences seen in the other two tasks, it will be considered as problematic overall for individuals with ASD for the purpose of the intervention presented in Chapter 8. Further investigation of this component with a larger cohort of participants would be valuable in providing a better understanding of the abilities of the ASD group in this area of narrative.

Evaluation clauses also demonstrated a strong trend within Study Two and across both Study One and Two. Although Study One found these to be impaired in the ASD group in all tasks, Study Two found a statistically significant difference in group performance for the multiple picture first context only. The single picture first context did, however, show near significance ($p=0.078$) and the percentages indicate a difference in usage which supports the trend seen in the other tasks (ASD=2.54, TD=7.61%). This suggests that, as with the complication action clauses, a small number of participants and potentially, with this crucial but minimal part of the narrative, small token numbers may have affected the analysis of statistical significance. In addition, it may also be suggested that the single picture context, which required the participants to do the same task (with different stimuli) for the second time may have allowed them to improve their performance in this area as other demands of concentration and cognitive comprehension were reduced. This suggestion will be examined further in the following analysis of within-subject performance when the effects of repetition are investigated.

The use of Direct Speech was highlighted in Study One as an area in which the ASD group appeared to be using more than the TD group although no statistically significant difference was identified. The analysis of Study Two also revealed no statistically significant difference although differences in percentage data can be seen. This contributes to the existing contradictory literature on this subject and reveals the complex nature of direct speech in narrative. As this is not part of the original framework identified by Labov (1997), it will not be considered as part of the intervention, however it is identified as an area requiring further investigation.

Additional to these areas of impairment, further support was found for previous research which highlights the subtle nature of impairments seen in high-functioning individuals with ASD (Solomon, 2004). The analysis of the narrative hierarchy has demonstrated that although there were differences between the TD and ASD groups in the proportional use of the narrative components, the overall hierarchy was broadly the same. This emphasised, therefore, that whilst impairments may be overlooked by a broad analysis, the detailed analysis of structural narrative components reveal that impairments are present. This finding also highlights the importance of an intervention which addresses these subtle differences but which also builds on the existing narrative skills of these individuals.

6.2.5.2 Conclusion

In conclusion, it can be seen from both Study One and Study Two that high-functioning individuals with ASD are impaired in areas of narrative structure. Although the hierarchy of the narrative is unaffected, the proportional use of the narrative elements is, and thus, the structure of the narrative is atypical. It should be noted, however, that the differences reported are not always the lack or low usage of the elements and can, as is seen with Complicating Action clauses, reflect the overuse of

narrative components possibly in order to compensate for impairments in other areas. This demonstrates the abilities of individuals with ASD as well as their impairments and, therefore, provides the ideal forum to develop an intervention which works with these strengths in order to accommodate any impairments. It is suggested that through implementing this strategy and knowledge in an intervention setting, the maximum benefit can be gained by the individual.

The analysis to be presented in the following section addresses Research Question Three by examining the within-subject differences in the multiple picture context to establish any effect of context. In addition, the analysis also aims, through an examination of between-subject differences in the single picture context, to investigate any possible repetition or practice effects that may be seen in this study design.

6.3 Study Three: The Effect of Repetition and Context on Narrative Structure

Whilst the previous two sections of this chapter have aimed to identify whether high-functioning individuals with ASD are impaired with regard to narrative structure alongside the issue of task context, the current section investigates context alone. As such, the discussion presents the methodology and findings of a comparative analysis of the data yielded in Study One (T1) and Study Two (T2). The section concludes by discussing the research questions addressed and the implications of these results. The section is followed by a further discussion of the results in this chapter, their wider implications for the intervention presented in this thesis, and research in the area of narrative and structural abilities of individuals.

It should be noted that as the full sample results were the same as the matched sample results for Study One and Study Two, only the analysis of the matched sample will be presented in this section. In addition, as in Studies One and Two, only Complicating Action, Evaluation, Orientation, and Direct Speech are examined. Finally, it should also be noted that no comparison of diagnostic groups is presented in this section and, thus, all comparisons refer to T1 and T2 and are divided into TD and ASD. This analysis is carried out using non-parametric statistics (Wilcoxon Signed-Rank Test) due to the abnormal distribution identified in Study One and Study Two.

6.3.1 Research Questions and Hypotheses for Study Three

There are two questions which will be addressed in the following analysis. The first research question addressed is Research Question Two: “Do elicitation tasks affect the performance of individuals with regard to global structure of written narrative?”. The reason for asking this question is two-fold. First, it is to understand whether multiple picture contexts can mask impairments and, thus, prevent a comprehensive understanding of an individual’s abilities with regard to narrative. Second, it is to

investigate whether there is a place to incorporate the multiple picture task into an intervention for narrative structural abilities. Following previous research which has indicated that model narratives support narrative structure and highlighted effects of context, it is hypothesised that the context will positively affect the global narrative structure of both groups (TD and ASD). In addition, it is proposed that this support may result in an inaccurate representation of narrative abilities and mask differences between the groups.

The second question to be addressed in this section is: “Does the repetition of a task within the same context have an effect on the performance of the individual during the second task?”. In other words, are there any effects of task repetition? The main reason for asking this question is to gain a better understanding of the processes that are taking place in the task series with the view to informing the narrative intervention.

6.3.2 Results

6.3.2.1 Results for the Single Picture First Group

This section addresses the question of task repetition through a comparison T1 and T2 performance of participants who completed two single picture tasks. Table 6.16 and Figure 6.14 report the means and standard deviations from T1 and T2 for the single picture first group only.

Table 6.16: Comparison of Narrative Component Usage at T1 and T2 (TD and ASD Groups, Study Three, Single Picture)

		TD (T1)	TD (T2)	ASD (T1)	ASD (T2)
Orientation	M	69.43%	71.64%	50.10%	60.74%
	SD	7.30	8.97	14.62	6.71
Complicating Action	M	12.39%	11.57%	23.92%	26.91%
	SD	4.05	3.33	19.45	12.11
Evaluation	M	11.51%	7.1%	1.16%	2.54%
	SD	5.28	5.84	1.97	4.22
Direct Speech	M	5.40%	8.95%	18.61%	3.47%
	SD	8.36	12.48	18.51	7.61

Figure 6.14 Comparison of Narrative Component Usage at T1 and T2 (TD and ASD Groups, Study Three, Single Picture)

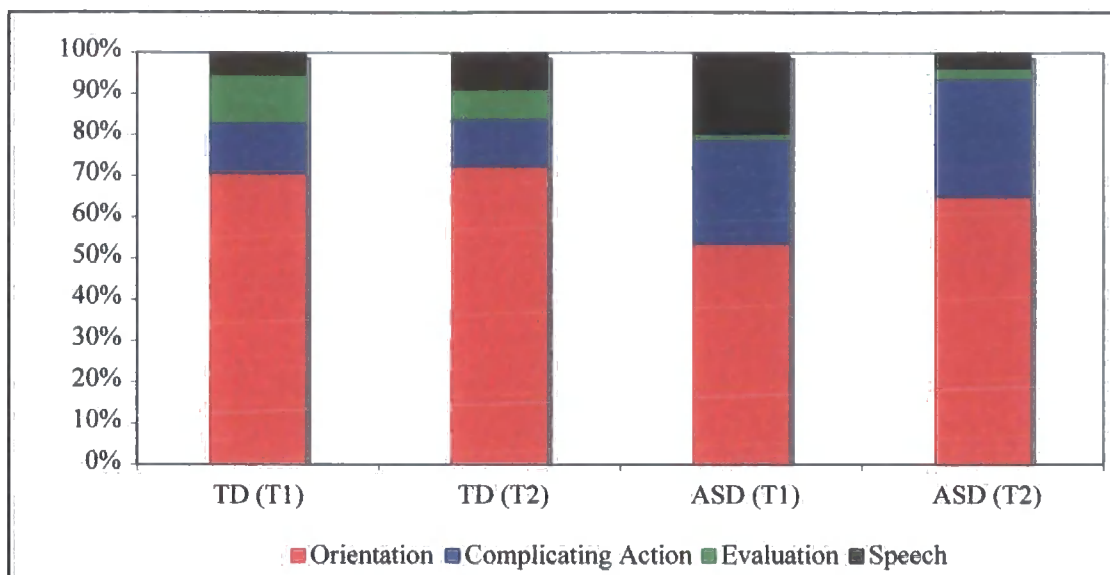


Table 6.16 and Figure 6.14 show there is limited variation between the two tasks for both groups and, whilst Orientation, Complicating Action and Evaluation increase for the ASD group, only Orientation and Direct Speech increase for the TD group. This suggests that there is very little difference between the two tasks. These results are discussed further below.

6.3.2.1.1 Differences in Narrative Component Usage

This section reports the analysis of differences in narrative structure between T1 and T2 for both the ASD and TD groups using a Wilcoxon signed-rank test. It aims to highlight any areas of difference in performance between the two tasks and thus will be able to suggest any effects of repetition of task.

Orientation

No significant differences between use at T1 and usage at T2 were found in either the ASD group ($Z=-1.57$, ns) or the TD group ($Z= -0.68$, ns). This indicates that neither

group changed their use of Orientation from T1 to T2 and suggests, therefore, that there are no effects of repetition of task for the use of Orientation clauses for either the TD or ASD group.

Complicating Action

A non-significant difference between T1 and T2 was found for Complicating Action clauses in either the ASD or TD groups (ASD: $Z=-0.734$, ns; TD: $Z=-0.17$, ns). This suggests that there is no effect of repetition on the use of Complicating Action and that use remains stable across the tasks.

Evaluation

A non-significant difference between the T1 and T2 was revealed for Evaluation in both the ASD and TD group (ASD: $Z=-0.54$, ns; TD: $Z=-1.35$, ns) suggesting that, as with both Orientation and Complicating Action clauses, the use of Evaluation clauses also remains constant across both tasks and no effects of repetition are identified for either group with regard to Evaluation clauses.

Direct Speech

As with the other areas of narrative, a non-significant effect was revealed for both the ASD group ($Z=-1.83$, ns) and the TD group ($Z=-1.49$, ns). This demonstrates that the use of Direct Speech clauses remains constant for both groups across both tasks, thus, no effects of repetition can be seen.

6.3.2.2 Results of the Multiple Pictures First Group

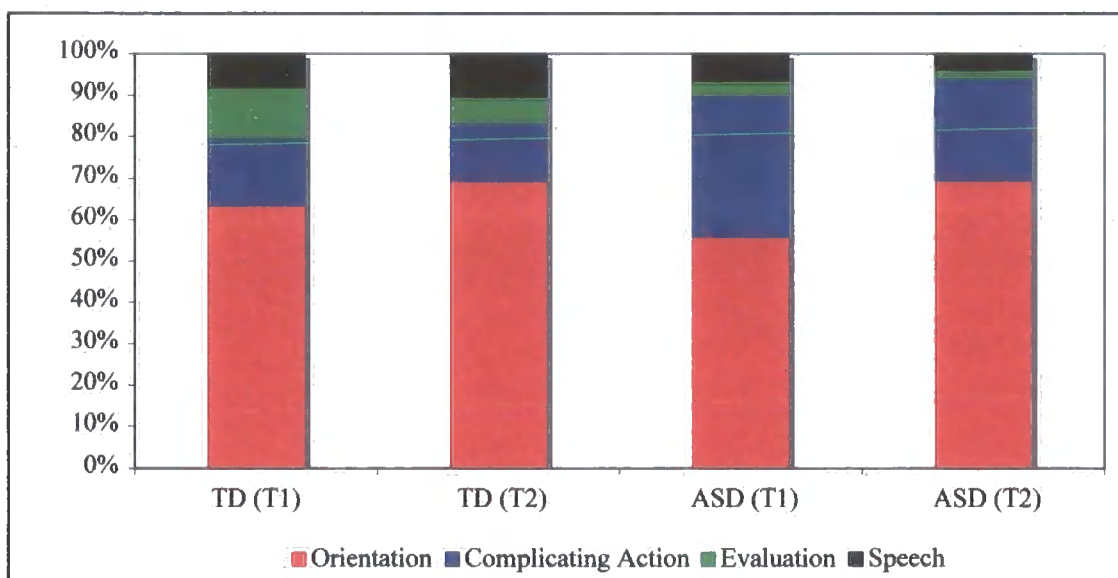
This section examines T1 and T2 data from individuals who received multiple pictures at T1 and single pictures at T2. Therefore, this section examines the effect of context on an individual's narrative production. Table 6.17 and Figure 6.15 present the

scores for both Study One and Study Two for the individuals who were allocated the 'multiple picture task first' context.

Table 6.17: Comparison of Narrative Component Usage at T1 and T2 (ASD and TD Groups, Multiple Pictures, Study Three)

		TD (T1)	TD (T2)	ASD (T1)	ASD (T2)
Orientation	M	61.98%	64.49%	53.67%	66.36%
	SD	6.71	20.36	19.33	26.21
Complicating Action	M	15.87%	13.00%	32.81%	23.77%
	SD	5.62	10.41	23.45	25.24
Evaluation	M	12.00%	5.77%	3.45%	1.73%
	SD	6.72	2.56	5.82	2.63
Direct Speech	M	8.12%	9.88%	6.36%	3.95%
	SD	7.69	11.14	8.19	8.76

Figure 6.15: Comparison of Narrative Component Usage at T1 and T2 (ASD and TD Groups, Multiple Pictures, Study Three)



From the data presented in Figure 6.15 and Table 6.17 it can be suggested that both the TD group and the ASD group reduce in their use of Complicating Action and Evaluation clauses and increase in their usage of Orientation clauses from T1 to T2. Speech differs between the groups with the ASD group reducing their use of Direct Speech from T1 to T2, and the TD group increasing their use slightly.

6.3.2.2.1 Differences in Narrative Component Usage

The following analysis aims to address the question of whether context has an effect on the narrative production of individuals in the TD and ASD groups through a within-subjects analysis of the narrative components and their use in both T1 and T2.

Orientation

A significant difference in Orientation was found from T1 to T2 for the ASD group ($Z=-1.96$, $p<.05$). However, this effect was not replicated for the TD group ($Z=-0.49$, ns) suggesting that whilst the participants with ASD were increasing their use of Orientation from T1 to T2, this was not the case for the TD participants. This finding suggests that the context has an effect on the ASD group's use of Orientation within the narrative but not that of the TD group.

Complicating Action

A non-significant difference for Complicating Action clauses was found for both the ASD group ($Z=-1.71$, ns) and the TD group ($Z=-1.26$, ns) between T1 and T2. This suggests that the use of Complicating Action remains stable across these two contexts.

Evaluation

Whilst a non-significant effect for Evaluation was revealed for the ASD group ($Z=-0.73$, ns), the TD group demonstrated a significant reduction in their use of Evaluation clauses across time ($Z=-1.96$, $p<.05$). This finding suggests that whilst the TD group's use of narrative is affected by the context, this is not the case for the ASD group. It is also interesting to note that taking the findings from the previous analyses into account, it could be suggested that a model story cannot help to effect change in the ASD

group's use of Evaluation. This will be of great importance with regard to the development of intervention tools.

Direct Speech

The analysis for Direct Speech revealed that neither the TD group nor the ASD group showed a significant change in their usage of Direct Speech clauses between the two tasks (ASD: $Z=-0.52$, ns; $Z=\text{ranks equal}$, ns). This suggests that the use of Direct Speech is constant regardless of context.

6.3.3 Summary

The findings in this section reveal that significant differences between Study One and Study Two are only found for those individuals who had multiple pictures in Study One. It can, therefore, be concluded that whilst repetition does not appear to be a significant factor with regard to narrative structure, context type is significant within subjects. This finding supports the previous research which has identified elicitation context as a significant factor in the performance of individuals (Hickmann, 2004) and also supports the hypothesis in this thesis. Furthermore, it supports the preliminary suggestions from Study One which have presented between subjects analyses and have suggested that context is a factor in the performance of individuals when completing these tasks. The following section discusses the findings presented in this chapter discussing the main results of these studies, their implications for previous and future research, and how these findings are used to inform the intervention study presented in Chapter 8.

6.4 Discussion and Conclusions from Studies One, Two and Three

Overall, this chapter has highlighted several important findings in relation to the structural narrative abilities of individuals with ASD. This discussion aims to summarise the main findings of the research, to identify areas which offer support for existing research findings and the hypotheses of this thesis, and to identify areas which could be improved and developed in further research. Finally, this discussion will outline the implications of the results for the following intervention.

This chapter has addressed three of the research questions identified in this thesis:

Research Question One: What is the level of global structural narrative abilities in high-functioning individuals with ASD?

Research Question Two: Do elicitation tasks affect the performance of individuals with regard to global structure of written narrative?

Research Question Four: What is the most appropriate way to research written narrative abilities of high-functioning individuals with ASD?

The following discussion, therefore, presents the conclusions of this chapter with regard to these research questions.

6.4.1 What is the Level of Global Structural Narrative Abilities in High-Functioning Individuals with ASD?

With regard to whether individuals with ASD are impaired in narrative structure, the above analysis has revealed impairments in the areas of Orientation and Evaluation as predicted by the literature discussed in Chapter 5. In relation to Evaluation, these findings support existing research which suggests that high-functioning individuals with ASD are unable to represent the emotions of characters within a narrative (Tager-Flusberg and Sullivan, 1995), and have impairments in theory of mind (Tager-Flusberg, 2001).

With regard to Orientation, the conclusions discussed above support findings which suggest these individuals are also unable to provide relevant background information, or introduce new information in an appropriate way (Mitchell *et al.*, 1997; Tager-Flusberg, 2000a). In addition, the overuse of Complicating Action clauses supports findings in the literature that suggest individuals with ASD are able to represent factual information and that their narratives are more closely identified with a list of events than a narrative (Baron-Cohen *et al.*, 1986).

Furthermore, although the overall hierarchy of narrative structure was not impaired, the proportions of narrative components did differ between the groups. This supports existing research which has suggested that individuals with ASD have impaired narrative abilities (Norbury and Bishop, 2003; Diehl *et al.*, 2006) and highlights the subtle nature of impairments demonstrated by high-functioning individuals with ASD which have been identified by existing narrative structure research (Solomon, 2004; Diehl *et al.*, 2006).

The findings presented in this thesis contrast with several findings in existing literature which identify no group differences in story structure and whilst this thesis has examined narrative structure as a whole through the analysis of clause function, previous analyses have examined isolated structural components (Loveland *et al.*, 1990; Tager-Flusberg and Sullivan, 1995). As identified in Section 5.4.2, there are several possible reasons for contrasting results on the narrative structural abilities of individuals with ASD. Following results from Study Three, it is suggested that elicitation task differences may be a significant factor in explaining this disparity. The above analysis has shown that context has a significant effect on the structure of the narratives produced and, thus, should be taken into consideration when comparing investigations in this area (this issue is discussed further in Section 6.4.2).

In addition, it is possible that the use of a clause-based analysis in this thesis has enabled more subtle narrative impairments to be identified. This is supported by findings in overall narrative balance which identify no group differences. Furthermore, this finding offers support for research which has found impairments that narrative structural abilities of individuals with high-functioning autism are not revealed through the examination of isolated narrative sections (such as beginnings and ends) but require more sensitive methodology (Diehl *et al.*, 2006).

Finally, it is possible that the age of the participants may be a factor in explaining inconclusive results. This investigation (following the recommendations in Norbury and Bishop (2003)) has used young people aged 13-14 in order to ensure the TD group has acquired the necessary skills to allow for a comparison on groups. It is suggested that future research wishing to examine differences between TD and ASD populations in the area of narrative structure should also strive to use individuals who are of an age where the narrative skills are expected to be acquired.

In summary, the findings in this chapter have highlighted impairments in the use of structural narrative components and therefore support the hypothesis of this thesis. These conclusions have directly informed the intervention study presented in this thesis.

6.4.2 Do Elicitation Tasks Affect the Performance of Adolescents with ASD with Regard to Global Narrative Structure?

Study Three finds a significant effect of context in the area of Orientation for the ASD group and Evaluation for the TD group. This supports the hypothesis of the current study and has significant implications for future methodological design. In addition, Study Three has also found that simple repetition of task type does not appear to affect narrative production within subjects.

There are several implications of these findings for the current discussion. The effect of context appears to suggest that fixed-order pictures effect the narratives produced. This finding may shed light on the inconclusive results previously reported in the area of narrative structure and ASD. Through examination of the data it is clear that the multiple picture context produces different data to that seen in the single picture context, which may result in mitigated data. It can be seen in Study Three that the multiple picture condition resulted in a lower usage of Orientation for the ASD group and a higher usage of Evaluation for the TD group. However, the results do not appear to support previous research which suggests model stories support the narratives produced. In other words, the impairments that are found in Studies One and Two in the ASD group are not reduced in the multiple picture context. More specifically, in the use of Orientation clauses the ASD group reflects an increase in their use of Orientation in the Single Picture task and, thus, sees them perform at a level closer to the TD group. If the model narrative were to support production, this increase would be expected in the multiple picture context with a reduction of usage for Orientation in the single picture context where little support is offered.

In addition, the effect for the TD group also shows that the task has an impact on the narratives produced and sees a reduction in the amount of Evaluation produced, from 12% in the Multiple Picture task to 5.77% in the Single Picture task. However, the difference in the use of Evaluation between the ASD and the TD groups remains. This suggests that the ASD group's use of Orientation is not affected by stimuli of this kind. These results suggest that context does have an effect on the narratives produced. However, whilst previous research had indicated that model stories improve and support the performance of individuals in narrative tasks, the results do not show this to be the case in these studies. There are several possible reasons for this. First, it could be argued

that the multiple pictures were at a lower ability level than the groups were capable of and, thus, limited participant's performance. This is possible as the requirement for a wordless picture book results in immature content. As the single pictures were from the same source, it could be suggested that the effects should be seen in both groups. However, as context is found to have an impact on the narratives produced, it could be suggested that the multiple picture context affects written narratives more than the single picture context and, therefore, the nature of the stimuli has more impact in the multiple picture task.

Second, it is possible that with regard to the fluctuation in the TD group's use of Evaluation, the multiple pictures specifically required discussion of emotions and the TD group responded to this, whilst the ASD group were unaffected. This suggests that the ASD group perform poorly in this area regardless of the stimuli and more specific intervention techniques may be required.

Third, it is possible that the fixed-order pictures do not perform the same function as an orally relayed model narrative. As a result, the pictures do not act as a model narrative but as a series of pictures to guide content and not narrative structure. Further investigation is required into the effect of fixed-order visual stimuli on the data yielded from such narrative tasks to ensure that accurate data is collected with regard to global narrative structural abilities. Further research would also provide a comprehensive understanding of the impact of the elicitation tasks within investigations of structural narrative abilities.

Although it is unclear what the nature of the effects is with regard to the two task types used in the current thesis, it is clear that the tasks yield different results with regard to narrative structure. It is suggested, therefore, that future research should aim to use an elicitation task which has the least potential impact upon the narrative structure

of the narratives produced. In the opinion of the current author this would require the use of a task which offered a minimal structure e.g. a single picture or a title.

Finally, it should be noted that these findings do not suggest that previous research is of dubious validity, rather that care should be taken when comparing the findings which studies have yielded using different elicitation techniques. For the purposes of the current thesis, the intervention will follow the argument that the single picture is least likely to impact upon the narrative production and therefore, yields a more representative measure of an individual's ability.

In summary, this chapter has concluded that elicitation context can have an impact on the narrative production of both TD individuals and high-functioning individuals with ASD, thus, supporting the hypothesis of the thesis. In addition, this chapter has identified that simple repetition of a task does not affect performance. As highlighted above, these findings have significant implications for future research in this area and for the design of the intervention presented in this thesis.

6.4.3 What is the Most Appropriate Way to Research the Written Narrative Abilities of High-Functioning Individuals with ASD?

The final question to be addressed in this chapter is the whether the methodology used is the most appropriate for this investigation. The use of Labov's (1997) framework for structural narrative analysis has enabled the current investigation to focus on key aspects of narrative structure which are robust in the TD population and which allow analysis of the areas predicted to be problematic for individuals with ASD. The framework has, to date, rarely been applied to narratives produced by individuals with ASD to allow for a comparative analysis of abilities with typically developing controls (Losh and Capps, 2003 is a recent exception). It is suggested in the current discussion, that this framework offers an accessible and appropriate approach to allow

the identification of the specific, and often subtle, problems exhibited in the narratives produced by individuals with ASD. In particular, the clause level analysis allows a detailed analysis of the elements within the narrative. This has been supported by the identification of problematic areas of narrative structure which have been identified regardless of the typical hierarchy produced by these individuals.

However, this analysis has also identified several limitations to the framework presented by Labov (1997). First, this framework does not identify direct vs. indirect speech as a separate clause type. Following existing research which suggests direct vs. indirect speech may have a unique role in the narratives of individuals with ASD, it is proposed that any further analysis of narrative structure using Labov (1997) should include this additional clause type. This would allow further investigation of the role of Direct Speech clauses in the narrative production of individuals with ASD. Second, this framework does not distinguish between the types of Evaluation used in the narrative structure. As existing research has highlighted the possible identification of several types of evaluation, it is suggested that future analyses using this framework should incorporate these types to enable a more comprehensive understanding of the role evaluation plays in the narratives of individuals with ASD. This would also allow research to identify whether one type of Evaluation is more problematic for individuals with ASD and thus provide increased focus for narrative interventions. Finally, a further division of Orientation clauses would also provide a better understanding of their role in the narratives of individuals with ASD, thereby better informing narrative interventions.

Another issue raised by the current findings is the issue of small sample size and future analyses with larger cohorts would allow further conclusions to be drawn. The challenges of carrying out research with high-functioning individuals with ASD who are included in mainstream schools have resulted in limitations on the possible cohort

numbers for this investigation. Small numbers were necessary due to the intended application of the results to inform the intervention in this thesis. However, future investigations which carry out this type of research independent of any other pressures may wish to extend their cohort. One way in which this could be done is to extend the geographical area of the investigation and involve several investigative groups and potentially Local Education Authorities in order to maximise the number of participants involved. In addition, future studies may wish to include individuals from outside of mainstream education; however, acute awareness of the heterogeneity of this population is essential and homogeneity of abilities should be ensured as far as is possible.

6.4.4 Conclusion

In conclusion, this chapter has presented three studies which have investigated the narrative abilities of individuals with ASD and the effect of elicitation tasks on the performance of individuals with regard to narrative structure. There are three main conclusions. First, it is clear that there are three main areas of global narrative structure which are impaired in the narratives of individuals with ASD: Complicating Action, Orientation and Evaluation. These impairments are subtle in nature and differ in proportions of use but not global hierarchy. Second, context does appear to have an effect on the structure of narrative produced by both TD and ASD groups. In addition, it has suggested that whilst simple repetition of a task does not affect the narrative skills of individuals with ASD, it is possible that model narratives may limit the skills demonstrated rather than supporting them. Further research is required to further establish the effects of context and elicitation task on structural narrative data. Finally, with regard to the current investigation, Labov's (1997) analysis is considered to be the most appropriate tool for the analysis of the narrative structural abilities of high-functioning individuals with ASD, although further division of components would be beneficial in any future analysis. It should also be noted that although predictions for

this thesis were based on oral narrative research due to the paucity of written narrative research, this does not appear to have been prohibitive in predicting outcome, and the hypotheses in this chapter have been supported by the data collected.

These conclusions directly inform the intervention presented in the remainder of the thesis. The areas of narrative which have been identified as impaired provide the focus for the intervention structure and the conclusions regarding context will inform the task design. In addition, the results from Study Two will provide a baseline measure in order to measure the progress of intervention participants.

Finally, the findings presented in this chapter, which have found high-functioning individuals with ASD have impaired narrative production, have implications for inclusion in mainstream education. As highlighted in Chapter 2, although requirements for narrative production exist explicitly within Literacy, English underpins the whole school curriculum and therefore, success in this area can have an overall effect on academic success. In addition, success in narrative production may increase an individual's confidence in an area which they find particularly challenging and thus may limit frustration, reduce any disruptive behaviour and increase cooperation within the classroom. This would have a significant impact of the classroom atmosphere and promote the inclusion of that individual in mainstream inclusive education. Furthermore, whilst this thesis does not investigate the oral abilities of high-functioning individuals with ASD, impaired written narrative skills may highlight impairments in oral narrative production. Such impairments may have an impact of social inclusion and the development of peer relationships. The findings in this chapter, therefore, suggest that high-functioning individuals with ASD may require additional support in mainstream environments where narrative is a key part of academic success and interventions to improve these impairments may, therefore, offer another way to

improve their inclusion in mainstream education. This issue is discussed further in Chapter 9.

The following chapters of the thesis focus on the novel intervention presented in Chapter 8. The discussion aims to provide an analysis of each participant's progress as well as presenting a detailed guide to the procedures for the intervention to allow replication both within research and education, if required. Chapter 7 precedes this discussion with a review of the existing interventions for individuals with ASD.

Chapter 7 : Intervention and Individuals with ASD

The previous sections of this thesis have focused on the narrative abilities of young people with ASD and how to test these abilities effectively. This section aims to take those findings further by investigating how impairments seen in Chapter 6 can be reduced through an integrated intervention in a mainstream educational setting in England. In order to achieve this, this chapter will discuss the existing literature on interventions in ASD looking at all areas of the spectrum. This discussion will then be used to identify methodological considerations which are significant for the current intervention study.

There are many intervention studies which involve individuals with ASD, however, the focus of the majority of the literature is the abilities of low/mid functioning individuals and how professionals can work with the child and the family to achieve the desired outcome. This, in turn, has resulted in a large body of research which focuses on the behavioural problems of this group of individuals and how best to intervene to overcome these and, thus, enable the child to function within society. Alongside this body of literature is a much smaller body of work on improving the communicative abilities of individuals with autism (Lord, 2000) and, as will be seen below, these two areas are often perceived to be mutually inclusive.

There is limited research on interventions for high-functioning individuals with ASD and it is highlighted as an area in need of further investigation (Lord, 2000; Twachtman-Cullen, 2000). The present discussion, therefore, aims to review the intervention techniques reported for lower-functioning children with ASD, both behavioural and communicative, and to establish potential approaches and techniques which may also be relevant to the high-functioning population. The discussion will be organised into two main categories: behavioural focused interventions and

communication focused interventions. It is acknowledged that in many cases these categories will overlap, however, a division has been selected to allow for clarity within the present discussion.

The aim of this chapter is two-fold. First, this discussion will highlight the outcomes of some of the more prominent findings from behavioural intervention to help to inform the current research into communication interventions. There is a general agreement in research into behavioural interventions that improving communicative performance can increase socially acceptable behaviours. Therefore, this research provides an important insight into the intervention techniques that are successful in improving communication abilities of individuals with ASD. Second, it aims to discuss the limited previous research in the area of communicative intervention and, in particular, those few studies which have involved high-functioning individuals with ASD. The discussion will then identify areas for further investigation within the high-functioning population and, in the final section, focus on the conclusions which may be drawn from this research to inform intervention studies for high-functioning adolescents with autism and, in particular, the narrative intervention study presented in Chapter 8. It should further be noted that the vast majority of existing research into communicative interventions is related to spoken language. This is acknowledged as a problem for this thesis and methodological implications are discussed below.

7.1 Intervention Research and ASD

7.1.1 Behavioural Interventions

It has been noted that improvements in communicative abilities can have a great beneficial impact upon the behaviour of individuals with autism, by reducing inappropriate behaviours and replacing them with alternative linguistic communication strategies (Koegel, 2000; Lord, 2000:394). In fact, Koegel (1995:17) suggests that there

is a direct correlation between language and inappropriate behaviours. Support for this suggestion can be found in research discussed below, which suggests that inappropriate behaviours have a communicative function (Frea, 1995; Jordan and Powell, 1995; Koegel, 2000). For many individuals and their families, pervasive disruptive behaviour is one of the most inhibiting impairments for a child with autism as it is the most overtly intrusive and has been noted to have a significant impact on family life, inclusion in mainstream society and parental levels of stress (Moes, 1995:84). As a result, there have been many interventions which seek to improve and replace problem behaviours displayed by children with autism.

The area of behavioural intervention research is relevant to the present discussion for two reasons. Firstly, it is only by adopting the appropriate behaviours that the child can begin to improve their linguistic ability and, therefore, encouraging good behaviour must be the beginning of any intervention process. Secondly, there is a substantial body of evidence which highlights that when behavioural interventions include a functional analysis of the problem behaviours, linguistic tools can be introduced to 'replace' unwanted behaviours. There is a consensus within the current literature on problem behaviours that one of the most useful ways of approaching these behaviours is to treat them as if they hold a communicative function (Frea, 1995; Jordan and Powell, 1995; Koegel, 2000). Koegel (2000:387) highlights the potential links between communicative abilities and behavioural difficulties stating that there appears to be an inverse relationship between the "acquisition of functionally equivalent replacement behaviour and the decrease of problem behaviours". She goes on to state that whilst problem behaviours, such as self-harm and aggression may be inappropriate, it is often the case that these behaviours are effective in communicating what is required. The child is, therefore, lacking the motivating factors required for change, thus, making a

successful intervention more difficult (Koegel, 2000:387-8). In a situation such as this, it is essential that rewards for correct behaviour outweigh or at least match the rewards for the unwanted problem behaviour (Koegel, 2000:387-8). Furthermore, Koegel (2000:387-8) identifies “efficiency of communicative response, reinforcement schedules and delayed consequences” as important factors in the “use, generalisation, and maintenance of functionally equivalent behaviours”. Koegel (2000:383-4) also states that the strengths and motivation of individuals with autism should be capitalised upon when designing an intervention to ensure the best outcome possible. There have been many studies in recent years which have attempted to intervene in communication by exploiting the “individual patterns of competencies” (Lord, 2000:394) and, therefore, use the individuals’ abilities to mitigate their impairments. This is the ethos of the current thesis and has been advocated by many (Happé, 1999; Koegel, 2000; Peeters, 2000:17; Goldstein, 2002). Following this approach, it has been found that increasing the occurrence of previously existing behaviours results in a significantly more successful intervention than attempting to initiate behaviours that are not present in the individual’s functioning (Lord, 2000:394). Goldstein (2002:387) develops this idea further by indicating that those linguistic interventions that have been successful have built upon and developed the skills the child already has but uses minimally. This issue should be at the core of any intervention design. It should also be noted that it may not be the case that the abilities which are present are related to language and so a broad view should be taken when considering an individual’s capabilities. Koegel and Frea (1993:373) report an intervention which targets social communicative behaviours and the possible generalisation of the intervention techniques to other social behaviours. They found that both targeted and untargeted behaviours rapidly improved, suggesting a generalised effect from the intervention. In addition, they found that these results were

accompanied by increases in subjective scores that related to the appropriateness of the children's communicative acts.

7.1.1.1 Peer Involvement

Research in the area of peer relations has highlighted the challenges that are related to behavioural problems. One such investigation conducted by Dodge (1983) identifies that rejection or neglect by peers was linked to the frequency of inappropriate behaviours displayed by the child with ASD. Furthermore, it was found that these rejected children were involved in physical aggression more frequently than their typically developing peers. However, Frea (1995:64) demonstrates that, for behavioural problems which impede social communication, peer involvement can be an effective strategy. A case cited by Frea (1995:64) indicates that by encouraging typically developing peers to help a child with autism overcome some of their social difficulties, rewards can be gained both by the individual with ASD and their typically developing peers, and true friendships can grow.

Frea (1995:63) states that "Peer Modelling" is an effective way to intervene on a child's communicative behaviours whilst limiting contact with adults, which can impact upon a child's development of social competencies. Frea (1995:63) highlights the fact that a decrease in socially disruptive behaviours may be linked to the ability of the child to use language to express themselves. Oke and Schreibman (1990) found that teaching peers to initiate effective communication with a high-functioning individual with autism can be successful. However, the reduction of disruptive behaviours linked to increased communication skills was only seen when the child was able to initiate those successful interactions themselves. As self-initiation of communication provides individuals with the skills to express themselves, it is not surprising that the reduction is only seen when

the child can initiate interactions themselves and, thus, be able to express what they need to.

Frea (1995:64) also highlights the notion that the involvement of peers in communication interventions improves the generalisation of the skills developed by the ASD individual, as peers are often more likely to offer natural examples which can promote the generalisation of an intervention programme. It is also noted that the development of peer interventions which apply throughout the school day is an issue which presents many challenges (Frea, 1995:64). One way to ensure that an intervention can be implemented throughout the day is to actively promote or include situations which allow contact with peers within the daily timetable and within individual lessons. This will enable the development of interaction with peers and, thus, allow them to develop their social communicative skills further.

7.1.1.2 Functional Assessment

As highlighted above, teaching communicative tools to individuals with ASD to replace communicative behaviours has been found to decrease inappropriate behaviours (Koegel, 1995:18). However, in order to teach replacement communication tools, it is important to fully understand the role problem behaviours are playing in an individual's communicative strategies. A functional assessment can provide this information and is considered by some to be an important part of the intervention process (Frea, 1995:65). The assessment involves identifying the triggers and situations which promote and sustain unwanted behaviours. By identifying these triggers across a wide range of settings, it is possible to identify why an individual is behaving in a certain way and what the motivation for this behaviour is (Frea, 1995). In addition, the analysis can identify an individual's strengths and areas in which they excel. By collecting this information, it is possible to build on an individual's strengths whilst providing support

and strategies to avoid the problematic behaviours (Frea, 1995). As Frea (1995:65) highlights, for functional communication instruction to be successfully implemented it is important that new social-communicative skills are taught to the individual and that these skills are reinforced in multiple environments. Importantly, these replacement communication strategies should also be as successful in gaining the desired outcome for the individual (for example, getting a biscuit), if not more successful, than the previous unwanted behaviours if the intervention is to succeed.

7.1.1.2.1 Problem Behaviour Support (PBS)

Developed from the application of functional assessments, problem behaviour support (PBS) has been found to be successful for many children with disabilities (Buschbacher and Fox, 2003:919). Buschbacher and Fox (2003:217) state that problem behaviours are a common form of communication for children with autism because the communication works, the child achieves what they want and, thus, that way of communicating becomes persistent. They suggest that in order to change problem behaviours, they must be understood and new skills introduced to provide the child with alternative means of communication, thus, replacing unwanted behaviours (2003:217). In essence, PBS interventions utilise the motivation behind the communicative attempts by providing another modality for the child to use when expressing themselves which is as communicatively rewarding as the previous problem behaviour it is replacing (Buschbacher and Fox, 2003:222). They report several PBS case studies in which problem behaviours are replaced by more appropriate forms of communication and the function of an individual's behaviour is identified. As highlighted above, this is essential in order to provide the child with successful alternative means to achieve their goal.

Durand and Carr (1992) found that when included in an intervention for functional language training, children demonstrated reduced instances of problem behaviours and increased instances of unprompted language initiations. This was generalised outside of the training setting and the intervention, and children demonstrated long-term use of the skills they had learnt. In addition, Koegel *et al.* (1998) found that PBS could be used to successfully prevent aggressive behaviour. The research indicated that unwanted aggressive behaviour was replaced by a set of phrases that a child could use in situations during which they were prone to aggressive reactions. This intervention also resulted in increased happiness for both the child and parent.

In order for PBS to be successful, the functional assessment of the individuals should examine the natural settings where the behaviour occurs, the triggers and consequences of the behaviour and its communicative function (Buschbacher and Fox, 2003:220). The assessment can, therefore, provide what could be considered a baseline measure of current abilities and strategies. In order to ensure that this measure is fully informed, it is also important to include information from all available records of the child's history and previous behaviours (Buschbacher and Fox, 2003:221), thus providing a holistic view of the child. In addition, throughout the intervention, a hierarchy for rewards and extensive opportunities for instruction should be ensured so that the target skill can be successfully acquired (Buschbacher and Fox, 2003:222). Furthermore, Buschbacher and Fox (2003:222) identify the importance of rewards to ensure success within a PBS programme. As highlighted above, in order for the successful replacement of problem behaviours, it is essential that the rewards for the desired communication skills equal or indeed exceed the rewards and success of the problem behaviours. In other words, the replacement communication technique must make it easier to achieve the goal than the

problem behaviour. This requires both appropriate communication tools and appropriate responses from adults when the child uses new communication tools.

With regard to outcomes, Buschbacher and Fox (2003:222) found that as the child acquires more conventional forms of communication which they are able to employ in problem situations, problem behaviours are reduced. This provides further support for the findings discussed above which highlight increased communication as directly reducing the occurrence of problem behaviours (Koegel, 2000; Lord, 2000:394). In addition, Buschbacher and Fox (2003:224-5) report that for individuals with ASD a positive outcome of a PBS intervention affects the quality of life of the individual as well as family life as a whole. Although there is an overall positive outcome for all participants, they acknowledge that use of this intervention technique brings a heavy workload for the professionals and family which may limit its implementation in certain settings. However, they do suggest that, as the intervention produces positive outcomes and individual gains, the benefits far outweigh any potential drawbacks from the additional work that may be required. Finally, Buschbacher and Fox (2003:225) stress that a respectful and accommodating approach to intervention is essential to ensure the best possible outcome for all professionals, families and individuals with ASD involved.

The success of this intervention technique has resulted in PBS being employed by the American government as a tool to promote inclusion. Use of this tool has enabled those children who are at risk of being removed from inclusive education as a result of behavioural problems to learn and develop communication strategies and remove unwanted behaviours (Buschbacher and Fox, 2003:217).

7.1.1.3 Competing Factors

When working with individuals with autism (particularly high-functioning individuals), it is important to acknowledge that there may be competing factors which impede the developmental process. McConnell (2002:355) identifies behaviours which are present in individuals with autism which may be seen as competing with social communicative development. These behaviours can include repetitive behaviours, lack of eye contact, general challenging behaviour, and low levels of contact with peers (often referred to as avoidance behaviours). He highlights that these behaviours, over a sustained period of time, could have an impact on the social development of the child. He also suggests that, whilst for some children an increase in early social exposure could help to improve their social skills and potentially inhibit the development of these atypical behaviours (suggested as an area for future research (2002:355)), for others social exposure results in avoidance and behaviours which limit exposure to problematic situations. Therefore, greater exposure to social situations can provide greater reinforcement of and motivation for these behaviours. For this group of individuals, it is suggested that interventions which focus on substituting these atypical behaviours for more communicative ones, thus improving the communicative abilities of the individual, would be beneficial (McConnell, 2002:355). Further research is required in this area to assess the application of such interventions and the implications they may have.

7.1.1.4 Summary

The above discussion highlights the importance of including behavioural interventions in a review of effective linguistic interventions which promote effective communication skills for individuals with ASD. The discussion identified the significance of understanding the function of problem behaviours and the role of

communication when attempting to improve the social functioning of individuals with ASD. It also highlighted the significance of developing a full understanding of an individual's impairments which, therefore, enables valuable, individualised interventions to be implemented. Furthermore, whilst it is acknowledged that many of the more severe problem behaviours are seen in younger or less able individuals than those involved in the present study, it is also noted that high-functioning individuals with ASD do demonstrate problem behaviours which impede their communication and social development. By applying the ethos of understanding the underlying function or motivation of problem behaviours and impairments, it is possible that behavioural intervention research discussed above may also benefit those at the more able end of the spectrum.

Finally, it should be noted that research into the impact of inappropriate behaviours on peer relationships has highlighted a direct link between increased rejection from peer groups and the frequency of appropriate behaviours. Combined with evidence describing the important role peers play in language development, this finding further highlights the importance of interventions focusing on improving behaviour. The following section discusses research into communication interventions for individuals with ASD.

7.1.2 Social and Oral Communication Interventions

As the research into the developmental difficulties of autism has progressed, so too has research into the possible interventions and "therapies" available for this population (Tager-Flusberg, 1999:23). The importance of language development in autism is well-known and has been highlighted by its importance in the diagnosis of autism, its recent inclusion in neurobiological analyses which aim to find treatments for ASD (Lord, 2000:396), its stability in impairments throughout a wide range of ages, and its direct

and indirect effects on socio-cognitive aspects of autism including theory of mind, behavioural difficulties, positive behaviours and academic achievement (Lord, 2000:394). Following on from this growing body of research, there is substantial evidence in the literature to demonstrate that interventions which target specific areas of communication can be successful (Lord, 2000:394). In addition, there is a limited body of literature which suggests that educational programmes which contain communication goals using milieu techniques result in a general improvement in linguistic competencies (Lord, 2000:394). Most importantly, it is highlighted that for an intervention to be successful, it must not be implemented in isolation but integrated into daily life in order to maximise outcomes wherever possible (Koegel, 2000).

The area of social and communication interventions is one which is of particular significance with regard to high-functioning individuals with ASD. As discussed above, these individuals have subtle linguistic and social impairments such as lack of eye contact, poor conversation skills, poor expressions of sympathy, and limited use of communicative feedback (Koegel, 2000:388). Unless addressed, these impairments can have a significant impact on their development of communication skills and, thus, their functioning in society (Twachtman-Cullen, 2000). However, despite the overt need to address this area, limited research has been conducted (Koegel, 2000:388) and research is limited further if only high-functioning individuals with ASD are considered.

Therefore, the current discussion includes both interventions for individuals with ASD and interventions for individuals with impaired language to allow for potentially useful intervention techniques to be identified. In addition, although communication can be considered in isolation, the inherent relationship between both communication and socialisation has driven the current discussion to combine the two areas in order to examine the previous intervention approaches and highlight areas for further research.

7.1.2.1 The Importance of Communication Interventions

Research in the area of pragmatic interventions is likely to have benefits far beyond the development of valuable, transferable pedagogies. The resulting interventions in the area of communication skills for high-functioning individuals with ASD are important to ensure that these individuals reach their full potential, develop skills which can be generalised, and become active members of the wider community. There are also further benefits to be gained from interventions in this area, which can improve an individual's overall quality of life and personal development (Koegel, 2000:388) as well as improving family life as a whole.

In addition, Koegel (2000:388) highlights that as communication skills are the foundation for personal relationships, behaviour and learning, the reduction of impairments in this area provides multifaceted benefits which cannot be overestimated. Koegel (2000:388) states that “communication skills provide a foundation for social and personal relationships and exert powerful influences on behaviour, self-regulation, and learning on a daily basis”. It has been found that typically developing individuals follow adult feedback when developing communicative abilities and, through using this feedback, they learn that specific communication is important (Koegel, 1995:21). Koegel (1995) highlights that children with ASD may lack this ongoing feedback from interaction as a result of not involving themselves in social interactions. This increases their risk of social isolation (Koegel, 1995:21), which would compound impairments in both communication and social interaction as even fewer opportunities for interaction would be available. It is clear, therefore, that impairments in communication skills can have a significant impact on overall development, and communication interventions can have an impact wider than the linguistic elements it targets.

7.1.2.2 Precursors to Communication Interventions

In addition to the various approaches to communication interventions discussed below, Koegel (2000:385) identifies several precursors to the success of a communication intervention for individuals with ASD. She states that after a long-term intervention which focused on communicative abilities, the outcome was better for those individuals who initiated more social interactions prior to the intervention.

Koegel (2000:385) also states that for an intervention to be successful the intervention should be integrated into the everyday life of the child. As discussed above (Section 7.1.1.2), a functional analysis of any communicative attempts is required prior to a communicative intervention. Koegel states that the most important factor in predicting the overall intervention outcome for an individual with ASD is their existing language ability (2000:385).

Finally, the initial sections of this chapter have highlighted the outcome of communicative attempts and rewards for appropriate communication as integral in the adoption of replacement communication strategies. This is also applicable to communication interventions which need to ensure that the alternative methods of communication are rewarding for the individual. Without these rewards, the individual will lack the motivation to continue using new methods of communication.

7.1.2.3 Communication Interventions

As discussed in the previous sections, interventions which aim to help children with linguistic impairments, in particular high-functioning individuals with ASD, overcome some of their difficulties, is an area in need of further research. A focus on the high-functioning end of the spectrum is essential to encourage inclusion and success for those individuals. The following section summarises research and interventions employed to date and highlights ways in which these could be developed further.

One of the most robust findings in this area of research is that building on the skills and desires the child already possesses is the most successful approach to intervention (Koegel, 2000:385; Peeters, 2000:17). Koegel (1995:30) also states many of the techniques which are promoted in interventions with atypical populations are used by TD children as part of their path of acquisition and development as they develop their linguistic skills in an unremarkable manner. Whilst Koegel (1995:31) states that high-functioning children with ASD may develop high-level communicative skills, as has been discussed in previous chapters, some high-functioning individuals with ASD do not acquire these skills as part of their natural development. Therefore, in order to enable them to succeed, they have to be taught these skills explicitly. This section, therefore, summarises a field in which a considerable amount of research has been published with regard to communication interventions, and aims to highlight areas of significant interest for interventions with high-functioning individuals with ASD.

7.1.2.3.1 Social Stories

The Social Stories intervention technique was developed in order to help individuals with ASD to understand the social cues within interactions and to learn to respond appropriately to them (Rowe, 1999). Attwood (1998:33) describes social stories as an effective way to improve the social functioning of individuals with ASD. The stories present detailed information about social situations these individuals find problematic and include the setting and specific information about what occurs and why. They also provide information about the appropriate responses to situations and thus reveal the hidden social cues which may be misunderstood or overlooked by individuals with ASD (Rowe, 1999). As stories can be written to help individuals understand social situations which they find challenging, this technique can be used to describe many situations and can be tailored to individual needs (Gray, 1994; Rowe, 1999). This tool has been found

to be successful in improving peer relationships and facilitating social development in mainstream schooling (Rowe, 1999). As such it provides an appropriate tool to promote the inclusion of individuals with ASD in mainstream education.

7.1.2.3.2 Self-Initiated Interventions

One of the area which has received attention in recent years is the lack of spontaneous speech demonstrated by individuals with autism. In order to address this issue, self-initiated interventions have been developed. These provide the individual with the skills to improve their communication skills with minimal input from adults or peers. These skills enable the individual to increase their level of communication with others through the use of learnt questions which they can use to encourage their interlocutor to become, or continue to be, involved.

Researchers have designed interventions which improve the use of self-initiated declaratives and spontaneous verbalisations (Koegel, 2000:386). Whilst this technique is still to be fully developed, the preliminary data reported by Koegel (2000:386) suggests that teaching these skills can result in more widespread gains and better long-term outcomes, thereby overcoming the problem of generalisation which is faced by many intervention programmes. Koegel (1995:28-31) states that one of the benefits of self-initiated interventions is that they provide the individual with the necessary skills and language to enable them to initiate their own interactions during their everyday activities. The individual is taught standard phrases such as “What’s happened?” and “What’s that?” and is, therefore, able to engage others in conversation (Koegel, 2000:386). By shifting the focus to the individual, it ensures that the communicative acts and, therefore, the intervention, have the widest possible base and thus increases the possibility for generalisation.

Widening the application of this technique, Koegel (1995:27-8) states that by following milieu interventions, the individual is required to use language to achieve a goal and, therefore, receives a natural reward (i.e. gets to play with the toy they have requested). This technique, when combined with child-initiated strategies to expand the child's language functions, has been found to be very effective in increasing spontaneous language use.

These self-initiated interventions allow the child to be the focus of the intervention, to select the topics, and, overall, to have a more active role in the intervention process (Koegel, 2000:386). This is inherently more interesting and engaging for the individual and may, therefore, allow the intervention to be more successful.

7.1.2.3.3 Self-Management and Target Response Classes

Self-management is an approach to intervention which is aimed at high-functioning individuals with ASD in order to improve socially acceptable behaviours and communication. This intervention teaches individuals to recognise socially acceptable behaviours and utilise them effectively. Frea (1995:61) states that this intervention provides the individual with the skills they require to be able to employ additional, new techniques they have learnt which focus on improving social functioning. As the individual is taught to recognise their problem behaviours and correct them themselves, they are much more independent and, due to the inherently flexible nature of the intervention, are able to generalise the skills across many situations. The intervention also allows for the possibility of peer assistance and thus further encourages communication and inclusion with peers. This intervention has been found to be extremely successful for high-functioning individuals with ASD and it is suggested that the majority of this success has been as a result of the independent nature of the intervention and the control it affords the individual concerned (Frea, 1995:61).

Koegel *et al.* (1992) found that self-management interventions could be used to improve the social skills of individuals with ASD in several settings. In addition, they highlighted the significant reduction in disruptive behaviours seen without the implementation of specific or additional interventions (Koegel *et al.*, 1992). Frea (1995:62-3) reports the case of a adolescent boy with high-functioning autism who had particular problems with conversation rules and regularly violated the expected norms. He would often return the conversation topic to his area of special interest without any regard for the interest or engagement expressed by the interlocutor. Using self-management, he was taught techniques to limit the amount of time he talked for and he was given a set time to wait before he could ask a question related to the topic of the other party involved. The aim of this strategy was to increase the level of communication within his conversations and also the number of exchanges within a conversation. To ensure that these rules were adhered to, the times allocated were initially artificially short but as the intervention progressed, the times became longer until they represented typical exchanges within a conversation. The participant was also taught to paraphrase what had been said to increase the relevance of the comments he made. He was taught to comment briefly on what his partner had said before continuing with the conversation. The overall result was that the participant could respond to the conversational exchanges in a much more relevant manner and, therefore, was able to continue the conversation, maintaining a relevant topic (Frea, 1995:63). This technique could be developed to reduce other communicative impairments seen in individuals with ASD and has been shown to work in a variety of settings (1995:63).

As reported by Wetherby and Prutting (1984:373), children with autism use fewer speech acts and most frequently use language to communicate requests or protests. Self-initiated interventions could be employed to reduce the impact of this tendency by

increasing the frequency of speech acts and the variety of functions they perform in the communication of children with ASD. Providing individuals with ways to introduce and use a wider range of speech acts in conversation, as well as developing the skills to identify when to contribute to a conversation and what form that contribution should take, could improve their communication skills. This approach could be used to facilitate the development of typical communication skills whilst still allowing the individual to have control over the conversational topic, conversation style and choice of conversational partners. This style of intervention also allows the individual to remain in contact with peers and they are, therefore, removed less frequently from mainstream situations. This high level of independence given to the individuals in order to correct their own behaviours suggests that this approach could be effectively used to promote inclusion and facilitate the inclusion of individuals within their peer group (Frea, 1995:61).

Following this self-management intervention strategy, Koegel and Frea (1993:376) highlight that it is possible for the skills involved in social functioning and conversation to belong to a response class which would, therefore, allow for one intervention to target many impairments that were part of the same class. They suggest that it is likely for inappropriate behaviours to be maintained in order to avoid problematic or stressful social situations. Therefore, simplifying conversational exchanges would “have a broad impact on social behaviour” (Koegel and Frea, 1993:376). Frea (1995) highlights the notion of “Targeting Response Classes” in order to develop a self-initiated intervention strategy. A ‘response class’ is defined as a group of behaviours which have the same cause or trigger. The focus of the approach is to build upon the premise that behaviours may group together and, thus, by targeting one particular problem, several problem behaviours may be reduced simultaneously. For example, lack of affect and eye contact

may be used by an individual to avoid awkward social circumstances (Frea, 1995:65). As stated above, self-initiated interventions can offer the individual a way to independently control their engagements with others and, therefore, reduce their need to use avoidance behaviours Frea (1995:61). The approach hypothesizes that by providing an alternative strategy in these social situations it is possible to target more than one behaviour at the same time and achieve a 'pivotal impact' (1995:66). Research by Koegel and Frea (1993) suggests that pragmatic behaviours may be viewed as forming response classes to allow the individual to cope with problematic social situations and, thus, could also be approached in this way. As these interventions require minimal direct input from adults and professionals, they provide an ideal way to intervene on linguistic and behavioural impairments in an unobtrusive way. By enabling the individual to monitor their own behaviour and facilitating a multi-dimensional approach through the use of target-classes, this technique reduces the level of additional adult support that is required. As a result, self-initiated interventions and target response classes could be used to facilitate the inclusion of an individual with ASD in mainstream education.

7.1.2.3.4 Peer-Involvement

The following section examines the importance of peers in the development of language and the potential role they are able to play in language and communication interventions.

The Impact of Peer Relationships on the Development of Communication Skills

As indicated in Section 7.1.1, there is a significant body of research which investigates the impact of linguistic impairments on peer relationships and social development. This section highlights that research which is directly related to language

abilities. Frea (1995:54) found that children whose social interaction is impaired are more likely to be socially rejected. More specifically, Howes (1983:1050-1) found that children who demonstrate poor communication skills are more likely to be isolated from their peer group as a result of their poor ability to communicate on a more symbolic level. In addition, children who are able to develop relationships outside of initial dyadic relationships demonstrate superior verbal communicative abilities and are not reliant on the co-operation and shared understanding of others developed in dyadic relationships to communicate effectively (Howes, 1983:1051).

Gertner *et al.* (1994:913) also found children who have impaired communicative competence to be at risk of failing to develop social skills as a result of the rejection they may suffer. Thirty-one three- and four-year old preschool children were asked to select their three favourite and their three least favourite playmates from their class. Gertner *et al.* (1994:913) found that limited language abilities (both English as a Second Language (ESL) and speech and/or language impairments as measured by general language ability tests) were associated with lower levels of peer-acceptance with regard to social groupings and stable friendships. In addition to this, and possibly more striking, was the finding that linguistic ability was a better predictor of social status than age or intelligence. This finding identifies communicative abilities as the most significant factor of social acceptance and, thus, successful peer relationships (Gertner *et al.*, 1994:920). Of the thirty-one children they included in the study only three were overtly disliked by their peers. They were all linguistically impaired (two from the speech and/or language impairment group and one from the ESL group). Furthermore, they found that the children with speech and language impairments had the least number of friends in the group and the more-able children received higher social ratings than their speech and language impaired counterparts.

Further analysis of these results highlights that it is the receptive communication skills of the individuals which are of greatest importance in peer interactions. Gertner *et al.* (1994:921) find that these receptive abilities are the discriminating factor as to who did well in social relationships and who did not, regardless of clinical diagnosis. This is a finding supported by Craig and Washington (1993) who also identified receptive skills to be the most important factor in the development of peer-relationships. They also found that 3 out of 5 children with speech and language impairments did not join in with a peer playgroup at all and remained isolated from the group for the duration of the investigation (Craig and Washington, 1993).

Gertner *et al.* (1994) state that children with linguistic impairments are less equipped to maintain friendships in early childhood, less likely to know the names of their classmates, and are more likely to lack reciprocal friendships than other children (1994:920). This is an issue which has great significance in the present climate in inclusive education and highlights the need for interventions to promote the inclusion of these individuals in mainstream classrooms. Gertner *et al.* (1994:222) conclude that, although their findings did not identify that children with linguistic impairments are disliked, the majority of their participants were “on the border between liked and low impact”. In developing this, they hypothesise that the reaction from peers may become more negative as they get older and so more dramatic results may be reported in older age groups. This suggestion, alongside the fact that a lack of social acceptance from peers can result from social and linguistic impairments of the kind seen in individuals with ASD, highlights a specific area of potential problems for these adolescents included in mainstream society, potentially leaving them vulnerable to social isolation.

Peer relationships have been identified as essential for developing appropriate social skills (Frea, 1995:54) and the lack of acceptance experienced by individuals with autism

can have long-term effects on the individual's social and emotional development (Koegel, 2000). This lack of social inclusion may result in problems building and maintaining relationships later in life and potentially in career development (Frea, 1995:54). In addition, the emergence of depression or maladjustment disorders in later life has also been highlighted as problematic (Frea, 1995; Wing, 1996:110). These individuals carry the social rejection they experience in the early part of their life into their later life and have difficulty maintaining relationships. Therefore, interventions which develop communication skills and thus potentially limit the impact of linguistic impairments on peer relations would be particularly useful for this group. Frea (1995:54) states that if peer relations are fostered early on, they can be extremely beneficial for the individual, helping them to develop core skills.

The current intervention, by focusing on written narratives, aims to provide these individuals with additional tools which they can use in oral language. However, the constraints placed on this thesis mean that oral language use is not directly assessed.

The above discussion demonstrates that professionals' awareness of the potential problems posed by linguistic impairments outside of academic development is essential, particularly with regard to inclusion in mainstream education. Interventions in this area have a significant role to play in promoting inclusion in mainstream environments. Gertner *et al.* (1994:921) state that many adults may not correctly identify the source of the linguistic impairment and may, therefore, not encourage the child to reach their academic and non-academic potential. This could have wide reaching consequences for the child in both their personal and professional life, affecting their career, adult relationships, overall achievement, and perception of self-worth. Thus, a comprehensive understanding of the challenges faced by these individuals is essential to enable them to achieve their potential. In addition, the focus of attention on the development of

intervention programmes to facilitate conversation skills in relation to peer-relationship development is of paramount importance (Gertner *et al.*, 1994:921). The present discussion emphasises the central importance of language abilities in an individual's social development and how interventions improving communicative aspects of language could be invaluable in promoting inclusion.

Involving Peers in the Intervention Process

Peer-involvement is another intervention tool which has been used to improve the communicative and social abilities of individuals with autism (Frea, 1995:65). One of the key benefits of intervening through peer-involvement is the development of peer relationships. As discussed above, these are integral in the social development of an individual and, although adult input is invaluable in the stages of planning and training within an intervention, the best examples of appropriate social behaviour are provided by peer groups (Frea, 1995:63). Goldstein *et al.* (1992) used peer involvement to increase the interactions in a preschool setting. Peers were taught a strategy designed to facilitate appropriate social behaviours in which the children were to comment on, attend to, or simply acknowledge the behaviour of the child with autism. In this way, interactions could be facilitated without any possibility of inducing avoidance strategies. The children were asked not to use questions or initiate any communication which required a response. They were simply required to involve the individual in their conversations where appropriate. Goldstein *et al.* (1992) found that rates of social interaction were directly related to the intervention and social interaction increased for four of the five participants.

Frea (1995:63) highlights the importance of establishing a goal or target behaviour that the intervention will focus on when involving peers in the intervention process. It is also important to note that, although disruptive behaviours are not reduced until the

child begins to initiate social interactions themselves (see Section 7.1.1), peer involvement does increase social contact and interaction. Therefore, it is likely to increase opportunities for initiation and, thus, bring about an increase in self-motivated communication and a decrease in problem behaviours (Oke and Schreibman, 1990).

'Circle of Friends' Interventions

'Circle of Friends' is a popular peer focused intervention which is in use in mainstream secondary schools in England to promote the inclusion of individuals with communicative impairments. Implementation of the technique requires considerable input from peers as well as professionals. This technique aims to encourage inclusion by involving the peer group in proactive support so as to enable the child to succeed in the development of peer relationships. Although first developed for children with a broad range of disabilities, the 'Circle of Friends' technique has been used successfully with children with autism (Kalyva and Avramidis, 2005). The 'Circle of Friends' approach uses the peer influence to enhance the skills of an individual in a systematic way. It has been previously used with children who have emotional and behavioural problems; however, given that this approach utilises the social networks within a classroom to support an individual in need of extra help, it is ideal for facilitating the inclusion of a child with autism whose social impairments present a significant problem when integrated in a mainstream educational setting (Kalyva and Avramidis, 2005:254). In comparison with other interventions which aim to address social and communicative abilities such as social training skills (Kamps *et al.*, 1992) and Social Stories (Rowe, 1999), Kalyva and Avramidis (2005:254) state that the 'Circle of Friends' intervention allows a significant amount of time to be dedicated to the intervention process. In addition, by involving peers and moving the focus of the intervention from a lesson setting with limited environmental factors to many different situations within the school

day, the intervention also facilitates the generalisation of the skills developed. As discussed above, this is an important factor in the overall success and impact of the intervention on the daily functioning of the individuals involved.

Kalyva and Avramidis (2005:254) highlight several general aims of a 'Circle of Friends' intervention for a child with ASD. The first of these aims is to provide the child with a supportive environment in which they are able to receive positive feedback to any communicative initiations they make. This will encourage the child to initiate communication more frequently and not withdraw, as is often seen in cases where ASD individuals become isolated (Kalyva and Avramidis, 2005). The second aim is to allow the teacher to focus on the social interactions of the child with ASD within the typical school day, thus allowing them to develop a better understanding of the difficulties present. In addition, it enables them to steer the intervention to address these particular issues. The third aim is to help the typically developing peers to recognise the inappropriate behaviours within the context of ASD and thus respond to them appropriately. This is vital to ensure that the intervention can be sustained long-term, as the peers need to learn to cope with any unusual behaviours displayed by the child with ASD during communication acts without too much pressure being put on either the child or their peers.

Haring and Breen (1992) report on a 'Circle of Friends' intervention with an adolescent with ASD in a mainstream school. The intervention included volunteer peers who, once trained, met once a week and decided where they would intervene. They helped the individual in their social interactions throughout the week, responding to atypical initiations. The scheme resulted in a greater frequency of social interactions for that individual which were maintained over the two-month observation period (Haring and Breen, 1992).

It is important to note that although 'Circle of Friends' can be highly beneficial for a child with ASD, it can also have a significant positive impact on the peers involved in the process. It has been found to significantly broaden peer groups' understanding and knowledge regarding special needs (Guralnick, 1990). This more comprehensive knowledge leads them, in turn, to understand that some individuals are unable to control their socially unacceptable behaviours (for example, repetitive movements) and, therefore, fosters a more sympathetic approach towards them. This, therefore, reduces feelings of anger and irritation towards an individual whilst increasing feelings of sympathy and acceptance (Hendrickson *et al.*, 1996). This change in attitude decreases the chances of the child being isolated, promotes a more typical pattern of communicative development and facilitates inclusion.

7.1.2.3.5 Augmented communication systems

Many interventions for children with autism who have limited communication, aim to teach them an alternative or enhancing method of communication. There are two popular augmented communication systems discussed in the literature for use with individuals with ASD: alternative communication methods (e.g. picture schemes) and sign language. This section briefly highlights the use of one of the most prominent picture schemes, the TEACCH Programme, and the use of sign language.

The TEACCH Programme

TEACCH is an intervention programme first developed in America to improve the linguistic and communicative abilities of children with ASD. Now widely used in the UK, it highlights an approach to teaching communication and language which can be adapted to suit a range of abilities. The main ethos of the programme is that language and communication are multifaceted, therefore, there is likely to be more than one area

of impairment within one individual (Jordan and Powell, 1995:67). However, although more than one area may require attention during the intervention, it is important that only one area of impairment is tackled at any one stage if the intervention is to be successful (Jordan and Powell, 1995:67). In addition, TEACCH aims to enhance existing skills in order to overcome impairments, and not to develop entirely new skills (National Autistic Society, 1993).

The programme is primarily designed for non-verbal children with ASD (although methodological aspects of the programme can be transferred) and uses pictures as a mode for a child to communicate with others. Importantly, these symbols are readily recognisable and can, therefore, be used to communicate with untrained individuals who may have limited contact with the child (Jordan and Powell, 1995:67). This is important as a means to increase the independence of the child and increase their quality of life. Whilst this intervention is a very successful compensatory approach, it does not claim to provide the child with a further understanding of the communication process (Jordan and Powell, 1995:69). It is, therefore, limited in its applicability within the context of the present discussion. However, as stated above, the methodological issues it raises are valuable for any intervention with children with autism. The contributions it can make to the current research are discussed further in Section 7.2.

Sign Language

Sign language is another popular approach which enables a non-verbal child with ASD to communicate with others. As Jordan and Powell (1995:64) discuss, teaching sign language has several potential benefits. Primarily, it provides another means of communication for those individuals who remain non-verbal throughout their development. In addition, it can be used to provide the child with another, more easily accessible means of communication. This will facilitate communication, provide an

alternative mode of communication, require interlocutors to slow down as they will be unfamiliar with the signs, and, thus, may allow the child to develop communicative skills such as accounting for others in communicative situations. However, using sign language does have several negative aspects (Jordan and Powell, 1995:65). To be able to use sign as an effective tool for communication others also need to be able to use sign. In many mainstream schools, teachers are not fluent in sign language and, although this can slow communication down and therefore could have a beneficial effect, it means that teachers will often use no sign at all or miss the signing attempts of the child, and may therefore inadvertently discourage communication. In addition, whilst using sign language to augment speech can be very beneficial, unless clear examples of communicative sign are presented and available to the child on an everyday basis, they can struggle to develop their communication skills. Finally, Jordan and Powell (1995:65) state that although it can be beneficial for a child with ASD to accommodate the abilities of their peers in signing situations, it is often the case within a school that very few children are able to sign and, thus, opportunities for communication are limited. To develop this system further, research regarding the beneficial effect of peer contact should be accounted for (see Sections 7.1.1.1). Not being able to sign with typically developing peers (or in a specialist autism school, more able peers) automatically limits the potential benefits that can be gained from learning sign language in order to communicate. In order to promote the benefits of this type of intervention, a much wider approach should be taken which accommodates essential training for staff and verbal peers to allow for increased use of sign language within schools, which would provide a much broader spectrum of communicative opportunities.

Teaching the Function of Language

As Jordan and Powell (1995:67) highlight, the best way to teach communication is not to provide the child with a vast vocabulary or more sophisticated sentences, but to introduce them to the functional aspects of the language they are using. This can be done using the language the child already has and intervening on only one aspect of their impairments. Once the child has developed their knowledge of the function of the language they are using, it is possible to introduce more complex language with which to express the same functional meaning. Following on from this, Jordan and Powell (1995:68) state that, if this technique is to work in the initial stages of language development, the function of communication should be very clear. They suggest that the easiest and most accessible way to ensure that this concept is understood is to teach requests to the child in question. Since a request is inherently rewarding when used correctly, it will ensure that the function of the communicative act is clear and the motivation continues. In this situation, it is essential that the item the child requests can only be obtained through the help of another person (Jordan and Powell, 1995:67). In order to ensure this is the case, it is important to keep the items being requested out of sight so that the child are unable to request an item by pointing but must use the language they have been taught. This can eventually be extended to accommodate a wider spectrum of communicative acts. For example, if this technique is applied to older, more able children, the functions of communicative acts may have to be taught in a more abstract way, possibly through discussions about why people would need to communicate in the genre being targeted (for example, "Why do people tell stories?").

Seach *et al.* (2002:18-19) state that success for teaching children with autism is not related to teaching them language but teaching them about pragmatics and the function of communicative acts. This enables them to follow commands and requests, and

understand what is required of them in the classroom. Seach *et al.* (2002) use a child-centred approach to address this issue and suggest five practical tips to help teachers within mainstream classrooms achieve this.

1. Provide simple and clear instructions.
2. Use symbols and pictures to help the child to initiate conversations.
3. Provide opportunities for the child to communicate i.e. create situations which require the child to communicate their request to someone else in order to get what they want.
4. Use the child's abilities to improve their understanding. Importantly for the current discussion, they recommend that if a child is good at reading or writing then they should be encouraged to use this skill as an alternative form of communication. This promotes the ethos of this thesis and highlights the wider potential impact of improved written skills with regard to functioning and communication within the classroom. This issue will be discussed further in.
5. Information should be given in context to facilitate understanding i.e. information about maths should be given in the maths corner. This will enable the child to use all possible cues, both verbal and non-verbal, to understand what is required of them thus limiting misunderstandings and potential frustration.

7.1.3 Written Language Interventions

The record of interventions on written language skills with individuals with ASD is limited. There is a combination of factors which have led to this situation. The limited amount of research on communication and language abilities in comparison with behavioural and other interventions (Lord, 2000; Twachtman-Cullen, 2000), and a focus on the lower-functioning end of the spectrum (Lord, 2000; Twachtman-Cullen, 2000) have resulted in a focus within the literature on improving oral communication skills as discussed above. In the majority of cases, this research has focused solely on achieving verbal communication in replacement of non-verbal problem behaviours. In addition,

high-functioning individuals have more subtle impairments with regard to language and communication. They may be able to use language comprehensively, often with extended and superior understandings of lexicon and syntax, but they lack the communicative abilities to use language to an advanced level (Twachtman-Cullen, 2000).

Written language skills form a significant part of a work scheme produced by Freeman and Dake (1996) which aims to provide parents of individuals with ASD with a series of tasks at a variety of levels all of which focus on language and linguistic ability. The written language programme follows a structured basis with a series of worksheets in a variety of genres which aim to enable the child to complete the relevant information at their own pace, reducing the amount of prompting as the level of ability increases. These worksheets aim to introduce the child to the required information from a variety of genres. They do not, however, require the child to produce their own section of writing free from the worksheets, nor do they provide much opportunity for variety. As the work is mainly designed as a parent-led intervention, neither the workbook nor the implementation guidelines provide information as to the theoretical background for the worksheets or the intended target group on the autism spectrum. However, it can be seen from the worksheets that even the highest level of task would provide too much support for a high-functioning child with ASD.

It should also be noted that, although many autism support networks recommend this programme, the current author is unable to find any published reports or reviews of this programme's implementation, its strengths or weaknesses. However, it is believed, following the research described in this thesis, that this format of highly structured prompting alongside a formulaic, factual approach to more complex linguistic tasks could be beneficial for individuals with ASD. With regard to the development of narrative skills in children with ASD, this intervention provides several, highly

structured worksheets which highlight the basic elements of narrative. This will be discussed in more detail in Section 7.2.1 and Chapter 8.

As highlighted in Chapter 4 and Chapter 5, whilst typically developing children develop their understanding of narrative structure during pre-school and this structure becomes internalised as a schema, children with ASD do not and so find telling narratives, whether they are fictional or real, problematic (Jordan and Powell, 1995:61). One way to teach this structure to children with autism is through an analysis of stories which aims to help them understand narrative structure and create a schema with which to work (Jordan and Powell, 1995:61). Jordan and Powell (1995:61) suggest that this type of intervention can be implemented by both parents and teachers who set aside time for reflection after an event. During this time, they should encourage the child to discuss the event and reflect on the stages that occurred. By encouraging this reflection and analysis of events, parents and teachers can promote the use of a narrative schema which can then be generalised. Importantly, narratives are not just structure based; the content of a narrative is also very important. Whilst real-life stories require some knowledge of mental states, fictional stories require more complex understanding of characters, which includes the motivational and intentional aspects of the narrative as well as behavioural aspects (Jordan and Powell, 1995:62). With real-life stories, the behavioural aspect has only to be recounted not understood, however, for a fictional story, a level of understanding of motivation and intent is required. It is suggested, therefore, that an intervention of this kind should begin with real-life stories and progress to fictional stories as the child's abilities develop further (Jordan and Powell, 1995:62). The role of the teacher or parent in this process is to develop structural understanding further by encouraging the child to develop their own mental models. As Jordan and Powell state, this can be problematic. However, they suggest that the use of

songs in which the child is taught the whole song and then the words are replaced by actions, can encourage an awareness of structure and schema development (1995:61).

As highlighted above, this is a considerably limited area of research which requires further investigation. In particular, the modes of intervention for written tasks should be examined, and further testing of the methods described above would be beneficial. It would also be pertinent, considering that only the high-ability end of the spectrum will partake in such narrative interventions, to consider possible intervention techniques which could be implemented within a whole class, in a non-intrusive manner. Given the English policy on inclusion, consideration of the practical implications of intervention would be highly beneficial. With careful consideration, implementation on a wider scale could be encouraged. This would promote in-class or whole class interventions which would limit segregation of high-functioning individuals with ASD within mainstream education. In doing so, interventions could be used to promote inclusion whilst addressing individuals' impairments in an unobtrusive manner. It is suggested that future interventions may be designed to accommodate various levels of ability, whilst focusing on the specific impairments in ASD. They could thus be designed in order to allow implementation in a whole class including TD, and high-functioning ASD individuals. This is an important consideration for the current thesis and will be raised again in the following sections.

7.1.4 Summary

In summary, this section has presented several intervention techniques, both communication and behavioural, which can have a considerable impact on the overall functioning of individuals with autism. It is clear from the above discussion that communication is at the core of the impairments in ASD and that improving an individual's ability to communicate, regardless of overall functioning, will have a

marked impact on their functioning in mainstream society. Although many of the current studies have reported findings for a particular section of the spectrum, the core techniques can be adapted to suit various levels of impairment. Rogers (2000:406) highlights this issue by stating that “children with autism.... are responsive to a wide variety of interventions aimed at increasing their social engagement with others”, in other words, if an intervention is aimed at improving the communication skills of an individual with ASD and takes into account their impairments, then it is likely to have some success. Thus, there are a wide variety of intervention techniques available across the full range of impairment levels.

However, despite the overall positive outcomes presented in the literature, there are several issues still to be addressed. Many of the studies discussed focus on less able individuals with ASD, and within communicative interventions there are very few techniques which focus on individuals at the high-functioning end of the spectrum (Lord, 2000). In addition, due to the nature of the communicative and social interventions to date, interventions can only focus on a small part of this vast area, and, therefore, can only have a minimal impact on the social functioning of the individual (Frea, 1995:57). However, the development and further understanding of pivotal skills and target response classes may resolve this issue (Frea, 1995). Additionally, whilst there is research in the area of intervention for children with ASD there is not a holistic package or programme which can be followed to ensure a multifaceted approach (McConnell, 2002:368). Rogers (2000:406) states that future studies should examine the possibilities for making interventions more accessible to parents, teachers and the wider community. Making interventions accessible to parents and teachers will increase the possibilities for an integrated application to many areas of an individual’s life and thus promote generalisation of the skills developed. Furthermore, if interventions can be

easily implemented by teachers and support staff, and do not require additional professional support, they can be used to facilitate inclusion in mainstream education. McConnell (2002:368) suggests that future investigations in this area should aim to develop a package of accessible, easy to follow intervention techniques, a view which is supported by the current author and is considered in the chapters which follow.

Finally, there is an overall need for further investigation into interventions for high-functioning individuals with ASD and, in particular, interventions which focus on the written abilities of these individuals in order to inform not just pedagogy but also the overall understanding of high-functioning ASD.

The following section describes the knowledge, core intervention techniques, and methodological conclusions drawn from the study discussed in Chapter 6, in order that they may be applied to high-functioning adolescents in mainstream education.

7.2 Methodological Issues for the Design and Implementation of a Written Language Intervention with High-Functioning Adolescents with ASD

Following the recommendations of McConnell (2002:369), this section aims to develop the current intervention methodology by building upon the studies discussed above. In order to ensure this, the following discussion will highlight methodological issues and intervention approaches which should be considered in the design of the following intervention.

Section 7.1 has discussed a variety of research findings in relation to interventions involving children with ASD. However, as research into the area of written language abilities of high-functioning individuals with ASD is sparse, it is important to collate evidence from other areas of intervention research and the existing knowledge of ASD in order to develop this area of research further. It has been acknowledged within the literature that high-functioning individuals with ASD are one of the groups in need of

further investigation (Twachtman-Cullen, 2000). It is hoped that through thorough consideration of previous interventions and research, the current investigation is able to provide preliminary research in this area. As such, the intervention presented in Chapter 8 is both a search for an appropriate methodology and an attempt to improve the narrative structural abilities of individuals with ASD.

7.2.1 Applicable Intervention Techniques

Developing methodology from previous research in this area is challenging due to the wide variety of techniques that are employed. Lord (2000:395) states that one of the difficulties faced by researchers aiming to compare and contrast the approaches taken in intervention in the last 20 years is that the areas of communication targeted by interventions have varied widely. However, several techniques discussed in Section 7.1 will be used to inform the design of the novel intervention presented in Chapter 8.

With regard to the narrative intervention techniques highlighted in Section 7.1, both techniques have direct application in the design of the novel intervention presented in this thesis. Freeman and Dake (1996) outline a narrative writing technique for individuals with ASD. They present a series of worksheets which guide the individual through the writing process with the help of an adult. Although these worksheets are too elementary for high-functioning adolescents with ASD, the presentation and division of the worksheets can be adapted to suit these individuals. The current investigation uses these worksheets to guide the creation of appropriate materials which reflect the narrative structure described by Labov (1997) and are applicable to the participants involved in the study. In addition, Jordan and Powell (1995) highlight analysis of existing narratives as useful for analysing narrative structure which can then be applied to narrative production. They suggest that through explicit exposure to narrative structure individuals with ASD are able to develop their own narrative schema. Due to

the subtle nature of the impairments identified in this cohort, it could be argued that the individuals in the current intervention may already have a narrative schema. However, analysing existing narratives may enable individuals to further develop their understanding of narrative structure and, thus, improve the narrative production.

The above discussion also identified techniques which, although not directly related to written language, are transferable and useful for the design of the current intervention. Pivotal skills have been identified as promoting generalisation as interventions are able to have an effect on several areas of functioning through targeting only one (Koegel and Frea, 1993). Although designed primarily for development of oral communication skills, it is suggested that by viewing the planning stage of narrative writing as pivotal, written interventions may be able to improve narrative abilities through increasing an individual's awareness of planning prior to writing. The current intervention adopts this view and uses worksheets to guide narrative structure, whilst ensuring that all narratives are planned before they are written.

Teaching the function of language has been highlighted as important in the development of communication. It is suggested that this technique can be directly applied to narrative intervention in order to enable the individual to understand the importance of all the aspects of the narrative. Specifically, it could be used to increase their awareness of narrative as a tool for communication, encourage them to account for the knowledge of the audience and provide Evaluation to engage the reader.

The use of self-initiated intervention techniques can also inform the design of the narrative intervention. Through the use of worksheets and checklists, and by encouraging the participants to reflect on the narratives they are producing, the intervention may be able to increase the level of self-initiated modification of narrative skills.

In addition, Seach *et al.* (2002:18-19) identify the importance of using a child's abilities to improve their areas of weakness. This is the ethos of this thesis and as such, it is integral to the intervention design. The tasks and stages of the intervention present a structured, formulaic approach to narrative production. As such, they build upon the strengths of the participants in the areas of Maths and Science in order to develop their narrative abilities.

The intervention presented in Chapter 8 accommodates all of these techniques into its design. Specifically, it provides worksheets to guide the participants through the narrative structure at both the planning and production stages. When completed, these worksheets can be used by the individuals as tools to facilitate their own reflection on the narrative they are writing, and promote self-initiated modification of the narrative skills. The analysis of existing narratives is directly included within the intervention design to increase awareness of narrative structure during the initial intervention stages. Finally, discussions surrounding the function of narrative and the purpose of the narrative components aim to increase understanding of the function of this form of communication, and enhance the accommodation of the narrative audience. It is hoped that the combination of these techniques will enable the intervention to enhance the structural narrative abilities of individuals with ASD.

7.2.2 Generalisation

One area of intervention for individuals with ASD which has been highlighted as problematic is the ability to generalise new skills taught within an intervention setting to novel settings in everyday life. Interventions are often limited to interactions with one investigator and are not, therefore, easily transferable to the range of social settings to which an individual may be exposed (Frea, 1995). Koegel states that failure to generalise outside the intervention setting is a common problem for intervention studies

and has been found in areas of phonology and syntax (Koegel, 2000:384) as well as within behavioural interventions (Buschbacher and Fox, 2003:222). In addition, McConnell (2002:362) states that child-initiated interventions can increase social functioning of children with ASD in both targeted and untargeted areas by promoting generalisation. It has been also been found that making the intervention more holistic by incorporating more situations and intervention techniques can avoid problems of generalisation (Koegel *et al.*, 1998; Koegel, 2000). This type of intervention prevents skills from being solidified within one environment or being focused on exchanges with one or two interlocutors. In addition, by slowly increasing the number of environments in which the new skills are implemented, generalisation can be encouraged where it was previously lacking (Koegel, 2000).

To develop a successful intervention the training should include a variety of settings and instructors (Rogers, 2000:406). If this concept is transferred to the written form of language and to narrative in particular, it is important to vary the type of narrative that is used to develop written narrative skills, to ensure that the individuals involved in the intervention are able to produce narratives in a variety of genres (e.g. fairy stories, mystery etc.).

In addition, as discussed above, linguistic development is intrinsically linked to social development and, therefore, interventions should not only aim to be generalisable within the narrower context of the skills being taught (e.g. within narrative) but also in the broader arena of social skills that may be developed as a results of an individual possessing these new communication skills (e.g. general conversation and communication), (Buschbacher and Fox, 2003). It is, therefore, important that written linguistic interventions are carried out with a broader framework of application in mind. Within the narrow context of the narrative, this is an issue which can be easily

addressed within the intervention described in Chapter 8. In order to accommodate a variety of story types the intervention will use several different types of stimuli to vary the topic. Within the wider context, however, the issue of generalisation is more problematic. It is clear from the research presented in Chapter 4 that story telling and peer-relations are an integral part of success in mainstream society and, therefore, mainstream education. However, whether the skills required and developed in the context of written language can be transferred successfully to spoken and communication skills is an issue which is more problematic. It has been suggested that in the case of ASD written language may not develop from spoken language (as is seen in TD individuals) and individuals with ASD are reported to find writing easier than spoken communication. Therefore, using these skills to develop oral narratives has been recommended (Jordan and Powell, 1995:72). Due to the remit of the thesis, this issue cannot be addressed directly; however, the discussion will return to this issue and address the potential options available to the current intervention for future research in this area.

7.2.3 Utilising Individual Abilities and Acknowledging Differences

Not only should an intervention not intrude upon a person's life (Buschbacher and Fox, 2003:218), but, in order to ensure the best possible outcome for the individual, it should also be individualised and based upon developing the skills and abilities the individual already possess. The possessed skills and abilities can then be enhanced in a manner which allows them to compensate for those that are lacking or are impaired (Koegel, 2000:383-4, Goldstein, 2002:387). The concept of using an individual's abilities to reduce the effect of their impairments should be interpreted in the broadest sense possible, to accommodate behavioural and linguistic aspects of an individual's functioning. An individual's abilities in areas other than language may be useful in

relation to developing their language abilities (i.e. the individual may have skills in art or science, for example) and so an innovative view should be taken when considering the abilities present in an individual. This concept reflects the ethos of the current thesis and is, therefore, central to the design of the current intervention. This has resulted in the author developing a technique to present narratives as a formulaic structure which can be moulded to fit any situation. This technique exploits the abilities of high-functioning individuals with ASD in the more logical and literal areas of the curriculum such as Maths or Science. By identifying the individual abilities of the participants involved alongside their interests it is possible to easily adapt the intervention to meet their needs and maximise their interest and, thus, their motivation.

7.2.4 Group Size

Group size is an issue yet to be addressed in the current discussion as the majority of research in the area of linguistic intervention and ASD involves single case design with replication across a small group of individuals (Lord, 2000:395). There are several possible reasons for this, the most frequent of which is the rare nature of such impairments which presents a problem when trying to collect a large amount of data from individuals who meet inclusion criteria for a study (e.g. have the same language ability or schooling provision).

One of the main problems posed by a small sample size, often without a control group, is that there is no way to measure the possible 'placebo' effects of hope, attention and expectation that may affect outcomes; an issue which is regularly seen in drug trials (Lord, 2000:395). Goldstein (2002:391-2) states that these effects can be minimised by using repeated measures in testing. He also states, however, that in order for repeated measures to be robust, reliable testing measures and baseline scores or

control groups should be used as they allow a stability of performance to be identified (2002:392).

In addition, whilst Lord (2000:395) states that “single study designs continue to be crucial in developing treatments”, she also states that group designs are crucial to test the reliability of interventions on a wider population. However, it is likely that research in the area of communication intervention will continue to use relatively small numbers of participants and single case designs due to the pressures of data collection and the time required to implement intensive interventions (Lord, 2000:397). In order to overcome this issue, Lord (2000:397) states that the development and dissemination of statistical tools to investigate changes over time in small samples should be investigated to facilitate the development and support small sample studies.

Furthermore, Goldstein (2002:393) states that a single study may “identify a promising treatment” but systematic replications should take place to refine treatments, maximise generalisability, limit contextual effects, identify which groups benefit most from the treatment, identify behaviours that the intervention is most effective for and identify the learning mechanisms and learning processes which make the treatment effective, so our understanding of ASD can grow.

The current intervention follows a repeated single case design and uses baselines for all participants. As discussed in Chapter 4, the measures have been used many times to examine narrative structure (including the studies reported in Chapter 6) and were found to be reliable. It is suggested that the repeated single case design will provide data which, following the role of single-case designs identified by Goldstein (2002:393), will warrant further more extended investigation of the techniques used. Furthermore, the presentation of the intervention techniques used will enable future studies to replicate the design if required.

7.2.5 General Methodological Issues

Much of the above discussion highlights issues such as group size, generalisation and individualisation which should be taken into account when designing an intervention study for high-functioning individuals with ASD; however, there are several other factors which require attention in order to ensure that an intervention has the highest chance of success.

First, the selection of the intervention target should be considered. Previous research has shown that the most successful interventions in ASD target only a single area of communication at any one time (Lord, 2000:394). However, with regard to the selection of an intervention target, literature suggests that the choice appears to be much more context based. Goldstein (2002) highlights that the selection of an intervention target is a matter of individual priorities and states that a wide range of impairments have been targeted. These range from enhancing the use of single words in isolated contexts to more complex levels of language use such as conversational norms. For the current study, the area of language chosen is the narrative structural abilities of individuals with ASD as identified in Chapter 6.

Another important issue which should be addressed prior to the intervention commencing is how the intervention will be evaluated to allow for potential systematic comparisons (McConnell, 2002:368), and as stated above, appropriate measures are essential for reliable analysis. For the current intervention, the Evaluation of the intervention will follow the same narrative analysis framework applied in Chapter 6.

It is also important to consider the setting in which the intervention will take place as interventions must account for the context in which they are implemented. This is particularly clear if more labour intensive interventions which are designed to be used within the family setting are considered. Whilst these interventions work well in the

setting they are designed for, significant changes to the intervention process would be required if they were to be employed in another setting (e.g. mainstream schooling). The time constraints and resources will limit the intervention success unless it is sensitively adapted to the setting for which it is designed (Buschbacher and Fox, 2003). Furthermore, whilst the setting must be accommodated, this must be done to allow the intervention to follow its fundamental aims, and should not dictate how it is run (Buschbacher and Fox, 2003). Finally, Diehl (2003:254) comments that above all, it is important to take a multi-dimensional approach in this field, incorporating all the information available. By including all the possible techniques and utilising all the possible information available about both intervention techniques and the individuals involved, it is possible to design a comprehensive, sensitive and successful intervention. The current author has been acutely aware of the effect that setting and resources can have on the success of an intervention. As the initial design aims to develop an intervention which can be implemented within mainstream secondary schooling in England whilst promoting inclusion, accommodating the setting whilst providing an individualised approach to the narrative intervention has been a central concern throughout the study. This issue will be discussed further in the following chapters.

7.2.6 Summary

This section has discussed the application of existing intervention techniques in the context of narrative intervention. In particular it has identified several approaches which, although not directly applicable to narrative, can be adapted to suit the current intervention's aims. Furthermore, it has considered the importance of existing techniques in the design of the novel intervention programme presented in this thesis.

In addition, this section has identified the main methodological considerations which require attention in the current thesis and has briefly outlined how these will be

addressed. The issues of group size and implementation context are particularly significant in the intervention reported in Chapter 8. Specifically, the motivating issue of inclusion which triggered the author's interest in this topic is one which requires individuals to be part of mainstream education. This has particular contextual implications as well as the effect of limiting group size. The requirement to develop a technique which promoted inclusion whilst improving narrative abilities has resulted in two main constraints. First, the techniques used must be easy for teachers and support staff to implement. Second, techniques have to be applicable in a whole class context as well as small group and one-to-one settings. Therefore, they have to be able to accommodate different levels of ability. Third, techniques have to be flexible and discreet to enable the intervention to be implemented without requiring the removal of individuals with ASD from whole class teaching. Fourth, and finally, the development of unobtrusive intervention techniques is essential to promote inclusion and limit the requirement for the individual to be removed from lessons for intervention stages to be implemented. Through the accommodation of these issues, alongside the methodological issues discussed above, the design aims to provide the intervention with the highest chance of success. By ensuring that all of the above considerations are accounted for and the intervention is appropriate for both the individual and the setting, a successful intervention can be facilitated.

7.3 Conclusion

In summary, this chapter has highlighted narrative intervention alongside interventions for high-functioning individuals with ASD as an area requiring further research. This, combined with the discussion of inclusion in Chapter 2 and findings from the studies presented in Chapter 6, indicates that the investigation of a narrative intervention appropriate for inclusive mainstream education in England is a valuable

contribution to this field. As discussed above, the aim of the novel intervention presented in Chapter 8 is to focus on the search for a methodology which will provide teachers with an additional, purpose designed technique to promote the inclusion of high-functioning individuals with ASD in mainstream education.

The intervention is based on the overall ethos of this thesis to use the abilities of individuals with ASD in order to accommodate impairments. As such, the tasks and intervention design focus on the propensity of individuals with ASD to pay close attention to detail as well as their strengths in representing factual information. In addition, their preference for systematic tasks will also be utilised in order to reduce the creative element of the task and exploit the systematic structure which has been identified in the narratives of the typically developing population (as discussed in Chapter 4).

In addition, this chapter has aimed to use the previous research to best inform the current intervention design and address some of the methodological issues which have been highlighted by existing research. The discussion has enabled these issues to be accommodated into the design of the current study to facilitate further development of this area of research and enable the current study to design a fully informed intervention. For instance, the issues surrounding the impact of settings, variation in task types, solutions to remedy potential problems with group size and inclusion of all the information available about the setting as well as the participants are all addressed directly in the intervention. Specifically, the design of the intervention is mindful of the setting in which it will be implemented. Therefore, the intervention is designed to be minimally intrusive, suitable for a wide range of abilities and offer the potential to accommodate TD pupils also. In addition, the use of various task types and presentations is designed to increase the possibility of generalising the benefits of the

intervention, and the case study design is designed to allow for the broadest possible application of results. The intervention also incorporates information from the initial studies to ensure that a suitable baseline and measure of ability is used.

Finally, whilst it is acknowledged that not all the issues may be fully resolved in the current study, the issues raised here will be carried forward and addressed in the following section outlining the methodology of the intervention. They will also inform the discussion of the intervention, the evaluation of its outcomes and any future improvements which may be suggested. The final chapters in the thesis present the intervention methodology and results, and further discussion of the intervention findings.

Chapter 8 : Narrative Intervention Study

This chapter presents the intervention conducted as part of this thesis. It presents the methodology used and the results identified for the whole group and case study analyses using the analytical framework used in Studies One and Two. In addition, the chapter presents an additional analysis of the intervention outcomes using questionnaire data which offers an alternative examination of the intervention outcomes.

The aim of this chapter is to evaluate the effectiveness of the intervention, to highlight any areas of particular success and to identify areas which could be improved if the intervention were to be carried out again. In addition, it will address issues which may be applicable to future research in this area. It is important to say at this time that the interest for this investigation lies in the process of the intervention, how it is carried out and how it might work in a mainstream setting with all the limitations and challenges that may bring. These considerations, alongside the outcomes presented, will form the basis of the discussion for the remainder of the thesis.

8.1 Research Questions and Hypotheses

This chapter addresses Research Question Three: Can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme? It was initially predicted, following existing research regarding model narratives, that fixed-order tasks would provide the framework for the intervention design. However, following the results presented in Chapter 6, it is apparent that fixed-order pictures may not result in the support suggested by existing research. With this, and the impairments identified in Chapter 6 in mind, it is suggested that an intervention which provides structure to guide individuals but does not limit them in their own narrative composition may be more effective. Following recommendations by Jordan

and Powell (1995:61), analysis of narratives will be used in order to help participants identify and understand narrative structure. Worksheets will also be used to identify narrative components and guide narrative writing. In addition, the discussion presented in Chapter 7, suggests that a functional approach to narrative which identifies the function of each of the narrative components as well as narrative itself may also be beneficial. As such, the current intervention will combine structural guidance and a discussion of the purpose of narrative alongside discussions of components and their role in the narrative to increase awareness of the narrative process. The hypothesis for Research Question Three, therefore, is that by combining these intervention techniques and adapting them to apply in this context, the narrative abilities of high-functioning individuals with ASD may be improved.

8.2 The Intervention Study

This section presents the methodology, material design and results for the novel intervention study conducted as part of this thesis. The aim of this section is to report the results for the intervention with a view to evaluating the methods used in order to assess the success of the intervention and offer suggestions for further adaptations which could be made. In addition, this section aims to describe how the intervention was carried out in order that it may be replicated if required.

8.2.1 The Intervention Methodology

The aim of this intervention is two-fold. First, to improve the global narrative structural abilities of individuals with ASD in mainstream schooling. Second, to provide teachers with an additional teaching tool to enable them to facilitate the inclusion of these individuals. Central to the design of the intervention was a concern that the intervention should be as least intrusive as possible to the individual's typical day. It was hoped that through designing the intervention to function within this situation it

could be readily adapted for use by teachers in mainstream inclusive settings. This setting imposed several limitations on the intervention. First, the setting for sessions was determined by the spaces available in the schools. It is suggested that this had limited impact on the intervention as schools are places for learning and so suitable rooms would be easily identified. The availability of such rooms was, however, a concern due to the researcher's knowledge of the pressures of space felt by many schools. In both cases the spaces offered were within Learning Support Centres and, whilst there were other individuals using the space, all were there to work. In addition, these spaces were familiar to all the participants, thus limiting the potential impact on the participant of working in a new setting with a new individual. Second, the number of participants was limited to those who were attending mainstream schooling with a diagnosis of ASD in a school willing and able to be involved in the project. As there was only one researcher involved, the number of participants was also limited to the number of visits that could be made to the school. It was essential to build a rapport with the pupils and teachers and, thus, the inclusion of too many schools would have prevented this from developing. Third, it was important that the intervention materials were easy to apply to other individuals with ASD and, in addition, that mainstream schoolteachers would find them accessible. This meant limiting the requirement for additional work or extensive group work which may not be applicable in many mainstream secondary school English classrooms. Finally, the access required for the intervention to be carried out was considerable. The intervention required that the school allow access for one lesson twice a week for one term. This is a large proportion of the school week and it was important that individual students did not continually miss the same lessons. This, alongside special individual requirements, meant that

timetabling was complex. Thus, extending the number of sessions, or the duration, was not a possible option in this case.

Although there were several limitations imposed on the intervention by implementing it in a mainstream school setting, it was extremely important to do so. The motivation of this project was to develop an intervention which was ideally suited to facilitating the inclusion of high-functioning individuals with ASD in mainstream schooling. As such, implementation of the initial intervention in an alternative setting, where more extended access would have been possible, would have been counterproductive and would have limited the ability of the project to achieve its aims. In addition, it would have considerably limited the application potential of such an intervention within mainstream schools by mainstream teachers as the development may have overlooked issues specific to this context. It is considered that, despite the limitations this setting imposed upon the intervention study, the benefits and implications of considering these issues and accommodating them as part of the intervention design override any potential negative effects.

Section 7.2 raised for several methodological issues and described the ways in which those have addressed by the current intervention. As discussed above, the intervention will use multidimensional and varied techniques as far as is appropriate to promote generalisation and increase opportunities for the individualisation of tasks. In addition, the intervention has chosen structure as the only aspect of narrative to be targeted in this intervention. It is believed that dividing this target into three main areas for intervention will allow for an even more focused approach to the intervention which has been highlighted above as an important factor in successful interventions. Following recommendations in the existing literature, the intervention has also endeavoured to use clear instructions throughout (Seach *et al.*, 2002) and has used intervention worksheets

to facilitate planning prior to narrative writing (discussed in Section 7.2). Through integrating previous research on interventions with individuals with ASD (discussed in Section 7.2) as well as research on narrative and autism (Chapter 3, Chapter 4, and Chapter 5), the intervention aims to account for as many variables as possible and promote a positive outcome.

8.2.1.1 Participants

Five high-functioning individuals with ASD took part in the narrative intervention. These individuals were part of the original cohort included in the initial investigation (Chapter 6) and, therefore, had IQ scores within the normal range when tested on the complete WASI. All participants were recruited from two mainstream schools in the North-East of England and were receiving additional help from their respective SEN departments within the schools. At the time of the intervention, none of the participants were being seen by a speech and language therapist and all were participating in all areas of school life with a variety of support. All participants were male. In the early stages of the intervention, one participant (Mark) was removed from the main cohort as he demonstrated a significantly higher ability than first anticipated (reasons for this are discussed in Section 8.2.4). As a result, Table 8.1 shows means with and without Mark. The stages for the intervention and results will also be discussed separately.

Table 8.1: Age and IQ Data for Intervention Participants

		With	Without
		Mark	Mark
		n=5	n=4
Chronological Age (in years)	M	13.54	13.7
	SD	0.96	1.02
Verbal IQ	M	93.81	85.8
	SD	22.39	15.37
Performance IQ	M	115.6	112.8
	SD	8.20	5.97
Full IQ	M	104	97.8
	SD	16.64	10.64

8.2.2 Ethical Approval

As discussed in Section 6.1.5, ethics must be considered in any research which involves human participants. Therefore, as in Studies One, Two and Three, prior to beginning the intervention ethical approval was obtained from Durham University. No ethical issues were raised. Participants were recruited on a voluntary basis following referral from their teacher and parental consent was obtained. All were informed that they could end their participation without any questions being asked and were given the contact details of the researcher to ensure they would be able to contact her with any further questions they had. In addition, participants were told that all data would be kept anonymous, thus, all participants have been allocated a pseudonym. Finally, participants were informed that any work they produced during the intervention would not be used for any purpose other than that of research.

8.2.3 The Intervention Materials and Stages of Delivery

The following sections outline the development of the materials for the intervention, the stages followed during the intervention, and the methodology used. This first section describes these factors in relation to the main group of participants (without Mark). The following section presents the information with regard to Mark.

8.2.3.1 General Methodology

The intervention has three distinct stages which aimed to develop the areas of Orientation, Complicating Action and Evaluation which were identified by Studies One and Two as atypical in these individuals. Although, the multiple picture context in Study Three had not been found to support narrative structure and in some cases limited it, existing research into the use of texts as model narratives had found that they supported narrative structure (Cameron *et al.*, 1995). In addition, research had identified the analysis of narratives within interventions as valuable for improving narrative abilities (Jordan and Powell, 1995). Therefore, it was decided that the discussion of texts and the communicative function of narrative would be suitable to increase participants' narrative abilities. These techniques were also considered to be more age appropriate and, thus, would avoid limiting individuals' abilities and imaginations. Alongside these techniques, worksheets were used to provide the majority of the intervention tasks. Importantly, whilst these gave explicit guidance in the form of story-frames (inspired by materials published by Freeman and Dake (1996)), they were designed in order to give participants freedom to develop their narratives as they wished and, thus, not limit narrative production.

The intervention stages had several series each so that the skills could be allowed to develop before new skills were introduced. The participants were seen twice a week for 1 hour over 14 weeks which covered a whole mainstream school term (28 hours in total). There was a three-session gap in the middle of the intervention to allow for school holidays and to provide the students with a break. One of these sessions was within school time and was led by the participants' support teachers who carried out a 'filler' task which was set by the researcher. This filler task required them to read a story but no written work was required.

Due to restrictions within the schools, three of the participants were seen together whilst the fourth participant was seen alone. However, this variation in settings appears not to have affected participant's performance. In addition, these arrangements accommodated the individuals' personal requirements and habitual routines, thus minimising the intervention's disruptive effects. The researcher was present at all of the intervention sessions.

8.2.3.2 Intervention Stages

The intervention stages described below were completed by four of the five participants. All of the participants completed all of the stages in the same order and within the same time frame. Whilst all of the stages touched on all three sections narrative components to raise the individuals' awareness of all components, each stage also has a clear focus, which received the most attention. As such each session had a clear target and focus. The intervention follows a 'layering' pattern in which each stage presented something which built on previous stages and was carried forward into the following stages. With this in mind, the final stage, Stage Three, has elements of all stages. Details of the materials used and how these have been developed to achieve the aims of the intervention are discussed in the following section (Section 8.2.3.4). It should be noted that each stage focused on improving individual's use of the narrative components and, therefore, did not focus on reducing or increasing individual use of these components but on enhancing the participants' understanding of narrative structure. As such it was able to address atypical use of components regardless of whether an individual used too much or too little.

8.2.3.2.1 Stage One

This stage aimed to focus upon the participants' Orientation skills. In order to achieve this, the participants were presented with a model story and were asked firstly to read

through it. Then the participants were asked to identify the character and the setting descriptions that were given within the story. They did this by completing a very structured worksheet which used several prompts to elicit Orientation information (Appendix Twelve). This task was followed by a discussion of the elements they had identified within the story and participants were encouraged to create their own Orientation clauses.

Participants were then asked about the beginning of the story and the Orientation they would like to include to describe what happened prior to the first story beginning (Appendix Thirteen). Following this the participants were asked to use the worksheet given to describe their own plot and their characters and use these sheets to help them to write their own story (Appendix Fourteen and Appendix Fifteen). Participants were encouraged to think about the focus of Orientation. This stage was repeated twice with different contexts. The final repetition of this stage also included the participants identifying descriptive words that they might use in their own work to help them develop their vocabulary further.

8.2.3.2.2 Stage Two

This stage aimed to focus on further developing the participants' use of Complicating Action whilst continuing to enhance their Orientation skills. In order to do this, three worksheets were developed. The first represented a less structured version of the worksheet used in the first stage and required the participants to identify the characters, give their names (which the participants had to choose) and briefly describe what they looked like (Appendix Sixteen). The second worksheet required the participants to write an introduction to a story (Appendix Thirteen). They were given a picture as a stimulus for the introduction and were encouraged to use some of the words they had identified in the previous session. They were asked to write approximately eight lines to introduce

the story, where it was set and who was in it. This task also required the participants to elaborate on the information they had provided for the first worksheet to create a stepping-stone to this stage. Finally, the participants were asked to set out a plot for their story using a worksheet to describe the main Complicating Action (Appendix Seventeen and Appendix Fifteen). They were then allowed to write their own story using the worksheets they had completed. At all parts of this stage the participants were encouraged to think about why they included information that they did and whether it was relevant to the story they were telling. This stage was conducted once. During this stage, the participants were encouraged in their story writing to think about how the characters felt. This was designed to introduce the focus of the next stage of the intervention which was Evaluation.

8.2.3.2.3 Stage Three

This final stage aimed not only to continue the development of both Complicating Action and Orientation but also aimed to develop the use of Evaluation. In order to achieve this, this stage had three worksheets. The first two worksheets were less structured versions of the worksheets used in Stage Two (Appendix Eighteen and Appendix Nineteen) and added an additional final worksheet. This final worksheet required the participants to identify a character at each Complicating Action and use descriptive words to describe how that character was feeling about the situation (Appendix Twenty). The characters could be different for each Complicating Action but each Complicating Action was required to have an Evaluation comment involving one or more of the characters. This worksheet was very structured and did not require full sentences. Finally the individuals were asked to write a story using the information they had filled out on the worksheets, although it was noted that several of the students used

only one of two of the sheets and included the rest of the information from memory.

This stage was repeated twice.

8.2.3.3 The Assessment

The assessment was done in two stages over two one hour sessions with a break of one week between sessions. All participants completed both assessments individually, in exam conditions, with no help from their peers or the researcher. In addition, although they were not called 'tests', the participants were asked to work quietly on their own work and so an atmosphere akin to a test atmosphere was created. This was essential to ensure accurate levels of ability were obtained.

8.2.3.3.1 Assessment A

Assessment A was designed as a bridge between the intervention and the final assessment and was included to identify the level of ability of any student who was unable to complete Assessment B. Assessment A provided the participants with a string of pictures which presented several characters and options for scenes but did not form a story, which were designed to provide the participants with some ideas for their narrative. In addition, the participants were provided with one planning worksheet which provided a more unstructured guide to how to develop Orientation, Complicating Action and Evaluation than had been used within the intervention. The aim of this worksheet was designed to encourage the participants to engage all the skills they had learnt over the intervention within the assessment. They were asked to write a story they had not written before and was identical to that used in Study Two:

“Look at the pictures you have been given. Use these pictures to create a story you have not written before. You can develop the story in any way you like. Do not just describe the pictures.”

In addition to the 30 minutes allowed to write the story, participants were also given 10 minutes to complete the planning sheet before beginning to write.

8.2.3.3.2 Assessment B

This final stage of the assessment was designed to identify whether the participants were able to apply the approaches they had been exposed to throughout the intervention. For this assessment, participants were again given a string of pictures which presented several characters and options for scenes but did not form a story (Appendix Twenty-two) and were provided with the same rubric given above. No worksheet was given for this stage of the assessment but the participants were provided with an additional sheet of blank paper. As in Assessment A the participants were given an initial 10 minutes in order to plan their story before they began to write. It should be noted here that for both assessments all participants took little more than five minutes to plan their stories but required the full amount of time to write the story. Regardless of the amount of planning time used to plan the story, the time allowed to write the story remained constant. The narratives produced as a result of the task in Assessment B by all participants apart from Mark are included in Appendix Two. To maintain anonymity no authors have been linked to the narratives and Mark's narrative has not been included as it was judged too easy to identify from the rest of the participants.

8.2.3.4 Development of Materials

The materials for the intervention were developed in order to reflect a development of skills, beginning with basic tasks which reflected the factual account of the setting (Orientation) in Stage One, and finishing with the more complicated task of Evaluation in Stage Three. Stage Two provided a reflection on the concept of limiting the number of events that occurred in the narratives with the intention of reducing the amount of

Complicating Action clauses used by the participants. The following sections describe the motivation behind the materials used in each of the intervention stages.

8.2.3.4.1 Materials for Stage One

The focus of Stage One is Orientation. In the first task participants read a complete narrative for pupils ages 11-14, look at the accompanying picture, and complete Worksheet One (Appendix Twelve). This task is discussed with the researcher first and the narrative is read together. The worksheet is a series of questions with allocated space for answers. It is designed to focus the participants' attention on the Orientation details whilst allowing them to use their imagination to provide additional background details (for example details about the weather). The initial discussion with the researcher allows the areas for further elaboration to be identified. A brief discussion of possible adjectives and adverbs also allows participants to think about how they might develop the description. Following the completion of this worksheet, participants underline all the description they can find in the story. This was designed to focus the participants' attention on the description used in the text and to give them a tangible sense of the amount of description present. In the second session, Worksheet Two (Appendix Thirteen) provides the participants with space to complete a description of events which occurred prior to the narrative text they were presented with in Session One. The purpose of this task is to allow the participants to try out their own use of Orientation and descriptive language discussed in the previous session. It also allows their imagination to develop the narrative, thus engaging them in the task. Sessions Three and Four ask the participants to write their own short story using two worksheets. The first worksheet, Worksheet Three (Appendix Fourteen), asks them to outline a brief description of the setting and the main plot events. This task reintroduces the idea of plot into the intervention and builds upon the discussion of Orientation by requiring the

Orientation to be relevant to the events which follow. Worksheet Four (Appendix Fifteen) requires them to consider and describe the characters in their narrative followed by more setting information and any information about the time of day. Finally, the worksheet asks for a slightly more detailed description of the plot by asking for two lines on each event which will describe what happened first and what happened next. This stage repeated twice with two different narratives and further discussion about the Orientation aspect of the narrative is included. Importantly, the researcher directly discusses with the participants what they think the purpose of Orientation is and asks them to identify the things that need to be taken into account when thinking about Orientation (i.e. audience's perspective). This focuses on the function of narrative and, thus, hopes to further develop their understanding of narrative and their use of narrative components.

8.2.3.4.2 Materials for Stage Two

Stage Two develops the techniques highlighted in Stage One by changing the focus to Complicating Action clauses. A text is used for prompting and is read together before the tasks begin, however, no pictures are used in this stage. The text serves as an example of a short story only. After a brief discussion of whether the students like the text and following the highlighting of some of the Orientation and the plot, the story is put to one side. In this section the participants are asked to develop their own narratives using the ideas discussed in Stage One. Initially, this was not the intended format as it was intended that the text would be used as a model throughout this stage as well. However, feedback from the participants and reflection on the engagement of participants in the previous session indicated that they were all getting tired of using other narratives to complete the worksheets and would like to use them as inspiration only. It was decided during the intervention, therefore, that the texts would form the

introductory part of the sessions and the ideas developed by the participants would provide the content for the remainder of the sessions with regard to narrative elements. As the focus of the stage is Complicating Action, participants complete Worksheet Two (Appendix Twelve) in Session One to ensure that they remain aware of the requirement for Orientation. It is also a good way for the participants to develop their initial ideas into a narrative introduction. Also in Session One, Worksheet Five (Appendix Sixteen) requires participants to develop a description of their characters and, for the first time in the intervention, they are asked to consider the personality of the character and any feelings they might have. This was introduced at this stage in order to include Evaluation prior to Stage Three and to allow the participants to consider the accommodation of all three components within the narrative. The researcher provided significant additional discussion with individuals at this stage to help participants identify possible emotions, reasons for emotions, and personality traits. Session Two developed their narratives further and with the use of Worksheet Six (a slightly modified version of Worksheet Two, see Appendix Seventeen) asked the participants to give a detailed outline of the plot in their narrative. At this point in the intervention, the researcher discussed function and definition of the plot with participants. The discussion highlighted the plot as the facts or bare essentials of the narrative. Participants appeared to be familiar with this definition. The final worksheet for this session, Worksheet Four (Appendix Fifteen), required them to summarise their narrative with regard to characters, setting and plot. The purpose of this final worksheet was to collate all the information onto one page so that participants could easily use it during the writing of their narratives. This was done in response to research discussed in Chapter 5 which identified that individuals with ASD do not use the gist of a narrative or introductions to compose the remainder of the narrative. The aim was to provide the participants with a

reference to guide the composition of their narrative. This stage was conducted only once in the intervention.

8.2.3.4.3 Materials for Stage Three

Stage three focuses on the inclusion of Evaluation in narrative. This was identified as the most problematic area of narrative for individuals with ASD and as such the intervention provided considerable guidance for this minimal but significant component. As in Stage Two, texts are used as examples and analysis is carried out by participants. No pictures are used in this stage. The first worksheet in this stage, Worksheet Seven (Appendix Eighteen), requires the participants to identify the four main actions in the plot of the narrative. This worksheet provides further focus for minimising the proportion of Complicating Action used and further reinforces the concept of a plot as the factual information which provides the skeleton of the narrative. It also provides a space for participants to identify key words before beginning to describe the event, thus, emphasising the focus on the core events. In the following session, Worksheet Eight (Appendix Nineteen) is completed which focuses on a description of the characters both physical and emotional. This reinforces the concept of Orientation whilst further emphasising the need for Evaluation. This worksheet was designed to encourage participants to consider emotions and personality traits with regard to characters. The second worksheet for this session, Worksheet Nine (Appendix Twenty) develops the concept of characters' emotions by requiring participants to identify a stage in the narrative, the emotion linked to that stage for the character involved, and the reason for that emotion. The purpose behind this worksheet is to encourage participants to identify not just the emotion but also the stage at which it might occur in the narrative and the reason for the character feeling that way. The final session in this series requires the participants to summarise their narratives on one page

using Worksheet Four (Appendix Fifteen) and write their narrative using this summary and the notes regarding characters' emotions (Worksheet Nine). Alongside Worksheet Four, participants are also given Worksheet Ten (Appendix Twenty-one) which reminds them of the function of the narrative and provides them with guidance to use during the writing of their own story. This sheet is read out to participants and discussed before the task begins. This task took several sessions but no further input was given.

8.2.3.4.4 Materials for Assessment A and Assessment B

The materials for the assessments are designed to closely resemble the materials used in Study Two (Section 6.2). As discussed in Section 8.2.3.3, two assessments are given to limit the impact of removing all the support materials at once and to prevent participants from losing confidence when completing the tasks. In addition, it ensures that an ability level will be obtained for individuals who may not have been able to complete Assessment B. It is considered essential to ensure that the participants felt they have achieved something during their time working with the researcher. Therefore, whilst Assessment A uses a single picture alongside the brief planning sheet (Worksheet Four), Assessment B uses a single picture only. The task rubric is the same as that given in Study Two.

8.2.4 The Intervention with Mark

The initial investigation had suggested that Mark had considerable impairments with regard to narrative composition as he was unable to complete the task in Study Two and he was, therefore, removed from the analysis. However, it became clear early in the intervention that this was not a true representation of his abilities. During the first session he completed all of the tasks with ease in a short space of time and appeared uninterested in the process. In addition, through discussion with his teachers and SEN support, the researcher found out that this participant found English lessons very

difficult and would often become disruptive. Furthermore, it was highlighted that many of the participant's teachers considered him to be rude and inattentive as he refused to write down anything during lessons and would often ask questions which were viewed as challenging or aggressive. However, the SEN support team stated that despite having no notes to revise from he often achieved 100% in exams. When questioned regarding the linguistic abilities of the participant, they stated that they considered him to be of average to high ability in both language and general cognition. The WASI scores supported the opinion that he was of above average intelligence (Full Scale IQ: 129, Verbal IQ: 126, Performance IQ: 127. Average IQ is between 85-115.). This raised the question of his initial poor performance during Study Two. It was decided that the participant would be removed from the main intervention process but would continue to work with the researcher at a higher level of ability to develop his narrative skills. In the second session of the intervention the researcher discussed the participant's prior performance with him. The session focused on what he found most difficult about narrative writing. During the course of this discussion it became clear that there were several contributing factors to Mark's difficulties with narrative tasks. First, he had a dislike of pictures (the stimuli used to access the narrative abilities). He described them as too ambiguous because unless they are extremely detailed, they leave too much information to be decided by the onlooker. Second, and this is the most significant for the present discussion, was the fact that Mark was an avid reader of long novels and regularly finished a novel in a week. As a result of this experience, he was unclear how he would be able to write a story in a lesson of no more than 40 minutes and it was not clear that he would have time to continue the writing outside of his lesson. It appeared from further discussion with Mark that his definition of a narrative may be too narrow.

Finally, he expressed that the initiation of the story was not problematic for him but as he developed the story he had a problem making decisions about the plot.

This discussion and the three issues identified through this discussion formed the basis of the intervention process for Mark. Although he was excelling academically, there were other problems affecting him outside of work. Therefore, it was decided by the researcher and the SEN team working with this individual that any intervention would require Mark's full backing otherwise his co-operation and, thus, continuation of the intervention would be problematic. The researcher was also acutely aware that she was working within the SEN department of the school and any dealings that she had with Mark would affect, positively or negatively, the future contact the department had with Mark. With this in mind, the decision was made to negotiate a 'plan of action' with Mark which aimed to not only give him the chance to write a longer story over several sessions (something which he expressed a desire to do) but also to help him to limit his ideas so that he would be able to create a short story which he was happy with if this was ever required within his literacy classes. It was hoped that by taking this participant-led approach to the intervention, Mark would gain as much as possible from the intervention. Adapting the intervention to cater for a higher ability level enabled further examination of the potential of such an intervention for addressing a variety of ability levels of the autism spectrum. This has implications for the intervention's applicability as a tool for facilitating inclusion in mainstream schools where a range of abilities are seen within one class. This issue is discussed further below.

8.2.4.1 Stages of the Intervention for Mark.

There were three main stages of intervention for Mark. The first was to present him with several examples of short stories and discuss the characters and the plot. This stage resembled the final tasks given to the rest of the cohort but was completed in

considerably less time. This stage aimed to present Mark with examples of short stories so as to enable him to better understand the difference between a novel and a short story and adjust his concept of a narrative. This stage also enabled him to use his imagination to embellish the characters presented in the short stories and drawings of the characters on the whiteboard and discussions with the researcher developed this process further.

The second stage of the intervention was to enable him to develop a story over several weeks during the intervention sessions. This story development used the worksheets that were used in the second and third stages of the intervention so as to provide a framework for the character and plot development and also so that the story line was not lost or forgotten from session to session. During these sessions, Mark worked quietly on his own with the researcher working near by. Mark was encouraged to discuss any difficulties with the researcher as and when problems arose. This proved useful to keep the story moving and enabled Mark to express ideas verbally, establish whether they would work within the context of the story, and then write them down. This formed part of a drafting process and when ideas were written down, they were more detailed and complex in their construction than when they had been expressed verbally. From the feedback of teachers, the increased length of narratives produced by the Mark, and his own enthusiasm in the process (getting him to finish now became a problem!), it was clear that this step also helped to encourage Mark to continue writing and enabled him to gain confidence in his own ideas and writing processes.

The final step of the intervention was similar to the first assessment given to the rest of the cohort. Mark was asked to apply the planning techniques he had learnt from writing long stories (which he was extremely competent at) to a shorter story. He was asked to limit his ideas and the plot somewhat but was also asked to select the information contained within the story so the short story could cover the whole plot but

also the relevant information about the characters without running over in length and writing time. Again, the discussion of problems was allowed but Mark chose not to make use of this option.

The final piece of work completed by Mark was Assessment B completed by the whole cohort. This piece of work was completed with the same time and assistance restrictions as those imposed on the rest of the cohort.

8.2.4.2 Development of Materials for Mark

As the intervention was focused on providing this individual with a chance to develop his own narrative abilities and change his view of a narrative from a novel to something more flexible, the materials for this intervention involved several short stories which were introduced at various stages in the intervention as examples only. These narratives were discussed and the opinions of the participant elicited. Furthermore, a general discussion of the novels he was reading during the intervention enabled topic areas and possibilities for developing those topics in short stories to be explored within the discussion. In addition, the individual was given access to Worksheet Four (Appendix Fifteen) in all sessions which allowed him to plan his ideas and discuss any problems he was having with deciding on the plot. This aimed to limit the problems faced by the individual when making decisions about the route his narrative should take. No additional materials were developed.

8.2.5 Intervention Results

This section presents the analysis of results of the intervention study for all of the participants with the results for Mark presented separately from the main group reflecting the differences in the intervention he followed. For this analysis it was decided to continue using Labov and Waletzky's (1967) analysis as it appeared to allow the investigation of the areas of the narrative which Chapter 6 identified as particularly

challenging for the participants with ASD. Using this framework also allowed results from Study Two to be used as a baseline measure for the intervention and comparisons could be made with the TD mean if required. The overall aim of the intervention was to focus on three areas of the narrative, i.e. Orientation, Complicating Action, and Evaluation. This approach meant tailoring the intervention to focus on certain aspects of the narrative at different stages and acknowledging that participants would vary in their abilities within those aspects. As a result, it was also necessary to allow for a flexible approach to both the administration of the intervention as well as the analysis of the results. With this in mind, the following section presents group results alongside four case studies which track the progress of the participants involved in the intervention. This section intends to establish whether the overall aims of the intervention have been met for each participant. Due to the small number of participants involved in this study, no statistical analysis has been applied to the data; instead a descriptive analysis has been carried out to identify any patterns of improvement. It should be noted that the case study analysis is not a fully developed qualitative analysis due to the requirement for comparison with the previous studies in this thesis. Instead, additional qualitative information has been included where appropriate and relevant to the data yielded. In addition, the inclusion of questionnaire data in Section 8.2.6, offers a more subjective measure of the narratives collected as it gathers the opinions of non-specialists with regard to the narratives although the analysis of responses remains quantitative. Whilst not ideal, the aim of this combination of analyses is to provide the most comprehensive analysis of the data. This issue is discussed further in Chapter 9. It should be noted that due to the different intervention path followed by Mark, he is excluded from the group results and related conclusions presented below.

8.2.5.1 Group Analysis of the Pre-and Post-intervention tests

This section presents a descriptive statistical analysis of the data using results from Study Two as pre-intervention data and results from Assessment B as post-intervention scores. This analysis aims to illuminate trends which will be examined further in the case studies.

8.2.5.1.1 Descriptive Statistical Analysis

Figure 8.1: A Comparison of Pre-and Post-Intervention Results for Orientation

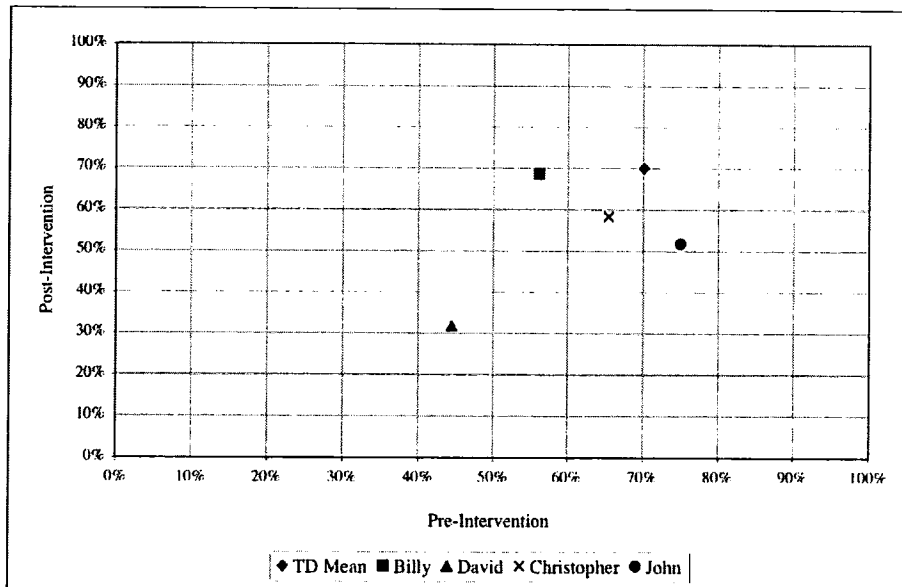
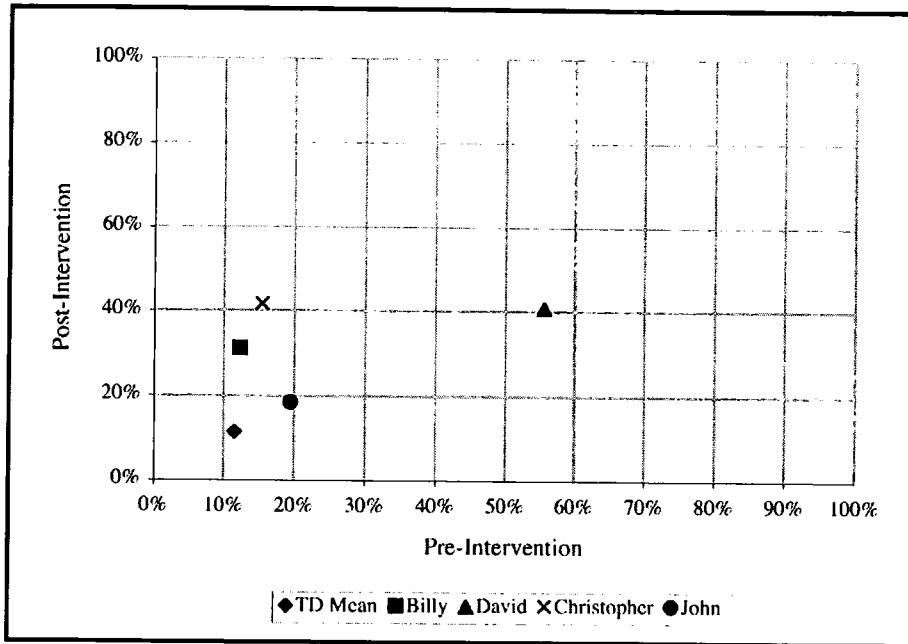


Figure 8.1 indicates that the intervention participants in general use lower levels of Orientation within their narratives when compared to the TD mean. However, the data also reveal a complex pattern within the group. This will be examined further in the case studies below (Section 8.2.5.2).

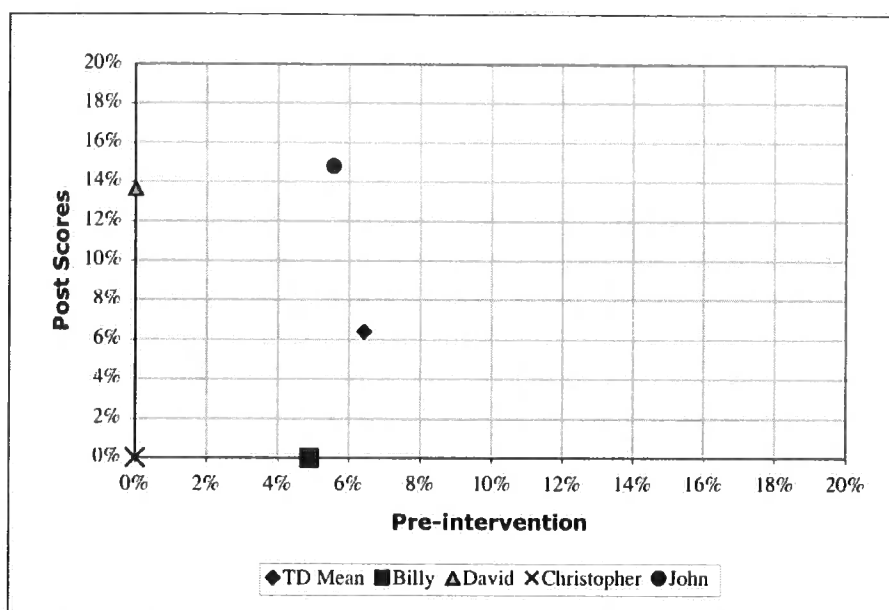
Figure 8.2: A Comparison of Pre-and Post-Intervention Results for Complicating Action



The graph above demonstrates the intervention participants' low usage of Complicating Action clauses⁹. Importantly for the current discussion, whilst an improvement in levels of usage can be seen in the post-intervention data for John and David, Billy and Christopher appear to increase their usage of Complicating Action clauses. This results in a reduction in their recorded abilities in the use of the narrative component. This will be discussed further in the case studies below.

^{9 9} Each point on this graph represents the intersection of the scores for Post- and Pre-intervention for that individual (or in the case of TD that group). This format is repeated for the following 2 graphs also.

Figure 8.3: A Comparison of Pre-and Post-Intervention Results for Evaluation



It can be seen from the graph above that Evaluation proved problematic for the intervention participants. Although the typically developing individuals also used a low level of Evaluation phrases, the intervention participants' use was lower. David used no Evaluation at all in the pre-intervention task, Billy used none in the post-intervention task, Christopher used none in either narrative task and John increased his usage to exceed the TD mean.

The results of all three narrative components suggest some unpredicted trends with several participants reducing in ability in their usage of several narrative components. These results will be discussed in further detail below in the case studies section.

8.2.5.2 Case Studies

This section presents case studies for the five participants in the intervention. As highlighted above, this is not a full qualitative analysis but aims to use all the information available to identify trends and paths of change within the intervention and outcomes for the participants.

8.2.5.2.1 Case Study: Billy

Descriptive Statistical Analysis: Billy

Table 8.2: A Comparison of Pre- and Post-Intervention Results: Billy

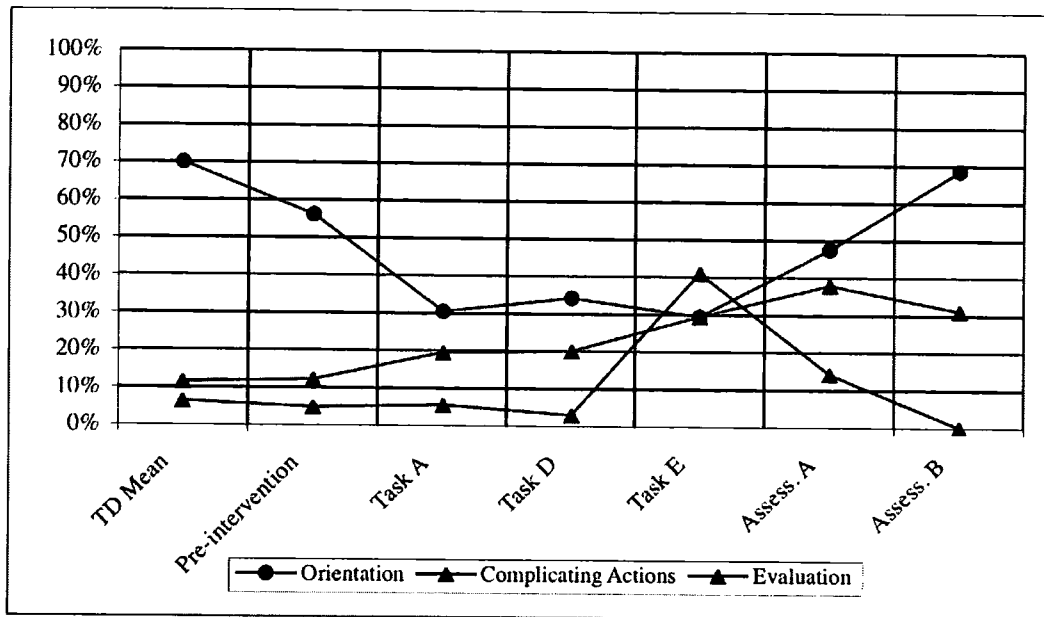
	Pre-intervention	Post-intervention
Orientation	53.49%	68.75%
Complicating Action	4.65%	31.25%
Evaluation	11.63%	0.00%

The results presented in Table 8.2 reveal an increase in the use of Orientation clauses which results in this component reflecting the TD mean. In addition, the overall hierarchy improves making Evaluation the least used narrative component as seen in the TD group (see Study Two). However, Billy's use of Complicating Action clauses moves further away from the TD group mean, increasing when a slight decrease was desired. In addition, despite focus on Evaluation, this also reduces and results in poorer narrative with regard to the TD mean. These results do not represent the desired effects for Complicating Action or Evaluation. In order to identify potential explanations for these results an analysis of change is presented alongside consideration of additional factors which may have affected progress.

Analysis of Change Throughout the Intervention: Billy

Figure 8.4 presents the pattern of change for Billy throughout the stages of the intervention as compared to the mean of the matched TD group from Study Two. The graph highlights the variation in the use of components and demonstrates considerable variation through the stages. In particular, there is marked fluctuation at Task E with regard to Evaluation which affects the overall hierarchy of the narrative as Evaluation becomes the most frequent component.

Figure 8.4: Intervention Stages: Billy



It is suggested that the variation seen is partly a result of the intervention structure which aimed to focus on each area of the narrative in turn whilst encouraging the student to implement each of the areas. This may have resulted in the Billy failing to link all of the sections of the narrative together adequately. This could have resulted in use of the target component increasing and, as the measures are described as percentages, this would result in the use of the other narrative components decreasing proportionally. This appears to be the case in Task E where the focus of the stage was to increase the participants' use of Evaluation. As the graph shows, this component increased considerably in use, however, this was to the detriment of the other components and the narrative hierarchy overall. This may also describe the radical changes seen at Assessment B. If the participant was failing to link the sections of the intervention together, they would find the task in which all sections required attention difficult.

The scores for Assessment B for the areas Complicating Action and Evaluation appear to have moved away from the TD mean, however, the score for Orientation has

improved and now is exactly the same as the TD group mean. Billy's use of Evaluation fluctuates dramatically throughout the intervention, thus demonstrating that he is capable of including this part of the narrative structure but do not employ it in their assessment narrative. In summary, this analysis has highlighted that the desired level has been achieved for Orientation only with reduction in the use of both Complicating Action and Evaluation clauses at Assessment B. It could be suggested that this participant appears to have the ability to adapt their narrative structure, but requires more time in order to apply all that has been learnt with regard to all of the narrative components at once in an assessment situation. It is suggested that, given a longer intervention, this participant would have been able to develop and stabilise these skills and, thus, show an overall improvement. Further research on this intervention with extended duration is required in order to investigate this further.

In order to fully understand the data it is important to account for any potential variable outside of the control of the intervention. The following section presents a qualitative analysis of the intervention in order to identify any potential events which may explain the fluctuations seen in the above analysis.

Additional Information for the Analysis of Change: Billy

In addition to the analysis presented above, there are several factors which provide further information regarding the performance of Billy. This section will discuss these factors with direct reference to the measures presented above.

The most notable factor with regard to the Billy is his high level of anxiety which is directly related to change in routine and, in particular, changes in his timetable. As a result the intervention slots were decided for the whole intervention prior to it commencing in order to minimise Billy's anxiety. However, this was not the case in all of his timetable and changes were common. This resulted in the Billy arriving for

intervention sessions distracted and on occasions highly agitated. This was particularly true during the session when he completed Task E and so this may offer an explanation for his apparently atypical narrative production. It is suggested, therefore, that the data collected during this task may not be an accurate representation of Billy's abilities.

In addition, this participant was easily distracted by others in the classroom. Due to the nature of the research, it was not possible to carry out the sessions in an isolated room as the school did not have the available space. However, it was noted that rather than being distracted by others in the group who he was used to working with, it was the other pupils coming into the unit which caused him to shift his attention. As this unit catered for all pupils who required extra support within the school, some of the individuals were noisy and, on occasion, badly behaved. This may have affected his level of concentration on the task and, thus, limited the impact of these sessions.

Another factor which affected the performance of this participant was his repetitive interest in computer-game characters and, in particular, Pokemon. Throughout the intervention, the requirement was to produce original stories. However, it became clear that, although the stories appeared to be original, the characters involved in the stories were not. The researcher was not fully aware of these computer characters and, thus, this issue was only identified during a discussion with the participant. After this issue was known, the participant was actively encouraged to develop new characters using the materials given, however, it was apparent that some characters were still being adopted from games. In Assessment B, the researcher stressed the need for an original story with no Pokemon characters and the participant completed a story which appears to be completely original. This could explain the poor performance in the final stage. It could be suggested that the pressure to create new characters resulted in poor overall structure as the cognitive load became too great.

The level of existing narrative ability may have also affected impact of this intervention. It is suggested that the intervention, although designed to accommodate the needs of these specific participants was, in fact, too elementary for this participant. This may have resulted in the intervention materials limiting the production of the participant to a level which was too basic. It is possible, therefore, that a more varied and finely-grained design of intervention levels may have allowed this child to benefit from the intervention techniques. Further research is required to investigate this issue.

The final issue which should be considered, is the participant's use of the stimulus material. There were many instances during the intervention when the participant did not use the stimulus material during writing and, thus, may not have benefited from the additional support this may have given. It should be noted, however, that he did use the intervention worksheets prior to writing and was exposed to the stimulus material on all occasions and, thus, received the same input overall.

Issues of outside factors affecting intervention processes are inherent in this field of research and although they cannot be controlled, they can be accommodated within the intervention design and analysis of results. This issue is discussed further below.

Summary for Billy

In summary, it appears that this participant has not fully benefited from the intervention. There are several factors which may have mitigated the progress of this participant. The intervention level, the intervention duration, and obsession with existing characters are highlighted as having the most potential for impact. It is important to note that success was seen in the participant's use of Orientation clauses which reach the TD level of usage at Assessment B and, thus, the intervention is considered successful in this area. Fluctuations in the participant's performance demonstrate his ability to use all three components, which suggests that a longer

intervention with more rapid progress to higher levels of complexity may have had a more positive outcome. The issues raised above will be discussed further in Section 8.3.

8.2.5.2.2 Case Study: David

Descriptive Statistical Analysis: David

The data for David are presented below and indicate improvement in the use of the narrative components.

Table 8.3: A Comparison of Pre- and Post-Intervention Results: David

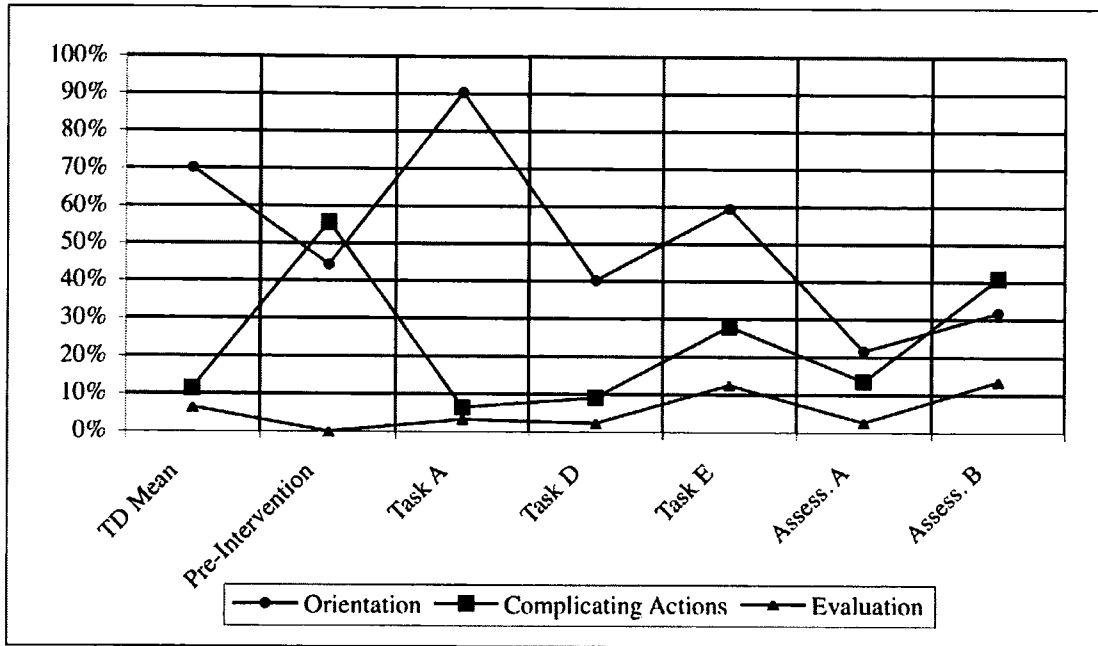
	Pre-intervention	Post-intervention
Orientation	44.44%	31.82%
Complicating Action	55.56%	40.91%
Evaluation	0.00%	13.64%

Table 8.3 presents data which demonstrate a reduction in Complicating Action clauses by 15% and an increase from no Evaluation clauses to 13.64%. Both of these changes are appropriate and improve the narrative structure. One area which does not improve is Orientation, indeed, as the table demonstrates, whilst the use of this component reduces, the desired effect was an increase. In addition, the narrative hierarchy does not improve and remains with Complicating Action Clauses as the most frequent component, followed by Orientation clauses and then Evaluation clauses. There are several possible reasons for these observations, which will be discussed in the qualitative analysis below. It should be noted that although the narrative has improved it is still notably different from the mean, therefore, suggesting that a longer intervention may have improved the narrative skills of this participant further.

Analysis of Change Throughout the Intervention: David

Figure 8.5 demonstrates the pattern of change for David within the intervention as compared to the mean of the matched TD group from Study Two.

Figure 8.5 Intervention Stages: David



As can be seen from Figure 8.5, the use of Complicating Action and Evaluation clauses has improved and now more closely approximate the TD group mean. However, the use of Orientation clauses has not improved and has, in fact, moved slightly further away from the TD group mean. As the other two components have improved, it may be that whilst focusing on the other aspects of the narrative, David has neglected his use of Orientation clauses. It should also be noted that the progression of David's performance closely mimics the focus of the intervention with Orientation increasing first, then Complicating Action, which coincides with a reduction in Orientation, and finally an increase in Evaluation. Figure 8.5 also demonstrates that performance of this individual in Assessments A and B is different from his performance in the other tasks in the intervention. The requirement to combine all the skills presented in the intervention alongside the limitation of time in the assessment may to have affected the performance of this participant.

Overall, the narrative hierarchy appears to have improved during the intervention, although Assessment B sees it return to its original order and whilst Complicating

Action and Evaluation have increased in usage, this is not the case for Orientation which has reduced. In order to better understand the fluctuations in the intervention and the final Assessment outcome the following section presents a brief discussion of the additional factors that may have affected David's performance.

Additional Information for the Analysis of Change: David

The previous sections have presented the data relating to David's performance during the intervention. There are, however, several additional factors that should be taken into consideration which may have affected his performance during the intervention. This section discusses these factors with regard to the changes seen in the previous section and the overall outcome.

First, it is important to note that David's pre-intervention ability to complete narrative tasks was limited; this was particularly true of the multiple picture task where he annotated the pictures instead of writing a narrative as requested. However, this participant showed progress in length, imagination and topic throughout the intervention. Despite this progress, the content of his narratives is immature and on occasion nonsensical. This resulted in some unusual story topics which were not representative of his peer group. However, narrative structure could be identified in all the narratives produced. He also showed marked ability to complete tasks in the early stages of the intervention when stories were examined and plots and Orientation identified. These worksheets provided him with a finite number of choices and appeared to facilitate task completion. In further discussions with his teachers and support assistants, it became clear that decision-making was a significant problem for this participant. Linked to poor decision making skills, this participant took considerably longer over narrative creation than the other participants. This was the case at each of the stages and despite limitations of time, length and, at the planning stage, number of

characters, as well as careful guidance from the researcher. This participant was unable to plan the whole story at once, often included notably more plot stages than planned, failed to control the narrative using the planning sheets, or apply decisions he had made as a result of completing intervention tasks.

Associated with the above issues, this participant required significant guidance in order to use the planning sheets and implement the decisions made at the planning stage. Even with specific and continuous guidance, this appeared to be problematic for this participant and as discussed above, narrative length often ran out of control.

All of the above issues meant that although it was possible for the participant to spend longer during the intervention on the narratives he was producing, when it came to the final assessments, he was unable to plan and complete the story adequately within the time restraints of the task. This resulted in rushed stories and the difference in structural quality can be seen in his performance in Tasks D and E when these are compared to his performance in Assessments A and B in Figure 8.5. This issue is pervasive in this participant's life and time keeping and forward planning are problematic. However, improvements seen in one-to-one work (Task E) suggest that if self-initiated strategies (discussed in Section 7.1.2.3) were implemented in order to monitor narrative production then additional improvements may be made.

Finally, it should be noted that David applied himself to every task and was not easily distracted; this was mainly due to his general lack of social interest, as noted by his teachers. As a result he spent all of the allotted time on each activity and did not engage with any other students within the room. This focus was one of his strengths and one of the ways in which he was able to create longer stories and still maintain the intervention pace. It was clear, however, that if his interest was lost, distractions such as games and computers as well as generally daydreaming, were a significant draw.

In addition, throughout the intervention, it was clear that this participant began to account for his audience. This followed a conversation with the researcher in Stage One of the intervention which reflected on some detail he had included in an introduction. The conversation highlighted the importance of including information to help the audience 'know what the writer knows'. As the intervention progressed this participant often consulted the researcher to ask whether parts of the narrative made sense. This questioning demonstrated that although he was unable to judge what the audience required, he did understand that consideration of their needs was important. He was the only participant to acknowledge this in such a direct manner and this may reflect his low Pre-intervention ability.

Summary for David

David showed considerable improvements in narrative abilities not only with regard to narrative structure but the ability to complete the task and vary his imagination. With this in mind, although only two of the three areas of narrative structure improved and more closely approximated the TD mean, other areas such as narrative length, initial planning, task engagement and understanding of audience also improved. Overall, it appears that this intervention was beneficial for this participant and that an extended intervention would have facilitated more progress and development of narrative skills.

8.2.5.2.3 Case Study: Christopher

Descriptive Statistical Analysis: Christopher

Table 8.4 presents the pre-and post-intervention scores for the third participant in this intervention. It shows a reduction in Orientation and an increase in Complicating Action whilst Evaluation remains the same. These results are not what the intervention predicted, which was to increase use of both Orientation and Evaluation and reduce the

use of Complicating Action. For this participant in particular there were many factors and issues which effected performance at a late stage in the intervention and, therefore, it is suggested that these results may be inaccurate. These issues are discussed further below.

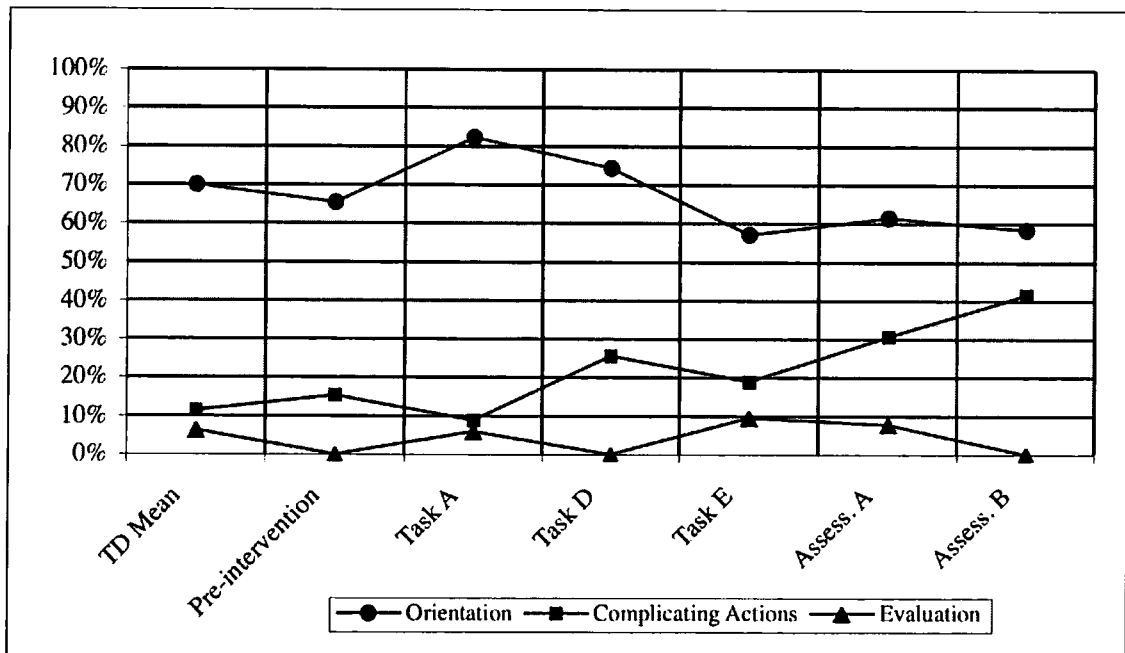
Table 8.4: A Comparison of Pre- and Post-Intervention Results: Christopher

	Pre-intervention	Post-intervention
Orientation	65.38%	58.33%
Complicating Action	15.38%	41.67%
Evaluation	0.00%	0.00%

Analysis of Change Throughout the Intervention: Christopher

Figure 8.6 demonstrates the pattern of change for Christopher within the intervention group as compared to the mean of the matched TD group from Study Two.

Figure 8.6: Intervention Stages: Christopher



The results above show that, until Task E, Christopher's use of Orientation clauses was improving i.e. getting closer to the TD mean. After this point, there is a reduction in performance. This reduction can also be seen at Task D for Complicating Action clauses which, until that point, were also improving. It is possible that external factors

(highlighted below) may have had a role in this change, however, it is also suggested that the intervention stages may have had an impact on the fluctuations seen above. The reduction in use of Orientation is accompanied by an increase in the use of Evaluation which became the focus of the intervention at that point. In addition, Assessments A and B see a reduction in the use of Orientation and Evaluation clauses, and an increase in the use of Complicating Action clauses. It is suggested that the cognitive load required to learn and apply all of the information included in the intervention was too great for this participant and a longer duration may have benefited this participant. It is also possible that the participant is demonstrating task fatigue or saturation after an intensive intervention. In addition, given the relatively high baseline, it is possible that the intervention was aimed at a lower level than this participant was capable of and, therefore, limited the narratives produced. This issue will be discussed further below.

As highlighted above, there are also several factors outside of the control of the intervention which may have affected the participant's performance. The following section presents a brief discussion of these factors in relation to the data presented in Figure 8.6.

Additional Information for the Analysis of Change: Christopher

This section of the case study presents a brief qualitative discussion of the additional issues which may have had an impact on the participant's performance within the intervention. This additional analysis will enable a better understanding of the problems surrounding the implementation of the intervention in this case study.

The main issue which had a marked impact upon Christopher's performance was an issue of bullying which began at the mid-way point of the intervention. This bullying was occurring during lesson changes and was addressed by school staff. However, he was markedly affected by the incidents and a drop in his self-confidence was noticeable.

This transferred into the intervention sessions, where Christopher became convinced that he was not able to write a narrative despite having written several good narratives prior to that point and showing good progress. This drop in self-confidence was addressed directly within the intervention with constant encouragement, not only to begin writing, which became a big problem for this participant, but also to continue writing. In addition, reassurance and praise was given throughout the sessions as well as through marking and feedback. These actions appeared to have an impact on Christopher's confidence with regard to narrative writing although it did not return to the level seen prior to this incident. This additional support was removed for the assessment in order to get an accurate measure of ability (although post-assessment feedback and reassurance was given to all participants) and thus may explain the particularly poor performance in those tasks. It should also be noted, however, that the assessments and the focus on his narrative writing in these sessions, appeared to reduce his confidence in his narrative abilities. This may have also had a negative effect on his performance.

Another issue that may have had an impact on the performance of this participant was the level of distractions present in the room in which the intervention sessions were held. As with Billy, this participant was easily distracted by noisy and, on occasion, disruptive pupils who came to visit the centre. This resulted in the participant getting 'off-task' and then having to spend time to regain concentration. It may be that these distractions affected the ability of Christopher to consolidate his new skills and, thus, apply them successfully.

Summary for Christopher

This section has presented the results for Christopher. It has highlighted that the final assessment measures suggest no improvement in any of the narrative components.

However, the analysis of change highlights a pattern of development which, it is suggested, was considerably affected by outside influences. It highlights that external factors which resulted in a noticeable reduction in the participant's self-confidence may have had a marked impact on the performance of that participant, who demonstrated an ability to use all of the narrative components effectively. It is possible that with a longer intervention Christopher may have regained his self-confidence and his narrative abilities may have continued to improve as they had been doing in initial intervention stages. However, it should also be acknowledged that the intervention techniques may not have been suitable for Christopher with regard to intervention level and task type, and thus resulted in the pattern of change shown above. This issue is discussed further in the Chapter 9.

8.2.5.2.4 Case Study: John

Descriptive Statistical Analysis: John

Table 8.5 presents the pre-and post-intervention scores for John. There is a marked decrease in the use of Orientation clauses, significant increase in Evaluation clauses and a slight decrease in Complicating Action clauses. These results show a considerable improvement in John's overall narrative structure. It should also be noted that John demonstrated a typical narrative hierarchy at the pre-intervention stage, although his atypical proportional use of components is also evident. This exemplifies the subtle impairments which have been highlighted in high-functioning individuals with ASD.

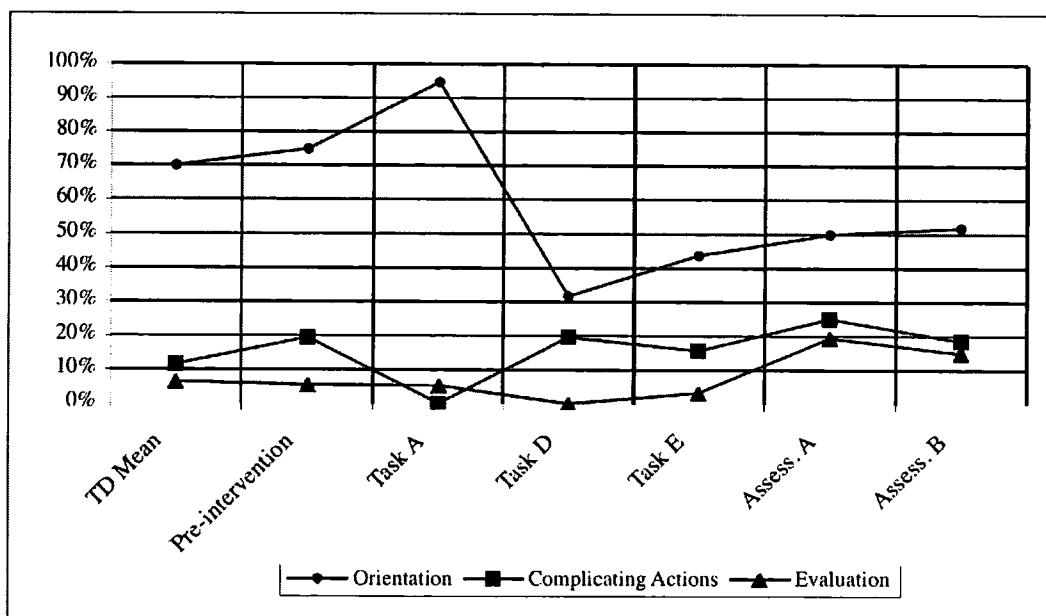
Table 8.5: A Comparison of Pre- and Post-Intervention Results: John

	Pre-intervention	Post-intervention
Orientation	75.00%	51.85%
Complicating Action	19.44%	18.52%
Evaluation	5.56%	14.81%

Analysis of Change Throughout the Intervention: John

Figure 8.7 presents the pattern of change for John throughout the intervention. The graph highlights the variation in the use of the narrative components throughout the narrative stages, thus providing a more detailed analysis of the intervention process.

Figure 8.7: Intervention Stages: John



These results show improvements in the areas of Complicating Action and Evaluation. Orientation has also moved in the right direction (i.e. decreased), however, there is a marked overcorrection which results in low usage of Orientation in Assessment B. Overall the use of narrative structure in this participant appears to have improved; however, although changes are in the correct direction for all components the over-corrections have resulted in minimal improvements overall. It is suggested that an extended intervention would have resulted in improvements through consolidation of skills.

There are several possible reasons for the over-corrections which stem from issues outside of the control of the intervention. These are discussed in the following section.

Additional Information for the Analysis of Change: John

The above sections have highlighted that whilst the changes seen are in the correct direction (i.e. towards the TD mean), over correction has resulted in no overall improvements. There are two main external factors which should be taken into account when examining the data from this participant.

First, the participant has an obsession with a fantasy world which he has created and which he uses to write stories outside of the intervention. As a result, maintaining focus on the task, varying content, and achieving a real planning session which was not regurgitation of a story he had already written were significant challenges. The intervention, therefore, included a considerable amount of discussion regarding content and encouraging other topics to provide inspiration, to no avail on occasion. This obsession resulted in the participant not using the stimulus material in several sessions and failing to use his planning when writing his narratives despite constant encouragement to do so.

Second, this participant missed a large proportion of the intervention through absence from school and, therefore, although all the intervention stages were completed, they were done in a shorter period of time. This may have resulted in John getting the main point of the sessions but not having a chance to fully develop the skills. It is possible that this in turn has resulted in overcorrection in the narrative components. Further investigation into the effect of narrative duration would be beneficial here to allow the skills to be consolidated and developed further.

Summary for John

In summary, the intervention results for this participant reveal that although changes are seen in John's use of Evaluation and Complicating Action clauses, the

overcorrection of his use of Orientation clauses results in minimal overall improvement. It can be suggested that the additional factors of excessive absence and reoccurring use of the same content may have impaired his performance in the intervention as a whole. It is suggested that, had John received the same input over the correct time scale, overcorrections may not have been so dramatic and, thus, further improvements may have been seen.

8.2.5.2.5 Case Study: Mark

As Mark did not follow the same intervention as the main cohort, this section presents a discussion of the developments noted over the course of the intervention. Due to his performance in Task Two (discussed in Section 8.2.4), no baseline data is available for this participant, therefore it is not possible to present an analysis of change. However, the observations and field notes taken by the research highlight some areas worthy of discussion.

The first issue to be raised is Mark's ability to compose a short story using a picture at the end of the intervention. At the beginning of the intervention Mark was unable to complete the narrative task in Study Two. However, at the end of the intervention he was able to complete Assessment B. It is suggested that after discussing what the purpose of short story was, and presenting Mark with some examples of short stories, he was able to complete the assessment task in the allocated time and to great effect. Furthermore, the narrative produced in Assessment B is marked as indistinguishable from the TD narratives when rated in the Questionnaire data (see Section 8.2.6). In addition, comments from the Mark's English teacher and SEN team indicated that this narrative was a considerable improvement on narratives he had previously produced and they were surprised to find that he had written the narrative in the allocated time.

On a non-academic matter, it was also noted by SEN staff that Mark had become more compliant with regard to completing narrative tasks set during classes.

Finally, it was noted that Mark seemed to have developed a new confidence about writing short stories. He expressed his interest in several of the short stories looked at during the intervention and discussed others he had found by himself. This was a very encouraging development as it appeared to highlight that development in this area had been achieved.

Overall, although no quantitative measures track the progress of Mark during the intervention, his performance in the final assessment when compared to the initial baseline task (Study Two) which he had been unable to complete demonstrates a sharp improvement. It is unclear whether these abilities are based on a further understanding of narrative or the introduction of planning and limitations or a combination of both of these skills. However, a new appreciation for short stories was evident in discussions with this Mark. This case presents the possible developments which could be made in this intervention to accommodate participants with higher levels of ability. This issue will be further addressed in Chapter 9.

8.2.5.3 Summary

This section has examined the results of the intervention carried out to improve the structural narrative abilities of individuals with ASD. It has presented five case studies; four case studies of young people who were deemed to be of the same level at the beginning of the intervention and one discussion Mark's progress during his individualised intervention. Through discussion and presentation of results, it has been shown that the least able participant, David, improves through the course of the intervention and moves closer to the TD mean. Christopher also shows improvement in the first half of the intervention although this then ceases and a reduction of abilities is

seen overall. John has been found to change in his use of narrative components, although overcompensation results in limited overall improvement. In addition, Billy shows improvement in his use of Orientation alone with Evaluation and Complicating Action moving away from the TD mean. It has been suggested that in the case of Billy and David, the level of the intervention may have been too low, thus limiting their narrative production, however, other factors may also have had an effect in each case. Finally, it has discussed the progress made by Mark during the intervention with regard to planning and time management.

This section has also highlighted a number of factors which effect intervention studies and the impact they may have on the progress and outcome. In particular, it has emphasised issues regarding obsessive interests, problems with time management and decision-making as well as those that relate to self-confidence and its effects upon the progress of the current intervention. It is suggested that areas of decision-making and obsessive interests may be particularly pertinent in ASD groups as they reflect core impairments discussed in Chapter 3.

Overall, this section has found the intervention presented above to have limited success. In order to further investigate the intervention outcomes, the following section presents a complementary analysis of the narratives produced in the intervention through the implementation of a questionnaire study.

8.2.6 Additional Questionnaire Analysis of Intervention Data

Following the main analysis of the intervention data, this section presents an additional analysis to explore areas of narrative performance which are outside of the remit of Labov's (1997) framework. In doing so it aims to provide a more comprehensive analysis of the data and identify areas of future interest for research in the field of ASD and narrative. In addition, it aims to further the understanding of the

narrative abilities of individuals with ASD and to develop the analysis of the intervention. To gain a better understanding of the level of narratives produced, the concept of narrative as a socially based skill is used to motivate a questionnaire which has been designed to identify aspects of the narrative which are additional to the narrative structural framework used above and which may be impaired in individuals with ASD.

This section presents the design and implementation of the questionnaire and provides an alternative analysis of the intervention data in order to further understand the issues raised by the previous analysis and provide an additional view of the intervention results. It is intended that this analysis will be viewed as an additional part of the intervention analysis which is intended to enhance, and not replace, the analysis presented in Section 8.2 above.

8.2.6.1 Pilot Study

This pilot study was carried out to test the efficacy of the questionnaire designed to elicit comments regarding the level of narrative ability demonstrated in a text. As such, it aimed to identify whether all of the questions were performing as expected and identify any unforeseen problems regarding question phrasing, interpretation of questions or presentation of data. The focus of the pilot study was to establish whether the questionnaire was an effective tool and, therefore, no analysis of responses with regard to narrative ability were carried out.

8.2.6.1.1 Methodology

Participants

Twelve typically developing individuals were recruited for this pilot study. All individuals were part of either the MSc or MA in Developmental Psychology at

Durham University in the academic year 2004-05 and it was within this forum that they were recruited during a training seminar. This was the only criterion used in the selection process. All of the individuals had native or native-like English and had ages ranging from 22-25 years old.

Procedures

The participants were given a set of questions (see Appendix Twenty-three for the full questionnaire) along with data. The data included all 31 narratives transcribed and previously analysed for Study Two. As such all the narratives used in the data were produced using single picture stimuli and all were completed within 30 minutes. The data were rated blindly; the participants did not know that the study involved individuals with ASD, although they were aware that narrative was the focus of the investigation. In addition, the data were presented in a random order so that typically developing data appeared beside the data from individuals with ASD so as to avoid any patterns emerging.

The participants were asked to rate the stories on the questions presented above to the best of their ability. By doing this it was hoped that the investigation would be able to identify what a layperson considers to be important within a narrative as well as exploring the global impression given by each narrative.

The participants were given the following instructions to complete the rating:

"Please use this rating scale to rate the narratives you have been given. You should read the narrative and then to the best of your ability judge it on each of the characteristics. These ratings are to enable the research to identify what makes a good narrative."

The decision to include questions which focus on maturity, audience awareness, and overall level of the narrative was an important one. Following the initial investigation

into the intervention data, it was suspected that changes were being missed by using only one framework for analysis which although adequate for its purpose, was unable to account for other areas of narrative abilities which were of importance to the investigation (for example, narrative content). Introducing more general questions on general structure enabled the investigation to become multidimensional with several lines of investigation. This was an important benefit given the nature of narrative within society.

Ethical Considerations

To ensure that all the young people who had taken part in the study remained anonymous, all the data were given letters as titles and all identifying information was removed. The data were presented in a transcribed form so that none of the young people's handwriting could be identified or influence impressions (i.e. bad handwriting may have been linked to a bad narrative regardless of level of the narrative). It is believed that these precautions were sufficient to meet ethical considerations. In addition, although the participants doing the rating completed it as part of their degree course, they were then asked to give their consent to allow the data to be used in the current study and participation was not compulsory. All participants consented.

Question Design

The questions were designed in order to identify additional components of narrative ability that had been highlighted in the literature. As such it focused on five main areas: engagement and consideration of audience, plot development, structure, narrative maturity, and character development. The questions were:

- A) As a reader did you feel engaged in the story?
- B) To what extent did you feel that the writer was targeting you as a reader?

- C) Did you think that a good story line was developed?
- D) Did you think that the story was well structured/easy to follow?
- E) Overall how would you rate the maturity of the narrator?
- F) Could you identify with/believe the characters?

These questions directly related to some of the main non-structural findings within the existing literature. Question A and B were included to establish whether there were any improvements with regard to audience consideration and, therefore, whether the narratives reflected an accommodating approach with regard to audience. This has been highlighted in Chapter 4 as an important feature of narrative which is developed by TD children. Question C was designed to focus on whether the plot had been developed in an appropriate way. This question aimed to further the understanding of the use of the narrative components such as Complicating Action, and Orientation and not just their inclusion within the narrative. This was in contrast to the previous analysis which looked at proportion of use but not content. Question D was designed to allow the participants to assess the overall structure of the narrative from a naïve and subjective point of view without knowledge of structural frameworks of analysis. This question allowed the investigation to further assess the applicability of the narrative framework and whether the subject view of the level of narrative structure ability demonstrated in a text mimicked that indicated by the narrative analysis framework used in the initial analysis. Question E assessed the level of development indicated by the narrative. It was expected from existing narrative development literature that the TD young people involved in the study (aged 13) would receive a good or excellent score on this item which would suggest a mature story which was near adult maturity. The prediction for the Intervention participants was that they would be rated as below this level. Finally, Question F focused on character development and the use of Evaluation. As with

Question C, the focus was not on the amount included, as had been the case with the previous framework analysis, but on the way that component was used by the individuals. Finally, the questionnaire allowed the participants room to comment on their impressions of the storyteller and the narrative overall.

The scale used was a Likert Scale which required participants to identify a rating for each question. Each rating was allocated a verbal description to limit the amount of individual difference in interpretation of the possible responses (see Appendix Twenty-three).

8.2.6.1.2 Pilot Study Results

This pilot study presents the analysis of reliability regarding the questionnaire itself. As this questionnaire has been devised for the purpose of the current investigation and has not been used before it is imperative to ensure that the individual questions perform as expected.

In order to identify whether the questions could be grouped into smaller categories for following analyses, a factor analysis was carried out. This analysis revealed that only one component was present and, thus, all of the questions could be considered to be measuring the same group of elements.

As a result of the factor analysis identifying one group, only one reliability analysis was carried out. This analysis assessed whether the questions are performing as expected and how these questions correlated to one another. In order to do this a correlation measure was calculated which determines whether sets of items are producing consistent results. In other words, if a narrative is considered to be a good narrative it should score highly on all of the questionnaire items. Similarly, if a narrative is poor it should score poorly on all of the items. To analyse this, a Cronbach's α score was calculated. This reveals that all of the questions are highly correlated to one another

(Cronbach's $\alpha = 0.944^{10}$). In other words all questions are consistent with the overall results of the questionnaire i.e. overall high scores are made up of high scores in each of the questions. These analyses demonstrate that the questionnaire performs the function it was designed for.

In addition to the above statistical analyses, a discussion was held with the participants to identify any potentially problematic areas of the questionnaire completion which may have been unidentified by the statistical analysis. This discussion revealed that the only problem with the process related to the size of the data set. This issue was resolved by the design of the following implementation and only the intervention participants would be included.

This brief but valuable analysis of pilot data revealed that the questionnaire was suitable for further use in the current investigation. As a result, no changes were made to the design and, thus, no further pilot data were collected.

8.2.6.2 Main Questionnaire Study

Following the testing of the questionnaire in the pilot study reported above, the main questionnaire study was carried out. The aim of this study was to analyse the data via another, more subjective method in order to establish the level of more cultural elements which may have been missed by the initial structural analysis but which may be considered impaired. In order to achieve this, the questionnaire discussed above was used to elicit comments regarding the narratives from individuals who were not trained in either education or narrative frameworks. The results for Mark are not included in the following analysis but are discussed independently below.

¹⁰ Cronbach's α above 0.8 is considered to be highly correlated (Field, 2005)

8.2.6.2.1 Methodology

Participants

Thirteen typically developing individuals were recruited for this study. As in the pilot study, all individuals were part of either the MSc or MA in Developmental Psychology at Durham University in the academic year 2005-06 and it was within this forum that they were recruited during a training seminar. Again, this was the only criterion used in the selection process. All of the individuals had native or native-like English and had ages ranging from 22 to 47 years old. It should be noted that these participants were not linked to the participants from the pilot study and had not been given any additional information regarding the study prior to completing the questionnaire.

Procedures

The procedures were the same as the pilot study and, therefore, the instructions, the questionnaire (and rationale) and guidance given to the participants were also the same (see Section 8.2.6.1.1).

The data set included pre- and post-intervention tests from the four individuals involved in the intervention as well as four randomly selected TD stories from Study Two as representative of the whole TD group. There were, therefore, 12 stories in total with four stories from four individuals in the TD group and eight stories from the intervention participants: four pre-intervention and four post-intervention.

Ethical Considerations

As no issues were raised in the Pilot Study with regard to ethical procedures, all the same precautions were taken to ensure the anonymity of the narrators and meet ethical guidelines.

8.2.6.2.2 Results for Main Questionnaire Study

This section presents the reliability statistics and overall results of this study. The following section discusses these results in relation to the findings from the initial analysis presented in Section 8.2.

Reliability Statistics

The Questions

Before an analysis of response could be carried out it was important to ensure that the questions patterned in the way that was expected. In order to achieve this, Cronbach's alpha analysis was carried out. This revealed that all of the questions were highly correlated to one another (Cronbach's $\alpha=.81$). A factor analysis carried out in the Pilot Study identified that the questions performed as one set. To ensure that this was again the case for the new set of participants who were using the same questionnaire, another factor analysis was carried out. This supported this initial finding and only one component was identified.

The Participants

In addition to ensuring that all the questions perform similarly, it was also important to establish that all the participants had responded in a similar fashion to the questionnaire. In order to ensure this, an initial examination of the distribution of scores within participants found that all participants showed a normal distribution for all questions, i.e. they used the whole range of scores to rate the data. In addition, a further examination ensured that no single participant could significantly affect the data and produce an unrepresentative overall result. Due to the sample size small, this was an important factor. All of the participants were found to be performing within a normal distribution. This result meant that all of the participant's scores could be grouped together for the analysis, thus enabling each story to be given one score for each

question. With this in mind the following analysis compared total scores for each story to allow for a concise and comprehensive analysis.

Perceived Narrative Abilities

This section reports the participants' responses to the questionnaire and the differences that are seen between the TD group and the intervention participants as well as within differences between pre- and post-intervention ratings.

Analysis of the Group Means

The table below demonstrates the mean scores for each question in each of the groups, and demonstrates that the pre-intervention narratives are rated lower than the TD group's narratives. In addition, it demonstrates that although the post-intervention narratives also rate as lower than the TD group's narratives, the post-intervention scores more closely approximate TD performance. The data were initially analysed using both means and raw total scores, however as there was no difference in the data only the means will be reported here.

Table.8.6: Mean Questionnaire Scores for Narratives from TD and Intervention Participants

		Questions						Mean Total ¹¹
		A	B	C	D	E	F	
TD	Mn	3.62	3.31	3.46	3.42	3.88	3.46	21.15
	SD	0.51	0.40	0.59	0.69	0.58	0.35	0.71
Pre-intervention	Mn	2.90	2.52	2.92	3.00	2.81	2.71	16.87
	SD	0.89	0.94	1.01	0.82	0.76	0.98	1.34
Post-intervention	Mn	3.10	2.71	3.06	3.19	3.04	2.79	19.64
	SD	0.75	0.65	0.75	0.86	0.73	0.65	1.34

Overall the TD group score significantly higher than both the pre-intervention group ($t=10.17$, $p<0.001$) and the post-intervention ($t=3.59$, $p<0.015$) groups¹², demonstrating

¹¹ The maximum possible total score for all narratives is 31.

clear group differences. It can be concluded that the pre-intervention group are significantly impaired in their narrative production with respect to the values considered in the questionnaire. This supports the findings presented in Chapter 6 which found individuals with ASD to have impaired narrative abilities. In addition, these results highlight a significant difference between the TD group and the post-intervention group. However, as highlighted above, they also identify an improvement in narrative abilities as the significance is lower for the post-intervention group than the pre-intervention group, thus suggesting that the group has moved closer to the typically developing norm.

Analysis of the Individuals in the ASD Group

Motivated by the findings of the initial intervention analysis which suggested that the intervention participants could be divided into two groups, the individual scores for the intervention participants were also examined. The table below presents these results to enable a further understanding of the data.

Table.8.7: Mean Questionnaire Total Scores for Narratives from Intervention Participants

		Pre-intervention	Post-intervention	Significance (t-test)
Billy	Mn	22.15	15.59	p<0.002
	SD	4.76	6.58	
David	Mn	9.46	18.23	p<0.002
	SD	2.60	6.58	
Christopher	Mn	17.38	13.92	p<0.047
	SD	6.05	3.92	
John	Mn	18.23	23.69	p<0.000
	SD	4.99	4.68	

The above table demonstrates that as was seen in the initial investigation of intervention outcome, the intervention group can be divided into two distinct halves.

¹² T-tests (dependent t-test for within subject and independent t-test for between subjects) have been used to determine the statistical significance of differences.

Whilst two members of the intervention cohort showed significant improvement from pre-intervention to post-intervention, two members show a significant decrease in their scores. It should be noted that whilst the change is significant for all individuals, the significance levels reveal a stronger significance for the change shown by the group who improved. Potential reasons for this split will be discussed in detail below (Section 8.3). This finding supports the findings from the initial analysis of the intervention (Section 8.2).

The mean scores are representative of the scores recorded for each question. These are shown in Table 8.8.

Table 8.8: Questionnaire Scores for Individual Participants (divided by question)

		A	B	C	D	E	F
TD Mean		3.62	3.31	3.46	3.42	3.08	3.46
Billy	Pre-intervention	3.85	3.46	3.92	4.00	3.39	3.54
	Post-intervention	3.00	2.85	3.15	3.39	2.29	2.04
David	Pre-intervention	1.69	1.23	1.54	2.00	1.69	1.31
	Post-intervention	2.39	2.46	2.46	2.15	2.39	2.08
Christopher	Pre-intervention	3.08	2.85	3.31	3.00	3.08	3.15
	Post-intervention	2.85	2.00	2.54	3.00	2.77	2.54
John	Pre-intervention	3.00	2.54	2.92	3.00	3.08	2.85
	Post-intervention	4.15	3.54	4.08	4.23	4.08	3.62

The above table demonstrates that for each question Billy and Christopher reduced their scores where as David and John increased their scores. This further supports the findings discussed above in relation to the mean. It should be noted that one exception to this is the score for the Question D (which focuses on structure) with regard to the

narrative produced by Christopher. There is no change in this score suggesting that, subjectively, the structure remained stable across the two tasks. This is in contrast to the findings in the previous section which found that, following Labov's framework the structural, his ability appeared to decline. It is suggested that the more comprehensive analysis of narrative structure is the more robust measure in this case and, thus, is followed in the current discussion. However, further analysis and discussion with participants regarding this narrative would be beneficial in any future investigation.

The Results for Mark

As there is no baseline data for this participant, only the final assessment data was included in the narratives rated in the questionnaire study. A comparison of these scores with the TD mean reveals that the questionnaire raters considered the narrative produced in Assessment B to be of a superior level in all questions (TD mean total score: 21.15; Mark's mean total score: 22.7). This suggests that Mark has outstanding abilities in the area of narrative composition. It is hypothesised that his narrative abilities reflect the fact that he is an avid reader of novels. At the beginning of the intervention, discussions with Mark identified that his definition of narrative may have been too narrow and he considered a story to be a novel and nothing else. The intervention focused on changing his view of stories to accommodate short stories too. It is suggested that by extending his definition of a narrative, the intervention enabled him to use his extensive knowledge and well developed schema to great effect. However, due to the lack of comparative data no conclusions can be reached with regard to the effectiveness of the intervention in this case. Finally, it should be noted that whilst Mark has the highest IQ in the group and thus, his high performance in the intervention may reflect this to some extent, he does have a robust diagnosis of high-

functioning autism and thus his inclusion in the intervention presented an interesting and valuable challenge.

8.2.6.3 Summary

In summary, the results of the questionnaire study find that the intervention participants can be split into two groups with regard to the factors considered by the questionnaire. This finding supports the results presented in Section 8.2, which also identified the same division. This additional analysis allows the areas of audience consideration, plot and character development, maturity and general narrative structure to be taken into account which, therefore, provides another dimension to this investigation of narrative abilities. This allows for a more comprehensive analysis of the narrative abilities demonstrated by the individuals which provides a more detailed picture of their relative strengths and weaknesses with regard to the narrative as a whole.

The following section presents a discussion of these results alongside the initial investigation of intervention outcome and highlights the potential of these findings in relation to the wider literature and implications for future applications.

8.3 Discussion

This chapter has presented the results for the intervention study and a questionnaire designed to elicit a subjective view of the level of narrative ability in pre- and post-intervention narratives. It has revealed that whilst the intervention was successful overall for David who is considered to have improved in both analyses, the picture for the other participants is more complex. John was considered in the initial investigation to have overcorrected and although the changes made were in the right direction for all the narrative components, the change was too dramatic and so no overall improvement was seen. However, analysis of the questionnaire responses found that in other aspects

of the narrative the post-intervention narrative significantly better than the pre-intervention narrative. This finding highlights the importance of a comprehensive analysis using more than one method to ensure that all aspects of the narrative are examined to provide a complete representation of abilities.

Billy and Christopher both presented with a largely negative response to the intervention (although Billy did improve in his use of Orientation) and this was supported by the questionnaire results which also considered the pre-intervention narratives to be better than the post-intervention narratives. These findings are of concern and several explanations are suggested. First, as discussed above external factors may have affected the performance of these individuals and this is reflected in the analysis of change presented for Christopher. These external factors are outside the control of the intervention and, thus, the focus within the intervention is to limit the impact of these factors as much as possible. It is suggested that a longer narrative duration would enable the impact of these factors to be limited further. Billy also had issues regarding obsessive use of the same characters and distractions from fellow pupils not involved in the intervention. Although every effort was made to limit the influence of these factors, they continued to have an impact.

Second, due to the intensive nature of the intervention and the repetition of story writing tasks, it is possible that the reduction in ability may be as a result of task fatigue which may have limited concentration, reduced interest in the task, and the level of care taken over task completion.

Third, it is possible that input saturation could have resulted in the decrease in demonstrated abilities. The intensive nature of the intervention may have required the participant to learn too much, too quickly, a factor which resulted in cognitive overload or saturation during the intervention. Both of these issues could be accommodated for in

future intervention by extending the duration of the intervention to avoid an overload of information which could result in saturation and allowing more time to consolidation of skills learnt. In addition incorporating a wider variety of lesson formats within the intervention to could also prevent task fatigue and through the incorporation of additional tasks it may also be possible to target other aspects of narrative such as lexical variety and style.

Finally, it is possible that the task level was too low for these two participants. Billy and Christopher are the most able in the intervention group with regard to IQ measure obtained in Study Two and completion of the task in Study Two. It was initially thought that the group were markedly homogeneous in their linguistic and narrative abilities, and so one intervention was designed to accommodate all four participants. As the worksheet design of the intervention renders the level of the tasks crucial in its success, it may be that even more discrete task levels are required to successfully assign task levels to participants and increase individualisation. This issue requires further investigation, however, and it is suggested that more discrete levels of intervention alongside an extended and more flexible approach may result in a positive outcome for all. In addition, the stages in the intervention could be supplemented and extended to provide a spectrum of levels and entry points. With discrete levels and stages, it would be possible to design an intervention which could be entered into by any individual with any level of ability, thus allowing for the intervention to be implemented with all pupils in mainstream inclusive settings. The more advanced stages of intervention may not include story frames but may use points, key words, reminders, stylistic variation and genre-specific features which are seen in different types of narrative to allow for very advanced storytellers to benefit. The intervention could also incorporate lexical tasks and tasks which aim to increase the complexity of narrative structure and allow

individuals to, as novelists do, flout rules of narrative in order to create effect and produce advanced level narratives. Furthermore, use of the frames or prompts at advanced levels would encourage forward planning, supporting those who find global structuring problematic at every level of narrative ability. For individuals with fewer narrative abilities, it is possible to provide more structured story frames and basic lexical tasks to allow individuals to develop narrative structural abilities alongside the vocabulary which would allow them to enable the narrative to flow.

The current chapter has reported the successful adaptation of this intervention to accommodate a higher level of narrative ability. The progress made by Mark, although not measured in the same way as the main intervention cohort, provides support for the further development of these materials to accommodate additional levels of ability, although the focus of narrative structure may be replaced by other areas of narrative writing. These additions would increase the applicability of the current intervention techniques and incorporate some of the techniques used in mainstream schooling whilst providing an extra level of support where required, thereby providing teachers with additional tools to facilitate the inclusion of high-functioning individuals with ASD in mainstream education.

It is also important to note that the above analysis has also suggested that all participants would benefit from an extended intervention which may have resolved some of the issues regarding task fatigue, disruption from external factors and saturation. In addition, it would have allowed further consolidation of the skills developed and may have facilitated continued progress in those aspects which were found to be improving. This is an issue which is paramount in the development and testing of future interventions in this area. In mainstream education time is limited; however, as Literacy underpins all aspects of the curriculum, there are many more

opportunities for the implementation of an intervention which focuses on the structure of narrative. These opportunities occur, not only in Literacy but Science, and many of the Foundation subjects. By providing and encouraging the use of structural guidance in all types of prose writing, fiction and non-fiction, it is suggested that the practice of planning, and accommodation of audience may be encouraged. Once these skills have been developed and links between styles made explicit, the application of genre specific features (for example, structural features required in narrative) may be easier for an individual with ASD, if they are presented as set of rules or facts, or another way to write, and not as an imaginative and inherently developed talent. By presenting narrative in this way, it is suggested that individuals with ASD would be able to achieve success in narrative production, although their approach may be different. This, in turn, would minimise differences within the classroom and, therefore, help to promote inclusion.

In addition to the issues highlighted above, there were several methodological recommendations highlighted in Chapter 7. Providing clear instructions (Seach *et al.*, 2002), and self-initiated intervention (Koegel, 2000) were both identified as features of successful interventions. These techniques have all been adapted for written interventions and implemented in the current study. In particular, the focus on planning as a pivotal skill in order to allow for the development of good narrative structure, and the self-initiated and self-monitored work which was asked of the participant allowed them to develop and create their own ideas whilst following their plan and therefore, monitoring their production to ensure they were providing the relevant information and appropriate structure. In addition, this allowed the skills to be generalised within the task, thus offering the potential for the skills to be developed outside of the intervention context. In addition, providing feedback was an integral part of the current intervention

and allowed for discussion of participants' achievements and further support for developing their weaker skills.

Following the recommendations from existing research (Jordan and Powell, 1995), the current intervention has used the analysis of narratives and the identification of the function of a narrative as a focus for several sessions. These sessions aimed to clarify the individuals' understanding of narrative and the communicative function of this area of language. Whilst this was directly related to the development of narrative structure and the function of the narrative components, it also promoted generalisation by encouraging an understanding of narrative as a style of language use and not unique to the context in which the intervention was presented. Furthermore, developing an understanding of the function of narrative components using the analysis of narratives also allowed the intervention to promote further development of a narrative schema by removing sections of the narrative (highlighted by Jordan and Powell (1995) as a effective communication intervention tool) and requiring the participants to complete the story.

The lack of accessible interventions which can be readily applied by parents and teachers and the limited number of interventions which focus on the written skills of this population have been identified in previous research and provided motivation for the current investigation. The intervention aimed to provide an intervention which could be easily applied in mainstream school as part of whole class teaching. It is, therefore, accessible to teachers and parents (within homework tasks). Although the intervention requires further development and testing, it is proposed that this style of intervention offers considerable benefits with regard to ease of application. This should be a core consideration for future research which aims to continue the development of this

intervention. Such research should, therefore, make ease of implementation the core consideration in any design modifications.

In addition, the discussion of Mark has raised questions with regard to the level and presentation of narrative tasks in this group and the potential ability of individuals with ASD in this area. Furthermore, it has highlighted the potential of the intervention to be extended to accommodate higher levels of ability. This issue is discussed further in Chapter 9.

Finally, this section has highlighted the difficulties associated with carrying out an intervention and, in particular, the application of intervention techniques in a mainstream environment. Influences outside the control of the intervention, such as social interaction difficulties, influence of peers, limited contact time, and the individuals' anxieties and problems, have all been identified as having an impact on the performance of the individuals during the intervention and, therefore, have had a potential impact on the intervention outcome. It is crucial that any future intervention of this kind is able to fully account for external factors which may have an impact on outcome. It is also vital that these issues are recognised as an inherent part of intervention in inclusive mainstream schooling, and, for some issues, of intervention with individuals with ASD in a broader sense. These issues cannot be controlled for, and their impact cannot be prevented. However, by accommodating them within the analysis of the intervention, it is possible to better understand the performance of participants and, thus, the impact of the intervention.

8.3.1 Can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme?

This chapter has revealed mixed success with regard to the current intervention technique which identified improvements in at least one area of narrative ability for three

of the four cases in this intervention whilst finding a reduction in abilities for two participants. Therefore, overall, although the research has been unable to provide a decisive answer for this question, it has highlighted several areas of future research and has suggested that, as some improvement has been identified within this cohort, further investigation of intervention techniques is warranted.

8.3.2 Conclusion

In summary, the inconclusive findings as well as the issues raised above suggest that whilst no clear conclusion has been reached, positive effects were identified and this intervention design is worthy of further study. Whilst two individuals did not appear to benefit from the intervention, two participants did to some extent. These improvements should be further examined to establish any potentially valuable approaches to the development of narrative structural abilities. In addition, the apparent reduction in abilities seen in two participants also require further investigation to establish whether intervention internal reasons, such as task or intervention design, have contributed to this decline. In particular, an investigation into the possible negative impact of a story-frame which may be too elementary for an individual would be extremely valuable for education as a whole as the use of templates for writing is a frequently implemented technique in mainstream primary education in the UK.

The improvements identified above may be one way in which to further develop and assess the current intervention design. Further development and analysis would also allow a larger cohort to be tested and replication studies to be conducted which would also provide further information regarding the effectiveness of the intervention.

In conclusion, it is suggested that the further investigation of narrative intervention in mainstream education is a valuable direction for future research. By improving the narrative structural abilities of individuals with ASD, it may be possible not only to

improve their academic achievement in Literacy, but also in other areas of the curriculum. Furthermore, it is proposed that the development of the narrative intervention presented in this thesis could provide teachers with an additional tool to facilitate the inclusion of high-functioning individuals with ASD in mainstream education.

The following chapter constitutes the conclusion of the thesis, providing a further discussion of the findings presented in the thesis, and identifying improvements, adaptations, and areas for further research.

Chapter 9 : Further Discussion and Conclusion

This thesis has presented several novel investigations which focus on the structural narrative abilities of young people with Autism Spectrum Disorder (ASD) in mainstream education. These investigations were all designed to complement the existing research in this field and develop an area which has been identified as requiring further investigation. In order to situate the novel research in this thesis, Chapter 2 presented a brief discussion of the policies and current issues surrounding inclusion of individuals with ASD in mainstream schooling in England. In addition, it highlighted examples of inclusive practice and identified the role narrative intervention might play in facilitating inclusion of these individuals. The purpose of this section was, therefore, to situate the research presented in this thesis within inclusive practice in England. This chapter also identified the motivation behind the research as providing additional tools to better equip teachers in mainstream education to facilitate the inclusion of high-functioning individuals with ASD. Chapter 3 continued the review of literature by discussing ASD, its diagnosis, impairments, and key theoretical approaches. Through reviewing the current literature in this area, the chapter highlighted several areas of impairment which suggest that some areas of narrative structure may be problematic for individuals with ASD, specifically Weak Central Coherence (WCC), Theory of Mind (ToM) and general language problems. It also highlighted some strengths in ASD which could be used to support any potential impairments found in structural narrative abilities in individuals with ASD, specifically a local-processing dominance in WCC which resulted in more focus on detail or parts and wide lexical abilities. This focus on the abilities of high-functioning individuals with ASD reflects the ethos of the thesis and the investigations it presents. Chapter 4 extended this discussion of literature into the area of narrative, narrative structure and the abilities of Typically Developing (TD)

individuals in these domains. This review presented a typical developmental trajectory for narrative development and went on to highlight several possible frameworks for the analysis of narrative structure. In addition, this section highlighted the positive and negative aspects of several of these analytical frameworks with regard to their application in the novel research presented in this thesis. In conclusion, it identified Labov's (1997) approach to narrative structure to be the most applicable to the current investigations. This framework was adopted for all of the following analyses. Chapter 5 concluded the literature review sections for the preliminary part of the thesis by presenting a discussion of the narrative abilities of individuals with ASD. The chapter highlighted the abilities and impairments in narrative in general and identified contradictory findings with regard to structural narrative abilities in high-functioning individuals with ASD. This chapter concluded that previous research into the narrative abilities of individuals with ASD had identified several areas of general impairment but had been unable to reach a consensus with regard to the structural narrative abilities of this population. The chapter offered several possible explanations for this disagreement, identifying elicitation tasks as potentially problematic when eliciting structural data. In addition, the chapter identified a substantial body of evidence drawn from Chapters Three and Four as well as research on narrative and ASD which offered support for the existence of structural impairments in high-functioning individuals with ASD. In summarising the existing literature, the chapter highlighted several issues to be considered in the current novel research and presented the four research questions addressed in the thesis. All of the discussions presented in the first five chapters of this thesis directly contributed to the research questions, the formation of the hypotheses presented, and informed the design of the studies presented in this thesis. As such, these

initial chapters provided background information for this novel research, identified gaps in existing research, and provided motivation for the studies presented in this thesis.

Chapter 6 presented Studies One, Two and Three which represent a novel contribution to the field of narrative structure and ASD. The three investigations reached two main conclusions. Firstly, that individuals with ASD were impaired in narrative structure with regard to their use of Complicating Action, Evaluation and Orientation clauses. Secondly, they concluded that elicitation tasks do have an effect on the structure of the narrative produced, however, this effect was not as predicted. Results demonstrated that the narratives were not supported or improved by multiple pictures but rather that the use of this stimuli may have limited the structure of the narratives produced. These findings were discussed with regard to previous research and were applied to the design of the intervention study presented in Chapter 8.

Chapter 7 presented a further review of existing literature focusing on the area of interventions with individuals with ASD and, in particular, those individuals at the high-functioning end of the spectrum. It was concluded that whilst there were very few interventions which focused on this population, and even fewer which focused on improving the written abilities of such individuals, the techniques used in other interventions such as the identification of pivotal skills, structured approaches to intervention, and focusing on the function of language could be used to inform the current investigation. These findings were used to influence the design and implementation of the intervention presented in this thesis, as highlighted in Section 7.2.

Finally, Chapter 8 presented the intervention methodology, results of a Labovian analysis, and the results of a questionnaire analysis. The aim of the section was two fold: firstly, to present the methodology in a clear and easily replicated fashion in order

to allow adaptation for implementation in mainstream education if applicable. Secondly, to assess the success of the intervention for the case studies discussed and areas for further development and research. Overall, the results divided the four participants into two groups and whilst the intervention successfully improved the narrative structural abilities of two of the participants, it appeared to reduce the level of demonstrated ability for the other participants. This chapter raised several methodological questions and highlighted areas for further research. Specifically, it identified several positive outcomes and suggested that the techniques used were worthy of further research, refinement and development.

Overall, this thesis had four research questions:

Question One: What is the level of global narrative abilities in high-functioning individuals with ASD?

Question Two: Do elicitation tasks affect the performance of individuals with regard to the global structure of written narrative?

Question Three: Can the structural narrative abilities of high-functioning individuals with ASD be improved through a specific intervention programme?

Question Four: What is the most appropriate way to research written narrative abilities in high-functioning individuals with ASD?

The following discussion aims to address each of these questions in light of the evidence presented in this thesis. This chapter will then go on to discuss the wider issues surrounding the conclusions presented and possible extended applications for the findings in this thesis.

9.1 What is the Level of Global Narrative Abilities in High-Functioning Individuals with ASD?

The initial aim of the thesis was to establish whether individuals with ASD were impaired in the area of global narrative structure and, thus, provide guidance for the intervention design. As discussed in Chapter 5, the existing literature had investigated the narrative abilities of individuals with ASD in general as well as specific consideration of structural narrative abilities. However, no conclusions had been reached with regard to global structural narrative abilities in individuals with ASD. As such, it was important for the Studies One and Two to establish the level of structural narrative ability in this population in order to inform the narrative intervention which was to follow. Through the synthesis of literature from several disciplines which identified potential impairments in narrative structure (Chapter 5), as well as general impairments in the ASD population (Chapter 3) and narrative development (Chapter 4), it was hypothesised that high-functioning individuals with ASD would be impaired in their use of Orientation clauses and Evaluation clauses. Complicating Action clauses were identified as an area of possible strength for these individuals. The results from Study One and Study Two supported the hypothesis and identified the use of Orientation and Evaluation clauses as impaired in the narratives of high-functioning individuals with ASD. Furthermore, these individuals were found to use a significantly higher proportion of Complicating Action clauses than the TD control group.

This investigation and analysis was limited by the number of participants included in the research and is acknowledged as a limitation of these studies. This limitation was due to the requirement for average cognitive ability, mainstream academic ability and issues of access. As a result of the limited sample size, conclusive results were not possible for all narrative components in all contexts, however, trends were robust and several areas of statistical significance were identified thus enabling conclusions to be

drawn. In order to address this issue for future investigations, studies may wish to extend the geographical area or collaborate with a Local Education Authority (LEA) in order to increase the number of possible participants. In addition, the British Psychological Society's new guidelines on participant recruitment identify opt-out policies as appropriate for research of this kind. This may be another option which would increase the number of participants.

In summary, this thesis concludes that high-functioning individuals with ASD in this investigation do demonstrate impaired narrative structural abilities. This is reflected in an atypical use of Orientation, Evaluation and Complicating Action clauses. Whilst this supports the research hypothesis, further research with a larger sample of participants is required to extend the conclusions outside of this analysis. However, this finding provides additional evidence to a growing field of research and in doing so is valuable in highlighting possible future avenues of research.

9.2 Do Elicitation Tasks Affect the Performance of Individuals with Regard to Global Narrative Structure?

The second research question in this thesis was investigated through a comparison of the results yielded from Study One and Study Two which was presented as Study Three. Previous research has highlighted that elicitation context can have an effect on an individual's performance. In addition, existing research has identified impairments in individuals with ASD, both general and linguistic which suggested that structural narrative impairments might be present. In combining these research findings, the current thesis hypothesised that elicitation tasks would have an effect on the performance of high-functioning individuals with ASD with regard to global narrative structure. Study Three found that there was a statistically significant difference between an individual's performance on the tasks using two types of elicitation materials (a

single picture and multiple pictures). It was also found that direct replication of the task did not affect the performance of the individuals, therefore suggesting that task type was responsible for the differences identified and offering support for the research hypothesis.

However, the effect found within the components demonstrated that multiple picture task appeared to limit the narratives produced. Existing research suggested that model stories presented before the completion of a narrative task supported narrative composition. However, results presented in this thesis suggest that this is not the case for multiple pictures. It appears from the novel research presented that the use of multiple pictures as an elicitation tool within the narrative task may limit the production of individuals and, therefore, may result in poorer narratives being produced through this elicitation technique. This highlights important wider issues regarding the design of elicitation techniques in future narrative-focused investigations and two main issues should be addressed. First, the elicitation task does have a significant effect on the data collected and should, therefore, be carefully considered in any analysis of narrative structure to ensure reliable, representative results. Second, the effect of the elicitation task may not be positive. In other words, the elicitation task may limit an individual's narrative production and, therefore, yield disproportionately poor and unrepresentative data. These issues require further research not only to ensure the reliable nature of future investigations but also to allow for intervention techniques to be informed by elicitation tasks which may positively effect the production of individuals with a variety of impairments with regard to narrative and wider cognitive impairments.

In addition, it is important to acknowledge that predictions relating to the effect of model narratives may not be applicable when storybooks are used. The visual rather than linguistic format of the stimuli may alter the effect it has on the participant. This

also requires further investigation to establish possible differences between the stimuli and, thus, potentially highlight areas of application for these stimuli in narrative intervention.

Furthermore, it is suggested that future research might also consider the target age group for the multiple pictures and the potential effect that may have on the narrative production. However, in the current study a difference in elicitation techniques was identified independent of this potential factor (i.e. all pictures were of the same level, had the same target audience and were drawn by the same person in all the stimuli used).

In conclusion, the investigations presented in this thesis have identified that task context has an effect on the narrative production individuals with ASD. This supports the research hypothesis in this thesis. However, the effect was not as predicted. In addition, it has identified that context also has an effect on the narratives produced by typically developing individuals. This area requires further investigation in order to establish the role of narrative stimuli in narrative production for both TD individuals and individuals with ASD. In addition, as noted with regard to Research Question One, the results in this thesis are limited due to the small sample size and thus conclusions cannot be generalised outside of this study. However, conclusions highlight areas worthy of further investigation with a larger cohort. Finally, the effect of different elicitation tasks on the outcome of investigations must be noted in future comparison of investigation conclusions. By ensuring studies are compared accurately, conclusions may be highlighted and, therefore, further areas of investigation identified.

9.3 Can the Structural Narrative Abilities of High-Functioning Individuals with ASD Be Improved Through a Specific Intervention Programme?

Research Question Three was the focus of the intervention study presented in Chapter 8. Following the findings of existing research and the initial findings reported in this thesis (Chapter 6), it was hypothesised that the application of a structured narrative intervention which addressed the function of narrative as well as the process of its composition, would improve the structural narrative abilities of high-functioning individuals with ASD.

The findings for the intervention were inconclusive and whilst the intervention was successful for two of the four participants in the main cohort, the others appeared to lose some of their structural narrative abilities. As discussed in Section 8.3, there are several reasons possible reasons for this. First, it is possible that the level of the intervention may have been misjudged and whilst the intervention included participants judged as being at the same level of ability, a more discrete division of ability levels may have improved their performance in the intervention. This is supported by the case of Mark, who was included in the intervention at a higher ability level than the other participants. In this case, although new materials and intervention paths were created, the underlying design of the intervention remained. However, whilst this is suggested as a possible explanation for the inconclusive results in this intervention, it also raises questions with regard to how research can identify subtle distinctions between the levels of narrative ability seen in this cohort. As impairments in individuals with high-functioning ASD have been noted as subtle by existing research in general, it is suggested that this issue will be applicable to future investigations in this field. This is discussed further in Section 9.4.

Another possible reason for these results is that the intervention techniques implemented in this study may not have been suitable for the two individuals who

appear to decline in some structural narrative abilities. This may be due to task design, a lack of individualisation of tasks or individual differences. Inherent in small, case study design is the problem of individual difference. Whilst in a large sample individual differences can be accounted for and have a minimal impact on a study, small samples are vulnerable to the effects of individual eccentricities which have a significant impact on the conclusions reached. This is an issue which is highlighted as problematic in existing literature, however, research also identifies the value of small, case studies (see Chapter 7). It suggests that replication of small case study interventions which assess the effectiveness of techniques are extremely valuable in this field. Therefore, whilst small studies are identified as valuable in highlighting potential trends and areas of investigation, replications are required to generalise conclusions and identify which techniques are most effective for which groups in atypical populations.

With these recommendations in mind, this thesis suggests that replication of the current intervention techniques with a larger cohort would be valuable in assessing their potential applications and wider applicability. Thus, whilst novel intervention documented here has not been able to provide a definitive answer regarding its effectiveness, it has raised many issues. As a result the current thesis has presented both the methodology and the results for this investigation, therefore making replication and assessment of the techniques with a larger cohort possible. As highlighted above, additional levels of ability are also suggested as way in which these intervention techniques may be developed for future research. These could be incorporated into larger replication studies if applicable and would allow this addition to the intervention to be assessed also.

In addition, this thesis has documented, through a case study design, the factors which can have an impact on the performance of an individual. In every case study, there were

factors outside of the control of the intervention which had an impact on the performance of the individual. The factors varied from individual differences to more pervasive factors affecting the individual in their everyday life. Although for every intervention these types of factors will always have an impact, through understanding this impact and taking it into account during the analysis of results, the impact of these factors on the overall outcomes of the intervention may be limited. Furthermore, although not implemented in the current investigation, an 'online' adaptation of the intervention would increase the level in individualisation in the intervention process and may accommodate these more invasive factors. This may also increase the success of future interventions.

However, whilst individualisation is considered to be good practice and interventions should be as individualised as possible, online adaptations present a particular difficulty if teachers and parents are intended to implement such interventions. Online adaptations which maintain the focus of the intervention may require considerable knowledge of the area of intervention, thus requiring potentially extensive and, therefore, impractical training. The current discussion proposes two alternatives to online adaptations which may limit the demotion of the focus of the intervention whilst allowing for individualisation to accommodate outside factors which impact upon performance. First, it may be possible to include tasks or lessons from elsewhere in the intervention programme (e.g. from different levels but from the same stage of the intervention), this would allow the focus to remain on target but would allow some respite and may limit the overall impact of outside factors. Second, it may also be possible to include 'filler' activities within the intervention which can be used when it is considered appropriate by the teacher/parent implementing the intervention. These activities would be linked to narrative but would be designed not to focus on narrative structure. They would be

considered 'free-time' where narrative would be focused on in a less formal way to allow the individual time to consolidate information learnt. Both of these techniques would increase the duration of the intervention and would be followed by resuming the intervention at the place it was left so as not to miss out any of the stages or tasks. This increased duration may enable outside factors to be accommodated more successfully and the intervention to be individualised further.

It is suggested that all individuals, in particular those who began the intervention with a higher ability, would benefit from an extended intervention duration with extended stages to reduce to possibility for overload of information and task fatigue. 'Filler tasks', as described above, could be introduced into the intervention on a more frequent basis in order to extend the duration of the intervention without increasing the amount of content covered and allow for time for consolidation of information. An intervention of this kind would more closely replicate the style of lesson planning seen in mainstream schools in England and would, therefore, be even more compatible with implementation in an inclusive setting.

Furthermore, an increased duration would also allow for more variety of tasks which focus on the same area of the intervention. This would also enable a further consolidation of the skills to be developed within such an intensive investigation. In addition, it could enable the intervention to accommodate and promote the individual interests of the participants by including tasks which allow them free choice with regard to subject and approach to filler tasks presented. One example of a filler task may be drawing a picture to go with a story they have worked on or read recently; alternatively it could be writing their own story using as many new words as possible. Other tasks may include writing a story with only 5 lines, or 10 words per sentence or using maps and diagrams as story charts to develop ideas for potential narratives. In addition, games

could be designed which developed descriptions of characters and promoted the use of imagination. All of these tasks are related to story writing and story telling but are not focused on narrative structure or narrative production, and thus provide an appropriate diversion from the central focus of the intervention.

In conclusion, the aim of this intervention was to assess the effectiveness of novel narrative intervention techniques. Whilst the inconclusive results prevent the thesis from presenting a successful intervention, they do highlight areas for further investigation and as such, offer valuable contributions to an emerging field of research. The partial success of the techniques, alongside the additional factors which appear to have affected the performance of individuals in this study, suggests that the technique warrants further investigation in order to develop a better understanding of its potential applications. It should be noted that the intervention presented in this thesis represents the beginning of a search for a method in this field which hopes to identify appropriate intervention techniques to be used with high-functioning individuals with ASD. As such, it provides additional research in a neglected field which can be used to further inform the future development of narrative intervention techniques. In addition, it highlights study replication as a valuable way to develop these techniques further.

9.4 What is the Most Appropriate Way to Examine Written Narrative Abilities in High-Functioning Individuals with ASD?

The current investigation has carried out research in a relatively new field. As a result, decisions regarding the most appropriate way to analyse the data have been made based on existing research in multiple disciplines alongside the methodological considerations of the current research and, in particular, the importance of an unobtrusive approach to enable easy application in a mainstream setting.

It was decided to use Labov's (1997) framework (amended from Labov and Waletzky (1967)) for structural narrative analysis as it allowed an investigation of narrative components which were identified from findings in existing research as potentially problematic for high-functioning individuals with ASD. In addition, the framework allowed an analysis of clauses within the narrative and enabled any subtle differences with regard to proportions of component usage as well as narrative hierarchy to be identified. Although this framework has many benefits, there are several limitations in the way it has been applied in this thesis. The use of the clausal definitions of the three main components without any further breakdown may have resulted in the analysis potentially overlooking further impairments in the narratives. Several types of Evaluation have been identified in the literature and have allowed investigations to examine which types of Evaluation present particular difficulty for individuals with ASD. This may have better informed the intervention and allowed for more intervention in this area. In addition, including different types of Orientation may also have highlighted specific areas which are problematic for these individuals. However, the decision not to subdivide these categories was taken in order to allow overall global structure and the balance of these main components to remain the focus of the investigations. It was considered that further analysis of these components might have interfered with this approach. Having completed the analysis in this thesis, it is acknowledged that this would be one way in which the research could be developed further in order to better understand the issues surrounding the use of these components for individuals with ASD.

Another limitation of the methodology presented in this thesis is the lack of qualitative analysis. Studies One, Two and Three were designed, conducted, and analysed in order to establish quantitative impairments and differences between the two

groups. Following this, the intervention analysis used the data from Study Two as the baseline for assessing change across the intervention. This, therefore, required a quantitative analysis of the intervention data in order to enable comparisons to be made. However, to allow for a further understanding of the processes involved in the intervention, a qualitative analysis may have been more applicable for the intervention stage alone. Should this research be developed, it is suggested that a qualitative analysis of the data may be beneficial in further informing future intervention studies.

In addition, although the baseline measures collected in Study Two identified areas of atypical narrative structure for the individuals in the intervention, the quantitative analysis may have overlooked subtle differences between the individuals involved. It is suggested above that the inconclusive results may be a reflection of different levels of ability within the intervention cohort. This suggestion requires further investigation, however, it is possible that a combination of quantitative and qualitative baseline measures may be beneficial in future narrative interventions in order to identify the subtle impairments and discrete differences in other areas of ASD which are reported in existing literature. Adopting a combination of techniques would also so allow for increased individualisation within the intervention and, thus, improve outcomes.

Finally, in the light of the findings in Study Three, it is suggested that future investigations examining narrative structure may wish to avoid using structured stimuli and use elicitation materials that provide limited structure. As highlighted above, this area also requires further investigation with a larger sample to determine what impact multiple picture tasks have on the structure of the narrative produced. However, for the purpose of investigating narrative structure, it is suggested that providing as little structure as possible in stimulus materials reduces the possibility that the elicitation task may be directly influencing the data yielded.

Overall, this thesis is not able to provide a conclusive answer for this question. However, the current discussion has highlighted the importance of choosing an appropriate elicitation task, using both qualitative and quantitative methods of analysis and has presented recommendations for future research. With regard to the analysis of structural narrative abilities, it can be concluded that the use of Labov (1997) allows an initial insight into the areas of specific challenges for individuals with ASD but should be combined with other methods to ensure a full and robust understanding of the data. With regard to narrative intervention, it can be concluded that while quantitative analysis allows a quantifiable measure of change to be presented, if the processes involved in the intervention are to be better understood, a qualitative analysis may prove more appropriate.

9.5 General Methodological Issues

It is suggested from the results and discussion presented above that the prediction of outcomes should be based on a combination of all possible evidence and information regarding the abilities and impairments of a population. In this thesis, consideration of impairments in WCC, ToM, and strengths in logical presentation of factual information informed the prediction of impairments and atypical performance on tasks which focus on narrative structure. This prediction motivated a further analysis of narrative abilities prior to the intervention design and implementation and, therefore, allowed for more comprehensive understanding of the abilities of these individuals. This comprehensive understanding informed the intervention and allowed specific areas to be targeted for a more focused implementation of intervention techniques. It is suggested here that future investigations and interventions which may focus on the structural abilities of individuals should carefully consider all of the information available regarding both

abilities specific to narrative as well as general abilities which may impact upon an individual's performance in a narrative task.

9.6 Issues Raised by Working at the Interface Between Psychology, Education and Applied Linguistics

This section briefly considers some of the issues raised by conducting the current study at the interface between Psychology, Education and Applied Linguistics. It is hoped that by identifying some of the benefits and challenges of interdisciplinary work in this area, this thesis will facilitate future interdisciplinary research in this field.

The amalgamation of studies and findings from multiple areas and the consolidation of differences and tensions between several disciplinary traditions was a particular challenge for this study. This was due to the variety of foci for previous research, as well as the wide range of approaches used and disciplinary traditions involved. These differences have often meant that different studies provide different information, follow different definitions and have different areas of interest within the field. In particular, definitions and understanding of terms relating to narrative and language vary between the disciplines as a result of the differing interests in this field. This variation in focus has also resulted in some studies using narrative as a way to collect vast amounts of data and not for the purpose of narrative analysis. Such research has also been beneficial as it has demanded that the current study carefully considers the implications of methodology on data collection and has contributed to the generation of hypotheses in the current study. Although the amalgamation of such literature has presented challenges, it has also provided valuable information for the current study, identifying the potential challenges that may be faced if narrative is analysed from this point of view.

In addition, examining this wide body of literature has provided discussion of similar issues from a variety of viewpoints. This is a considerable benefit of interdisciplinary research and has allowed the current study to consider narrative from a novel angle supported by previous research in all three areas. Specifically, working at this interface has allowed the current study to consider a wide range of techniques for data collection and analysis, thus allowing appropriate techniques to be selected. Furthermore, it has allowed reflection on the study to consider a wide range of possible improvements and future directions for research.

Working at this interface has also meant that, throughout this study, the author has had to defend the choices made to follow the methods presented in this thesis to researchers from all three disciplines. As the study does not follow one specific disciplinary tradition, the author has been required to focus on the research aims and how to achieve those aims whilst being mindful of the possible tensions that such choices may present with certain areas of research. Whilst this has been challenging at times and has required the author to consider the same minute details from at least three different academic disciplines, it has also been extremely beneficial. These discussions have required the author to select and defend approaches which may be accepted in one discipline but not in another. The requirement to question discipline specific procedures has allowed this study to consider the methods adopted on their merits, independent of the any disciplinary traditions which may exist. Whilst making these choices has been beneficial, knowledge of three fields has also made the author acutely aware of the potential approaches that have been actively rejected. All approaches in all fields have advantages as well as disadvantages and the author has tried to select the approach best suited to the current study whilst encouraging future research methods which take a different approach to the same data. As discussed above, this would allow the data to be

more comprehensively understood and thus would provide further valuable contributions to be made to the field of narrative structure and ASD.

Overall, this study has benefited from being designed, implemented and evaluated at the interface between Education, Applied Linguistics and Psychology, and although there have been some significant challenges during the course of this study, the benefits and insight gained from drawing from such a wide and varied body of existing research and approaches far outweigh any challenges faced. Future research in this area should aim to be interdisciplinary whilst accommodating any tensions which may arise at the interface between disciplines. This kind of approach will enable all possible sources of information about narrative, ASD and Education to contribute to our increasing understanding of this complex and growing field.

9.7 Narrative and Inclusion

The main motivation behind the thesis was to design a tool for teachers to add to their already vast set of skills and expensive expertise, which would provide a way to integrate young people with ASD within mainstream schooling following the government policies discussed in Chapter 2. As a result, it was paramount that the intervention study should take a form that would allow easy usage within a mainstream classroom and which could potential enable to child with ASD to express themselves in a more coherent manner to limit frustration. With this as the main focus of the investigation, this thesis has identified and tested one possible intervention focusing on narrative production of high-functioning individuals with ASD in mainstream schooling. This thesis has developed materials by combining previous intervention approaches from a range of areas. The testing of these materials has revealed issues which require further investigation. The most noteworthy finding for the current discussion is the variation in outcomes which appears (from this limited sample) to be

linked to ability. In particular, if Mark is considered separately from the main cohort, those individuals who were more impaired at the beginning of the intervention improve whilst those who were more able appear to reduce in their abilities. As discussed above, there are several possible reasons for this, if the original ability is taken as a marker it may be that the materials and level of the intervention requires more discrete divisions to allow for individual difference. Although this individual difference had been accounted for to a certain degree by the division of the intervention participants with the first week into 2 groups (1 individual following his own programme), the extent to which this should be accounted for was underestimated following the initial task outcome and lack of sufficient background knowledge at the onset of the task. However, as discussed above, the materials presented in this thesis are easily adapted to accommodate various levels of ability. This enables the techniques to be developed for whole class use by providing various levels of tasks which can accommodate the variety of abilities seen in a mainstream classroom.

The intervention presented in this thesis was designed for application in a mainstream classroom. As such, the focus was on unobtrusive, flexible tasks which could be used in group work, one-to-one support and whole class teaching. The discreet nature of the tasks also limits identification of the individual as unique within the class and, therefore, facilitates inclusion, and may increase their cooperation within the classroom.

In addition, the current investigation has focused on adapting the school and pedagogy to accommodate the individual without being to the detriment of others within the class. By adapting teaching approaches and not focusing just on changing the behaviours of individuals with ASD, it is suggested that inclusion and inclusive practice can be effectively promoted. It is noted, however, that this requires training and support

from management systems to raise the awareness of individual staff and support an inclusive and flexible attitude to providing education.

Finally, it is suggested that further research in this area which adopts a positive view of abilities alongside impairments and which aims to design non-intrusive and inclusive interventions is required to enable the English education system to allow these young people to achieve their potential and enjoy their educational experience.

9.8 Conclusion

In summary, this thesis has raised several issues which are worthy of further investigation and which contribute to existing research. The novel investigations have highlighted that more general impairments in ASD can lead to specific impairments related to narrative structure. These impairments may also be manifested in other genres of written text where similar requirements are identified. With regard to intervention on written impairments, this thesis has demonstrated the importance of an individualised approach which also accommodates the setting in which the intervention is to be implemented. The intervention techniques, if identified as effective in further investigations, have wide reaching potential for literacy teaching and the presentation of written tasks, and could potentially be transferred to oral genres and other academic disciplines. Furthermore, the intervention may enhance education and learning for individuals with ASD in a broad range of disciplines as well as in the wider population as a whole.

In addition, the intervention was designed to be unobtrusive in order to promote inclusion and as such it represents a reasonable adjustment which could be implemented within a mainstream classroom as part of a lesson to include all pupils. With an increased variety of intervention levels it would be possible to cater for every child in the class thus helping them to enjoy and succeed. By introducing this intervention

(adapted and further tested) in to a mainstream classroom with a pupil who has ASD, it would be possible to enable that individual to succeed in this area also and reduce the frustration they may feel.

Furthermore, the intervention and the new communication skills it can develop could result in a participant applying the ideas and skills they have learnt within a wider context (for example, accommodating their audience in conversation). It may also give them more confidence to talk with fellow pupils during school as they have the skills to use a format they are familiar with in order to communicate. Whilst it is acknowledged that inclusion is not suitable for all young people with ASD due to the considerable variation across the spectrum, this intervention, when fully developed, may help to promote inclusion for those individuals for whom it is appropriate.

Finally, this thesis was initially motivated by the directive from the UK government to provide inclusive education and equal access to opportunities where possible. High-functioning individuals with ASD are capable and enthusiastic individuals who, given the correct support, can produce interesting and exciting work. The concept developed in the thesis has been focused on exploiting the strengths of these individuals in order to accommodate their weaknesses. As such, whilst the initial studies identified areas which were problematic for individuals with ASD, they also revealed areas of strength. This was then applied to the intervention, which used a structured and logical approach to develop less logical aspects of narrative. It is suggested that this approach, although focused on narrative in the current discussion, should continue to be applied throughout all areas of intervention to improve the opportunities for success that these individuals have available to them.

In conclusion, it is important to acknowledge that education is about more than the success of policies and approaches. It is about providing individuals with the skills to

enable them to succeed in society and, ultimately, to achieve their full potential. The individuals involved in the current investigation have proved themselves eager, excited, confident, and enthusiastic about learning. These are qualities that should be encouraged in every young person.

References

- Aksu-Koç, A., Nelson, K. and Johnson, C. E. (2001). 'Introduction'. In Aksu-Koç, A. and Nelson, K. (eds). *Children's Language (Volume 10): Developing Narrative and Discourse Competence*. Mahwah, New Jersey: Lawrence Erlbaum Publishing. xi-xx.
- Aksu-Koç, A. and Tekdemir, G. (2004). 'Interplay Between Narrativity and Mindreading: A Comparison Between Turkish and English'. In Stromqvist, S. and Verhoeven, L. (eds). *Relating Events in Narrative, Volume 2: Typological and Contextual Perspectives*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 307-328.
- American Psychiatric Association (1995). *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV International Version with ICD-10 Codes*. Washington, DC: APA.
- Applebee, A. N. (1978). *The Child's Concept of Story: Ages Two to Seventeen*. Chicago, USA: The University of Chicago Press.
- Arid, R. (2001). *The Education and Care of Children with Severe, Profound and Multiple Learning Difficulties*. London: David Fulton.
- Asperger, H. (1991). 'Autistic Psychopathy in Childhood'. In Frith, U. (eds). *Autism and Asperger Syndrome*. Cambridge: Cambridge University Press. 37-92.
- Astington, J. W., Pelletier, J. and Homer, B. (2002). 'Theory of Mind and Epistemological Development: The Relation Between Children's Second-Order False-Belief Understanding and Their Ability to Reason About Evidence'. *New Ideas in Psychology* 20: 131-144.
- Attwood, T. (1998). *Asperger Syndrome*. London: Jessica Kingsley.
- Bamberg, M. and Damrad-Frye, R. (1991). 'On The Ability to Provide Evaluative Comments: Further Explorations of Children's Narrative Competencies'. *Journal of Child Language* 18: 689-710.
- Baron-Cohen, S. (1995). *Mind-Blindness: An Essay on Autism and Theory of Mind*. Cambridge, Massachusetts: MIT Press.
- Baron-Cohen, S., Jolliffe, T., Mortimore, C. and Robertson, M. (1997). 'Another Advanced Test of Theory of Mind: Evidence from Very High Functioning Adults with Autism and Asperger Syndrome'. *Journal of Child Psychology and Psychiatry* 38 (7): 813-822.
- Baron-Cohen, S., Leslie, A. and Frith, U. (1985). 'Does the Autistic Child Have a "Theory of Mind"?' *Cognition* 21 (1): 37-46.
- Baron-Cohen, S., Leslie, A. M. and Frith, U. (1986). 'Mechanical, Behavioural and Intentional Understanding of Picture Stories in Autistic Children'. *British Journal of Developmental Psychology* 4: 113-125.
- Bartlett, S. F. C. (1932). *Remembering: A Study in Experimental and Social Psychology*. Cambridge: Cambridge University Press.
- Beach, R. and Bridwell, L. (1984). 'Learning Through Writing: A Rationale for Writing Across the Curriculum'. In Pellegrini, A. D. and Yawkey, T. D. (eds). *The Development of Oral and Written Language in Social Contexts*. New Jersey: Ablex Publishing. 183-200.
- Bedrosian, J., Lasker, J. and Speidel, K. (2003). 'Enhancing Written Narrative Skills of an AAC Student with Autism: Evidence-Based Research Issues'. *Topics in Language Disorders* 43 (4): 305-324.

- Berman, R. A. (1997). 'Pre-School Knowledge of Language: What Five-Year-Olds Know About Language Structure and Language Use'. In Pontecorvo, C. (eds). *Writing Development*. Amsterdam: John Benjamins. 61-76.
- Berman, R. A. (2001). 'Setting the Narrative Scene: How Children Begin to Tell a Story'. In Nelson, K. E., Aksu-Koç, A. and Johnson, C. E. (eds). *Children's Language, Volume 10: Developing Narrative and Discourse Competence*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 1-30.
- Berman, R. A. (2004). 'The Role of Context in Developing Narrative Abilities'. In Stromqvist, S. and Verhoeven, L. (eds). *Relating Events in Narrative: Typological and Contextual Perspectives*. London: Lawrence Erlbaum Associates. 261-280.
- Berman, R. A. and Katzenberger, I. (2004). 'Form and Function in Introducing Narrative and Expository Texts'. *Discourse Processes* **38** (1): 57-94.
- Berman, R. A. and Slobin, D. I. (1994). *Relating Events in Narrative: A Crosslinguistic Developmental Study*. Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Blyth, C. J., Recktenwald, S. and Wang, J. (1990). 'I'm Like "say what?!": A New Quotative in American Oral Narrative'. *American Speech* **65** (3): 215-227.
- Botting, N. and Conti-Ramsden, G. (1999). 'Pragmatic Language Impairment Without Autism: The Children in Question'. *Autism* **3** (4): 371-396.
- Botting, N. and Conti-Ramsden, G. (2003). 'Autism, Primary Pragmatic Difficulties, and Specific Language Impairment: Can We Distinguish Them Using Psycholinguistic Markers?' *Developmental Medicine & Child Neurology* **45** (8): 10.
- Bruner, J. (1996). *The Culture of Education*. Cambridge, MA: Harvard University Press.
- Bruner, J. and Feldman, C. (1993). 'Theories of Mind and the Problem of Autism'. In Baron-Cohen, S., Tager-Flusberg, H. and Cohen, D. J. (eds). *Understanding Other Minds: Perspectives from Autism*. Oxford: Oxford University Press. 267-291.
- Buschbacher, P. W. and Fox, L. (2003). 'Understanding and Intervening with the Challenging Behavior of Young Children with Autism Spectrum Disorders'. *Language, Speech and Hearing Services in Schools* **34**: 217-227.
- Cameron, C. A., Lee, K., Munro, K., Hunt, A. K. and Linton, M. J. (1995). 'Text Cohesion in Children's Narrative Writing'. *Applied Psycholinguistics* **16** (3): 257-269.
- Capps, L., Losh, M. and Thurber, C. (2000). "'The Frog Ate the Bug and Made his Mouth Sad": Narrative Competence in Children with Autism'. *Journal of Abnormal Child Psychology* **28** (2): 193-204.
- Capps, L., Yirmiya, N. and Sigman, M. (1992). 'Understanding of Simple and Complex Emotions in Non-retarded Children with Autism'. *Journal of Child Psychology and Psychiatry* **33** (7): 1169-1182.
- Carey, J. (2007) *Durham NLP in Education*. Durham, UK: Durham Local Education Authority.
- Castermans, D., Wilquet, V., Steyaert, J., Ven, W. V. D., Fryns, J.-P. and Devriendt, K. (2004). 'Chromosomal Anomalies in Individuals with Autism: A Strategy Towards the Identification of Genes Involved in Autism'. *Autism: The International Journal of Research and Practice* **8** (2): 141-161.
- Charman, T. (2003). 'Why is Joint Attention a Pivotal Skill in Autism?' *Philosophical Transactions: Biological Sciences* **358** (1430): 315-324.

- Chen-Wilson, C. (2003). *Temporality in English- and Mandarin-Speaking Children's Narratives*. Unpublished Doctoral Thesis: University of Manchester.
- Collins, J. L. (1984). 'The Development of Writing Abilities During the School Years'. In Pellegrini, A. D. (eds). *The Development of Oral and Written Language in Social Contexts*. New Jersey: Ablex Publishing. 201-211.
- Craig, H. K. and Washington, J. A. (1993). 'Access to Behaviors of Children with Specific Language Impairment'. *Journal of Speech and Hearing Research* **36**: 322-337.
- Daiute, C. and Nelson, K. (1997). 'Making Sense of the Sense-Making Function of Narrative Evaluation'. *Journal of Narrative and Life History* **7** (1-4): 207-215.
- Danielewicz, J. (1984). 'The Interaction Between Text and Context: A Study of How Adults and Children Use Spoken and Written Language in Four Contexts'. In Pellegrini, A. D. and Yawkey, T. D. (eds). *The Development of Oral and Written Language in Social Contexts*. New Jersey: Ablex Publishing. 243-260.
- Dapretto, M., Davies, M. S., Pfeifer, J. H., Scott, A. A., Sigman, M., Bookheimer, S. Y. and Iacoboni, M. (2006). 'Understanding Emotions in Others: Mirror Neuron Dysfunction in Children with Autism Spectrum Disorders'. *Nature Neuroscience* **9** (1): 28-30.
- Darnell, R. (1989). 'Correlates of Cree Narrative Performance'. In Bauman, R. and Sherzer, J. (eds). *Explorations in the Ethnography of Speaking. Second Edition*. Cambridge, UK: Cambridge University Press. 315-336.
- Del Valle, P. R., McEachern, A. G. and Chambers, H. D. (2001). 'Using Social Stories with Autistic Children'. *Journal of Poetry Therapy* **14** (4): 187-197.
- Department for Education and Employment. (1995) *Disability Discrimination Act 1995 (c.50)*. London: HMSO.
- Department for Education and Employment. (1997) *Excellence for All Children*. London: HMSO.
- Department for Education and Employment. (2001a) *Special Educational Needs and Disability Discrimination Act 2001 (c. 10)*. London: HMSO.
- Department for Education and Employment. (2001b) *Special Educational Needs: Code of Practice*. London: Department of Education and Skills.
- Department for Education and Employment. (2004). *Every Child Matters*. <http://www.everychildmatters.gov.uk>. Last accessed: August 2007.
- Department for Education and Skills. (2004) *Removing Barriers to Achievement: The Government's Strategy for SEN*. London, UK: Department for Education and Skills.
- DfES. (2001) *Special Educational Needs: Code of Practice*. London: DfES.
- Diehl, J. J., Bennetto, L. and Carter-Young, E. (2006). 'Story Recall and Narrative Coherence of High-Functioning Children with Autistic Spectrum Disorders'. *Journal of Abnormal Child Psychology* **34** (1): 83-98.
- Diehl, S. F. (2003). 'Clinical Forum - Epilogue: Autism Spectrum Disorder: The Context of Speech-Language Pathologist Intervention'. *Language, Speech and Hearing Services in Schools* **34**: 253-254.
- Dodge, K. A. (1983). 'Behavioural Antecedents of Peer Social Status'. *Child Language* **54**: 1386-1399.
- Doussard-Roosevelt, J., Joe, C., Bazhenova, O. and Porges, S. (2003). 'Mother-Child Interaction in Autistic and Non-Autistic Children: Characteristics of Maternal Approach Behaviors and Child Social Responses'. *Development and Psychopathology* **15** (2): 277-295.

- Durand, V. and Carr, E. G. (1992). 'An Analysis of Maintenance Following Functional Communication Training'. *Journal of Applied Behavior Analysis* 25 (4): 777-794.
- Dyson, A., Farrell, P., Polat, F., Hutcheson, G. and Gallannaugh, F. (2004) *Inclusion and Pupil Achievement*. UK: Department for Education and Skills.
- Dyson, A. and Gains, C. (1993). 'Special Needs and Effective Learning: Towards a Collaborative Approach Model for the Year 2000'. In Dyson, A. and Gains, C. (eds). *Rethinking Special Needs in Mainstream School: Towards the Year 2000*. London: David Fulton Publishers. 155-172.
- Dyson, A. and Millward, A. (2000). *Schools and Special Needs: Issues of Innovation and Inclusion*. London: Paul Chapman Publishing.
- Eisenmajer, R., Prior, M., Leekam, S., Wing, L., Gould, J., Welham, M. and Ong, B. (1996). 'Comparison of Clinical Symptoms in Autism and Asperger's Disorder'. *Journal of the American Academy of Child and Adolescent Psychiatry* 35 (11): 1523-1531.
- Eisenmajer, R., Prior, M., Leekam, S., Wing, L., Ong, B., Gould, J. and Welham, M. (1998). 'Delayed Language Onset as a Predictor of Clinical Symptoms in Pervasive Developmental Disorders'. *Journal of Autism and Developmental Disorders* 28 (6): 527-533.
- Engel, S. (1997). 'How to Read the Work of Child Authors: A Tribute to Labov and Waletzky'. *Journal of Narrative and Life History* 7 (1): 229-234.
- Espéret, E. (1991). 'The Development and Role of Narrative Schema Storytelling'. In Peiraut-Le Bonniec, G. and Dolitsky, M. (eds). *Language Bases ... Discourse Bases*. Amsterdam: John Benjamins. 209-227.
- Evans, J., Castle, F., Barraclough, S. and Jones, G. (2001) *Making a Difference: Early Interventions for Children with Autistic Spectrum Disorders*. Slough: LGA Educational Research Programme, National Foundation for Educational Research.
- Fay, W. H. (1969). 'On The Basis of Autistic Echolalia'. *Journal of Communication Disorders* 2: 38-47.
- Fay, W. H. and Schuler, A. L. (1980). *Emerging Language in Autistic Children*. Baltimore, Maryland: University Park Press.
- Fleischman, S. (1997). 'The "Labovian Model" Revisited with Special Consideration of Literary Narrative'. *Journal of Narrative and Life History* 7: 159-168.
- Florian, L. and Rouse, M. (2005). 'Inclusive Practice in English Secondary Schools'. In Nind, M., Rix, J., Sheehy, K. and Simmons, K. (eds). *Curriculum and Pedagogy in Inclusive Education: Values Into Practice*. Oxon, UK: Falmer Routledge. 153-163.
- Frea, W. D. (1995). 'Social-Communication Skills in Higher-Functioning Children with Autism'. In Koegel, R. L. and Koegel, L. K. (eds). *Teaching Children with Autism: Strategies for Initiating Positive Interactions and Improving Learning Opportunities*. Baltimore, USA: Paul Brookes. 53-66.
- Freeman, M. (1997). 'Why Narrative? Hermeneutics, Historical Understanding and the Significance of Stories'. *Journal of Narrative and Life History* 7: 169-176.
- Freeman, S. and Dake, L. (1996). *Teach Me Language: A Language Manual for Children with Autism, Asperger's Syndrome and Related Developmental Disorders*. Langley, Canada: SKF Books.
- Frith, U. (1969). 'Emphasis and Meaning in Recall in Normal and Autistic Children'. *Language and Speech* 12: 29-38.
- Frith, U. (1989). *Autism: Explaining the Enigma*. Oxford, UK: Blackwell.

- Frith, U. (2003). *Autism: Explaining the Enigma*. 2nd Edition. London: Blackwell.
- Galda, L. (1984). 'Narrative Competence: Play, Storytelling and Story Comprehension'. In Pellegrini, A. D. and Yawkey, T. D. (eds). *The Development of Oral and Written Language in Social Contexts*. New Jersey: Ablex Publishing. 105-118.
- Gertner, B. L., L., R. M. and Hadley, P. A. (1994). 'Influence of Communicative Competence on Peer Preferences in Preschool Classroom'. *Journal of Speech and Hearing Research* **37**: 913-923.
- Ghaziuddin, M. and Gerstein, L. (1996). 'Pedantic Speaking Style Differentiates Asperger Syndrome from High-Functioning Autism'. *Journal of Autism and Developmental Disorders* **26** (6): 585-595.
- Goffman, E. (1974). *Frame Analysis: An Essay on the Organisation of Experience*. New York: Harper and Row.
- Goldstein, H. (2002). 'Communication Intervention for Children with Autism: A Review of Treatment Efficacy'. *Journal of Autism and Developmental Disorders* **32** (5): 373-396.
- Goldstein, H., Kaczmarek, L., Pennington, R. and Shafer, K. (1992). 'Peer-Mediated Intervention: Attending To, Commenting On, and Acknowledging the Behavior Of Preschoolers with Autism'. *Journal of Applied Behavior Analysis* **25**: 289-305.
- Gray, C. (1994). *The New Social Story Book*. Arlington: Future Horizons.
- Grigorenko, E. L., Klin, A. and Volkmar, F. R. (2003). 'Annotation: Hyperlexia: Disability or Superability?' *Journal of Child Psychology and Psychiatry* **44** (8): 1079-1091.
- Guralnick, M. J. (1990). 'Major Accomplishments and Future Directions in Early Childhood Mainstreaming'. *Topics in Early Childhood Special Education* **10**: 1-17.
- Halliday, M. A. K. and Hasan, R. (1976). *Cohesion in English*. London: Longman.
- Happé, F. (1994a). 'An Advanced Test of Theory of Mind: Understanding of Story Characters' Thoughts and Feelings by Able Autistic, Mentally Handicapped, and Normal Children and Adults'. *Journal of Autism and Development Disorders* **24** (2): 129-154.
- Happé, F. (1997). 'Central Coherence and Theory of Mind in Autism: Reading Homographs in Context'. *British Journal of Developmental Psychology* **15**: 1-12.
- Happé, F. (1999). 'Understanding Assets and Deficits in Autism: Why Success is More Interesting Than Failure.' *The Psychologist* **12** (11).
- Happé, F. (2005). 'The Weak Central Coherence Account of Autism'. In Volkmar, F. R., Paul, R., Klin, A. and Cohen, D. (eds). *Handbook of Autism and Pervasive Developmental Disorders. Volume One: Diagnosis, Development, Neurobiology, and Behavior*. New Jersey, USA: John Wiley and Sons. 640-649.
- Happé, F., Briskman, J. and Frith, U. (2001). 'Exploring the Cognitive Phenotype of Autism: Weak "Central Coherence" in Parents and Siblings of Children with Autism. 1: Experimental Tests'. *Journal of Child Psychology and Psychiatry* **42** (3): 299-307.
- Happé, F. G. E. (1994b). 'Wechsler IQ Profile and Theory of Mind in Autism: A Research Note'. *Journal of Child Psychology and Psychiatry* **35** (8): 1461-1471.
- Haring, T. G. and Breen, C. G. (1992). 'A Peer-Mediated Social Network Intervention to Enhance the Social Integration of Persons with Moderate and Severe Learning Disabilities'. *Journal of Applied Behavior Analysis* **25** (2): 319-333.

- Hart, S. (1998). 'Paperwork or Practice? Shifting the Emphasis of the Code Towards Teaching, Learning and Inclusion'. *Support for Learning* **13** (2): 76-81.
- Hendrickson, J. M., Shokoohi-Yekta, M., Hamre-Nietupski, S. and Gable, R. A. (1996). 'Middle and High School Students' Perceptions of Being Friends with Peers with Severe Disabilities'. *Exceptional Children* **63**: 19-28.
- Hickmann, M. (2004). 'Coherence, Cohesion and Context: Some Comparative Perspectives in Narrative Development'. In Stromqvist, S. and Verhoeven, L. (eds). *Relating Events in Narrative: Typological and Contextual Perspectives*. Mahwah, New Jersey: Lawrence Erlbaum Associated. 281-306.
- Hobson, P. (1986). 'The Autistic Child's Appraisal of Expressions of Emotion'. *Journal of Child Psychology and Psychiatry* **27** (3): 321-342.
- Holmes, J. (1997). 'Struggling Beyond Labov and Waletzky'. *Journal of Narrative and Life History* **7**: 91-96.
- Howes, C. (1983). 'Patterns of Friendship'. *Child Development* **54**: 1041-1053.
- Howley, M. and Arnold, E. (2005). *Revealing the Hidden Social Code. Social Stories for People with Autistic Spectrum Disorders*. London: Jessica Kingsley Publishers.
- Howlin, P. (2003). 'Outcome in High-Functioning Adults with Autism with and Without Early Language Delays: Implications for the Differentiation Between Autism and Asperger Syndrome'. *Journal of Autism and Developmental Disorders* **33** (1): 11.
- Hudson, J. A. and Shapiro, L. R. (1991). 'From Knowing to Telling: The Development of Children's Scripts, Stories and Personal Narratives'. In McCabe, A. and Peterson, C. C. (eds). *Developing Narrative Structure*. Hillsdale, New Jersey: Lawrence Erlbaum Associates. 89-136.
- Hymes, D. (1996). *Ethnography, Linguistics, Narrative Inequality: Towards an Understanding of Voice*. London, UK: Taylor and Francis.
- Hymes, D. H. (1971). 'On Communicative Competence'. In Pride, J. B. (eds). *Sociolinguistics: Selected Readings*. Middlesex: UK: Penguin Books. 269-293.
- Jenkins, J. R., Odom, S. L. and Speltz, M. L. (1989). 'Effects of Social Integration on Preschool Children with Handicaps'. *Exceptional Children* **55**: 420-428.
- Jolliffe, T. and Baron-Cohen, S. (1997). 'Are People with Autism and Asperger Syndrome Faster than Normal Children on the Embedded Figures Test?' *Journal of Child Psychology and Psychiatry* **38** (5): 527-534.
- Jones, E. A. and Carr, E. G. (2004). 'Joint Attention in Children with Autism: Theory and Intervention'. *Focus on Autism and Other Developmental Disabilities* **19** (1): 13-26.
- Jordan, R. and Powell, S. (1995). *Understanding and Teaching Children with Autism*. Chichester, UK: John Wiley & Sons.
- Kalyva, E. and Avramidis, E. (2005). 'Improving Communication Between Children with Autism and Their Peers Through the 'Circle of Friends': A Small-scale Intervention Study'. *Journal of Applied Research in Intellectual Disabilities* **18** (3): 253-262.
- Kamps, D. M., Leonard, B. R., Vernon, S., Dugan, E. P. and Delquardi, J. C. (1992). 'Teaching Social Skills to Students with Autism to Increase Peer Interactions in an Integrated First-Grade Classroom'. *Journal of Applied Behavior Analysis* **25**: 281-288.
- Kanner, L. (1943). 'Autistic Disturbances of Affective Contact'. *Nervous Child* **2**: 217-250.

- Kanner, L. (1973). 'Autistic Disturbances of Affective Contact.' In Kanner, L. (eds). *Childhood Psychosis: Initial Studies and New Insights (Reprint of 1943 Article)*. Washington D.C., USA: V H Winston and Sons Inc. 1-43.
- Koegel, L. K. (1995). 'Communication and Language Intervention'. In Koegel, R. L. and Koegel, L. K. (eds). *Teaching Children with Autism: Strategies for Initiating Positive Interactions and Improving Learning Opportunities*. Baltimore, USA: Paul Brookes. 17-32.
- Koegel, L. K. (2000). 'Interventions to Facilitate Communication in Autism'. *Journal of Autism and Developmental Disorders* **30** (5): 383-391.
- Koegel, L. K., Koegel, R. L., Hurley, C. and Frea, W. D. (1992). 'Improving Social Skills and Disruptive Behavior in Children with Autism Through Self-Management'. *Journal of Applied Behavior Analysis* **25**: 341-353.
- Koegel, L. K., Steibel, D. and Koegel, R. L. (1998). 'Reducing Aggression in Children with Autism Toward Infant or Toddler Siblings'. *Journal of the Association for Persons with Severe Handicaps* **23**: 111-118.
- Koegel, R. L. and Frea, W. D. (1993). 'Treatment of Social Behaviour in Autism Through the Modification of Pivotal Social Skills'. *Journal of Applied Behavior Analysis* **26** (3): 369-377.
- Koning, C. and Magill-Evans, J. (2001). 'Social and Language Skills in Adolescent Boys with Asperger Syndrome'. *Autism* **5** (1): 14.
- Labov, W. (1972). *Language in the Inner City*. Philadelphia: University of Pennsylvania Press.
- Labov, W. (1997). 'Some Further Steps in Narrative Analysis'. *The Journal of Narrative and Life History* **7**: 395-415.
- Labov, W. (2006). 'Narrative Pre-Construction'. *Narrative Inquiry* **16** (1): 37-45.
- Labov, W. and Waletzky, J. (1967). 'Narrative Analysis: Oral Versions of Personal Experience'. In Helm, J. (eds). *Essays on the Verbal and Visual Arts*. Seattle: University of Washington Press. 12-44.
- Landa, R. (2000). 'Social Language Use in Asperger Syndrome and High-Functioning Autism'. In Klin, A., Volkmar, F. R. and Sparrow, S. S. (eds). *Asperger Syndrome*. New York: Guilford Press. 125-155.
- Leekam, S., Lopez, B. and Moore, C. (2000). 'Joint Attention in Preschool Children with Autism'. *Developmental Psychology* **36** (2): 261-273.
- Leekam, S. R. and Ramsden, C. A. H. (2006). 'Dyadic Orienting and Joint Attention in Preschool Children with Autism'. *Journal of Autism and Development Disorders* **36** (2): 185-197.
- Linde, C. (1993). *Life Stories: The Creation of Coherence*. Oxford: Oxford University Press.
- Logan, A. (2006). 'The Role of the Special Needs Assistant Supporting Pupils with Special Education Needs In Irish Mainstream Primary Schools'. *Support for Learning* **21** (2): 92-99.
- Logan, A. and Feiler, A. (2006). 'Forging Links Between Parents and Schools: a New Role for Teaching Assistant?' *Support for Learning* **21** (3): 115-120.
- López, B. (2001). *The Use of Contextual and Global Information by Individuals with Autism*. Unpublished Doctoral Thesis: University of Durham.
- López, B. and Leekam, S. R. (2003). 'Do Children with Autism Process Globally?' *Journal of Child Psychology and Psychiatry* **34** (5): 285-300.
- Lord, C. (1985). 'Autism and the Comprehension of Language'. In Schopler, E. and Mesibov, G. (eds). *Communication Problems in Autism*. New York, USA: Plenum Press. 257-282.

- Lord, C. (1995). 'Follow-up of Two-Year-Olds Referred for Possible Autism'. *Journal of Child Psychology and Psychiatry* **36** (8): 1365-1382.
- Lord, C. (2000). 'Commentary: Achievements and Future Directions for Intervention Research in Communication and Autism Spectrum Disorders'. *Journal of Autism and Developmental Disorders* **30** (5): 393-398.
- Lord, C. and Paul, R. (1997). 'Language and Communication in Autism'. In Cohen, D. and Volkmar, F. R. (eds). *Handbook of Autism and Pervasive Developmental Disorders*. New York: Wiley. 195-225.
- Lord, C. and Risi, S. (2000). 'Diagnosis of Autism Spectrum Disorders in Young Children'. In Wetherby, A. M. and Prizant, B. M. (eds). *Autism Spectrum Disorders: A Transactional Developmental Perspective*. Baltimore, USA: Paul H Brookes Publishing. 11-30.
- Lord, C., Risi, S. and Pickles, A. (2004a). 'Trajectory of Language Development in Autistic Spectrum Disorders'. In Rice, M. L. and Warren, S. F. (eds). *Developmental Language Disorders: From Phenotypes to Etiologies*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 7-30.
- Lord, C., Rutter, M., Goode, S., Heemsbergen, J., Jordan, H., Mahwood, L. and Schopler, E. (1989). 'Autism Diagnostic Observation Schedule: A Standardized Observation of Communicative and Social Behaviour'. *Journal of Autism and Developmental Disorders* **19**: 185-212.
- Lord, C., Shulman, C. and DiLavore, P. (2004b). 'Regression and Word Loss in Autistic Spectrum Disorders'. *Journal of Child Psychology and Psychiatry* **45** (5): 936-955.
- Losh, M. and Capps, L. (2003). 'Narrative Ability in High-Functioning Children with Autism or Asperger's Syndrome'. *Journal of Autism and Developmental Disorders* **33** (3): 13.
- Lovaas, O. I. (1977). *The Autistic Child: Language Development Through Behaviour Modification*. New York: Irvington Publishers.
- Loveland, K. (1984). 'Learning About Points of View: Spatial Perspective and the Acquisition of "I/you"'. *Journal of Child Language* **11**: 535-556.
- Loveland, K., McEvoy, R. E., Kelley, M. L. and Tunali, B. (1990). 'Narrative Story-Telling in Autism and Down's syndrome'. *Journal of Autism and Developmental Disorders* **21**: 177-186.
- Loveland, K. and Tunali, B. (1993). 'Narrative Language in Autism and the Theory of Mind Hypothesis: A Wider Perspective'. In Baron-Cohen, S., Tager-Flusberg, H. and Cohen, D. J. (eds). *Understanding Other Minds: Perspectives From Autism*. Oxford: Oxford University Press. 247-266.
- Loveland, K. and Tunali-Kotoski, B. (1997). 'The School-Age Child with Autism'. In Cohen, D. and Volkmar, F. (eds). *Handbook of Autism and Pervasive Developmental Disorders*. New York: Wiley. 283-308.
- Mandler, J. M. and Johnson, N. S. (1977). 'Rememberance of Things Parsed: Story Structure and Recall'. *Cognitive Psychology* **9**: 111-151.
- Mayer, M. (1967). *A Boy, a Dog and a Frog*. New York, USA: Dial Publishers.
- Mayer, M. (1974). *Frog, Where Are You?: Sequel to 'A Boy, a Dog and a Frog'*. London: Collins.
- McConnell, S. R. (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.

- McEvoy, R. E., Loveland, K. and Landry, S. (1988). 'The Functions of Immediate Echolalia in Autistic Children: A Developmental Perspective'. *Journal of Autism and Developmental Disorders* **18** (4): 657-688.
- McGovern, C. W. and Sigman, M. (2005). 'Continuity and Change From Early Childhood to Adolescence in Autism'. *Journal of Child Psychology and Psychiatry* **46** (4): 401-408.
- Merritt, D. D. and Liles, B. Z. (1987). 'Story Grammar Ability in Children With and Without Language Disorder: Story Generation, Story Retelling, and Story Comprehension'. *Journal of Speech and Hearing Research* **30**: 539-552.
- Mesibov, G. and Howley, M. (2003). *Accessing the Curriculum for Pupils with Autistic Spectrum Disorders: Using the TEACCH Program to Help Inclusion*. London: David Fulton Publishers.
- Meyer, J. A. and Hobson, R. P. (2004). 'Orientation In Relation to Self and Other: The Case of Autism'. *Interaction Studies* **5** (2): 221-244.
- Minshew, N. J. and Goldstein, G. (1993). 'Is Autism an Amnesic Disorder? Evidence From the California Verbal Learning Test'. *Neuropsychology* **7** (2): 209-216.
- Mitchell, P., Saltmarsh, R. and Russell, H. (1997). 'Overly Literal Interpretations of Speech in Autism: Understanding That Messages Arise From Minds'. *Journal of Child Psychology and Psychiatry* **38**: 685-691.
- Moes, D. R. (1995). 'Parent Education and Parenting Stress'. In Koegel, R. L. and Koegel, L. K. (eds). *Teaching Children with Autism: Strategies for Initiating Positive Interactions and Improving Learning Opportunities*. Baltimore, USA: Paul H Brookes Publishing Company. 79-93.
- Moore, V. and Goodson, S. (2003). 'How Well Does Early Diagnosis of Autism Stand the Test of Time? Follow-up Study of Children Assessed for Autism at Age 2 and Development of an Early Diagnostic Service'. *Autism: The International Journal of Research and Practice* **7** (1): 47-63.
- Nation, K. (1999). 'Reading Skills in Hyperlexia: A Developmental Perspective'. *Psychological Bulletin* **125** (3): 338-355.
- National Autistic Society. (1993). *TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children)*.
<http://www.nas.org.uk/nas/jsp/polopoly.jsp?d=297&a=3630>. Last accessed: 16th February 2007.
- Nind, M. (2005). 'Models and Practice in Inclusive Curricula'. In Nind, M., Rix, J., Sheehy, K. and Simmons, K. (eds). *Curriculum and Pedagogy in Inclusive Education: Values into Practice*. Oxon, UK: Routledge Falmer. 1-10.
- Norbury, C. F. and Bishop, D. V. M. (2002). 'Inferential Processing and Story Recall in Children with Communication Problems: A Comparison of Specific Language Impairment, Pragmatic Language Impairment and High Functioning Autism'. *International Journal of Language and Communication Disorders* **37** (3): 227-251.
- Norbury, C. F. and Bishop, D. V. M. (2003). 'Narrative Skills of Children with Communication Impairments'. *International Journal of Language and Communication Disorders* **38** (3): 287-313.
- Nordqvist, A. (2001). 'The Use of Direct and Indirect Speech by 1 1/2 to 4- Year Olds'. *Psychology of Language and Communication* **5** (1): 57-66.
- Norwich, B. (2002). 'Educational Inclusion and Individual Differences: A Dilemmatic Perspective'. *The SLD Experience* **33**: 2-8.

- Oberman, L. M., Hubbard, E. M., McCleery, J. P., Altschuler, E. L., Ramachandran, V. S. and Pineda, J. A. (2005). 'EEG Evidence for Mirror Neuron Dysfunction in Autism Spectrum Disorders'. *Cognitive Brain Research* **24**.
- Ochs, E. (1979). 'Social Foundations of Language'. In Freedle, R. (eds). *New Directions in Discourse Processing*. New Jersey: Ablex Publishing. 207-221.
- Ochs, E., Kremer-Sadlik, Gainer Sirota, K. and Solomon, O. (2004). 'Autism and the Social World: An Anthropological Perspective'. *Discourse Studies* **6** (2): 147-183.
- Ochs, E. and Solomon, O. (2004). 'Introduction: Discourse and Autism'. *Discourse Studies* **6** (2): 139-146.
- Oke, N. J. and Schreibman, L. (1990). 'Training Social Initiations to a High-functioning Autistic Child: Assessment of Collateral Behavior Change and Generalization in a Case Study'. *Journal of Autism and Developmental Disorders* **20**: 479-497.
- Paul, R. and Cohen, D. J. (1984). 'Outcomes of Severe Disorders of Language Acquisition'. *Journal of Autism and Developmental Disorders* **14**: 405-422.
- Paul, R. and Cohen, D. J. (1985). 'Comprehension of Indirect Requests in Adults with Mental Retardation and Pervasive Developmental Disorders'. *Journal of Speech and Hearing Research* **28**: 525-534.
- Paul, R., Fischer, M. L. and Cohen, D. J. (1988). 'Sentence Comprehension Strategies in Children with Autism and Specific Language Disorders'. *Journal of Autism and Developmental Disorders* **18**: 699-680.
- Peeters, T. (2000). 'The Language of Objects'. In Powell, S. (eds). *Helping Children with Autism to Learn*. London: David Fulton Publishers. 14-26.
- Peppe, S., McCann, J., Gibbon, F., O'Hare, A. and Rutherford, M. (2006). 'Assessing Prosodic and Pragmatic Ability in Children with High-Functioning Autism'. *Journal of Pragmatics* **38**: 1776-1791.
- Peterson, C. and McCabe, A. (1991). 'Linking Children's Connective Use and Narrative Macrostructure'. In McCabe, A. and Peterson, C. (eds). *Developing Narrative Structure*. Hillsdale, New Jersey: Lawrence Erlbaum Associates. 29-53.
- Prince, G. (1973). *A Grammar of Stories*. The Hague: Mouton.
- Prizant, B. M. and Duchan, J. F. (1981). 'The Functions of Immediate Echolalia in Autistic Children'. *Journal of Speech and Hearing Disorders* **46**: 241-249.
- Prizant, B. M. and Rydell, P. J. (1984). 'Analysis of Functions of Delayed Echolalia In Autistic Children'. *Journal of Speech and Hearing Research* **27**: 183-192.
- Pronovost, W., Wakstein, M. and Wakstein, D. (1966). 'A Longitudinal Study of Speech Behaviour and Language Comprehension in Fourteen Children Diagnosed as Atypical or Autistic'. *Exceptional Children* **33**: 19-26.
- Rice, M. L., Warren, S. F. and Betz, S. K. (2005). 'Language symptoms of Developmental Language Disorders: An Overview of Autism, Down Syndrome, Fragile X, Specific Language Impairment, and Williams Syndrome'. *Applied Psycholinguistics* **26** (1): 21.
- Rice, M. L., Wexler, K. and Cleaves, P. L. (1995). 'Specific Language Impairment as a Period of Extended Optional Infinitive'. *Journal of Speech and Hearing Research* **38**: 850-863.
- Richler, J., Luyster, R., Risi, S., Hsu, W.-L., Dawson, G., Bernier, R., Dunn, M., Hepburn, S., Hyman, S. L., McMahon, W. M., Goudie-Nice, J., Minshew, N., Rogers, S., Sigman, M., Spence, M. A., Goldberg, W. A., Tager-Flusberg, H., Volkmar, F. R. and Lord, C. (2006). 'Is There a 'Regressive Phenotype' of Autism Spectrum Disorder Associated with the Measles-Mumps-Rubella

- Vaccine? A CPEA Study'. *Journal of Autism and Developmental Disorders* **36** (3): 299-316.
- Roberts, J., Rice, M. L. and Tager-Flusberg, H. (2004). 'Tense Marking in Children with Autism'. *Applied Psycholinguistics* **25**: 429-448.
- Rogers, S. (2000). 'Interventions that Facilitate Socialization in Children with Autism'. *Journal of Autism and Developmental Disorders* **30** (5): 399-409.
- Rowe, C. (1999). 'Do Social Stories Benefit Children with Autism in Mainstream Primary Schools?' *British Journal of Special Education* **16**: 12-14.
- Sachs, J., Goldman, J. and Chaille, C. (1984). 'Planning in Pretend Play: Using Language to Coordinate Narrative Development'. In Pellegrini, A. D. and Yawkey, T. D. (eds). *The Development of Oral and Written Language in Social Contexts*. New Jersey: Ablex Publishing. 119-129.
- Scarborough, H., Rescorla, L., Tager-Flusberg, H., Fowler, A. and Sudhalter, V. (1991). 'The Relation of Utterance Length to Grammatical Complexity in Normal and Language Disordered Groups'. *Applied Psycholinguistics* **12**: 23-45.
- Scollon, R. and Scollon, S. B. K. (1981). *Narrative, Literacy and Face in Inter-Ethnic Communication*. Freedle, R. Advances in Discourse Processes. New Jersey: Ablex Publishing.
- Seach, D., Lloyd, M. and Preston, M. (2002). *Supporting Children With Autism in Mainstream School*. Birmingham: The Questions Publishing Company.
- Shah, A. and Frith, U. (1993). 'Why Do Autistic Individuals Show Superior Performance on the Block Design Task?' *Journal of Child Psychology and Psychiatry* **34** (8): 1351-1364.
- Sheinkopf, S. J., Mundy, P., Kimbrough Oller, D. and Steffens, M. (2000). 'Vocal Atypicalities of Preverbal Autistic Children'. *Journal of Autism and Developmental Disorders* **30** (4): 345-354.
- Shriberg, L. D., Paul, R., McSweeney, J. L., Klin, A., Cohen, D. J. and Volkmar, F. R. (2001). 'Speech and Prosody Characteristics of Adolescents and Adults With High-Functioning Autism and Asperger Syndrome'. *Journal of Speech, Language and Hearing Research: JSLHR* **44** (5): 1097-1115.
- Sigman, M. and McGovern, C. (2005). 'Improvement in Cognitive and Language Skills from Preschool to Adolescence in Autism'. *Journal of Autism and Developmental Disorders* **35** (1): 15-23.
- Siller, M. and Sigman, M. (2002). 'The Behaviors of Parents of Children with Autism Predict the Subsequent Development of Their Children's Communication'. *Journal of Autism and Developmental Disorders* **32** (2): 77-89.
- Slobin, D. (2004). 'The Many Ways to Search for a Frog: Linguistic Typology and the Expression of Motion Events'. In Strömquist, S. and Verhoeven, L. (eds). *Relating Events in Narrative (Volume 2): Typological and Contextual Perspectives*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 219-258.
- Smith Myles, B. (2005). *Children and Youth with Asperger Syndrome: Strategies for Success in Inclusive Settings*. California, USA: Corwin Press.
- Snow, C. and Imbens-Bailey, A. (1997). 'Beyond Labov and Waletzky: The Antecedents of Narrative Discourse'. *Journal of Narrative and Life History* **7**: 197-207.
- Solomon, O. (2004). 'Narrative Introductions: Discourse Competence of Children with Autistic Spectrum Disorders'. *Discourse Studies* **6** (2): 253-276.
- Stein, N. L. (1982). 'The Definition of a Story'. *Journal of Pragmatics* **6**: 487-507.

- Stein, N. L. and Glenn, C. G. (1979a). 'An Analysis of Story Comprehension in Elementary School Children'. In Freedle, R. (eds). *New Directions in Discourse Processing*. New Jersey: Ablex Publishing. 53-120.
- Stein, N. L. and Glenn, C. G. (1979b). 'How Children Understand Stories'. In Katz, L. (eds). *Current Topics in Early Childhood Education*. Norwood, New Jersey: Ablex Publishing. 261-290.
- Stein, N. L. and Glenn, C. G. (1982). 'Children's Concept of Time: The Development of a Story Schema'. In Friedman, W. J. (eds). *Developmental Psychology of Time*. New York, USA: Academic Press. 255-282.
- Stirling, L. and Barrington, G. (In Press). "'Then I'll Huff and I'll Puff or I'll go on the roff!" thinks the wolf: Spontaneous Written Narratives by a Child with Autism'. In Schalley, A. C. and Khlentoz, D. (eds). *Mental States: Language and Cognitive Structure*. Amsterdam: John Benjamins.
- Striano, T. and Rochat, P. (1999). 'Developmental Link Between Dyadic and triadic Social Competence in Infancy'. *British Journal of Developmental Psychology* 17 (4): 551-562.
- Stromqvist, S., Nordqvist, A. and Wengelin, A. (2004). 'Writing The Frog Story: Developmental and Cross-Modal Perspectives'. In Stromqvist, S. and Verhoeven, L. (eds). *Relating Events in Narrative Volume 2: Typological and Contextual Perspectives*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 359-394.
- Stromqvist, S. and Verhoeven, L. (2004). 'Typological and Contextual Perspectives on Narrative Development'. In Stromqvist, S. and Verhoeven, L. (eds). *Relating Events in Narrative Volume 2: Typological and Contextual Perspectives*. Mahwah, New Jersey: Lawrence Erlbaum. 3-14.
- Tager-Flusberg, H. (1981). 'Sentence Comprehension in Autistic Children'. *Applied Psycholinguistics* 2 (5-24).
- Tager-Flusberg, H. (1991). 'Semantic Processing in the Free Recall of Autistic Children: Further Evidence for a Cognitive Defect'. *British Journal of Developmental Psychology* 9: 417-430.
- Tager-Flusberg, H. (1992). 'Autistic Children's Talk about Psychological States: Deficits in Early Acquisition of a Theory of Mind'. *Child Development* 63 (1): 161-172.
- Tager-Flusberg, H. (1993). 'What Language Reveals About the Understanding of Mind in Children with Autism'. In Baron-Cohen, S., Tager-Flusberg, H. and Cohen, D. J. (eds). *Understanding Other Minds: Perspectives from Autism*. Oxford: Oxford University Press. 138-157.
- Tager-Flusberg, H. (1994). 'Dissociations in Form and Function in the Acquisition of Language by Autistic Children'. In Tager-Flusberg, H. (eds). *Constraints on Language Acquisition: Studies of Atypical Children*. New Jersey: Lawrence Erlbaum Associates. 175-194.
- Tager-Flusberg, H. (1995). "Once Upon a Ribbit": Stories Narrated by Autistic Children'. *British Journal of Developmental Psychology* 13: 45-59.
- Tager-Flusberg, H. (1997). 'Language Acquisition and Theory of Mind: Contributions from the Study of Autism'. In Adamson, L. and Romski, M. A. (eds). *Communication and Language Acquisition: Discoveries from Atypical Development*. Baltimore, MD: Paul Brookes Publishing. 135-160.
- Tager-Flusberg, H. (1999). 'A Psychological Approach to Understanding the Social and Language Impairments in Autism'. *International Review of Psychiatry* 11: 325-334.

- Tager-Flusberg, H. (2000a). 'Language and Communication Impairments in Autism'. *Journal of Mental Retardation* **112** (3): 100-100.
- Tager-Flusberg, H. (2000b). 'Understanding the Language and Communicative Impairments in Autism'. In Glidden, L. M. (eds). *International Review of Research on Mental Retardation: Special Issue on Autism*. New York: Academic Press. 185-205.
- Tager-Flusberg, H. (2001). 'A Re-Examination of the Theory of Mind Hypothesis of Autism'. In Burack, J., Charman, T., Yirmiya, N. and Zelazo, P. (eds). *The Development of Autism: Perspectives from Theory and Research*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 173-193.
- Tager-Flusberg, H. (2004). 'Do Autism and Specific Language Impairment Represent Overlapping Language Disorders?' In Rice, M. L. and Warren, S. F. (eds). *Developmental Language Disorders*. Mahwah, New Jersey: Lawrence Erlbaum Associates. 31-52.
- Tager-Flusberg, H. and Anderson, M. (1991). 'The Development of Contingent Discourse Ability in Autistic Children'. *Journal of Child Psychology and Psychiatry* **32**: 1123-1134.
- Tager-Flusberg, H. and Calkins, S. (1990). 'Does Imitation Facilitate the Acquisition of Grammar? Evidence from a Study of Autistic, Down's Syndrome and Normal Children'. *Journal of Child Language* **17**: 591-606.
- Tager-Flusberg, H., Calkins, S., Nolin, T., Baumberger, T., Anderson, M. and Chadwick-Dias, A. (1990). 'A Longitudinal Study of Language Acquisition in Autistic and Down Syndrome Children'. *Journal of Autism and Developmental Disorders* **20** (1): 1.
- Tager-Flusberg, H. and Joseph, R. M. (2003). 'Identifying Neurocognitive Phenotypes in Autism'. *Philosophical Transactions of the Royal Society London. Section B: Biological Sciences*. **28** (Feb 356(1430)): 303-314.
- Tager-Flusberg, H., Paul, R. and Lord, C. (2005). 'Language and Communication in Autism'. In Volkmar, F. R., Paul, R., Klin, A. and Cohen, D. (eds). *Handbook of Autism and Pervasive Developmental Disorders. Volume One: Diagnosis, Development, Neurobiology, and Behavior*. New Jersey: John Wiley and Sons. 335-364.
- Tager-Flusberg, H. and Sullivan, K. (1994). 'A Second Look at Second-Order Belief Attribution in Autism'. *Journal of Autism and Developmental Disorders* **24** (5): 577-586.
- Tager-Flusberg, H. and Sullivan, K. (1995). 'Attributing Mental States to Story Characters: A Comparison of Narratives Produced by Autistic and Mentally Retarded Individuals'. *Applied Psycholinguistics* **16**: 241-256.
- Tannen, D. (1979). 'What's in a Frame? Surface Evidence for Underlying Expectations'. In Freedle, R. (eds). *New Directions in Discourse Processing*. New Jersey: Ablex Publishing. 137-181.
- Thomas, G. and Loxley, A. (2001). *Deconstructing Special Education and Constructing Inclusion*. Buckingham, UK: Open University Press.
- Trabasso, T. and Rodkin, P. C. (1994). 'Knowledge of Goals/Plans: A Conceptual Basis for Narrative *Frog, Where Are You?*' In Berman, R. A. and Slobin, D. (eds). *Relating Events in Narrative: A Crosslinguistic Developmental Study*. Hillsdale, New Jersey: Lawrence Erlbaum Associates. 85-106.
- Twachtman-Cullen, D. (2000). 'More Able Children with Autism Spectrum Disorders: Socio-Communicative Challenges and Guidelines for Enhancing Abilities'. In Wetherby, A. M. and Prizant, B. M. (eds). *Autism Spectrum Disorders: A*

- Transactional Developmental Perspective*. Baltimore, Maryland, USA: Paul H Brookes Publishing Co. 225-250.
- UNSECO. (1994). *The Salamanca Statement and Framework for Action on Special Educational Needs*. http://portal.unesco.org/education/en/ev.php_URL_ID=8412&URL_DO=DO_TOPIC&URL_SECTION=201.html. Last Accessed August 2007.
- Volden, J. and Lord, C. (1991). 'Neologisms and Idiosyncratic Language in Autistic Speakers'. *Journal of Autism and Developmental Disorders* **21** (2): 109.
- Volkmar, F. R. and Klin, A. (2005). 'Issues in the Classification of Autism and Related Conditions'. In Volkmar, F. R., Paul, R., Klin, A. and Cohen, D. (eds). *Handbook of Autism and Pervasive Developmental Disorders. Volume One: Diagnosis, Development, Neurobiology and Behavior*. New York: John Wiley and Sons. 5-41.
- Vygotsky, L. V. (1962). *Thought and Language*. Cambridge, Massachusetts: MIT Press.
- Wahlberg, T. and Magliano, J. P. (2004). 'The Ability of High Function Individuals with Autism to Comprehend Written Discourse'. *Discourse Processes* **38** (1): 119-144.
- Warren, W. H., Nicholas, D. W. and Trabasso, T. (1979). 'Event Chains and Inferences in Understanding Narratives'. In Freedle, R. (eds). *New Directions in Discourse Processing*. New Jersey: Ablex Publishing. 23-52.
- Wechsler, D. (1999). *Wechsler Abbreviated Intelligence Scale*. San Antonio, TX: Psychological Corporation.
- Wetherby, A. M. and Prutting, C. A. (1984). 'Profiles of Communicative and Cognitive Social Abilities in Autistic Children'. *Journal of Speech and Hearing Research* **27**: 364-377.
- Wing, L. (1996). *The Autistic Spectrum*. London: Constable.
- Yule, W. and Rutter, M. (1987). *Language Development and Disorders*. London: MacKeith.

Appendices

Appendix One: Parental Consent Form

The Development of Narrative and Story-Telling Abilities

Please complete and return to your school as soon as possible.

Your school will pass the information onto Lucy Carey and those who consent will be contacted within normal school hours.

None of the information provided on this form will be used for anything other than the study described above.

(Please Delete as Appropriate)

- I have read the information provided and I agree to my child taking part in this project. Yes/No
- I have the contact information for the researcher and I understand that I can ask questions at any time during the project. Yes/No
- I understand that I am free to withdraw from this project at anytime without reason for withdrawal. Yes/No
- I understand that upon withdrawal all information with regard to my child will be destroyed. Yes/No

Signed Date

Child's Name

Child's Date Of Birth.....

School

School Year

Family Address

.....
.....

Telephone Number

Appendix Two: A Sample of Children's Narratives

The following stories are a sample of the narratives produced as part of the studies reported in this thesis. They include examples from all contexts and from both typically developing participants and those with autism spectrum disorder (ASD). Where the narratives are labelled pre and post intervention for the ASD examples, this label refers only to the task type and the numbers should not be considered to represent the same individuals (i.e. the narrative labelled "pre-intervention 1" was not written by the same participant as the narrative labelled "Assessment B 1").

Typically Developing 1

Once upon a time, when men real men, women were real women and strange furry creatures were real strange furry creatures, there lived a little fat boy who nobody liked. His only friends was a dog called Sir Scruffles and together they had the most wonderful adventures.

It was twenty to nod time, and the little fat boy was sitting gloomily in the forest of Woe.

"What's wrong little boy?" asked Sir Scruffles when he came plodding.

"My entire family had been killed when a jet piloted by my fiancé crashed into my million dollar man killing all my family."

"wow" said Sir Scruffles, "That's bad"

"Yes, yes it is" murmured the little fat boy.

"So what are we going to do now?" asked Sir Scruffles knowing that his life could change subjectively"

"I don't know." said the little fat boy. "All I know is that we should lead for Las Vegas" the little fat boy clambered onto the nearby log and called for his horse, Clobberk new.

"Er, little Fat Boy?" Sir Scruffles said hesitantly "you don't have Horse"

"Once again you are right Sir Scruffles. Too the Bat-Car"

And the little Fat boy and Scruffles drove to Las Vegas where they knocked over 3 casinos, gaining 120 million Dollars before using the money to buy a reunion spaceship and fly to the moon where... they all had lemonade. The End

Typically Developing 2

It was a Thursday morning and rather than going to 'boring' school,

Timmy decided to go out in the meadow. The meadow was sunny and pleasant; with a slow moving stream flowing through the middle. Pond animals and creatures thrived in here, especially frogs. Timmy waited until his father had gone off to work and his mother was hanging out the laundry and gathered a bucket and his dog, Sam. He trudged down to the stream with Sam trotting happily behind. Eventually he arrived and sat himself down. He waited and waited but nothing appeared, not even a tadpole. Sam wondered around restlessly. Just as Timmy was about to head home, Sam barked Timmy looked up hopefully and sitting on a lily was a frog! He was overjoyed and pulled on his boots. He held onto a twig and leant over to the frog eagerly. His arm outstretched; but the bank was muddy and he lost his balance. His body felt paralysed by the icy water.

Even though it was a sunny day; the stream flowed directly from the snowy mountain tops. From underneath the water Timmy could hear Sam's confused yelps. Timmy panicked, what was he going to do? He couldn't swim and he was beginning to feel numb all over. Desperately he felt around for something to grasp onto. He clung on to a reed and managed to pull himself up and out of the water. He was freezing, upset and miserable. He and Sam trailed back empty-handed and disappointed. He never truanted off school again

Typically Developing 3

"Mum! Where are you?" nobody answered

"Mum!" The boy began to cry. The huge dark green trees howled in, the night was near. The young boy waited in hesitation. What ever he was after he had lost. The boy looked down, it was night. The dark night brought many scary noises out. The boy was beginning to get scared. The small boy lay down on the large tree he was standing on. The boy cuddled up with his dog in anticipation of help.

The boy's eyes slowly awoke. The boy looked up and saw no, not a big tree he was previously asleep on but a big bed. The boy was back on his bed in his room. The boy began to think back and tried to remember what he had done. All the boy could remember was him and his mum going for a long walk through the forest. The boy began to think he was just actually dreaming, nobody would no!

Typically Developing 4

The frog looked on at the curious boy who towered over him. His podgy fingers stretched desperately wide and far out, nearing the frog Frozen, the putrid frog leapt from the leaf and vanished into the tangled weeds deep into the water. The boy surprised jumped back from the stagnant water onto the muddy banks. He hung his head shamefully, and grabbed at the empty bucket; swinging it high into the air violently. The ears of his dog pricked up at the sound of the boys muffled voice calling his name. The dog trotted happily and profoundly in front of the by, his nose almost touching the ground but not quite, concentrating on all the different unfamiliar interesting odours. His wild tail wagging madly. The boy slumped on through the grass and the mixture of mud. The pungent odour of old wet leaves and plants hung in the air. The wet leaked into his wellies soaking into his socks making it uncomfortable to walk. As it was a long way home and he knew his mother would have that same look of disbelief across her face when he walked in the door, then she would send him straight to bed-without any supper. He hung his head in misery and tiredness

Autism Spectrum Disorder Pre-Intervention 1

The New Friend

Hi I'm Sam. I've got brown hair and green eyes. I've been looking for a new friend to play with, with my dog Sparky. Sparky is a chocolate Labrador, he has blue eyes and goes where ever I go except from school. We were in the wood searching for a new friend and came upon an alligator. "will you be my new friend?" I asked politely

"Sure! as long as I can eat your dog!" He replied in a ferocious voice. Sparky started to run and hid behind a tree instantly!

"Too ferocious," I said. Sparky was relieved we started to walk again through the wood. While we were walking we saw a fish in a pond.

"Could you please be my new friend?" I asked politely.

"Sorry, I can't understand you", the fish answered in fish language

"It wouldn't understand me anyway, plus it's to wet to stroke!" I said: Sparky and I started to walk down the woods again. While we were walking we came upon a cat. "Will you be my.." "Ah! Dog!" before I could finish off what I was trying to say, the cat interrupted me and ran off! "Oh yeah! cats are afraid of dogs that's why she ran away because of Sparky!" I said. Sparky was relived that he didn't have to make friends with a cat. Me and Sparky started to walk down the woods again.

While we were walking we came upon a frog sitting there by himself on a lily pad.

"will you be my friend?" I asked. "Croak" croaked the frog I thought that must mean yes in frog so I took him home into our bedroom and we were friends.

Autism Spectrum Disorder Pre-Intervention 2

The boy was looking up and he seen a (UFO) it landed lots of men with 99999 eyes came out. They had guns and shot all of the eagles in the sky the boy got a squirty gun and shot them they all cried and ran away

Autism Spectrum Disorder Pre-Intervention 3

The day I lost Spiker

One day in the town of Newcastle there was a boy called Dave. He liked to go to the swamp to play at the big log which connected from the woods to the entrance to the woods. The next day Dave went to the woods to Play "thrown the ball and fetch" with his pet dog called Spiker when Dave got to the woods he threw the ball as hard as he could and Spiker went after it and came back he threw it again and again until one time Spiker didn't come back he shouted "Spiker! Spiker!!" Still didn't come back... Luckily Dave's Friend Billy came with his dog Dave said to him "will you help me find Spiker please?" "And your dog?" Billy said "yes" So we looked for him they both looked where Dave threw the ball no Spiker they looked round the big log still no Spiker then Dave heard a "howl!" we ran to where heard Howling there was Spiker stuck in a bush Billy said "stuck in a bush?! "That's all?" me and Billy went home and never wanted to go to the woods again until Spiker was a big grown up dog. The end

Autism Spectrum Disorder Pre-Intervention 4

The Blue Frog in the Red Swamp

One day a little boy named Jack was on holiday with his parents and their dog Sprinkler, Jack was playing with his parents pass the ball when accidentally Jack's Dad threw the ball too far so Jack decided to get it. Jack went past a bunch of trees and he found the ball on a lily pad. He grabbed the ball and a blue frog jumped on it. The frog was just sitting and staring at Jack until it jumped off and went away, so Jack Followed it and it eventually went to its nest and it was looking in the water and so was Jack and he saw multicoloured Tad poles. There were 10 reds, 7 blues and 7 yellows but they were all different. Some were spotty, some were stripy and some were just normal, but the frog Jumped again to a red tree and it had a bee hive with bees who had rd and black stripes instead of yellow and black. The frog hopped and Jack ran for their lives until they fell into a red bush and the bees were confused so they went away. In the bush there were red sticks and red berries and then there was a red badger that was staring at the blue frog. The badger chased them and jack was holding the frog tightly as he ran and then he started to get tired and he stopped and then the badger ran away because Jack's Dad was back and he scared the badger away using badger repellent, and so Jack was saved by his Dad and the frog went home. Jack's Dad took Jack back home.

Autism Spectrum Disorder Assessment B 1

The Story

There was a horrible man in space who wanted o take over the world. He lived in a spaceship. He then went out to send a telephone signal. The world heard the signal and was scared. It said "I'm gonna take over your world. Ha ha ha." He then summoned all of his evil demons and made them come to Earth. Daniel, kid one, who wore an apron saw the demons and reported it to the boss of his team called Tom. The leader reported it to he rest of his crew. "Oh no!" Daniel said to Dillan, a small red creature. It said "sploobloob" in a weird voice and killed some evil demons. Danny, the other kid saved an old man called David from being eaten and the world was saved. Folemomicann was so angry that he made the toilet next to him explode! He sighed. The toilet fell to earth and hit Dillan on the head and the last was dead. The End.

Autism Spectrum Disorder Assessment B 2

In Canada is a secret facility where they made Blob. Blob could transform. One day when the scientists were making experiments Blob turned into air and escaped.

Blob went into the city as a human then he transformed into a helicopter and blew up everything in sight to get away from the scientists. When blob was finished blowing up everything, he transformed into trees, grass and flowers and stayed like that so the scientists could find him.

Autism Spectrum Disorder Assessment B 3

The Death Parade!

One day Pichu was playing skipping with his rope when suddenly a parade comes and snaps his rope. Pichu was angry and decided to follow and stop them.

Pichu remembered them from last year when they destroyed his garden! Pichu ran after them and got to the bridge.

Suddenly a dragon comes and wants Pichu to ride him! It was one of Pichu's old friends! Pichu rides him and now he's got a plan!

Pichu decided to hit a bird down so that it would break the bridge the parade was crossing. The bird was so fat it worked and the whole parade fell!

That will teach them a lesson; never destroy Pichu's fun! The end.

Autism Spectrum Disorder Assessment B 4

Elephant rescue

One Day, a twenty four yea old man named Alfie visits America for the first time in his life to see the thanks giving parade. Alfie was so happy to see lots of his favourite Mascots, until he saw a sick looking young Elephant. The elephant didn't have a name. As the elephant walked past Alfie he said "help me please!" The elephant could talk and he was talking to Alfie about what was happening with him and how he was treated and the elephant said "They said that when they were finished they would use my ivory for money!". Alfie was shocked, he couldn't let a poor old elephant get killed, so Alfie suggested "Hey why don't you come with me, I'll take you to England and set you free?" The Elephant agreed and decided to head off to England.

Once they arrived they started searching for new homes for the elephant. They search and searched and searched until the elephant came across a leaflet for the Lake District, they decided to go there. Three and a half hours later they got there and the elephant started to feel comfortable and he started making friends with the animals. The elephant was very grateful. "Thank you. I'll never forget this" said the elephant and Alfie headed straight back to his home. The End.

Appendix Three: An Example Coded Narrative

(TC11ZMO Peter and his dog, Barnie, were going out to do some fishing.
(TC11ZMO He took his net and bucket
(TC11ZMO and aimed to get five.
(TC11ZMO He walked for a while to try and find the small stream
(TC11ZMO which he had been to yesterday.
(TC11ZMO peter finally found this stream as he went through the forest,
(TC11ZMO Barnie and peter jumped over the last branch from the forest, to sit near
(the tree.
(TC11ZMO But the branch was bigger that they expected.
(TC11ZMC they both went flying into the stream head first.
(TC11ZMO Peters bucket landed on his head with a thud!
(TC11ZMO Peter was unable to see his dog, Barnie,
(TC11ZMO so he called for him.
(TC11ZMS 'Barnie, Barnie. Here boy.' peter shouted.
(TC11ZMO Barnie popped up out of the water
(TC11ZMO and began to stare at the frog sitting on the side of the stream.
(TC11ZME The frog got threatened by this
(TC11ZMO and leaped over them onto a near by log.
(TC11ZMO Peter had managed to get himself and the dog onto dry land.
(TC11ZME Peter was very annoyed at this frog because
(TC11ZMO he had just realise that the frog had caused all of this trouble
(TC11ZMO by sitting just in front of the log they had tripped over.
(TC11ZMO Peter went back home shouting all he way,
(TC11ZME this upset the frog because
(TC11ZME he knew all the blame was on him.
(TC11ZME Peter stomped his feet home and not in a very good mood.
(TC11ZME The frog sat there most of the night feeling very guilty and unable to eat
(or drink
(TC11ZME because today had made him feel so useless.
(TC11ZMO He thought he would do something about it.
(TC11ZMC He followed all of the footprints to peters home
(TC11ZMO and hopped into his house.
(TC11ZMO peter and Barnie were in the bath
(TC11ZMO so he decided to wait until they had finished to give a full explanation of
(how sorry he was.
(TC11ZMD So even Freddie the frog had a happy ending.

Appendix Four: Multiple Pictures (A Boy, a Dog and a Frog)



© Mayer, M. (1967). *A Boy, a Dog and a Frog*. Dial Publishers, New York, USA.

Appendix Five: Multiple Pictures (Frog, Where Are You?)



© Mayer, M. (1974). *Frog, Where Are You?: Sequel to 'A Boy, a Dog and a Frog'*. Collins, London.

Appendix Six: Single Picture (A Boy, a Dog and a Frog)



© Mayer, M. (1967). *A Boy, a Dog and a Frog*. Dial Publishers, New York, USA

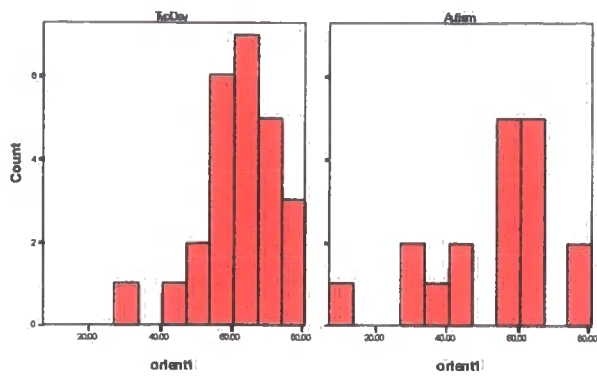
Appendix Seven: Single Picture (Frog, Where Are You?)



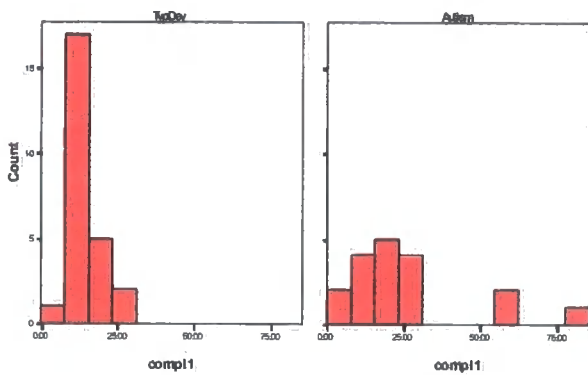
© Mayer, M. (1974). *Frog, Where Are You?: Sequel to 'A Boy, a Dog and a Frog'*. Collins, London.

Appendix Eight: Study One (Full Sample) Data Distribution

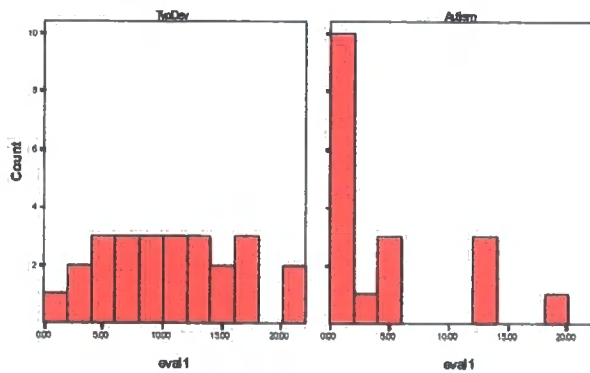
Orientation



Complicating Action

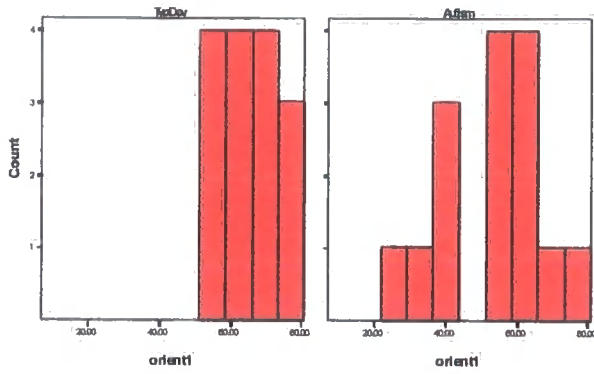


Evaluation

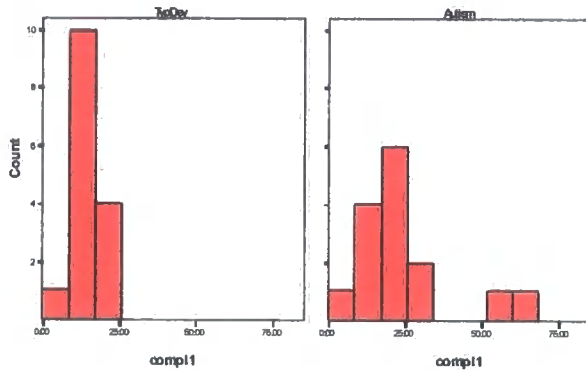


Appendix Nine: Distribution Data - Study One (Matched Sample)

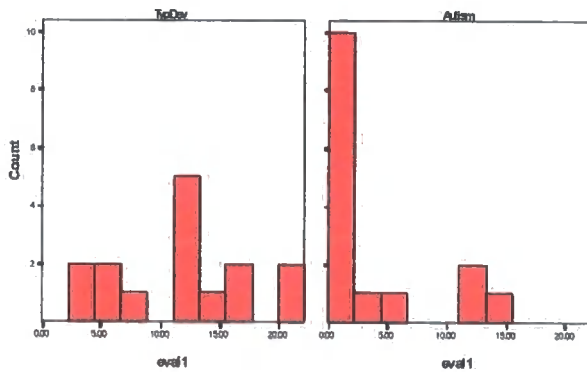
Orientation



Complicating Action

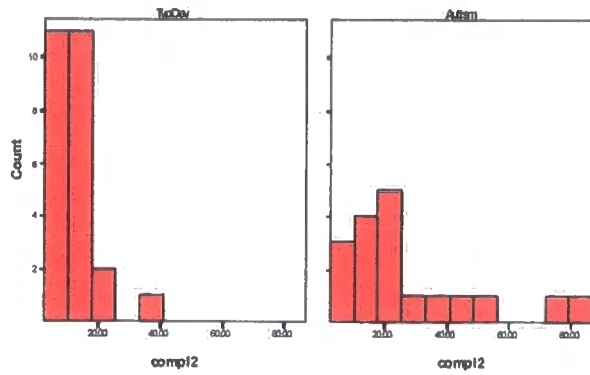


Evaluation

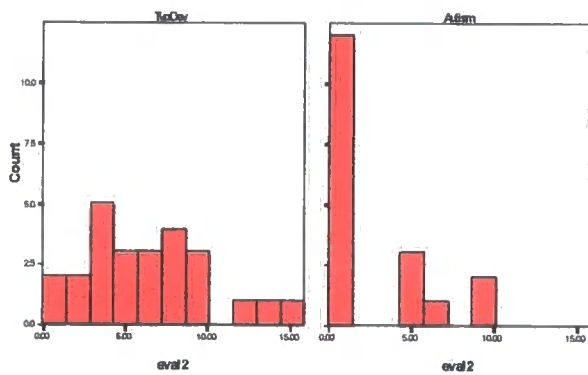


Appendix Ten: Distribution Data - Study Two (Full Sample)

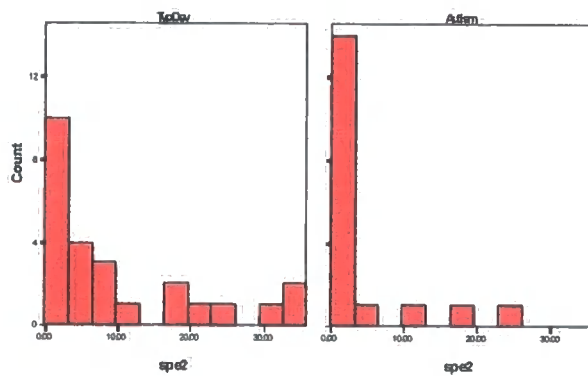
Orientation



Complicating Action

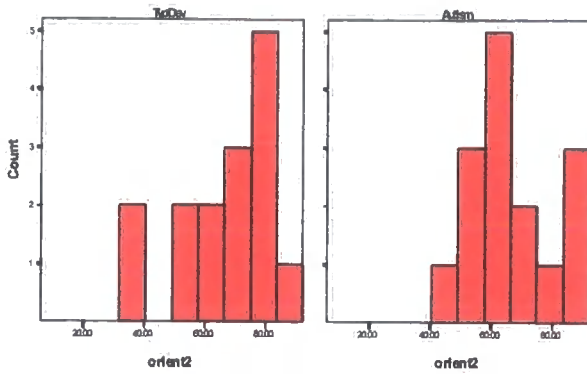


Evaluation

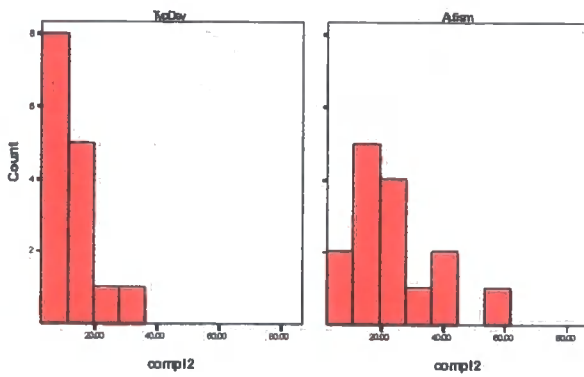


Appendix Eleven: Distribution Data - Study Two (Matched Sample)

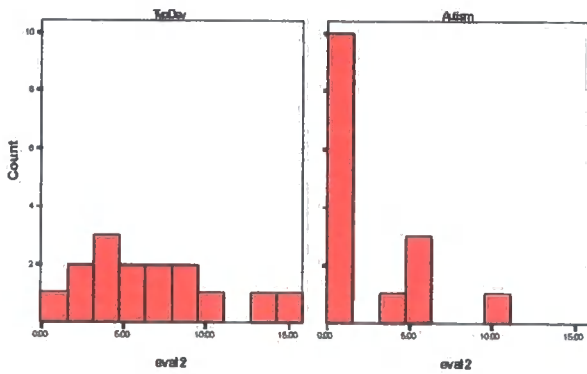
Orientation



Complicating Action



Evaluation



Appendix Twelve: Intervention Worksheet One

The Pirates

1) Who is telling the story?

a) A character

b) A narrator

[What is the difference?]

2) Who is the story about?

a) Is there more than one person in the story?

b) What are their names?

c) Who is the main person?

d) What do they look like?

3) Setting

a) Where do they live? When?

b) Where is the story set?

c) What is it like?

Appendix Fourteen: Intervention Worksheet Three

STORY WRITING 2

TITLE _____

Once upon a time _____

One Day, _____

First, _____

Next, _____

Last, _____

Finally _____

Appendix Fifteen : Intervention Worksheet Four

STORY WRITING 3

STORY TITLE _____

CHARACTERS

SETTING

TIME

STORY and SEQUENCE

Paragraph 1: from above

Paragraph 2:

First _____

and _____

Paragraph 3:

After _____

and _____

Paragraph 4

After _____

and _____

Appendix Seventeen: Intervention Worksheet Six
The Plot

TITLE _____

Once upon a time _____

1) _____

2) _____

3) _____

4) _____

Finally _____

Appendix Eighteen: Intervention Worksheet Seven

The Plot

	Words	Description
Action 1		
Action 2		
Action 3		
Action 4 (conclusion)		

Appendix Nineteen: Intervention Worksheet Eight

The Characters		Descriptions		
		<i>Words</i>	<i>Physical</i>	<i>Personality/Emotion</i>
Characters' Names				

Appendix Twenty: Intervention Worksheet Nine

The Characters Emotions

Stage of the story	Descriptions	
	Emotion	Reason for the emotion

Appendix Twenty-one: Intervention Worksheet Ten

Guidelines to help you write your story

USE THE SHEETS YOU HAVE JUST COMPLETED TO HELP YOU WRITE YOUR STORY.

Introduction

- a) Set the scene
- b) Introduce the main characters

Main Body

- a) Include all the plot events
- b) Make sure that enough description is included to help the reader understand the story fully.
- c) Don't forget the emotions, feelings and reactions of the characters.

Conclusion -

- a) What happens in the end?
- b) Is there a moral?
- c) How do the characters feel about the outcome?



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Look at the picture you have been given. Use this picture to create a new story you have not written before. You can develop your story in anyway you like. Do not just describe the pictures.

You have half an hour to finish your story.

Appendix Twenty-three: Questionnaire Rating Scale

Story Telling Rating Scale

Please use this rating scale to rate the narratives you have been given. You should read the narrative and then to the best of your ability judge it on each of the characteristics. These ratings are to enable the research to identify what makes a good narrative.

A. As a reader did you feel engaged in the story?

1. No engagement
2. Very limited
3. Some
4. Good
5. Very good engagement

B. To what extent did you feel that the writer was targeting you as a reader?

1. Not at all
2. Hardly at all
3. To some extent
4. A lot
5. A great deal of the time

C. Did you think that a good story line was developed?

1. No development
2. Very limited development
3. Some development
4. Good development
5. Very good development

D. Did you think that the story was well structured/easy to follow?

1. No structure/very hard to follow
2. Very limited structure/quite hard to follow
3. Some structure/OK to follow
4. Clear structure/Easy to follow
5. Very clear structure/Very easy to follow

E. Overall how would you rate the maturity of the narrator?

1. Very poor (infant like)
2. Poor (very child like)
3. Average (a standard child's story)
4. Good (a child story with some signs of maturity)
5. Excellent (adult-like, mature)
6. Superb - (sophisticated, adult like and exceptionally mature)

F. Could you identify with/believe the characters?

1. No sense of character at all
2. Almost no sense of character
3. Very limited sense of character
4. Good sense of character
5. Excellent sense of character

G. Comments on this story:

What are your impressions of writer as a story teller?

Write 2-3 sentences on your overall impression from reading the story.

