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# **Factors Promoting School Success and Inclusion of Children with Autistic Spectrum Conditions**

Emma Maria Waddington

Submitted to the University of Wales in fulfilment of the  
requirements for the Degree of PhD in Psychology

Swansea University  
2007

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*“Education is the most powerful weapon which you can use to change the world”*  
Nelson Mandela

## Summary

The past ten years have seen a growing drive towards 'full inclusion' of children with Autistic Spectrum Conditions (ASC) in schools however this has not been accompanied by sufficient research on its impact. This thesis evaluates the effectiveness of inclusion. But at the same time, as the movement towards inclusion appears unstoppable, it also looks at ways practice could improve outcomes, and, in particular, whether teaching the Preschool Inventory of Repertoires for Kindergarten (PIRK) curriculum can help prepare a child for mainstream.

Both qualitative and quantitative methods were used, and primary and secondary data analysed. Eight focus groups, between five- and eight-strong, ascertained the views of both professionals and parents on what promotes successful inclusion. Predictors and outcome measures, such as academic results, were extracted from secondary data of archival material on 108 children to compare those with ASC placed in mainstream and special schools. In addition, primary data on parental coping and severity were collected as predictors of success. Longitudinal primary data of 83 children, measuring social, behavioural, and communicative functioning, were collected to assess the effect of placement on these measures. Finally, longitudinal primary data for 47 children, measuring social, behavioural and communicative functioning of children undergoing the PIRK in both mainstream and special schools were analysed to see whether preparation for mainstream can improve outcomes.

The findings suggest that placement is having a differential effect, but that special schools can improve performance significantly, despite the existing bias against them. However, practice along with extra-school factors, such as parental coping styles, is often more important than the placement itself. School, LEA and child factors were shown to be crucial in mainstream. Teaching using the PIRK improved outcomes for children with ASC in both placements, supporting its use in preparation for mainstream.

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# 1 LITERATURE REVIEW

## **1.1 Autistic Spectrum Condition**

### **1.1.1 Diagnostic Criteria**

Autistic Spectrum Condition (ASC) is diagnosed when an individual fulfils the criteria as set out by the Diagnostic and Statistical Manual of Mental Disorders IV-R (4<sup>th</sup> Edition Revised, American Psychiatric Association, 1994), which specifies deficits in the areas of social interaction, communication, and restricted, repetitive, and stereotyped patterns of behaviour, interests and activities.

ASC was first included as a diagnosis in the DSM-III (1980) under the construct of Pervasive Developmental Disorders (PDDs), and in the ICD-9 (1980) under the category of “psychoses with origin specific to childhood”. In the DSM (III, III-R, IV), the PDDs are described as early developmental disorders with delays in social skills, communication, and cognitive abilities. The group of PDDs include: (a) Childhood Autism, (b) Asperger’s syndrome, (c) Rett’s disorder, (d) Childhood Disintegrative Disorder, and (e) Pervasive Disorder Not Otherwise Specified (PDDNOS). The whole spectrum is defined by significant impairments in social interactions, impairments in communication, and the display of restricted repetitive or stereotyped patterns of behaviour, interests or activities (DSM-IV; APA, 1994).

An interesting development introduced by the DSM-IV (APA, 1994), is that the PDDs are now coded in a different location to the DSM-III-R (APA, 1987). In the DSM-III-R (APA, 1987), the PDDs were categorised in Axis II, suggesting that ASC was a long-term, chronic disorder, with relatively poor prognosis for improvement (Goldberg-Edelson, 2004). However, in DSM-IV (APA, 1994), the PDDs are now categorised in Axis I, which is the axis used to

diagnose more short-term and transient clinical disorders. This move could reflect the recognition that symptoms of ASC vary from one individual to another, and have the potential for improvement with intervention, whereas the disorders, which remain on axis II (e.g. learning difficulties, or personality disorders), tend to be considered as chronic, long-term and without significant treatment improvements (Goldberg-Edelson, 2004).

Thus, changes introduced to the diagnostic manuals reflect the recognition that ASC is a disorder with significant variations in symptoms between individuals, and with the potential for improvement. Despite the changes in the diagnostic manuals, further research in the fine-tuning of the criteria would assure a more reliable diagnosis of ASC as well as provide more support for the taxonomic validity of ASC (Tsai, 1992). This in turn would support research into treatment and possible aetiology of the disorder.

## **1.1.2 Problems with Diagnostic Systems**

### ***1.1.2.1 Over Inclusivity of Diagnostic Criteria***

The criteria for diagnosis of PDD's have gradually increased in the last two editions of the DSM. The increased criteria adopted by the new diagnostic manuals has led to concerns of inaccurate diagnosis of ASC, which could result in an over inflation of numbers (Tsai, 1992). Volkmar, Bregman, Cohen, and Cicchetti (1988a) examined the reliability, sensitivity and specificity of the DSM-III (APA, 1980) and DSM-III-R (APA, 1987) criteria for ASC. The conclusion was that the DSM-III-R (APA, 1987) criteria were more sensitive, and less specific, and confirmed that the changes made to the newer edition had substantially broadened the diagnostic concept of ASC. Broader diagnostic criteria will lead to the inclusion of more children which means more children

get access to interventions and support. However, a price is paid for this inclusiveness. Benaron (2003) has described the situation arising from further broadening of criteria in the DSM-IV (APA, 1994) as: “inclusion to the point of dilution”. Unfortunately, this situation makes research into the aetiology and treatment of the disorder difficult, and potentially erroneous. Despite some treatment success applicable to the group as a whole (Lord & McGee, 2001), with such diversity in characteristics, developing intervention strategies may require significant differentiation in order to adapt to each individual need.

Moreover, there is concern that the changes to the diagnostic criteria mean that there will be significant overlaps between ASC and other developmental disorders. For example, Schopler (1985) highlights the diagnostic overlaps between learning disabilities and ASC. Given that the diagnostic criteria for learning difficulties include deficits in social skills (Interagency Committee on Learning Disabilities, 1987), difficulties maintaining eye contact and interpersonal relationships (Tsai, 1992), questions arise about the boundary between learning disabilities and ASC. Shea and Mesibov (1985) suggest that the difference between some children with learning difficulties and children with ASC is too subtle, and that some children with ASC would also be placed in the learning disabilities group. This controversial boundary between ASC and learning disabilities highlights the concern of the over-inclusive diagnostic criteria of ASC.

Similar concerns have been expressed regarding the overlap of symptoms between ASC and developmental language disorder. A study by Cantwell, Baker, Rutter, and Mawhood (1989) showed that some children with specific developmental receptive language disorders also displayed behavioural and

social difficulties. Children with ASC also share characteristics with children diagnosed with global developmental delay and developmental language delay (Charman, et al. 1998; Landry & Loveland, 1988; Lord, 1995; Lord, Storoschuk, Rutter & Pickles, 1993).

Given that ASC frequently co-occurs with other disorders, differential diagnosis can be sometimes difficult. In addition differentiation from; learning difficulties, bipolar disorder, schizophrenia, hearing impairment, developmental language disorders, global developmental delay, blindness, and social deprivation may also be challenging. As a result of the difficulties with differential diagnosis, incorrect diagnosis, and possibly over diagnosis, of ASC may occur. In addition, to the issues of over diagnosis, the lack of more stringent criteria means that it becomes more difficult for children to receive intervention which is tailored to their own individualised needs (Charman et al., 1998).

As it now stands, the diagnostic criterium for ASC appears over inclusive (Benaron, 2003). As discussed above, such a broadening of boundaries will result in problems with differentiation between ASC and other developmental disorders. Research studies into the aetiology, intervention, including the education of children with ASC will be challenging until the diagnosis can become more homogeneous.

#### ***1.1.2.2 Prevalence***

Despite concerns regarding the validity of the diagnostic criterium, several studies have looked at the prevalence of ASC. The inconsistencies in the numbers may reflect the concerns with the diagnostic criteria discussed above in Section 1.1.2.1. Kaye, del Melero-Montes, and Jick (2001) studied the number

of newly diagnosed cases of ASC in the UK between 1988 and 1999. The authors noted that the number had increased from 0.3 per 10,000 (1988), to 2.1 per 10,000 (1999), with a peak incidence amongst three and four years old, and 83% of cases were boys. However, Gurney, Fritz, Ness, Sievers, Newschaffer and Shapiro (2003) found a much greater incidence in United States; they found 52 per 10,000 persons in 2001-2002. This appearance of great variation in prevalence estimates was reinforced by Fombonne (2003), who surveyed prevalence estimates for ASC, and found that they ranged from 0.7 per 10,000 persons (Treffert, 1970), to 72.6 per 10,000 person (Kadesjo, Gillberg & Hagberg, 1999). A recent survey on prevalence put the best estimate for prevalence at 0.6% (Fombonne, 2005).

As a result of the variability in estimates of prevalence of ASC, apprehension has been expressed across the United States, Europe, and Australia about the possible increase in the prevalence of ASC (Baker, 2002; Gurney et al. 2003). A number of explanations have been given for this.

Gurney et al. (2003) assessed the noticeable increase of cases of ASC in Minnesota. The authors found that the prevalence rates had risen significantly over the last ten years, and concluded that improvements in identification of the condition were responsible for the increasing rates, suggesting that it may have been under-diagnosed in the past. Other authors agree that such increases reflect recent changes in diagnosis, arguing that such changes have made diagnosis over-inclusive, which is responsible for the recent increase in numbers of individuals diagnosed with ASC (e.g., Benaron, 2003; Fombonne 2003).

Another argument which may explain the increase in numbers is the overlapping of symptoms between children with ASC and other disorders, such

as Rett's Syndrome, learning disabilities and developmental language disorder (see Section 1.1.2.1 above). Such unclear boundaries may lead to incorrect diagnosis of ASC adding to the apparent increase in numbers. This concern has been echoed by Croen, Grether, Hoogstrate and Selvin (2002) who suggest that the real incidence of ASC has not increased; instead they propose that a pattern of "diagnostic substitution" has moved Californian patients who would have previously been diagnosed with a learning difficulty into the ASC category (Croen et al. 2002). However, Blaxhill, Baskin and Spitzer (2003) argue that Croen et al. (2002) rest their diagnostic substitution argument on conclusions that were calculated using a very small sample, and that the argument does not generalise to other samples. Instead, Blaxhill et al. (2003) argue that California provides evidence for the "explosion in the incidence in Autism" (p. 226).

Whether or not there has been a true increase in the incidence of ASC is still debatable, raising concerns about the validity of the diagnosis, however, such data do indicate that ASC is a major public health problem, which will continue to require research to improve education and treatment of the disorder.

### ***1.1.2.3 Prognosis***

There have been very few longitudinal studies of outcomes for individuals with ASC. However, such research as there is, suggests that the prognosis for ASC is very poor. In a longitudinal study of children with ASC, Rutter (1970) found that the majority of individuals remained severely handicapped, requiring significant levels of support, and were living in sheltered accommodation. Only a very small number (1.5%) were described as 'normal functioning'. These findings have been partially replicated since, by Howlin,



Mawhood, and Rutter, (2000), who found that many adults with ASC still lived with their parents, and very few had friends or permanent jobs.

Despite the poor prognosis, there are factors that can help improve the outcomes for individuals with ASC. Lord and Bailey (2002) found that individuals with an IQ of below 50 had the poorest outcomes. Therefore, increasing the IQ of individuals with ASC may lead to improvements in outcomes (Howlin, Goode, Hutton, & Rutter, 2004). In addition, Howlin et al. (2004) found that those individuals with the highest performance on the social measures, also performed best in cognitive, language and academic tests, and they displayed lower levels of stereotypical behaviours. In conjunction with the findings from Lord and Bailey (2002), these findings suggest that by improving IQ and social skills, there can be improvements in the overall outcomes of individuals with ASC. Such improvements may fall within the educational, rather than medical, domain to deliver, as Lotter (1974) noted the beneficial impact of appropriate education on prognosis.

There is evidence that interventions such as intensive behavioural interventions (e.g. Applied Behaviour Analysis; Lovaas, 1987; McEachin, Smith & Lovaas, 1993; Reed, et al. 2007a; 2007b; Remington et al. in press), medication (e.g. Haloperidol; Campbell & Cueva, 1995) and educational programmes (such as TEACCH; Campbell, Schopler, Cueva & Hallin, 1996) can help improve outcomes. Despite the evidence on improved outcomes, it is not clear whether these improvements are maintained long-term, and whether they ultimately improve prognosis.

In summary, ASC has a poor prognosis, although there is evidence that certain interventions, particularly early and educational interventions, may

improve outcomes and possibly prognosis. It is, therefore, important to continue to study early educational interventions, with the goal of improving outcomes and prognosis, given the emotional, financial and social impact ASC has on the child, the family, and ultimately society.

## **1.2 The Economic Impact of ASC**

ASC has been described as a 'costly disorder', due to the financial and emotional drain to parents and carers (Jarbrink & Knapp, 2001). New interventions, in particular the use of behavioural interventions (Jarbrinck & Knapp, 2001), uncover a need to analyse the cost-effectiveness of such interventions (Jarbrinck & Knapp, 2001). This is further compounded by the apparent increase in numbers, and the increase in litigations due to the demand by parents that Local Education Authorities (LEA) fulfil the right to an individualised education (Mandlawitz, 2002).

There has been little research examining the actual economic consequences of ASC, and the education, treatment, or support, for people with the disorder. This lack of information makes planning services and allocation of resources difficult, as well as delaying policy change due to the inability to choose a more cost-effective model of intervention (Jarbrink & Knapp, 2001). Crowther, Dyson and Millward (1998) provided a framework for the measurement of outcomes. They argue that SAT results, IEP outcomes, and screening test scores, can be used as outcome measures. Such evidence-based practice as an ideology has begun to shape medical and social services in the UK and the USA (Department of Health, 1998a, 1998b), and ensures that

practitioners can base their interventions on the most up to date and research based evaluations (Department of Health, 1998a).

Jarbrink and Knapp (2001) calculated the approximate economic impact of an individual with ASC, using estimates based on previously published evidence, and a reanalysis of data from the Centre for the Economics of Mental Health, Institute of Psychiatry. The figures used calculations of associated costs for service use, time and productivity, and family expenses. Service use included; hospital services, other health and social services, living support, voluntary support, special education, medication, sheltered work, and day care provision. The cost for time and productivity losses, and family expenses, were separated into: productivity losses for people with ASC, family members' time costs, and family expenses. The total calculated for a lifetime of an individual with ASC and additional learning disabilities was £2,940,500. The greatest proportion was spent on living support, which accounted for 73% of the costs. The authors found that even when all children with ASC and additional learning disabilities were assumed to attend special schools, the costs for special education only accounted for 6% of the total lifetime costs.

Based on such figures, the use of educational intervention may be a short term expense, which may lead to significant long term savings. There is now well-established evidence that early interventions, in particular behavioural interventions, can have a significant impact on the individual by reducing behavioural problems and improve outcomes (Anderson et al. 1987; Birnbauer & Leach, 1993; Lovaas, 1987; Reed et al. 2007a; 2007b; Remington et al. in press; Rogers, 1996). In addition, these effects can endure into adulthood (McEachin et al. 1993). Therefore, if the use of early intervention leads to

subsequent mainstream placement (instead of specialist provision), the relative costs of early intensive behavioural intervention are greatly outweighed by the estimated savings (Connor, 1998; Jacobson et al. 1998).

In Jarbrink and Knapp's (2001) calculations, there was no mention of the costs of pertinent litigation. The incidence of such cases is on the rise (Fogt, Miller, & Zirkel, 2003), and the escalating cost of litigations is of concern to the government (Connor, 1998). Gubernick and Conlin (1997) reported that, in 1988, litigations cost US taxpayers \$1 billion (£588 million pounds), whereas in 1997 the IDEA (Individuals with Disabilities Education Act) costs were up to \$60 billion (£35 billion). Zirkel (2002) found that the number of cases regarding ASC has steadily increased in the recent years, and an analysis by Feinberg and Beyer (1997) indicated that the number of "Lovaas Disputes" had more than doubled in 1996, and the authors felt that this would continue to increase further. Such cases now represent the fastest growing area of litigation in special education (Baird, 1999). The rise has been due to primarily an increase in the identification of cases, parental advocacy for specific methodologies (such as ABA) as a result of parental discontent with the education of their child; and finally the demand for appropriate services by Local Education Authorities (LEA) (Mandlawitz, 2002). The most common scenario is for parents to ask their LEA to pay for their ABA programmes or to reimburse for programmes that have already commenced (Mandlawitz, 2002). There is an expectation by parents that, since LEA must provide "free appropriate public education", and parents do not consider their child's current provision to be meeting that need, that LEAs should fund the ABA programme (Mandlawitz, 2002). Such cases add to the financial costs of ASC, placing

extended pressure on LEAs to provide effective programmes for children and youth with ASC (Fogt et al., 2003). This again places more pressure on LEAs to evaluate outcomes of provisions for pupils with ASC.

In addition, there is evidence that when the LEAs win cases against parents who want an ABA home programme, it is because they have hired qualified staff, have used evidence based methods for their educational programming and have monitored the child's progress (Choutka, Doloughty & Zirkel, 2004; Yell & Drasgow, 2000). This suggests that LEAs need to ensure they are keeping appropriate outcome data to measure progress and success in order to show how they are meeting the child's individual needs.

### **1.3 Education**

As mentioned in Section 1.2.3, there are many ways to "treat" ASC (e.g., intensive behavioural interventions, medication, and educational programmes). The current thesis will focus on efforts to improve outcomes of children with ASC through an educational intervention, as this may well improve prognosis (Section 1.2.3), and reduce subsequent costs (Section 1.2). It should be noted that educational programmes are not regarded as treatments *per se* for ASC (Howlin, 1997), however, as their aim, like in 'treatment', is to develop and improve the children's skills and outcomes, they are regarded as such for the present thesis.

One current and very important debate in education is the best educational placement for children (whether mainstream or special school), and the goals of educating a child with ASC. The term "full inclusion" is appearing in special education as a movement towards the integration of children with

ASC, and other special educational needs, into mainstream schools. Although definitions of inclusion vary (e.g., children included for play times and meals versus children included all day), the fundamental concept is that children with special educational needs “can, and should, be educated in the same settings as their normally developing peers” (Mesibov & Shea, 1996, p.337). The UNESCO Salamanca Statement (1994) says that those children with special educational needs “must have access to regular schools”, and adds: “regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society, and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost effectiveness of the entire education system”.

Prior to the 1960’s in the UK, children with severe learning difficulties were not considered educable (Hegarty, 1993), and the ‘uneducable’ were placed in ‘training centres’, run by local authority health departments (Fredricksen & Cline, 2002). At this time, in the 1960’s and 1970’s, the special education sector began to expand because it was felt that all children’s needs would not be met in mainstream (Wedell, 1975). Movements to include ‘handicapped’ children began in the mid 1960’s, at a time when concern grew that special education was not leading to the outcomes expected (Dunn, 1968; Warnock, 1978), particularly given the financial investment (Wedell, 1975), and parents of children, and children themselves, in specialist provision were becoming more critical about the provision (Wedell, 1975).

The first significant move towards the inclusion of children with special educational needs in the U.K. came about with ‘The Education (Handicapped

Children) Act' 1970 giving the right to education for all. A similar act, Education of All Handicapped Act of 1975, was passed in the USA. By 1988, a survey conducted by UNESCO reported that 75% of the 58 countries taking part had made significant advances towards the inclusion of children with special educational needs.

### **1.3.1 Arguments for Inclusion of children with ASC**

Despite the commitments to inclusion in the U.K., inclusion has been approached over the last 20 years as a continuum of special educational provision (Fredricksen & Cline, 2003). The Warnock Committee (Department of Education and Science, 1978) described the continuum from non-segregation to segregation, starting with full-time education in an ordinary class, with any necessary help and support, on the one end, and full time home tuition, at the other end of the continuum. Education in a special class, or unit, with periods of attendance at an ordinary class, and full involvement in the general community life, fell half-way on the continuum. The Warnock Committee report (1978) shifted the focus from separate provision (such as special school) to mainstream schools, with the ultimate goal being to have all local children's needs met in a mainstream provision.

The implementation of the 1981 Education Act set the ball in motion, and there has since been an increased use of mainstream placements for children with SEN (Fredricksen & Cline, 2002). In 1998, the Audit Commission found that the number of children with Statements of Needs being educated in mainstream schools had risen from 40% to 55% since 1992. Yet recent surveys have seen a drop in the number of children with Statement of Needs being

educated in mainstream schools (currently 57.2%, down by 1.5% from 2006; DfES, 2007) However, considerable variation is reported between LEAs with respect to inclusion practice. An independent national review carried out by the Centre for Studies on Inclusive Education (2005) found that in 2004 pupils with statements of special needs in South Tyneside were 24 times more likely to receive a segregated education than those in Newham. Overall, the review found that there was very little progress towards inclusion in England from 2002 – 2004. The percentage of children of 0-19 years old placed in special schools, and other segregated settings, by LEAs fell from 0.84% (in 2002) to 0.82% in (2004).

Thus, in both the UK, and in the USA, the movement towards inclusion came about with the implementation of relevant policy changes. In the UK, it began with the Education Act 1970, and in the USA with the passage of PL 94-142, in the 1970's. In both countries, the new legislation formally introduced the idea of the right for an education for all in an included environment. These policy changes lead to an expansion of services for children with different special needs (Burack, Root, & Zigler, 1997), whereby services were expanded to include integrated programmes in regular schools (Egel & Gradel, 1988).

When the initial changes were being made, some argued that inclusion had lead to increases in independent functioning, and greater generalisation of skills, challenging the need for special schools (Brown, Nietupski, & Hamre-Nietupski, 1976). At around this time, the Warnock Report (1978) was written which reflected the concern of whether the rights and education of children with SEN were being served in special schools.



In addition to the rights agenda, the proponents of the inclusive movement believe that the ability of mainstream schools to accommodate and meet the complex needs of all children should be increased (Burack et al., 1997). Stainback and Stainback (1992) argued that mainstream schools should provide specialist educational teaching and expertise where necessary. Once established these schools would be superior to special schools because they would be better equipped to teach and promote acceptance of individual differences (Stainback & Stainback, 1992). These schools would also lead to better communication and interactions, leading to friendship with normal developing peers. As a result of these environmental changes, children in such schools would feel more motivated and have better self-esteem (Stainback & Stainback, 1992). Moreover, proponents argue that full inclusion will lead to increased social awareness of the rest of the children (Egel & Gradel, 1988).

### **1.3.2 Criticisms of Full Inclusion**

Critics of full inclusion argue that the model for full inclusion emphasises values that have not been based sufficiently on scientific evidence (Feiler & Gibson, 1999; Simpson & Sasso, 1992), and many who argue in its favour do not support their arguments with any research findings (Feiler & Gibson, 1999). Those who argue against inclusion suggest that concerns with implementing inclusion are primarily motivated for moral or ethical reasons (Bailey, 1998; Wilson, 2000), forgetting the importance of meeting the individual needs of these children (O'Brien, 2001; Mesibov, 1990). The concern is that although the implementation of inclusion may lead to an "inclusive" education, it is not an education that meets the children's needs

(Ofsted, 2006). For example, children with ASC will have sensory difficulties which can make brightly lit, noisy environments, and the transitions between class which occur in mainstream schools, very difficult (Wing, 2007).

Therefore, inclusion as a policy which accepts that children have special educational needs can be described as a “contradiction in terms” (Low, 2007, p. 9).

This concern has also been raised by Hornby, Atkinson & Howard (1997), who said that “until there is evidence about the effectiveness of inclusion, less idealistic and more carefully considered policies regarding the integration of children with SEN need to be adopted” (p.84).

There are professionals and parents that hold that inclusion in mainstream schools, as they stand, do not meet the needs of their children (Simpson & Myles, 1990). In fact, Bailey, McWilliam, Buysse and Wesley (1998) argue that if parents and teacher were confident of the quality of the programme and that staff were able to meet the children’s needs there would be no question of whether or not to place a child with SEN in inclusive schools. A recent survey of parents and teachers working with children with ASC found that those with children in ASC specific provisions were twice as likely to be very satisfied (54 – 70%) than those whose child was in a mainstream setting (23 – 41%). Only 12% of parents with children in an unsupported mainstream primary school were very satisfied (Barnard, Prior, & Potter, 2000). There is also concern that teachers are not supportive of inclusion (Feiler & Gibson, 1999). The authors argue that teachers will only be persuaded by empirical evidence suggesting that inclusion benefits both the included child and their peers.

Critics of inclusion argue for a preservation of the continuum of services for children with special needs with specialised teachers and schools available to meet their wide range of needs (Mesibov, 1976; Warnock, 2005). Despite the lack of empirical evidence that inclusion does not work, such authors have focused on the complex needs of children with ASC, therefore, challenging the ability of mainstream to meet these needs. There is concern that some children may never function well in regular classrooms (e.g., due to the noise levels or bright lights), whilst others with SEN may put too much strain on the teachers time or skills. Other children, despite the proposed benefits of social inclusion, may socialise more in a specialist school (Burack et al. 1997). Moreover, difficulties in social skills may make children with ASC more difficult to include in mainstream settings, as social skills are argued to be key to the inclusion of children with ASC in mainstream classes (Harris & Handleman, 1997). Using a sample of 24 children with intellectual disabilities, McIntyre, Blacher and Baker (2006) found that social skills were significantly related to successful inclusion in mainstream schools. Even children on the higher functioning side of the spectrum have problems understanding the social interactions of children, which will make them stand out among their peers, and can lead to rejection by other children (Harris & Handleman, 1997). Such rejection would undermine one of the fundamental arguments for inclusion – the social integration of children with their normally developing peers.

In addition to their struggle with social skills, children with ASC frequently display behaviours such as aggressive, self-injurious, disruptive and destructive behaviour, that make inclusion challenging (Burack et al., 1997), and which will require teacher training in how to manage their behaviour. In

fact, in a qualitative study of three students with ASC in mainstream, Downing, Morrison, and Berecin-Rascon (1996) found that successful placement in mainstream is dependent on appropriate behaviour, and McIntyre et al. (2006) found that adaptive behaviour was predictive of success in mainstream. Similarly, Carlberg and Kavale (1980) conducted a literature review comparing inclusive settings to secluded settings (e.g. special education classes), and found that inclusion was not beneficial for children with behavioural disturbances and learning difficulties.

#### **1.4 The Effects of Inclusion**

Despite the debate, very little research has been done looking at whether children with ASC benefit from inclusion. This is because empirical evidence assessing the effectiveness of inclusive schools is limited by a variety of factors. First of all, the relatively low incidence of children with ASC has prevented large-scale research programmes evaluating the success of inclusion. Instead, programmes have used small samples, often without the necessary control groups, in turn reducing their evaluative power (Burack et al., 1997). In addition, most studies have only used children that are high-functioning, making generalisation difficult (Burack et al., 1997). For example, Hoyson, Jamieson and Strain (1984) reported improvement in pre-academic skills for preschoolers with ASC in mainstream, however, the children in the study appeared to have minor difficulties, not representative of children with ASC in general. These considerations highlight the difficulty in both implementing successful large-scale educational programmes, and in drawing conclusions from the research.

The evaluation of inclusive programmes is also difficult for conceptual reasons. Amongst researchers there is a lack of consensus in prioritising assessment of success in inclusion for students with special needs; for some proponents of inclusion, the mere experiences provided by being included, the interactions of children with and without ASC are themselves success (Burack et al. 1997). Some argue that inclusion should be accepted as the best placement *de facto* (see Booth, 1996). These proponents argue that any findings that suggest that inclusion is not leading to the best outcomes only reiterate the need for further work to be done in making inclusive schools more effective, and not as a rejection of inclusion for all. In which case it would be critical, empirically, to identify how a child is more likely to succeed in mainstream

On the other hand, for educators and developmentalists, the practice of inclusion needs to be evaluated, and assessing whether the child is making improvements in behavioural, academic, and social functioning, should be the primary criteria for success. As Scruggs and Mastropieri (1995, p.231) put it: “Full inclusion is a policy that suggests that students are in school primarily to be in the company of age peers and not primarily to learn”. For them, there is not enough evidence to justify full inclusion for children with ASC. Therefore, empirically, there are two questions that need answering: whether children with ASC are indeed benefiting from inclusive placements, and how to make inclusion successful.

#### **1.4.1 Outcomes of Inclusion for Autistic Children**

Despite the limitations in assessing the impact of inclusion, a large number of studies have examined inclusion by comparing outcomes, such as

educational achievement and self-esteem, for children with ASC in included versus specialist provision. Unfortunately, many of these studies have methodological flaws, rarely using baseline measures, not clearly specifying the meaning of inclusion, making the results largely un-interpretable. Despite these concerns, some studies have observed the effects of inclusion, specifically for children with ASC, with mixed results.

A small number of early studies from the 80's and 90's have compared outcomes for children with ASC in mainstream and specialist provision. McGee, Paradis and Feldman (1993) found that when in the company of typically developing children; 28 children with ASC displayed lower levels of autistic behaviour (such as stereotypical behaviour) than when in the company of other ASC children or of no other children. Hoyson et al. (1984) analysed the impact of inclusive preschool placements for children with ASC on pre-academic skills. The authors found that those in mainstream made the most improvements. However, the sample of children was described as 'autistic-like' suggesting that they were very mild and therefore not representative of the rest of the ASC population. In contrast, when measuring language use, Harris, Handleman, Kristoff, Bass and Gordon (1990) reported no difference in the rate of language use between nine students with ASC in segregated versus mainstreamed classes. Changes in general developmental levels in children with a variety of disabilities show a similar pattern to the above study, with no apparent gains for inclusive settings (Buysse & Bailey, 1993). Unfortunately there are no recent studies which compare outcomes for children with ASC in mainstream and specialist provision.

A somewhat larger range of studies have noted that social behaviour (rather than educational/academic functioning) for children with ASC and children with a variety of developmental disabilities, may be the domain with the greatest potential to benefit from inclusive settings (Buysse & Bailey, 1993; Harris & Handleman, 1997). It has been documented that when children lack social competence, they may display a number of negative academic and socio-behavioural outcomes (McIntyre et al. 2006). Buysse and Bailey (1993) confirmed that, for preschool children with a variety of disabilities, there was a greater improvement in social skills (social behaviour and play skills) in inclusive settings versus segregated settings. Strain (1983) assessed the impact of social skills training on preschool and primary schools, and observed that social skills, learnt during training sessions by four children with ASC, were generalised best in mainstream, rather than segregated, settings. However, it should be noted that these findings were not statistically analysed. Similarly, Guralnick, Connor, Hammond, Gottman and Kinnish (1996a) found that children with communication disorders were more likely to initiate peer interactions in inclusive settings. Brown, Odom, Li and Zercher (1999) investigated the nature of 112 preschool children's experiences in community based inclusive early childhood programmes and found that children with and without disabilities displayed similar child behaviours and would engage in a variety of child and adult initiated activities. However, children without disabilities were more likely to engage in child-child social behaviours. A more recent study by Buysse, Goldman and Skinner (2002) found that 39 children with a number of disabilities who were attending an inclusive early childhood programme had more playmates and were more likely to have at least one friend

than those in specialist settings. In contrast, Myles, Simpson, Ormsbee, and Erickson (1993) examined the social interactions of preschool children with ASC with their peers, and concluded that children with ASC initiated very few interactions, and that physical integration was not enough to increase the social interactions between children with ASC and their peers. Concurrently, Schleien, Mustonen and Rynders (1995) examined the effect of inclusive art activities on social interactions for 15 children with ASC and found that there were no significant changes in social interaction initiated by children with ASC. The discrepancy in the studies may arise because the studies discussed initially were not specifically observing children with ASC, as was the case with the studies reported by Myles et al. (1993) and Schleien et al. (1995). It is also important to note that despite the suggestions of social benefits of inclusion of children with SEN, there are a number of potentially important differences between programmes that are involved in research and community-based programmes which limits the ecological validity of the research (Brown & Odom, 2000).

A primary objective of inclusion for proponents is that through peer contact, children with ASC will have more appropriate social models, and will have access to more social situations than in a special school (Odom & Watts, 1991). However, as there is an inherent inability in children with ASC to model other children's behaviour and due to their limited communication, this proposed benefit of inclusion may not be pertinent to this population without significant adult intervention (Harper & McCluskey, 2002). Research suggests that a diminished ability to communicate verbally will have a significant impact on the degree to which children with disabilities interact with typically



developing children (Guralnick, et al. 1996a) and language and communication difficulties are diagnostic characteristics in ASC (DSM-IV; APA, 1994) suggesting that children with ASC will have difficulties interacting with their typically developing peers. Moreover, research suggests that children prefer to make friends with peers of similar behaviour and academic ability (Kupersmidt, DeRosier, & Patterson, 1995), and that typically developing children prefer interacting with other children without disabilities (Guralnick, Gottman & Hammond, 1996b), therefore, making friendship unlikely with children with ASC, who may have struggle socially in addition to having behavioural and academic problems.

The study of the efficacy of inclusive versus segregated settings is made harder by the difficulty in controlling a large number of potentially important variables. Carlberg and Kavale (1980) examined 680 studies investigating the effect of special classes, and noted that fifty of these studies were considered methodologically sound, and were subsequently analysed, based on whether the study investigated the effect of special classes, included a comparison group, and reported measurable results that could be included in the meta-analysis. The authors concluded that inclusion was beneficial for children with learning difficulties, but not for children with behavioural disturbances in addition to learning difficulties. Therefore, children with ASC who have behavioural and learning difficulties would not benefit from inclusion (see also Mesibov & Shea, 1996).

Authors argue that currently, regular educational settings are not sufficiently structured or equipped to cater for children with ASC (Mesibov & Shea, 1996; Warnock, 2005). For example, the curriculum may need to be

adapted regularly to meet the pupils changing needs and the use of specialised teaching strategies may be appropriate, such as the use of pictures and symbols (e.g. Picture Exchange Communication System), which are helpful in increasing student's independence (Hall, McClannahan & Krantz, 1995). Furthermore, because of the particular pattern of difficulties in responding to verbal instructions, social modelling and social rewards, some children with ASC will not be responsive to mainstream teaching techniques (Mesibov & Shea, 1996).

In addition, individuals with ASC will often have difficulties with processing verbal and abstract information making some of the National Curriculum techniques irrelevant to them (Mesibov & Shea, 1996). Children with ASC often struggle with motor planning and sensory issues, so that they find transitioning between activities, settings and individuals very difficult (Wing, 2007). Moreover, they can be aggressive and self-destructive which also makes it very difficult to include them in mainstream (Downing et al. 1996).

These difficulties will have a significant impact on student's functioning in school which may require special instruction provided by specially trained teachers (Burack et al. 1996; Mesibov, Schopler, & Hearsey, 1994; Mesibov & Shea, 1996). For this reason researchers now advocate for specialist educational services to be provided within the mainstream setting (Sailor, 1991). Whereby, instead of being sent to special school, children would have the specialist services brought to them in mainstream (Rogers, 1994). However, this, in practice, is proving very complicated. Fuchs and Fuchs (1995) argue that it is very difficult to transfer specialist teaching methods into the mainstream

classroom, as they focus primarily on individualisation of instruction (Fuchs & Fuchs, 1995; Zigmond, 2003).

Finally, given the complexities in educating a child with ASC, there is a concern that teachers don't have the training to meet the unique needs of these students or the relevant training and expertise which is critical to the success of an inclusive placement (Barnard et al., 2000). Although many children with ASC have the skills, and the right, to be educated in inclusive settings, critics of full mandatory inclusion would advocate that for schools to successfully include a child with ASC, extensive adaptation of the classroom and curriculum, specialised teaching and training of teachers and preparation of the children, are necessary (Mesibov & Shea, 1996). Despite these concerns, the current empirical evidence does not support one provision over another for the education of children with ASC.

In summary, the research literature on inclusion is limited, and that on inclusion of children with ASC even more so. Furthermore, few studies document equivocally support for inclusion of children with ASC, and reviews of inclusive education found that the available evidence was inconclusive (Farrell, 1997; Hegarty, 1993). In addition, Feiler and Gibson (1999) noted no evidence that teachers agree with a radical approach to inclusion. With such diversity in problems, a radical inclusive position, whereby inclusion is adopted as the educational provision for all children with ASC, appears naive (see Mesibov, 1990). In the place of a radical approach to inclusion there needs to be more emphasis on meeting individual educational needs, which would lead to development in all areas of functioning (Burrack et al. 1997; Mesibov, 1990).

#### 1.4.2 Outcomes for Specialist Provisions

In addition to concerns about the effectiveness of mainstream inclusion for children with ASC, recent research into the effects of provision on outcomes have found that children with SEN in specialist provisions have better outcomes than children in mainstream school (Ofsted, 2006). The OFSTED (2006) report found that mainstream schools with additionally resourced provisions (i.e. units), were particularly successful in achieving high outcomes for pupils academically and socially. In addition, the report found that children who worked with specialist teachers made greater academic progress than when they worked with other supports including teaching assistants.

Cole, Mills, Dale, and Jenkins (1991) found that that children with higher functioning ASC made greater gains in resourced provisions or units, whilst children who were lower functioning, made larger gains in special schools. This finding has been replicated by Mills, Cole, Jenkins, and Dale (1998).

Two studies compared the academic success of children with learning difficulties using a time-series analysis which allowed them to compare the outcome of the children who were placed at different times in special education or in mainstream (Fuchs, Fuchs & Fernstrom, 1993; Marston, 1987). Both studies found that when placed in special schools, children had better outcomes. In a more recent study, Chadwick, Cuddy, Kusel and Taylor (2005) using a longitudinal study of outcomes, found that 82 children with intellectual disabilities made improvements in daily living skills, communication and behaviour when placed in special schools. Another recent study by Charman, Howlin, Berry and Prince (2004) looking specifically at children diagnosed with

ASC, found that when placed in autism specific nursery schools and units children made improvements on measures of socialisation, communication and self help skills. Moreover, Barnard et al. (2000) found that parents of children who were placed in ASC specific schools (special schools or units), were twice as likely to be very satisfied as parents of children in mainstream.

In summary, up to now there have been few studies looking at the impact of special schools on outcomes for children with intellectual disabilities and even fewer which specifically look at children with ASC. However, this is a growing research area and the results suggest that improvements in functioning can be achieved through specialist placements. Therefore, before adopting inclusion as a blanket policy we need to answer how and when pupils learn best and not forgo the child's right to the best education (Warnock, 2005). The above findings suggest that the need for specialist provisions should be readdressed, given the concerns over the success of inclusion.

#### **1.4.3 Differences in Practice between Mainstream and Special**

There are significant teaching differences between mainstream schools and special education, which may account for the differences in outcomes in each provision (Hocutt, 1996). Firstly, class sizes in special school are smaller than mainstream classrooms (Office of Special Education Programmes, 1994). Smaller teacher to student ratios may lead to individualised teaching, and help foster children's attention (Hocutt, 1996). Teacher qualifications also vary significantly between school provisions, with teachers in special school being more qualified than those in mainstream school (55% have a masters degree versus 40% in mainstream teachers, and 11% have a doctorate or educational

specialist degree compared to 6% in mainstream teachers; Fuchs & Fuchs, 1995). These differences are consistent with La Paro, Sexton and Snyder (1998) who also found that teachers in special schools were more likely to have a bachelor's degree or higher than teachers in mainstream schools.

There are also differences in views between what the teachers in special school and mainstream schools define as measures of success. Teachers in mainstream school see improvements in conduct and academic measures as signals of success, whilst teachers in special school rate the number of friendships and social-emotional improvements as measures of success (Fredricksen, Osborne, & Reed, 2004). This will have an impact on the planning and provision that is undertaken in each school context, which will probably have an ensuing effect on the outcomes of the children.

Studies suggest that there are differences in the instruction methods adopted by mainstream teachers and special education teachers. Authors describe the primary difference between special and mainstream being that the former uses empirically validated procedures (Fuchs & Fuchs, 1995). For example, when monitoring progress, teachers in mainstream schools use tests of material covered in class (Fuchs, Fuchs, & Bishop, 1992), whilst teachers in special school will often use curriculum based measurement, which emphasises individualisation and is an empirically validated procedure (Fuchs & Fuchs, 1995). Mainstream teachers will focus on making group changes, and not individual modifications, and these tend to be minor changes, which are potentially not significant enough to help a child with SEN (Zigmond, 2003; Zigmond & Baker, 1995). In addition, most of the techniques used in special schools are individualised, so that each child in the classroom may be working

at a different rate, or on a different activity. This nature of work is highly implausible for a mainstream class of 25 to 30 students (Zigmond, 2003). Given the smaller class sizes, teachers in special education will be more familiar with each of their students, and more aware of their skills and difficulties, making it easier for them to adapt the curriculum to meet their individual needs (Kaufman, Agard, & Semmel, 1985). Finally, in terms of curriculum, special schools focus more on functional and daily living skills, and work at a slower pace than mainstream schools (Gersten & Woodward, 1990).

With regards to interactions between teacher and student, Fuchs et al. (1992) found that teachers in special school spoke more to their pupils about school work than teachers in mainstream. Moreover, special education teachers are also more likely to provide answers to their own questions, and are less likely to ignore disruptive or inattentive behaviours (Keller, McKinney, & Hallahan, 1989). Teachers in special education were also more likely to supervise and praise children, and have an overall positive attitude to their class and students (Nowacek, McKinney, & Hallahan, 1990).

With these differences in practices between mainstream and special classrooms, it could be that practice, and not provision, is responsible for the differences in outcomes (Hocutt, 1996). Moreover, there are a number of specialist techniques, which are used in educational programmes such as ABA and TEACCH. Research into these specialist techniques suggests that they are effective in teaching children with ASC. Intervention strategies such as antecedent procedures (Harrower & Dunlap, 2001), delayed contingencies (Stahmer & Schreibman, 1992), self-management strategies (Dunlap, Dunlap, Koegel & Koegel, 1990) and peer-mediated interventions (Pierce &

Schreibman, 1997), have been developed and empirically tested to support children with ASC in school settings.

## **1.5 Goals for Inclusion**

Children with ASC present a complex combination of cognitive, social, communication and behavioural needs (Mesibov & Shea, 1996). Although there is no evidence that children with ASC fail in mainstream, there is evidence suggesting that specialist provision and teaching methods (see Section 1.4.2; Fuchs & Fuchs, 1995; Ofsted, 2006) are effective in teaching children with ASC a number of critical skills, such as communication, social, and academic skills. Together with concerns regarding the difficulty to meet the needs of children with ASC in mainstream (see Section 1.3.1), these findings suggest that a child with ASC may need individualised and specialised preparation and education, in order to succeed in a mainstream setting (Burack et al. 1996; Mesibov & Shea, 1996). Research has identified skills that are necessary for a child to succeed in mainstream, and the techniques that are effective in teaching these skills.

### **1.5.1 Social and Behavioural Skills**

Social skills, such as being able to understand classroom rules, and understanding social interactions, are essential for effective inclusion (Harris & Handleman, 1997). As well as impeding integration, a lack of social skills will reduce interaction with the peer group (Sherratt, 2002; Strain & Danko, 1995). As typically developing children prefer to interact and make friends with typically developing children, and not with children with ASC (Beckman 1983;



Guralnick, 1990), this could further isolate the child with ASC, leading to more rejection (Fredricksen & Turner, 2003).

In addition to the impact on integration, McIntyre et al. (2006) found that social skills were significantly related to positive school outcomes in mainstream schools for children with intellectual difficulties. The authors found that social skills were still predictive of positive school outcomes after controlling for the child's developmental or adaptive functioning (McIntyre et al., 2006). The impact of social skills on school outcomes has also been confirmed in children with emotional and behavioural problems. Children with emotional and behavioural problems, who in addition have poor social skills, may go on to have academic and/or socio-behavioural difficulties (Gresham, 1998; Kupersmidt & DeRosier, 2004).

Finally, being able to learn from a mainstream environment requires an understanding of social interactions, since learning in school is increasingly becoming a social activity, with children frequently working together (Flem, Moen, & Gudmundsdottir, 2004). Taken together these findings suggest that the development of social skills in children with ASC will help them access the curriculum more effectively, improve their relationships with their peers, and will, therefore, lead to more positive school outcomes. Hence, developing these skills is critical to a successful mainstream placement.

Given the importance of developing social skills in children with ASC, many teaching techniques have been evaluated to address these deficits. One example is priming of different social skills, which has been used effectively to teach children with ASC social skills. An example of priming of social skills is the 'circle of friends', which has been used in schools to teach children

appropriate skills such as turn taking in conversation, listening and looking (Whitaker, Barratt, Joy, Potter & Thomas, 1998). Video modelling, another type of priming, has also been used effectively with children with ASC to help them initiate social interactions (Nikopoulos & Keenan, 2004).

In addition to suitable social skills, the child must not exhibit inappropriate aggressive behaviour (such as biting and hitting). As previously discussed, such behaviour makes inclusion very difficult (Downing et al. 1996), and the occurrence of disruptive behaviour is more likely to lead to exclusion (Parsons, 2000). In a survey of teachers and managers views on inclusion, children with disruptive behaviour were considered the most difficult to include (Evans & Lunt, 2002). The attempt to decrease disruptive, aggressive, and stereotypical behaviour has led to the development, and assessment, of many teaching strategies. This is particularly the case with behavioural techniques. One such technique is the use of functional analysis in the assessment and treatment of aberrant behaviours. The aim of functional analysis is to identify the antecedents and consequences of a particular behaviour. Once identified, interventions which match the contingencies governing the behaviour are implemented (Neef & Iwata, 1994). Functional analysis has been used to identify interventions to effectively decrease a number of aberrant behaviours such as self-injurious behaviour (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994), stereotypical behaviours (Kennedy, Meyer, Knowles, & Shukla, 2000), and destructive behaviour (DeLeon, Fisher, Herman, & Crosland, 2000; Fisher, O'Connor, Kurtz, DeLeon, & Gotjen, 2000).

In addition to adaptive behaviour and general social skills, there are a number of school specific social skills that are also important for a successful

mainstream placement. Hains, Fowler, Schwartz, Kottwitz and Rosenkoetter (1989) asked experienced kindergarten and early years childhood special education teachers to generate a list of classroom skills that were necessary for students to succeed in a mainstreamed educational setting. The authors found that teachers emphasised adaptive behaviour that promoted independence, such as following directions, following classroom rules, attending to and following classroom routines, and participating in group activities, as well as stressing good conduct. The importance of independent skills for success in mainstream was also confirmed in studies using direct classroom observations (Sainato & Lyon, 1989). Finally, Carta, Atwater, Schwartz, and Miller (1990) addressed three “classroom survival skills” in their program: Completing within classroom transitions, participating in large instructional groups, and working independently. Sixty-one percent of the children who participated in the “classroom survival skills” intervention were then placed in mainstream kindergarten settings.

Teaching techniques to help develop these classroom skills for mainstream have been developed and evaluated. For example, the use of prompt deliveries have been used to support transitions between classroom activities (Sainato, Strain, Lefebvre & Rapp, 1987), the use of self management strategies have been used to increase independent work skills (Sainato, Strain, Lefebvre & Rapp, 1990), whilst picture schedules have been used to help children remain on task (O’Reilly, Sigafos, Lancioni, Edrisinha & Alonzo, 2005).

Another important skill in mainstream is being able to self-regulate emotions and behaviour. Self-regulation is argued to be important for the

development of a number of adaptive behaviours including pro-social behaviour, behaviour control and problem solving (McIntyre et al. 2006). The ability to self-regulate has been argued as necessary for the display of adaptive behaviour (Cole, Michel, & Teti, 1994). Behavioural regulation is defined as the control of external behaviours (e.g., compliance with adult instructions), whilst emotional regulation is defined as the control of both external and internal control of emotional behaviour (Eisenberg & Fabes, 1992). Adaptive self-regulation involves controlling one's emotions and behaviours in potentially stressful situations (for a child with ASC this could be during transition times at school). As self-regulation and pro-social behaviour are important to mainstream inclusion (Eisenberg et al., 1997; Shields, Dickstein, Seifer, Giusti, Magee, & Spritz, 2001; Walker, Colvin, & Ramsey, 1995), it is crucial that these skills are focused on and developed if success in mainstream schools is to be achieved.

Self-management strategies have been developed and tested in children with ASC to increase independent behaviour management, behaviour self-regulation and overall independence (Dunlap et al. 1991; Koegel & Koegel, 1990). In particular, they have been effective in decreasing stereotypical behaviours (Koegel & Koegel, 1990), and challenging behaviour (Sainato et al., 1990) in children with ASC.

### **1.5.2 Communication**

Children with ASC are very limited in their communication (Tager-Flusberg, 1999), and the estimates of the number of children with ASC who do not acquire speech range from 9% to 59% (Fonbonne, 1999). More critical is

the fact that many children with communication deficits also engage in severe destructive behaviours, such as self-injury, aggression, and disruption (Carr & Durrand, 1985; Koegel, Koegel, & Surratt, 1992). In addition to the impact on behaviour, the acquisition of spoken language prior to age 5 is considered to be a good predictor of long-term outcomes in other areas (e.g., adaptive skills, academic achievement; Gillberg, 1991; Venter, Lord & Schopler, 1993). Of concern to academic outcomes, early language delays in children can lead to severe reading impairments at a later stage (Scarborough & Dobrich, 1990). Finally, communication is an essential feature of social interactions and Odom, Zercher, Li, Marquart and Sandall (2002) found that children who had limited communication were more likely to be rejected by their peers. In summary, development of a child's communicative repertoire will lead to a decrease in problematic behaviours, in addition to increase their overall developmental outcomes and socialisation.

As a result of the communication and language deficits of children with ASC, verbal explanations of materials in school will not be effective (Mesibov & Shea, 1996), meaning that many conventional strategies used to teach mainstream children will not be useful for children with ASC. Several authors have found that even older higher-functioning people with ASC have difficulty interpreting non-literal speech, such as metaphors, sarcasm, lies, or irony (e.g. Happe, 1993, 1994). Therefore, language deficits need to be improved, so that the child with ASC will be able to access the National Curriculum at an adaptable level, and help them understand the use of non-literal language in conversations and in class.

Research has identified and evaluated methods to remediate and improve language and communication in children with ASC. Incidental teaching has been used successfully to increase language by using naturally occurring interactions between the child and the teacher/caregiver (Schepis et al., 1982). Time delay procedures have also been used effectively to increase expressive language in learning disabled individuals (Halle, Marshall, & Spadlin, 1979), and children with ASC (Charlop, Schreibman, & Thibodeau, 1985). Ingenmey and VanHouten (1991) used time delay to successfully increase spontaneous speech of children with ASC during play activities.

Fewer studies have investigated techniques to increase receptive language (Matson, Benavidez, Stabinsky Compton, Paclawskyj, & Baglio, 1996). One study focusing on receptive language, by Egel et al. (1984), found that, through modelling and positive reinforcement, the authors taught the use of receptive prepositions in children with ASC. As children with ASC often have significant deficits in receptive, as well as expressive, language, future research will need to focus on the development of techniques to help nurture better receptive language skills.

### **1.5.3 Academic**

When teachers and managers in schools were asked which types of special needs were the most difficult to accommodate, severe learning difficulties was second to behavioural difficulties (Evans & Lunt, 2002), and a survey run by the TES, found teachers felt students with ASC were the most difficult to teach (FDS, 2005). Therefore, improving a child's ability to learn in

a mainstream environment is important for their ongoing mainstream placement and for improving their school outcomes.

In terms of child factors related to school outcomes, McIntyre et al. (2006) found that higher IQ was predictive of more positive adaptation to school in children with intellectual difficulties. Therefore, developing a child's academic skills and increasing their ability to learn will help support their mainstream placement.

Research has evaluated teaching methods and curricula which can help children with ASC learn in an academic setting (Matson et al. 1996). An example of a specialised technique developed to increase academic skills is the Edmark Reading Program (Connors, 1992), a highly structured approach to teaching reading using an errorless discrimination approach. This has been used effectively with special needs children (Connors, 1992; Vandever & Stubbs 1977), as well as with at risk readers (Mayfield, 2000), and is now commonly used as a reading curriculum in ABA programmes. Other examples of the tactics developed to improve teaching children with ASC, include reinforcement variation, reinforcer type, and task variation. Egel (1981) compared the effects of constant versus varied reinforcer presentation on discrimination tasks, and on-task behaviour, and found that varied reinforcer presentation led to greater improvements on the target behaviours than constant reinforcement. In addition, the use of certain reinforcers is more effective in producing correct responses than others, with sensory reinforcers being the most effective (Rincover & Newsom, 1985). Another example is task variation, which was used by Dunlap and Koegel (1980) to teach children with ASC. The authors compared the use of a single task throughout the teaching session to a target

task, which was interspersed with a variety of different tasks. The authors found that when using task variation, students were more likely to remain on task. This finding was replicated by Weber and Thorpe (1989).

In summary, an increasing number of children with ASC and SEN are being placed in mainstream schools (CSIE, 2005). In order to help children succeed in mainstream it may be possible to prepare children for mainstream inclusion by teaching them the pre-requisite skills, using teaching methods and tactics that have been empirically validated. Succeeding in a mainstream placement may be dependent on the child with ASC acquiring, or having a number of new skills, including academic, social skills, adaptive behaviour, communication, and language. Without such skills, research suggests that the child may not benefit from a mainstream placement, and risks exclusion. In order to better prepare a child for mainstream, a curriculum including all the academic, social, communicative, and behavioural essentials for success in mainstream schools, as outlined above, should to be used and applied using specialist and effective teaching methods. To date, no such curricular have been tested, although there is a curriculum developed for children with ASC in preparation for entering mainstream. This curriculum, the Preschool Inventory of Repertoires for Kindergarten (PIRK; Greer & McCorkle, 2003), is centred on behavioural instruction, and claims to test a child's ability to be successful in mainstream school.

#### **1.5.4 Professionals' views on factors that promote success**

Although a number of child factors identified in Sections 1.5.1, 1.5.2 and 1.5.3 are potentially predictive of success, there are also other factors, such



as the views of those who are implementing inclusive programmes, which could have an effect on the effective implementation of the inclusive placement. The views of professionals working with children with ASC have been previously identified as critical to inclusion efforts (Avramidis, Bayliss, & Burden, 2000; Scruggs & Mastropieri, 1995). The views of staff on what defines successful inclusion could impact on subsequent outcomes. Fredricksen, Osborne, and Reed (2004) found that staff in special schools focused more on the pupil's happiness, and broader aspects of social-emotional development, whilst mainstream teachers focused more on academic success, compliance, and work habits. This finding suggests that judgements of success are context dependent. Therefore, it follows that professionals will have an influence on what skills are concentrated on in each placement and their views will also determine the chances of a successful and ongoing mainstream placement. Hence it is important to continue to evaluate what professionals such as teachers and LEA personnel, working with children with ASC feel are the factors that promote inclusion so that the necessary adjustments and improvements can be made to the provision. This will help make inclusive placements more effective.

#### **1.5.5 Coping and Family influences**

In addition to child and school factors, research suggests that parental factors, such as stress and coping strategies, may have a significant impact on child outcomes (Lecavalier, Leone, & Wiltz, 2006; Osborne, McHugh, Saunders, & Reed, 2007; Robbins, Dunlap, & Plienis, 1991). Higher levels of stress are reported by parents of children with ASC than are reported by parents of children with other developmental disabilities, such as Down's syndrome

(Dumas, Wolf, Fisman, & Culligan, 1991), and high levels of parental stress can lead to damaged self-confidence, and self-esteem (Gray & Holden, 1992), with parents left feeling inadequate, angry, guilty, and resentful (Jones, 1997). In order to adapt to such high levels of stress, parents and families develop individual and family coping strategies (Hastings, Kovshoff, Brown, Ward, Espinosa, & Remington, 2005). In turn, the type of coping strategy adopted by the parent can have an impact on their stress levels, so that parents who engage in escape-avoidance coping strategies report higher levels of stress than those parents who engage in positive reframing coping, where they reframe their problems in a more positive light (Hastings & Johnson, 2001). Hastings et al. (2005) replicated the finding that active avoidance as a form of coping, lead to more stress, and concluded that it is, therefore, an unhelpful way of coping with the demands of raising a child with ASC. The authors also found that parents who engaged in positive coping (such as the use of positive reframing of problems), had lower levels of depression.

The majority of the research into parental stress and coping has focused on the impact of stress on parental wellbeing. Although research into decreasing the detrimental impact of stress on the parent is critical, the adverse impact of parental stress and coping strategies on the child has not been the subject of extensive investigation. However, in order to improve child outcomes, it may be important to investigate the impact of parental stress and coping strategies. Research suggests that parental stress can exacerbate behavioural problems in children with ASC (Lecavalier et al., 2006; Osborne et al., 2007). There is also evidence that a high level of stress in mothers can lead to poor educational progress in the child with ASC (Osborne et al., 2007;

Robbins et al., 1991), and factors associated with parental coping may impact the provision of learning experiences, and the quality of the home environment (Laosa & Sigel, 1982). Together with the finding that the use of positive coping strategies (such as reframing problems in a more positive light) leads to lower levels of depression and stress, it follows that engaging in positive coping strategies will be more beneficial for the child.

Despite these findings highlighting the importance of parental stress to the education of their children, and the impact of parental coping on subsequent parental wellbeing, very little research has focused on the direct impact of parental coping on child outcomes. Therefore, research into factors that promote the successful inclusion of children with ASC may need to consider the coping strategies employed by the parents, how this may impact on outcomes and, consequently, on the success of the child in the school setting.

#### **1.6 Comprehensive Application of Behaviour Analysis to Schooling (CABAS©)**

Taken together, the findings reviewed above suggest that, by effectively teaching children with ASC a series of pre-requisite skills, it could prepare a child for mainstream, and improve the chances of successful inclusion. There are many approaches that could be taken to this preparation, and a number of techniques have been developed targeting specific skills required for mainstream. Such techniques include the “circle of friends” (Whitaker et al., 1998), and another type of preparation has been suggested by Simpson, de Boer-Ott, and Smith-Myles (2003), who developed the Autistic Spectrum Disorder Inclusion Collaboration Model, which offers guidelines and supports to facilitate the inclusion of children with ASC. One curriculum that has been

used in early intervention to support language development is the Assessment of Basic Language and Learning Skills (ABLLS; Partington & Sundberg, 1998). The focus is primarily on language although there are also other subsections e.g. social skills, classroom routines, self-help and physical motor. However, it is primarily used as an assessment tool and to date there have been no empirical studies assessing its use as a curriculum for instruction. Therefore, to date, there has been no empirically validated system that has tried to integrate the goals of teaching children a number of pre-requisite skills, with the effective teaching practices (see Section 3.2.3). Instead, the approaches within schools tend to have an eclectic nature (Howard, Coleen, Sparkman, Cohen, Green & Stanislaw, 2005).

There may be other systems, but one that has had a lot of use is the Comprehensive Application of Behaviour Analysis to Schooling (CABAS©), which was developed to teach the entire curriculum to students in schools using the application of behaviour analysis (Greer, Keohane, & Healy, 2002). However, like all approaches, it needs to be evaluated.

The CABAS© approach has been used with children with ASC, as well as children with emotional behavioural disorders, and normal developing children in the UK, USA, and Ireland. The outcomes from such schools have shown this type of school is four to seven times more effective than mainstream approaches to education (Albers & Greer, 1991).

In CABAS© approaches, skills are taught using the 'Learn Unit'. The Learn Unit is defined as "the least divisible component of instruction that incorporates both student and teacher interaction" (Greer, 2002, p.19). It occurs whenever there is a teaching interaction between the teacher and the student.

Thus, the Learn Unit is defined as a three term contingency (Greer, 2002), which consists of the antecedent (or  $S^D$  from the teacher), the behaviour (by the student), and the consequence (either a reinforcement, or a correction, by the teacher). The Learn Unit is described as an *interlocking* three-term contingency due to the relationship between the behaviour of the student and teacher: Once the student has responded, the teacher will then respond to the student behaviour, and, therefore, the student's behaviour will act as an antecedent to the teacher's behaviour, creating a interlocking relationship between the student's and teacher's behaviour (Greer, 2002). Examples of Learn Units are presented in Table 1.1.

**Table 1.1:** Example of Learn Units (Adapted from Greer (2002))

Event	Operant Components
<i>Example 1: Correct student response</i>	
1. Attending student	Teacher $S^D$
2. Teacher says "stand up"	Teacher behaviour Student $S^D$
3. Student stands up	Student behaviour Teacher consequence Teacher $S^D$
4. Teacher responds "well done!"	Teacher behaviour Student consequence
5. Completion of the Learn Unit	Teacher consequence
<i>Example 2: Incorrect student response</i>	
1. Attending student	Teacher $S^D$
2. Teacher says "stand up"	Teacher behaviour Student $S^D$
3. Student touches his nose	Student behaviour

	Teacher consequence
	Teacher S <sup>D</sup>
4. Teacher prompts student to stand up “that is standing up”.	Teacher behaviour
	Student consequence
5. Completion of the Learn Unit	Teacher consequence

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The various components of the Learn Unit have been investigated, and research has identified the necessary components required for it to be effective. In order for the Learn Unit to be interlocking and thus effective, the teacher must always either reinforce or correct a student’s response, therefore providing a consequence contingent on the student’s behaviour (Greer, 2002). In addition, the student must always engage with the discriminative stimulus (S<sup>D</sup>), either by hearing, touching, smelling, seeing, or any combination of these (Hogin, 1996; Hogin & Greer, 1994). Once the student has engaged with the S<sup>D</sup>, they must be given an opportunity to respond to the S<sup>D</sup> before the teacher’s response, in the form of reinforcement or correction is given (Greenwood, Hart, Walker & Risley, 1994; Heward, 1994).

In addition to the critical components of the Learn Unit, research has also demonstrated the use of Learn Units leads to more effective teaching and that students perform best with higher rates of Learn Unit presentations (Carnine & Fink, 1978; Ingham & Greer, 1992). When compared to teaching without intact Learn Units, presentations of greater numbers of Learn Units lead to better performance (Greer, McCorkle & Williams, 1898; Heward, 1994). By replacing student and teacher interactions that are not Learn Units into Learn Units, students increase correct responses from four to seven times (Albers & Greer, 1991; Diamond, 1992). Critically, when teaching children with ASC, increasing the number of Learn Units taught lead to a decrease in self-injurious and aggressive behaviour (Kelly & Greer, 1996).

In CABAS©, teaching trials are repeated many times, until the child performs a response independently and, hence, without the need for a prompt (Greer, 2002). The child's responses per Learn Unit are recorded and evaluated, according to pre-determined objective definitions and criteria. Such responses are then graphed, which then allows teachers to adjust teaching if the child is not making the desired progress (Keohane, 1997). This way, instruction remains highly individualised and is tailored to the child's needs and style.

#### **1.6.1 Preschool Inventory of Repertoires for Kindergarten (P.I.R.K.; Greer & McCorkle, 2003)**

The PIRK is said to comprise the curricular objectives for teaching the repertoires necessary for a child to succeed in mainstream reception (Greer, 2003 & McCorkle). According to internal research conducted within the CABAS© schools, the curriculum covers all the necessary skills for a child to be successful in the school, home, and community (Greer & McCorkle, 2003). In addition to the items developed within the schools, the curriculum has drawn from educational standards, suggested by educators from the USA, England, and Ireland. As well as potentially serving as a protocol for success in mainstream, where the child has failed, the PIRK claims to indicate areas where instruction is needed.

The repertoires in the PIRK are categorised as: (I) the *Academic Literacy Repertoire*, (II) the *Communication Repertoire*, (III) the *Community of Reinforcers Repertoire*, (IV) the *Self-management for School Repertoire*, (V) the *Social Self-management Repertoire*, and (VI) the *Physical/Motor Repertoire*. Each of these repertoires will be defined and described in the following section.

## **1.6.2 The Six Repertoires**

The numbers of target behaviours within each repertoire will vary depending on category. There are a total of 491 behaviours in the PIRK, which are then subdivided into six repertoires. There are 224 behaviours in the *Academic Literacy Repertoire*, 101 behaviours in the *Communication Repertoire*, 25 in the *Community of Reinforcers Repertoire*, 44 in the *Social Self-management Repertoire*, 38 in the *School Self-management Repertoire*, and 59 in the *Physical/Motor Repertoire*.

### **1.6.2.1 Academic Literacy Repertoire**

This category requires classifying relationships between events or being able to carry out simple or complex actions, such as the being able to read or match words to pictures (Greer & McCorkle, 2003). It is made up of objectives in literacy, reading, writing, and mathematical performance, described by Greer (2002) as the ‘pillars of literacy’, which the author argues will then determine the students’ eventual competence in Science, Social Arts, and Humanities. Examples of skills in this sub-section are the ability to match across pictures and objects, pointing, reading, and writing, and basic numeric skills.

The behaviours in this repertoire are equivalent to the Reading, Writing, and Mathematics (numbers), subjects in the National Curriculum. Completion of this subsection corresponds to performance at Level 2 of the National Curriculum in Reading, Writing, and Mathematics (numbers).



### **1.6.2.2 Communication Repertoire.**

The behaviours found in the repertoire of communication are based on the verbal behaviour model (Skinner, 1957). Research has shown that a curriculum based on Skinner's verbal behaviour model is an effective system of teaching functional communication repertoires to children with mild to severe learning disabilities (Williams & Greer, 1993). The *Communication Repertoire* is broken down into two major divisions: the *listener*, and *speaker* repertoires.

#### **1.6.2.2.1 The Listener Repertoire:**

A child who succeeds in the listener repertoire will be able to respond correctly and consistently to verbal commands (e.g., responding to directions). Children who reach this level are "under instructional control", which Greer and McCorkle (2003) describe as essential criteria for success in mainstream school. Behaviours drawn from this repertoire are also found in a number of the others repertoires in the PIRK since effective listener behaviour is a pre-requisite for success in all developmental areas (Greer & McCorkle, 2003), including school inclusion (Downing et al.1996; Parsons, 2000).

#### **1.6.2.2.2 The Speaker Repertoire**

Greer and McCorkle (2003) argue that it is important that a person's verbal repertoire, be it spoken, gesture, or written, is functional. The authors describe functional as the ability to manipulate ones environment through communication (be it gesture, written or spoken). Within the speaker's repertoire, there are three subdivisions: (a) speaker's behaviour under the control of non-social verbal instructions (e.g., responses to a teacher's questions about school matters). Here a child would consistently and correctly respond by using a gesture or vocal response to a teacher's demand or question; (b)

Speaker's behaviour under the control of social verbal stimuli (e.g., the child's response to other children in social contexts). Here a child would respond effectively to social stimuli (such as greetings); and (c) speaker's behaviour under the control of nonverbal stimuli (e.g., "spontaneous" communication). Here a child would respond correctly to non verbal stimuli (e.g., "spontaneous communication"). Being able to answer teacher's questions (Carta et al. 1990) respond to social situations and interactions, especially with the peer groups, are critical to effective inclusion (Harris & Handleman, 1997). Therefore, being taught to answer questions, to relate in social contexts, and to engage in spontaneous conversations is important for success in mainstream.

Also targeted in this subsection of the PIRK is functional communication. By teaching the ability to respond to spoken behaviour, and to spontaneously make requests or comments, the child is taught to communicate. Functional communication is fundamental, and deficits in this area can lead to severe destructive behaviours (Carr & Durrand, 1985; Koegel et al., 1992). In addition, attenuating deficits in this area of language will lead to greater access to the National Curriculum, and to mainstream teaching strategies (Mesibov & Shea, 1996).

This repertoire draws on skills from the English: Speaking and listening subject of the National Curriculum. Students who achieve success on this repertoire will be performing at Level 1 of the English: Speaking and listening subject. They will be able to "understand and respond appropriately to straightforward comments or instructions directed at them. They convey meanings, including some relevant details, to a range of others" (Level 1C from National Curriculum English: Speaking and listening).

### **1.6.2.3 Community of Reinforcers Repertoires**

The behaviours which make up this repertoire include the emotional responses of individuals to their environment (Greer & McCorkle, 2003). An appropriate reaction to certain environmental settings may also include not reacting (for example, not responding to an inappropriate remark). The behaviours within this repertoire will include: enjoying school, appreciating books, toys, games, puzzles, listening to music and stories, and singing. It is also important for children to make positive remarks of teachers and peers, as well as of themselves. As part of this repertoire children will be taught to be reinforced and motivated by social praise, in addition to learning how to play with others and how to play alone.

### **1.6.2.4 Social Self Management Repertoire**

This repertoire focuses on the behaviours between the child and their teacher or peers (Greer & McCorkle, 2003). In order for a child to meet criteria in this repertoire, he/she will be able to play independently and cooperatively. The child will share toys, as well as interact with others appropriately either verbally or with gestures. The child will not engage in self-stimulatory or self-injurious behaviour or any other inappropriate behaviour (e.g. hitting). The child will also demonstrate good attention.

Self-regulation (such as regulating self-injurious behaviour) and pro-social behaviour (being able to share and take turns) are very important to mainstream inclusion (Eisenberg et al., 2001; Shields et al., 2001; Walker et al., 1995), and teaching these skills will, thus, help to support inclusion. Moreover, social skills have been found to be predictive of positive school outcomes

(McIntyre et al., 2006), suggesting that teaching social skills will have an impact on the overall success of a mainstream placement.

#### ***1.6.2.5 School Self-Sufficiency Repertoire***

The behaviours required to succeed in this repertoire (e.g., responding to teachers' commands and consequences) determine the child's ability to succeed in a mainstream classroom (Greer & McCorkle, 2003). A child that possess' the skills included in this repertoire will get in line, follow classroom rules, raise their hand for help, follow teachers instructions, transition easily, follow the structure of the classroom and day activities and will not engage in behaviours that disrupt the work of others.

Being able to follow classroom rules and routines, participating in group activities and following directions were identified as critical classroom skills for mainstream by special education and kindergarten teachers (see Section 4.1).

#### ***1.6.2.6 Physical/Motor Repertoires***

This sub-section includes both small muscle movements, such as grapho-motor skills (being able to hold a pencil correctly, drawing or tracing), and the use of classroom tools (such as cutting and painting), and large motor skills, such as being able to hop and skip or ball skills (throw, catch and kick). The behaviours covered in this subsection are consistent with both the subjects of Physical Education and English (speaking and listening). Success across these behaviours would place a child at the performance level of P8 on the National Curriculum.

## 1.7 Summary

This literature review suggests that ASC is a major health, educational, and social concern for the UK. Yet, there is evidence that outcomes can be improved through early intervention (Anderson et al. 1987; Birnbauer & Leach, 1993; Lovaas, 1987; Reed et al. 2007a; 2007b; Remington et al. in press), drug treatment (Campbell & Cueva, 1995), and educational programmes (such as TEACCH; Campbell et al. 1996). Currently in the UK children with ASC and SEN are increasingly being placed in mainstream school education (CSIE, 2005). This movement has raised concerns due to the complexities of needs presented by many children with ASC (Mesibov & Shea, 1996), and the difficulty of using empirically validated specialist interventions in mainstream (Fuchs & Fuchs, 1995; Zigmond, 2003).

The greatest concern is that inclusion as an educational policy and intervention has preceded research ascertaining whether it leads to the benefits its proponents advocate (Lindsay, 2003), and there is some evidence that inclusion is failing; as the number of children included increases, the number of children excluded, primarily for behavioural reasons also increases (Parsons, 2000). If inclusion does lead to the proposed benefits, then it could lead to improved prognosis, which would in turn decrease the overall economic costs of ASC (Jarbrink & Knapp, 2001). However, if the aim is to improve outcomes, and consequently improve prognosis, then it is critical to ongoing inclusive efforts to identify whether children with ASC indeed benefit more academically, socially or behaviourally in mainstream than in special school. Despite the arguments against inclusion, it currently appears unlikely that the drive towards

inclusion will be halted, so it is also important to identify how to improve the outcomes in mainstream.

One important area of investigation, which could help improve the effectiveness of inclusive provision, is the views of parents and professionals working with children with ASC. The views of professionals and teachers working with ASC on the definitions of successful inclusion have implications when teachers come to design and support skill development programmes for the pupils. In order for inclusion to be successful, the views of LEA officers and all those who will be involved in the development of inclusive education need to be evaluated and the findings put in practice. The result will be a more effective mainstream placement. Therefore the views of parents and professionals working with children with ASC will be investigated in Chapter 2.

In order to examine the effectiveness of inclusive placements, in Chapter 3 the academic performance of children in mainstream will be compared to that of children in specialist schools to see whether children really benefit more academically in mainstream schools. In addition to this, Chapter 3 will identify whether the archives held on children in LEA could be used to establish evidence-based practice in LEAs. Yell and Drasgow (2000) argue that the chances of LEAs winning their case in tribunals are increased if they hire qualified staff, use evidence-based methods for their educational programming, and have monitored their children's progress. This suggests that LEAs need to keep appropriate outcome data to measure progress and success in meeting children's needs. Therefore, being able to use current data on children held at LEAs as a source of evidence-based practice is critical for LEAs to reduce their losses in litigation cases and increase their accountability. Using South-East

England as an example, Chapter 3 examines whether LEAs are currently gathering sufficient data for this purpose.

Chapter 4 will build on the findings from Chapter 3 by investigating the progress of children in mainstream and specialist provisions in terms of their social, behavioural and communicative functioning. It is a longitudinal study and will employ baseline and follow up measures. Since assessing baselines performance helps control the skills of the child at the start of the study, Chapter 4 will be able to identify more effectively the impact of placement on the child outcomes.

There is already a significant body of evidence suggesting that specialist techniques are effective in teaching children with ASC (see Section 1.4.3). Yet, it is very difficult to implement specialist teaching strategies, many of them requiring individualised instruction, in mainstream (Fuchs & Fuchs, 1995).

One way of improving the effectiveness of mainstream could be to teach the child a set of pre-requisite skills preparing them for mainstream. Research has identified a number of skills, which if acquired, would help a child succeed in mainstream (see Section 1.5). These skills could be taught in mainstream or in a specialist provision using specialist techniques. A curriculum that has been developed to meet these requirements is the PIRK (Greer & McCorkle, 2003). The PIRK (Greer & McCorkle, 2003) contains the pre-requisite skills, and has been used as a curriculum preparing children for mainstream in CABAS© schools in UK, Ireland, and in the USA. However, it has never been empirically tested to identify whether it does indeed prepare children for mainstream, and increase the chances of subsequent success in a

mainstream placement. Therefore, in Chapter 5 children undergoing the PIRK curriculum in special schools will be compared on measures of behaviour, socialisation and communication to children attending specialist schools where they are not taught the PIRK curriculum, in order to identify whether the preparing a child with the PIRK does lead to improvements in these areas which are critical to effective mainstream placements. Whilst in Chapter 6, children undergoing the PIRK in mainstream will be compared on measures of behaviour, socialisation and communication to those attending a mainstream school where they are not taught the PIRK curriculum, in order to establish whether undergoing PIRK training leads to greater improvements in mainstream.



**2 PARENTS' AND LOCAL EDUCATION AUTHORITY OFFICERS'  
PERCEPTIONS OF THE FACTORS AFFECTING THE SUCCESS OF  
INCLUSION OF PUPILS WITH ASC**

## 2.1 Introduction

There has been little work examining the factors that promote successful inclusion of children with ASC. One important way to improve the effectiveness of inclusive placements would be to identify the views of parents and of those who work with children with ASC. One recent study looked at the attitudes of parents and professionals about the various educational provisions available for children with ASC (Jindal-Snape, Douglas, Topping, Kerr & Smith, 2005). They found that parents considered that ASC specific training for teachers was critical to the success of a mainstream placement. In addition, parents and professionals felt that in all provisions the quality of delivery, staff training and effective adaptation of the curriculum was fundamental to creating an inclusive environment (Jindal-Snape et al. 2005).

The importance of the views of staff involved directly with the inclusion process, to the success of that inclusion practice has been referred to regularly in the literature (Avramidis et al. 2000; Fredricksen et al. 2004; Vaughn, Schumm, Jallad, Slusher & Saumell, 1996). Fredricksen et al. (2004) found that there were commonalities in the views of the definition of “successful inclusion” amongst teachers involved in the process of inclusion. The authors argued that this would have implications when the teachers came to design support and skill development programmes for the pupils. Therefore, assessing the opinions, concerns and perspectives of those staff involved in the process of inclusion will have a significant impact on the success or otherwise of inclusion. These views, in addition to those of the carers of children with ASC, will be the topic of the current study.

Individuals who work, and are in close contact, with children diagnosed with ASC will have valuable insight into the factors that promote successful inclusion, and may help to develop a better understanding of what determines successful inclusion for children with ASC. The same is the case for parents of children with ASC. Parents have the ultimate say on whether their child is included or not into a mainstream school, as stated in the code of practice (DfES, 2001). Consequently, the aim of the current study is to evaluate what professionals and parents feel are the factors that promote inclusion so that the necessary adjustments and improvements can be made to the provision. This will help make inclusive placements more effective.

## **2.2 Method**

### **2.2.1 Participants**

Parents of children with ASC, and local authority workers, were recruited from three local authorities in the South East of England. All participants were randomly selected from lists of parents who had a child with a diagnosis of ASC, and local authority officers with experience of working with children with ASC. Letters were sent inviting participants to attend focus groups discussing their experiences of inclusion. The participants received no payment for the participation in this study. Eight focus group interviews were conducted in total; four groups with parents, and four with local authority workers. The composition of the groups is given in Table 2.1.

**Table 2.1:** Number of participants in each focus group

	<b>Participants</b>	
<b>Local Authority Workers</b>	Group 1	5 females
	Group 2	6 females, 2 males
	Group 3	7 females
	Group 4	4 females, 1 male
<b>Parents</b>	Group 5	7 females, 1 male
	Group 6	4 females
	Group 7	3 females, 1 male
	Group 8	6 females, 1 male

### **2.2.2 Focus Group Sessions**

Each focus group was conducted by a trained moderator. The focus groups were structured by a scripted set of instructions consisting of the questions to be asked, and the prompts to be used when participants were unsure about how to answer. In this way, all questions were consistent in every focus group interview, and each group was conducted, as far as possible, under the same conditions. Table 2.2 displays a skeleton of the questions that were asked by the moderator during the focus group interviews.

**Table 2.2:** Questions asked in the focus groups

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1. Who decided when your child was ready to be included in a mainstream school?
  2. What factors lead to the decision to place a child in mainstream?
  3. What factors are most beneficial for inclusion?
  4. What is less beneficial?
  5. What could be improved?
  6. What are the advantages of having a child placed in a mainstream school instead of a special school?
  7. What types of help have been offered by the professional services and when?
  8. If advice is to be given, when is the best time?
- 

The length of the focus groups varied depending on the number of participants involved. The shortest focus group lasted approximately 45 minutes, and the longest focus group lasted approximately 90 minutes.

### **2.2.3 Content Analysis**

All focus groups were audio-taped, and later transcribed for analysis. The transcripts were analysed using a content analysis of the text as recommended by Vaughn, Schumm and Sinagub (1996). This procedure has been used previously by Fredricksen et al. (2004), and Osborne and Reed (in press). The stages of the analysis are outlined in Table 2.3.

**Table 2.3:** Stages in Content Analysis (as cited in Vaughn et al. 1996)

- 
1. Identification of key themes from reading and re-reading the transcripts
  2. Creating units of information from the data (phrases and /or sentences)
  3. Categorisation of the units into themes or categories
  4. Negotiation of categorisation between two researchers until all categories has been exhausted.
- 

Once transcribed, all statements from the individual focus groups were broken down into the smallest units of information that were interpretable by themselves. A unit of information could be either a sentence or phrase. This was completed for the transcripts of all the focus groups. Once the units were established, category headings were created by reading through all the units that were suggested for each question. The category headings represented the general themes stemming from the units of information. After all units from a particular question were placed into the categories for this question, this list was passed to another assessor, who rated the comments to check agreement with the unitisation and categorisation of the statements.

In order to confirm the reliability of the coding of the results, a Cohen's Kappa analysis was used for inter-rater reliability. A high mean level of reliability was identified between their two separate judgements for each question. The figures ranged from a low of 0.92 for Question 2, to a high of 1.00 for questions 1, 4, 5, 6, 7, & 8.

## 2.3 Results

In total 430 units were collected for the eight focus groups. Responses for each question have been categorised into themes and these are displayed in Tables 4 to 11.

### *Question 1: Who decided when your child was ready to be included in a mainstream school?*

**Table 2.4:** Percentage of participants' responses falling into the different categories for Question 1

Themes	Parents %	Professionals %
Parent decided	44	47
Joint decision with school and LEA	11	29
Depends if they have a statement or not	0	12
Never thought of anything else/didn't realise he needed help	22	0
No other option/forced decision	11	0
Parents decide against LEA recommendation	7	0
Depends on child factors (age & school)	4	12

Parent Decided: "the decision was always ours"

Joint decision with school and LEA: "The school, myself, everyone involved [made the decision]"

Depends if they have a statement or not: "if the child has a statement then it would be the decision that was reached following an annual review"

Never thought of anything else/Didn't realise he needed help: "We had never considered anything other than mainstream".

No other option/forced decision: "it was a forced decision because they [children] would not qualify for anything else, regardless of their need".

Parents decide against LEA recommendation: "I decided, even though in the statement it said he should go to a special school, I thought no way, I didn't want to send him there".

Depends on child factors: "As it happens, had we taken a different route and sent him to a state primary school, had we chosen not to send him to the independent, the decision may not have been in our hands".

Table 2.4 summarises the responses made by participants from both the parent and local authority groups to Question 1. The participants identified seven main themes. When it came to deciding whether to place a child in mainstream the majority of statements from both groups agreed that the parent had the overriding say in this decision. Parents said that they: “... *wouldn't want anything else other than mainstream school because I think that it is right for my children and in the case of my children I am their mom and I decide*”. The local authority workers agreed, and said that: “... *the views of the parents are overriding*”, suggesting that even if the local authority felt that the child wasn't going to be placed suitably in mainstream, the child still would be placed in mainstream. Parents also felt this, saying that: “*I decided, even though in the statement it said that he should go to a special school, I thought no way, I didn't want to send him there*”.

Over a quarter of the local authority workers statements suggested that the decision to place a child in mainstream was a joint decision, in contrast to only a small group of parents. These parents and local authority workers felt that the decision was jointly made between all those involved, as described by a parent, “*the school, myself, everyone involved*”.

The second most common response from the parents was that they didn't realise that there was a problem and, hence, did not think of anything but mainstream: “*we never knew he had any problems. We just took him to nursery*”.

A considerable number of statements from local authority workers suggested that who made this decision depended on whether the child had a statement: “*if they already have a statement then it goes through annual review and within that everyone participates*”. However, no parents felt that statementing had an impact. Another group of parents felt that they had no other choice but



mainstream for their child because of lack of alternatives, and felt that although the decision: "...was mine but it was a forced decision because they would not qualify for anything else, regardless of their need". Another parent said that: "because he is at the able side of the spectrum, we won't be able to get him into a special school".

**Question 2: What factors lead to the decision to place a child in mainstream?**

**Table 2.5:** Percentage of participants' responses falling into the different categories for Question 2.

Theme	Parents %	Professionals %
Choose the school that meets needs of child	32	24
Academic levels	10	12
Socialisation	21	12
Lack of alternative provision	37	44
Local school	0	4
Behaviour	0	4

Choose the school that meets needs of child: "his needs were not profound enough to take him into a specialist school so it was a good compromise to get him a place in the unit".

Academic levels: "mainstream is the right place for my children because of their academic levels".

Socialisation: "I thought it would be good for him to model off other kids which were "normal" and that is the main reason why we sent him to mainstream school".

Lack of alternative provision: "it is very difficult to find specialist provision. It's not a choice for many parents. The expectation is mainstream from most of the cases we see."

Local school: "it varies in provisions as well because if you want to keep your child local you have to look at the range of provisions there is".

Behaviour: "I just think it's down to the individual whether they can cope with the situation".

For Question 2, six different themes were identified when parents and local authority workers were asked what factors led to their decision to place their child in mainstream. These are displayed in Table 2.5. Both groups agreed that the most important factor leading to place a child in mainstream was a lack of alternative provision for the child. One professional said that: "*in an authority that talks very*

*much about value for money it is very difficult to find specialist provision. It's not a choice for many parents". Parents felt that they had no choice but to place their child in mainstream: "they would no way get into any kind of special school, because they haven't got learning difficulties".*

Just over a third of the parents' statements, and a quarter of the local authority workers' statements suggested that a child's needs should be addressed when deciding the best provision. One parent describes her child's case as: *"his needs were not profound enough to take him into a specialist school so it was a good compromise to get him a place in the unit"*. One authority worker said: *"progress made and behaviour. They need to show that they can work independently"*. Both parents and local authority workers felt that academic levels were a factor leading to the decision to place a child in mainstream, as one parent said: *"mainstream is the right place for my children because of their academic levels"*.

Another important factor for the parents was the socialisation of the child. Parents felt that mainstream placements would: *"be good for him to model off other children"*. For the local authority workers, socialisation was also important and they felt that children: *"need to know what to do when something goes wrong, so it's part of the social skills"*. The authority workers also felt that the decision on mainstream could depend on the location of the school and therefore school placement decisions would vary because: *"if you want to keep your child local you have to look at the range of provisions there is"*.

**Question 3: What factors are most beneficial for inclusion?**

**Table 2.6:** Percentage of participants' responses falling into the different categories for Question 3

Theme	Parents %	Professionals %
School factors	42	38
LEA factors	38	25
Peer factors	13	11
Child Factors	7	26

School factors: "there needs to be an acceptance by the school setting that the child has a right and belongs there and there should be an acceptance as well that that child has particular and individual needs and it's the responsibility of all the people working there to help meet those as they would any other child"

LEA factors: "preparing the mainstream class teacher first through training courses which we run as a team every term, and more than that, and preparing them with the sort of strategies that the child will need in school".

Peer factors: "His friends are translators for him between the autistic world and the mainstream world and the wonderful thing is that it has been a two-way thing, it has enriched their lives as much as his".

Child factors: "It's about the individual needs"

The responses to Question 3 are displayed in Table 2.6 and show a strong similarity between both parents and local authority workers across the four themes identified. Both groups felt that school factors, such as school commitment and willingness ("*the school has to want to [include the child]*"), and good communication between the school and parents, where: "*sharing information and making sure everybody is working consistently through out the school and at home*", were the most pertinent factors in moderating the success of inclusion.

The second most important factor for parents was 'LEA factors', such as funding and teacher training. One parent said that it was all about: "*the people involved and getting them involved at a very early stage*" whilst another parent felt: "*you need somebody either with professional experience, really good experience [and] qualified*". The local authority workers prioritised child factors over LEA factors, like addressing the child's needs and social skills. One professional

considered that: *“their level [the child’s] of communication skills that is a key indicator to how they can cope, because if they can’t understand the language in the classroom, then they will just get bombarded and their anxiety level will get high”*. Local authority workers regarded social skills as important and felt that: *“some of our pupils are very peer orientated so they are able to moderate their behaviour because they don’t want to be different and so they sort of fit in better”*.

Parents and authority workers agreed that peer factors, such as peer training and peer relations played a role in promoting the successful inclusion of children with autistic spectrum disorders. One parent said that *“wonderful friends”* made it possible for her child to be in mainstream: *“his friends are translators for him between the autistic world and the mainstream world and the wonderful thing is that it has been a two-way thing”*. Another parent described peer training as an important tool: *“if they have been educated about it then his classmates will become a team”*.

**Question 4: What is less beneficial?**

**Table 2.7:** Percentage of participants' responses falling into the different categories for Question 4

Theme	Parent %	Professional %
School factors	9	7
LEA factors	70	31
Peer factors	3	10
Child Factors	12	47
Parental factors	6	5

School factors: "If you don't have a supportive school you might as well not bother with inclusion because it's not going to work."

LEA factors: "The problem because we are not getting funding, that it is extremely difficult for him to stay in mainstream school because the teachers haven't got the time or the resources to cater for his needs."

Peer factors: "[child] was subjected to quite a lot of bullying".

Child factors: "the more aggressive ones are harder to include than the passive ones".

Parental factors: "Some parents don't want your children there. I have had parents say to me get your \*\*\*\*\* child out of our school".

The responses to Question 4 are displayed in Table 2.7. They show a number of discrepancies between the two groups. The categories of responses to this question covered five main themes. The majority of the parents felt that LEA factors, such as funding, were the most important causes of failure to include a child. One parent said that *"the problem, because we are not getting funding, that it is extremely difficult for him to stay in mainstream school because the teachers haven't got the time or the resources to cater for his needs"*.

In contrast, the local authority workers felt that child factors, such as not meeting the child's needs or individual characteristics of the child such as social skills, language abilities and behaviour were principal to the failure of inclusion. One worker mentioned the importance of knowing a child's individual needs: *"in primary a lot of children get through it because they are in a small supportive environment mostly the same teacher all day...they know their needs and they've*

*known them from when they were tiny*". Another authority worker mentioned language abilities as important as: *"language could be overwhelming in which case they would be better in a special school"*. Local authority workers also felt that social skills were fundamental: *"one of the reasons for children being excluded is not having those adequate social skills, that is the core of it"*.

**Question 5: What could be improved?**

**Table 2.8:** Percentage of participants' responses falling into the different categories for Question 5

Theme	Parent %	Professional %
Involve school members more when making placement decisions	11	0
Be more open to alternatives other than mainstream	44	33
More training on ASC	22	17
Peer training	11	0
More resources and support	11	17
Measure of best placement	0	33

Involve school members more when making placement decisions: "I think it should be more the people in the school [making the decisions]. They should have more of an impact."

Be more open to alternatives other than mainstream: "They are all obsessed with inclusion needing to work. I want them to be honest."

More training on ASC: "I think that teacher's need more training in autism. Some of them don't even know what autism is."

Peer training: "Government should put it in the curriculum to teach children about different people with different illness' and needs."

More resources and support: "[children should] get more one to one time."

Table 2.8 displays the responses to Question 5. They show a number of similarities between the local authority workers and parents. Primarily, when discussing what factors need to be improved in order for inclusion to be more successful, both groups agreed that the most important issue was to be more open to alternatives other than mainstream. One local authority worker described it as: *"we*

*need to move away from needing to push our kids down the same route". Parents felt the same way, saying: "they are all obsessed with inclusion needing to work. I want them to be honest". Parents also felt that there needed to be more training in ASC: "I think that teacher's need more training in autism, some of them don't even know what autism is!"*

The next most important factor for the local authority workers was to create a measure of best placement, whereby professionals are: *"working towards some guidance and a measurement that panels use"*. The authority workers felt that in the current situation: *"we are putting them in a position of failing in order to provide an alternative environment. What we need to be doing is making an appropriate judgement immediately"*.

**Question 6: What are the advantages of having a child placed in a mainstream school instead of a special school?**

**Table 2.9:** Percentage of participants' responses falling into the different categories for Question 6

<b>Theme</b>	<b>Parents %</b>	<b>Professionals %</b>
Improve chances of a normal life	42	14
Teaches diversity to other children	0	14
Social skills	25	58
Down to the individual child/parent	33	0
Academic	0	14

Improve chances of a normal life: "I would prefer him to stay in mainstream and I think it would help him to have a normal life".

Teaches diversity to other children: "I think there are benefits for the other children, that they are around children with different needs, and you know, to celebrate diversity".

Social skills: "they will kind of pick up normal things and be with normal children".

Down to the individual child/parent: "I think that has to be the individual choice of the parent".

Academic: "He wouldn't be pushed academically in a special school".

The responses to Question 6 show considerable differences in perceptions between the two groups when discussing the benefits of placing a child in a mainstream provision versus an alternative provision. These are displayed in Table 2.9. The categories of responses to this question covered five main themes. Parents felt that the overriding benefit was that mainstream schooling improved the child's chances of a normal life: "*in special schools they could get more protected and would feel more vulnerable when they left*". For another parent mainstream meant that children: "*are being forced into social situations that they are going to encounter for the rest of their lives*".

For local authority workers, the most important benefit was the potential to improving social skills: "*they will kind of pick up normal things and be with normal children*". For the authority workers this factor was followed by the importance of teaching diversity to other children: "*I think there are benefits for other children,*



that they are around children with different needs, and you know, to celebrate diversity”.

**Question 7: What types of help have been offered by the professional services and when?**

**Table 2.10:** Percentage of participants’ responses falling into the different categories for Question 7

<b>Theme</b>	<b>Parent %</b>	<b>Professional %</b>
Only with diagnosis	16	0
Nothing	60	0
Through out	20	50
Had to look for it	4	0
Support in choosing schools	0	50

Only with diagnosis: “If you’re child hasn’t been diagnosed you don’t get access to any information.”

Nothing: “None. I’ve just been having to read up about autism”.

Through out: “I can’t fault any of the external help that I got. They gave me all the information I could ask for.

Had to look for it: “I had to look it all up in the internet.”

Support in choosing schools: “You can recommend [schools]. But you’re not supposed to! I tell them what they should be looking at, what school”.

The responses for Question 10 are displayed in Table 2.10.

Overwhelmingly, parents said they had received no help or information from the LEA saying that: “we get nothing”. In addition, only a small group of parents felt that they were given support at diagnosis and none thereafter: “I had to look it all up on the internet”. Only 1/5 parents felt that they were given support through out diagnosis and the inclusion process, and no parent felt that they were given help in choosing an appropriate school placement for their child.

These results are in stark contrast with the opinions of the local authority workers, who felt they had received and given support through out and helped parents choose an adequate school for their child: *“we offer parent groups; we do have parent groups at the moment, where parents come when their child is first diagnosed as they get so much information, which will then reduce their anxiety”*.

**Question 8: If advice is to be given, when is the best time?**

**Table 2.11:** Percentage of participants’ responses falling into the different categories for Question 8

Theme	Parent %	Professional %
All the time	25	25
At least 2 terms prior to inclusion	0	50
At diagnosis	75	25

All the time: *“The advice needs to be given before, during, all the time really”*

At least 2 terms prior to inclusion: *“at least two terms before the child enters the provision. So that someone can come and shadow the child in the nursery and the child can visit the mainstream”*.

At diagnosis: *“Everything you should get at diagnosis. You should get everything at diagnosis”*.

The results from Question 11 are displayed in Table 2.11. When asked when would be the best time to receive information and help, parents overwhelmingly agreed that it should all be given at the time of diagnosis: *“you should get everything at diagnosis. It’s staggering that we get nothing”*. Another group of parents felt that the information should be ongoing: *“all the time”*. This pattern of results contrasts with the local authority workers, as half of the workers opinions were that it was important to give advice and information at least two terms prior to inclusion. A quarter felt that the support should be ongoing, and the other quarter felt that the advice should be given: *“as early as possible. As soon as they know that their child has an SEN, this way they know what to look for”*.

## 2.4 Discussion

The present study was an attempt to ascertain the perceptions of parents/caregivers, and local authority workers on the factors that are beneficial to the inclusion of a child with ASC, and to determine what can be improved about the process. Both groups are closely involved with the process either through teaching and delivering of provision or by being the carer of an included child. Both groups agreed that when it came to making the decision to place a child in mainstream school, the decision was primarily the parent's, even in cases where the LEAs and professionals disagreed with the parent. This view would be consistent with the code of practice, which states that parents have the ultimate say as long as this is consistent with the best use of resources, and will not interfere with the education of the other children (DfES, 2001).

A quarter of parents felt that they made the decision to place the child in mainstream because they didn't realise their child needed help. This could also suggest that children are not getting identified early enough for parents to start making school choices appropriate to their child's needs. Early diagnosis is regarded as critical, but diagnosis is often delayed until school age due to lack of understanding or access to physicians (Mandell, Novak & Zubritsky, 2005).

Parents felt that they had chosen to place their child in mainstream out of a lack of a better placement. They believed that their child didn't have the opportunity to enter an alternative provision, either as they were too able to qualify, or because there was no alternative. Consistent with this view, in Question 2 when discussing what factors lead to the decision to place a child in mainstream, both groups agreed that parents came to this decision primarily due to a lack of alternative provision. Additionally, parents and local authority workers also

reflected this view when discussing what needed to be improved about the current inclusive policy, saying more openness to alternatives to inclusion was essential. In a survey conducted on teachers across the United Kingdom by the Times Educational Supplement (FDS International, 2005), teachers advocated the continued availability of a range of school provisions. Similarly more researchers are calling for responsible inclusion, whereby alternatives to full time inclusion are sought. Warnock (2005) asks for a 're-take' on inclusion, whereby specialist schools are not disregarded as inferior education.

Both parents and local authority workers felt that finding a placement that met the child's needs was important. In order to do this, authority workers felt that there needed to be a measure of best placement to avoid placing children in mainstream to fail. Given that children with ASC have academic skills, behavioural difficulties, social and communicative functioning which vary enormously (Burack & Volkmar, 1992), the adoption of a policy of full inclusion for all children with ASC seems unrealistic and over simplistic (see Mesibov, 1990). Instead there needs to be an understanding of individual educational needs and an emphasis in developing all domains of functioning (Burack, et al. 1997; Mesibov, 1990; Zigler & Hodapp, 1987). Moreover, as noted in Section 1.5, there may be certain practices which can help meet the needs of children with ASC in schools. These need to be identified and applied to make both mainstream and special schools more effective at developing all areas of functioning.

When discussing factors that promote the successful inclusion of children with ASC, both groups felt that school factors, such as school commitment, and having the right people involved, were the most significant promoters of successful inclusion. This is consistent with Burack et al. (1997) research that examined the

attitudes of teachers. They found that teachers play a crucial role in the success of mainstream programmes. They found that, in addition to teacher training, teacher and school commitment were critical to success. Kasari, Freeman, Baumonger and Alkin, (1999), in line with the current study, found that parents of children with ASC were more likely to view specialised teaching and staff as important to their child's education. Jindal-Snape et al. (2005) also found that professionals and parents felt that staff attitude played a very important role in creating an inclusive environment.

The second most important factor benefiting inclusion for both parents and professionals were LEA factors, such as teacher training and funding. This is also consistent with Burrack et. al. (1997). They found that, without support and training, only 33% of teachers were willing participants of inclusive practice. A survey run by the Times Educational Supplement (FDS International, 2005) found that training had an impact upon attitudes towards inclusion, and those with no training in SEN showed the least positive attitude scores. Likewise, Avramidis et al. (2000) found that teachers with substantial training were more positive to inclusion and also felt more confident meeting IEP (Individual Education Plans) requirements as a result of their training. In accordance with the current study, Avramidis et al. (2000) also report that funding was a mediating factor to inclusion. They found that teachers wanted more non-contact time, and in Diebold and Von Eschenbach (1991), teachers reported that they did not have sufficient time for inclusion. In line with the current study, Jindal-Snape et al. (2005) found that parents felt that teachers should have more autism specific training to help support their children in mainstream schools and Barnard et al. (2000) from a national

survey reported that the most desired changes expressed by parents of children with ASC was more training about ASC for teachers.

Professionals also focused on child factors such as behaviour, social skills and academic abilities as beneficial for inclusion whilst parents didn't. This result is consistent with Fredrickson et al. (2004) who also found that professionals rated behaviour such as being able to follow instructions, obeying classroom rules and social progress as paramount in defining successful inclusion. Also in conjunction with the current study, professionals in Fredrickson et al.'s (2004) study also rated learning and academic progress as an important factor in determining whether inclusion was successful. These concerns suggest that skills related to behaviour, social skills and academic abilities should be taught in order to help the child's success in a mainstream placement. In contrast, when it came to factors that were less helpful, although the parents still felt that LEA factors such as funding and resources were the principal factors in undermining successful inclusion of a child, local authority workers felt that child factors such as behavioural problems or lack of social skills were more critical. This finding is concordant with the literature which argues that successful placement in a typical classroom may be dependent upon the display of appropriate behaviour (Downing et al. 1996), and a lack of social skills may impede the integration of children with ASC as well as reduce their interaction with the peer group (Beckman 1983; Guralnick 1990; Sherratt 2002; Strain & Danko, 1995).

Parents and local authority workers were also asked about the information/help they received from their LEA. An alarming majority of parents said that they had received no information or help from their LEA. This finding is in accordance with Osborne and Reed (in press) concerning lack of information at

diagnosis. In contrast with the parents, an equal proportion of local authority workers felt that they had given help through out and that they had helped parents choose an appropriate school. Whether the parents feelings are a true reflection of what they got, parents clearly perceive it as so, suggesting that work needs to be done addressing these concerns.

In accordance with the literature, parents and local authority workers called for a more 'responsible' inclusive movement (Vaughn & Schumm, 1995) by recognising the alternatives to mainstream. This is in concurrence with many researchers concerned that the movement towards inclusion of children with ASC has been driven by ideological approaches (Bailey, 1998).

Although these results shed some light a number of different elements relevant to successful inclusion, there are a number of limitations to this study. The sample size and the representativeness of the sample needs to be considered. Although only three boroughs were involved in the study, it should be noted that there was reasonable consistency between the perceptions of each parent and professionals group. Furthermore, all participants were volunteers; hence, their representativeness of all parents and professionals in general may be an issue that limits the generalisation of the conclusions that can be drawn from the data. However, it is also important to note that all participants were randomly selected. As with any analysis of focus group data, these perceptions should be considered as a measure of the strength of a feeling about the specific issues that were discussed and should not be regarded as an indication of their frequency in the general population.

This is the first focus group to look at the views of parents and local authority workers on what promotes successful inclusion of children with ASC.

Parents clearly are the ones making the decision to place a child in mainstream, primarily due to a lack of alternative provision. Both parents and professionals agreed that this needed to change and that in addition to becoming more open to alternatives, a measure of best placement should be introduced in order to place children in provisions that will meet their individual needs. Consistent with earlier literature (see Burrack et al. 1997) both parents and teachers felt that the attitudes of teachers and overall school commitment were the most significant promoters of successful inclusion. Moreover both groups agreed that LEA funding; in addition teacher training was essential to success. Professionals felt that child factors such as behaviour and social skills could undermine a successful inclusive placement, whilst parents felt that funding and resources were most important. Finally, parents felt that they hadn't been given sufficient support or information by LEA about the process of inclusion.



**3 COMPARISON OF THE EFFECTS OF MAINSTREAM AND  
SPECIAL SCHOOL PLACEMENTS ON OUTCOMES IN CHILDREN  
WITH ASC: AN ARCHIVE-BASED ANALYSIS**

### 3.1 Introduction

The inclusion of children with ASC into mainstream schools has been argued to improve the quality of life, educational performance, and social development of such children. 'Mainstreaming' is also thought to increase the social awareness of the other children exposed to the included children (see Egel & Gradel, 1988). In addition to these putative benefits, inclusion has been argued to relieve some of the financial strain on many external supporting agencies, such as educational, psychological and health services (Jarbrink & Knapp, 2001) (see Section 1.3.1 for more arguments for Inclusion). However, as previously discussed (Section 1.3.2) the promotion and, in some cases implementation, of this ideal has preceded research into the success of the school inclusion, especially concerning children with ASC. Despite there being a number of studies that have examined inclusion by comparing outcomes, such as educational achievement, and self-esteem, for children with ASC in mainstream versus special school provision, many of these studies have methodological flaws, making difficult their interpretation. The review of the literature on outcomes for inclusion (see Section 1.4) illustrates that the literature on inclusion is limited, and when dealing specifically with the inclusion of children with ASC, even more so. In addition, the research is inconclusive as to whether inclusive settings do benefit the child with ASC. Thus, if nothing else, the conclusion that the ideal of inclusion, whatever its political merits, is not founded on evidence-based practice appears warranted. The importance of identifying the success of this model is then paramount to the ongoing practice of inclusion in schools across the country and it reflects views identified in Chapter 2 of parents and professionals who called for a more

'responsible' inclusive movement (Vaughn & Schumm, 1995) whereby alternatives to inclusion are recognised as effective educational placements.

In addition to child and school factors, such as behaviour, social skills and academic abilities identified by professionals in Chapter 2 and those identified in previous literature (see Sections 1.5.1, 1.5.2 and 1.5.3), research suggests that parental factors, such as stress and coping strategies, may have a significant impact on child outcomes (see Section 1.5.4 for a review). Although the findings point to the importance of parental stress in the education and outcomes of their children, very little research has focused on the types of coping strategies used by parents to help manage their stress, and the consequent impact on child outcomes. Yet factors associated with parental coping may impact the provision of learning experiences, and the quality of the home environment (Barnett, Hall, & Bramlet, 1990). Therefore, research into factors that promote the successful inclusion of children with ASC may need to consider the coping strategies employed by the parents, and how this may impact on outcomes and, consequently, on the success of the child in the school setting.

Evidence-based practice has become the dominant ideology in policy decisions and is beginning to shape the delivery of medical and social services in this country and in the United States of America (Department of Health, 1998a, 1998b). The fundamental argument is that there needs to be a link between the professional practice and the research (Fox, 2003). Primarily, the pressure for evidence-based practice comes from politicians as a consequence of the wide variations of medical and social services in Britain reported by the media (Fox, 2003). Theoretically, evidence-based practice is used to help professionals base their practice on the best current evidence (Department of Health, 1998b).

Such evidence highlighting best practice could come from a number of sources. Obviously, controlled studies are necessary for such evidence to be collected, but there are many practical constraints on the conduct of such studies (e.g., these studies take time and money that might be used for the employment of teachers). However, alternatives to the controlled study do exist, and should be employed to generate evidence on best practice. Whilst primary data analysis uses data collected by the researchers themselves, or through trained observers, often in settings constructed as a part of the research programme, secondary data analysis uses data that have previously been collected by other investigators, often in 'naturally occurring situations', and for reasons that differ from those of the current researcher. This form of research is being used increasingly as an important source of evidence, especially in the initial stages of an investigation, where it can be used to highlight which out of many possible factors could be important for further investigation. In addition to being less expensive than using primary research designs, secondary data can lead to increased: sample sizes, number of observations, and ecological validity (all measures coming from actual cases, rather than designed studies, thus, increasing the ecological validity of the findings and potentially obtaining a better estimate of the effect size, see Makrygianni & Reed, 2007 for a more detailed discussion). Thus, under some conditions, secondary data analysis can be more representative (or more ecologically/environmentally valid) and can have more generalisation potential than findings obtained from artificially constructed research programmes.

Secondary data analysis has a long history of use in education both to cut costs, and to make use of the vast amount of data collected on students. For example, secondary data analysis was used in the United States to study the trends

in achievements as a function of age at admission using data collected by the National Assessment of Educational Progress in the United States (Langer, Kalk, & Searles, 1984). A further example of secondary data analysis relevant to special needs education comes from a proposed method to demonstrate accountability of placement decisions for students with disabilities in the United States. This study re-analysed extant data on educational performance of children with special educational needs placed in different provisions in order to see how children with disabilities were performing both academically and non-academically as compared to their non disabled peers (Ysseldyke et al. 1998). For this study, all of the publicly available reports produced by state departments of education, containing student outcome data such as achievement test performance, were collected. The summary of the performance data revealed lower performance for students with disabilities compared to other students and lower rates of participation on tests compared to students without disabilities (e.g., 50-80%).

Given the need to establish evidence for the policy of inclusion for children with ASC, and given the availability of secondary data in this area, the current study proposes to use a similar methodology to Ysseldyke et al. (1998) to analyse educational provisions for children with ASC. LEAs hold archive data on all children with ASC in their borough in a number of different school provisions. This archive data could contain possible predictive and outcome measures of the success of the inclusion of the child, which could provide an invaluable source of information concerning the success of inclusion and may help identify the common factors leading to this. Consequently, such an analysis may help to improve the current provision of the participating boroughs. Additionally, the collection of this data will allow us to identify gaps where data collection needs to be improved in the

participating boroughs. In addition to the data collected from the children's archives a series of questionnaires looking at parental coping strategies and autistic severity will also be used to help investigate the impact of parental coping on school outcome.

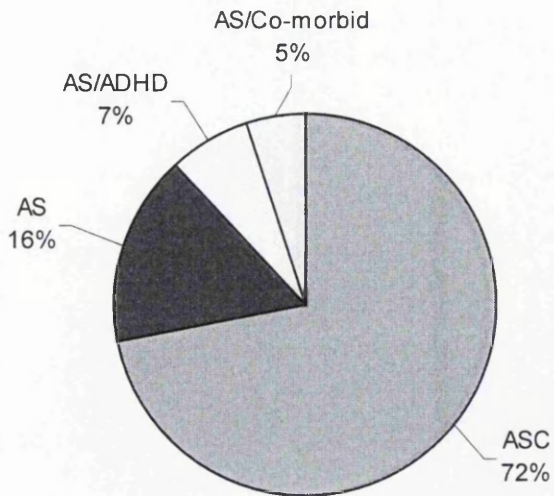
## **3.2 Method**

### **3.2.1 Sample**

One hundred and eight children (18 girls and 90 boys) with a diagnosis of ASC, from four boroughs in the South East of England, formed the sample for this study. The criteria for inclusion of a participant in the study were that they had a diagnosis of an ASC, which was diagnosed by an independent Paediatrician, and they could not have left school more than five years ago. Local authorities were contacted, and those who agreed to take part provided a list of parents. The parents were sent a consent form. A total of 213 parents were contacted, and 108 consent forms were returned, giving a response rate of 51%.

The distribution of the diagnosis of participants in the sample is displayed in Figure 3.1. Inspection of Figure 3.1 reveals that 72% of the participants had a diagnosis of ASC, 16% had a diagnosis of Asperger's Syndrome, 7% had a diagnosis of Attention Deficit Hyperactive Disorder in addition to an ASC diagnosis, and 5% had an additional diagnosis of Tourette's syndrome, Dyspraxia, or Depression. The age of the participants ranged between 5 and 17 years old, with a mean age of 13 years.

**Figure 3.1:** Distribution of the diagnosis in the sample.



### 3.2.2 Location

**Table 3.1:** Characteristics of the participating Boroughs in terms of population, ethnicity and socio-economic status (unemployment)

Borough	Population	Ethnic Make-up	Index of unemployment (percentage of available workforce not employed)
A	211,600	59% white British 41% non-white	3 %
B	185, 131	88% white British 12% non-white	3 %
C	372,000	94% white British 6% non-white	3 %
D	150,229	94% white British, 6% non-white	1.5%
UK	58,789,194	80% white British, 20% non-white	5%

The characteristics of the four boroughs in the South East of England that took part in the study are displayed in Table 3.1. These measures were obtained from the Census for each borough. Boroughs A, B, and C had the same index of unemployment, whilst borough D had a lower index than the others. All had indices slightly lower than the mean in the U.K. A total of 46 mainstream schools, four units, and 17 special schools were sampled for the study. The breakdown of

the types of schools sampled per borough (mainstream, special, etc.) is displayed in Table 3.2.

**Table 3.2:** Breakdown of types of school and number sampled per borough

Local Authority	Mainstream	Unit	Special
A	13	0	0
B	13	2	11
C	6	2	3
D	14	0	3

### 3.2.3 Measures

#### *Archive Measures*

**Table 3.3:** Identified measures from the archive data broken down into predictor variables and potential outcome measures

Predictors	Outcome
<ul style="list-style-type: none"> <li>• Diagnosis</li> <li>• Portage</li> <li>• Hours of Learning Support Assistant</li> <li>• Speech and Language Therapy</li> <li>• Social Skills training</li> <li>• Socio-economic status</li> <li>• Autism severity</li> <li>• Parental coping</li> </ul>	<ul style="list-style-type: none"> <li>• School placement</li> </ul>
<ul style="list-style-type: none"> <li>• Diagnosis</li> <li>• Portage</li> <li>• Years of statement</li> <li>• Hours of Learning Support Assistant</li> <li>• Speech and Language Therapy</li> <li>• Social Skills training</li> <li>• Socio-economic status</li> <li>• Autism severity</li> <li>• Parental coping</li> </ul>	<ul style="list-style-type: none"> <li>• National Curriculum results</li> </ul>

Measures were taken from the archives concerning child outcomes, using National Curriculum results and school placement. Additionally, the interventions



that the child had undergone, such as access to Speech and Language Therapy and Portage, were recorded through archive analysis. The measures found in the archives for each LEA varied. There were 15 measures collected for Borough A, 14 measures collected for Borough B, 10 collected for Borough C, and 16 measures for Borough D. In addition, the measures collected were not consistent from child to child within the LEA. This was most evident in terms of the Educational Psychologists assessments for each child. Despite such inconsistencies, outcome and predictive measures were obtained for each child in all four LEAs. Table 3.3 summarises the predictive measures and their potential outcome measures taken from the archives of the four LEAs.

### ***Questionnaires***

In addition to the archive data collected, three questionnaires were sent to parents covering four areas: diagnosis, parenting stress, developmental, and medical history.

*Autistic Severity.* The Autism Behaviour Checklist (ABC: Krug, Arrick & Almond, 1980) was employed to assess the severity of the autism of each child. The ABC is a 57-item checklist, grouped into five areas; *Sensory, Relating, Body and Object use, Language and Social and Self-help skills*. A total score of 67 or more is taken to suggest *probable* autism. Scores between 55 and 67 suggest *possible* autism. Reports on reliability have been high (Volkmar et al. 1988b), although the convergence between the ABC and other instruments has not been good. This possibly reflects the ABC's somewhat broad-based symptom focus (Shaffer, Lucas & Richters, 1999). No special training in administration or scoring

is required. In the current study, it was completed by parents, who tend, on average, to produce higher scores than teachers (Volkmar et al., 1988b).

*Family Coping.* The Family Crisis Orientated Personal Evaluation Scale (F-COPES; McCubbin, Olson & Larsen, 1981) was employed, which measures the perception of the manner in which the family copes with stress. The F-COPES measures five coping responses: *Acquiring Social Support*, *Reframing*, *Seeking Spiritual Support*, *Mobilizing the Family to Acquire and Accept Help* and *Passive Appraisal*, and a total score can be computed. McCubbin et al. (1981) demonstrated a good level of test-retest reliability and internal consistency for the scales. This is a parent-completed tool and has been previously used in studies of stress in parents with ASC.

*Child's History.* The 'Parent's Questionnaire on Your Child's History' was used to collect information on the child's medical and educational history. The questionnaire consists of questions regarding initial diagnosis, medical problems (allergies), vaccinations and early intervention. In addition there are also questions about the current provision for the child (speech and language therapy or placement). This tool has previously been used in compiling background information concerning treatment integrity in studies of the outcome effectiveness of early intervention for ASC (Reed et al. 2007a; 2007b).

### **3.2.4 Procedure**

The archive data sample was identified in conjunction with the LEA. Consent forms were sent out to parents. Once consent was obtained, the archive data for the children within each of the participating boroughs was accessed. The descriptive data on the children were collected, as well as possible predictors and

outcome measures of success (see Table 3). The data collection process was iterative. The initial assessment identified potential measures. The measures were then refined, as the data that was common to all archives across the boroughs was identified. Schools were contacted, if necessary, to obtain National Curriculum results. Each provision was identified as that named in the child's statement, and was the place where each child spent the majority of the day. Mainstream provision was defined as regular school placement (i.e. not special school). Special schools were schools with specialised provisions, whilst units were specialised classrooms attached to a mainstream school. In addition to this data collection, the family of the child were also contacted, the purpose of the project explained, and the questionnaires were sent to the families.

### **3.2.5 Analysis**

For the purpose of analysis, there were two measures of outcome; school placement and National Curriculum results. Each outcome had a set of predictors. Table 3.3 displays the two outcome measures, and a list of the potential predictor measures. Each outcome measure was analysed in terms of the possible predictors in order to identify any possible relationships and interactions. When data was missing it was replaced by mean substitution. Mean substitution was deemed a more appropriate method than list wise deletion, or regression replacement, as list wise deletion would lead to heavy data loss, and the use of regression was not applicable as there were no multiple measures available to assess related factors. Moreover, mean substitution is a very conservative and transparent method of dealing with missing data, although it does lead to a loss in variability of the data (Tabachnick & Fidell, 2007).

### 3.3 Results

**Table 3.4:** Descriptive statistics of selected variables for the total sample of students

Variable	N	Minimum	Maximum	Mean	SD
Age (years)	108	5	18	12.9	3.2
School Years	108	0	13	7.3	3.0
Years of Statement	108	0	15	6.1	3.6
Hours of LSA	108	1	35	18.6	7.1
Visits of SLT (Yes/No)	67	0	1	N/A	N/A
Portage (Yes/No)	108	0	1	N/A	N/A
Social Skills Training (Yes/No)	108	0	1	N/A	N/A
Free School Meals (percentage)	108	3	48	18.3	7.5
Autistic severity	108	0	154	55.7	22.8
Parental coping	108	61	115	91.7	6.7

*SLT = Speech and Language Therapy, LSA = Learning Support Assistant*

Table 3.4 presents the mean, maximum, and minimum values for age, school year, years of statement, hours of Learning Support Assistant (LSA) a week, percentage of free school meals, autistic severity and parental coping levels, for the 108 children in the sample. The children's ages ranged from 5 years to 18 years, and covered all of the school years. There was a wide range of variation in terms of hours of LSA. The number of hours of LSA per week ranged from 1 hour a week to a full time LSA, covering 35 hours per week, with an average of 18 hours a week per child. Due to insufficient data, only access to, rather than amount of, Speech and Language Therapy (SLT), Portage, and Social Skills Training was measured. Socio-economic status (SES) was measured as the percentage of free school meals at the child's school.

The schools involved in the study had a large variance in social economic status (as measured in percentage of free school meals) ranging from 3% of free school meals, to 48% of children in the school having free school meals. The average autistic severity for the entire sample was 55.7, with a range of 0- 154 on the ABC. Krug et al. (1978) suggest that scores of 50 – 55 suggest possible autism. The mean score on the ABC in the current study, therefore, suggests that the sample had moderate levels of autistic severity. The mean total score for parental coping and problem solving was 91.7, with a range of 61 – 115 on the F-COPES. When developing the instrument, McCubbin et al. (1981) suggest that scores below 81 suggest poor coping, and problem solving skills, whilst scores above 107 indicate strengths in coping and problem solving. The average in the current study was above 81, suggesting moderate coping and problem solving abilities.

### 3.3.1 School Placement

**Table 3.5:** Provision across the four local authorities

<b>Local Authorities</b>	<b>Mainstream (SD)</b>	<b>Special (SD)</b>	<b>Unit (SD)</b>	<b>Home (SD)</b>
A	94% (16)	0% (0)	0% (0)	6%(1)
B	36% (16)	48% (21)	14% (6)	2% (1)
C	45% (10)	45% (10)	5% (2)	0% (0)
D	70% (19)	30% (6)	0% (0)	0% (0)

Table 3.5 displays the proportion of children with ASC placed in each of the provisions across the four local education authorities. Across local authorities A and D, children were overwhelmingly more likely to be placed in mainstream schools. In local authority B, children were more likely to be placed in special school, whilst, in local authority C, children were equally placed in special school or in mainstream. Mainstream units had the lowest number of children across all

local authorities. There were only two children who were home educated in the entire sample of 108 children.

**Table 3.6:** Autistic severity and school placement

		School Placement (Number in brackets)			
		Mainstream	Special	Unit	Home*
<b>Diagnosis (Standard deviations)</b>	ASC	59% (46)	35% (27)	6% (5)	0% (0)
	AS	61% (11)	28% (5)	11% (2)	0% (0)
	ASC/co-morbid	33% (4)	42% (5)	8% (1)	17% (2)
<b>Mean ASC severity (Standard deviations)</b>	Total ABC (31 – 155)	50.9 (2.5)	64.0 (4.6)	54.0 (1.8)	55.7 (0.0)
	Sensory subscale (0-27)	7.9 (0.5)	9.4(0.9)	8.1(0.3)	8.4 (0.0)
	Relating subscale (4-38)	15.1(0.7)	19.3 (1.2)	16.6 (0.1)	16.7 (0.0)
	Body and Object use subscale (0-38)	8.9 (0.6)	11.2 (1.2)	9.6 (0.2)	9.8 (0.0)
	Language subscale (0-31)	8.5 (0.6)	10.3 (1.1)	8.0 (1.1)	9.1 (0.0)
	Social and Self Help Skills subscale (6-25)	10.4 (0.5)	14.0 (0.8)	11.6 (0.1)	11.7 (0.0)

*Note: \* There were only 2 participants therefore it is not possible to compute the standard deviation.*

Table 3.6 displays the diagnosis and the severity of autistic problems for children in the different forms of school placement. The proportion of children with diagnoses of ASC, Asperger’s Syndrome (AS) and ASC co-morbid placed in each type of school placements was broadly similar to one another, and a chi square

analysis did not reveal any statistically significant differences between diagnosis and placement. In addition, a chi square analysis identified no statistically significant differences in placement, so children with ASC, AS, or ASC-Co-morbid were not more likely to be placed in either mainstream or special school,  $\chi^2 = 1.41$ , NS.

Those children placed in mainstream had an average score of 50.9 on the ABC, which was lower than the mean score for children placed in special school (64.0), special units attached to mainstream (54.0), and those educated at home (55.7). Those children in special schools were statistically significantly more severe than the mainstream children in the overall score of the ABC, Mann Whitney,  $z = -2.21$ ,  $p < .05$ , and in the *Relating*, Mann Whitney,  $z = -2.82$ ,  $p < .05$ , and *Social and Self Help Skills*, Mann Whitney,  $z = -3.45$ ,  $p < .001$ , subscales of the ABC. However, there were no statistically significant differences between the mainstream children and those attending units or home educated. There were also no differences between the children attending special schools and those attending units and home educated.



**Table 3.7:** Descriptive data on predictor variables

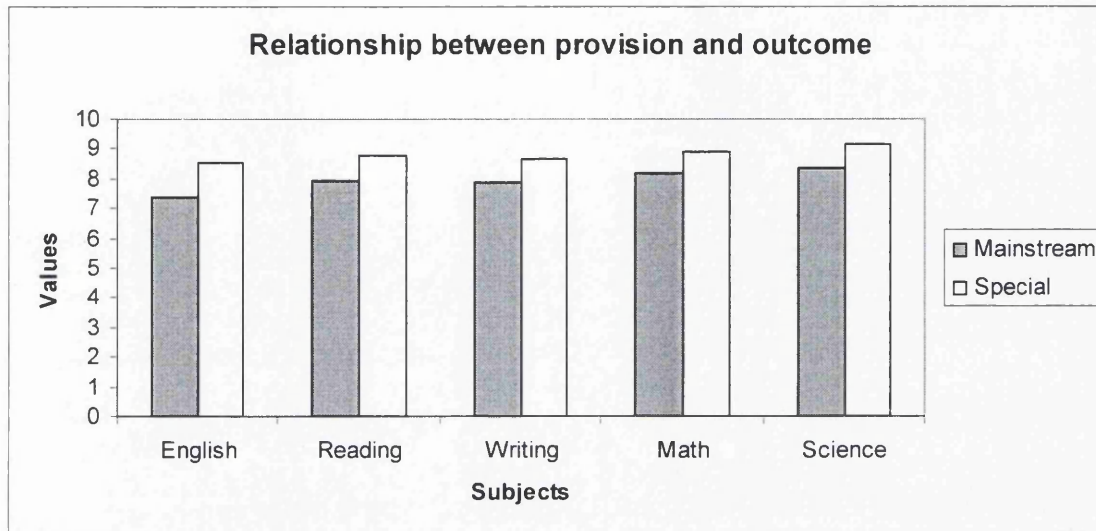
		School Placement (number in brackets)			
		Mainstream	Special	Unit	Home
<b>SLT</b>	Yes	78% (32)	88%(14)	88%(7)	No data
	No	22%(9)	12%(2)	12% (1)	No data
<b>LSA</b>	Mean Hours (1-35)	18	19	19	19
	Percentage receiving	100%	100%	100%	100%
<b>Portage</b>	Yes	8% (6)	8% (2)	33% (4)	0%
	No	92%(65)	91%(21)	66%(8)	100%(2)
<b>Social Skills Training</b>	Yes	27% (19)	35%(8)	42% (5)	0% (0)
	No	73% (52)	65% (15)	58% (7)	100% (2)
<b>SES</b>	(3-48%)	19%	17%	20%	15%

Table 3.7 shows the characteristics of the interventions that each child received in their respective placement. For the purpose of analysis, the children educated at home were removed due to insufficiency of numbers. There was no difference between provisions in terms of whether the child had access to SLT. Children in all provisions had an LSA, and there were no statistically significant differences between the provisions and amount of learning support hours, all  $ps > .05$ . Similarly having had Portage as an early intervention did not have a statistically significant impact on subsequent school placement,  $p > .05$ . However, it is important to note at this stage that the number of children who had Portage in the sample was very small (11% of the sample), therefore, the conclusions from the analysis using Portage need to be taken cautiously. The results also suggest that children across both mainstream and special were getting the same access to Social Skills Training. Finally, there were no statistically significant differences between the provisions in the socio-economic status of the children,  $p > .05$ .



### 3.3.2 Academic Success

**Figure 3.2:** National Curriculum results for children in mainstream versus specialist provision



In order to determine whether the children included in mainstream schools were more, or less, successful academically than those not fully included (i.e. those in special units and special schools), the mean scores for their performance on National Curriculum tests were assessed. Figure 3.2 displays the National Curriculum results for children in mainstream and special provisions (special schools, units, and home tuition). In order for the data on National Curriculum results to be comparable across students, all the levels were recoded so that P-level 1 = 1, P-level 2 = 2, P-level 3 = 3 and so on up to P-level 8 = 8. Then, Level 1 = 9, Level 2 = 10, and so on. It should be noted that there were inconsistencies in the archive data. In some cases, children's National Curriculum results were broken down into sub-categories, for example, 1C, 1B or 1A, and, in other cases, they were not so categorised. Consequently, for the purpose of analysis, the levels were not broken down into sub-categories, and instead only the overall level for each child was used. The results suggest the mean performance level across both mainstream

and special schools is very low (P8), despite the mean age being 12.9 years, which would represent performance at Level 4/5 (or Key Stage 3).

Due to the violation of the assumption of normality (tested by the Kolmogorov-Smirnov statistic), non parametric tests were used to statistically analyse these data. These tests revealed that the children in specialist provision did significantly better statistically in English than those in mainstream provision, Mann Whitney,  $z = 2.26, p < .05$ . The means for the rest of the National Curriculum outcomes were very similar to one another, hence, independent Mann-Whitney tests failed to note any statistically significant differences between the provisions, all  $z$ s  $< 1$ . Obviously, a number of tests were conducted, so caution is needed in interpreting a significance level of  $p < .05$ .

### 3.3.3 Relationship between School Factors and Academic Success

**Table 3.8:** Correlation matrix of predictor and outcome measures in the sample.

<b>Outcome</b> <b>Predictors</b>	<b>Provision</b>	<b>ABC</b>	<b>NC English</b>	<b>NC Reading</b>	<b>NC Writing</b>	<b>NC Science</b>	<b>NC Maths</b>
<b>SES</b>	Mainstream	$K = .12$ <i>NS</i>	$K = .04$ <i>NS</i>	$K = .10$ <i>NS</i>	$K = .14$ <i>NS</i>	$K = .15$ <i>NS</i>	$K = .10$ <i>NS</i>
	Special	$K = .11$ <i>NS</i>	$k = -.02$ <i>NS</i>	$k = .02$ <i>NS</i>	$K = .14$ <i>NS</i>	$K = .15$ <i>NS</i>	$K = .10$ <i>NS</i>
	Combined	$K = .10$ <i>NS</i>	$K = .10$ <i>NS</i>	$K = .06$ <i>NS</i>	$K = .10$ <i>NS</i>	$K = .11$ <i>NS</i>	$K = .10$ <i>NS</i>
<b>LSA hours per week</b>	Mainstream	$K = -.17$ <i>NS</i>	$K = -.30$ $P < .01$	$K = -.27$ $P < .01$	$K = -.29$ $P < .01$	$K = -.32$ $P < .01$	$K = -.28$ $P < .01$
	Special	$K = -.22$ <i>NS</i>	$K = .023$ <i>NS</i>	$K = .08$ <i>NS</i>	$K = .08$ <i>NS</i>	$K = .11$ <i>NS</i>	$K = .06$ <i>NS</i>
	Combined	$K = -.10$ <i>NS</i>	$K = -.16$ $P < .05$	$K = -.12$ <i>NS</i>	$K = -.15$ <i>NS</i>	$K = -.16$ $P < .05$	$K = -.15$ <i>NS</i>

Combined = Mainstream and Special (special school and units) combined together; SLT = speech and language therapy; SES = socio-economic measure (number of free school meals); NC = National Curriculum.

To further determine if any aspects of the provisions that the children had previously received were associated with academic success, a series of correlations, and partial correlations, were performed between the school factors, autistic severity, and outcomes. Due to the abnormality of the data for the National Curriculum results, all correlations were calculated using Kendall's correlations and partial correlations. These results have been broken down for mainstream placements, and special placements (special schools and units), and the results for the sample as a whole, are all reported in Table 3.8. There was no relationship between socio-economic status and autistic severity, or National Curriculum results, across mainstream schools, special schools, or in the sample as a whole. There was

also no statistically significant relationship between SES and outcome when autistic severity was controlled.

There were negative correlations between hours of LSA and performance across the National Curriculum results for children in mainstream: English,  $T = -0.30$ ,  $p < .01$ , Reading,  $T = -0.27$ ,  $p < .01$ , Writing,  $T = -0.29$ ,  $p < .01$ , Science,  $T = -0.32$ ,  $p < .01$ , and Math,  $T = -0.28$ ,  $p < .01$ . There was no relationship between autistic severity and hours of LSA for children in mainstream,  $p > .05$ . A Kendall's partial correlation between LSA and outcome, with autistic severity controlled, revealed several negative correlations for those children in mainstream. There was a negative correlation between hours of LSA and: English,  $T = -0.28$ ,  $p < .005$ , Reading,  $T = -0.25$ ,  $p < .01$ , Writing,  $T = -0.27$ ,  $p < .005$ , Science,  $T = -0.30$ ,  $p < .005$ , and Math,  $T = -0.26$ ,  $p < .01$ . In contrast, the Kendall's correlation or partial correlation revealed that for children in special schools, hours of LSA were not significantly correlated with outcomes or severity. However, when the two groups were combined and analysed using a Kendall's correlation, hours of LSA had a negative impact on outcomes in English,  $T = -0.16$ ,  $p < .05$ , and Science,  $T = -0.16$ ,  $p < .05$ . The partial correlation also found negative correlations between hours of LSA and outcomes in: English,  $T = -0.15$ ,  $p < .05$ , Reading,  $T = -0.12$ ,  $p < .05$ , Writing,  $T = -0.15$ ,  $p < .05$ , Science,  $T = -0.16$ ,  $p < .05$ , and Maths,  $T = -0.16$ ,  $p < .05$ . There were no correlations between hours of LSA and severity across the provisions combined, suggesting that those children who have more hours of LSA are not more severe than those children who have less hours of LSA.

**Figure 3.3:** Relationship between intervention and academic success

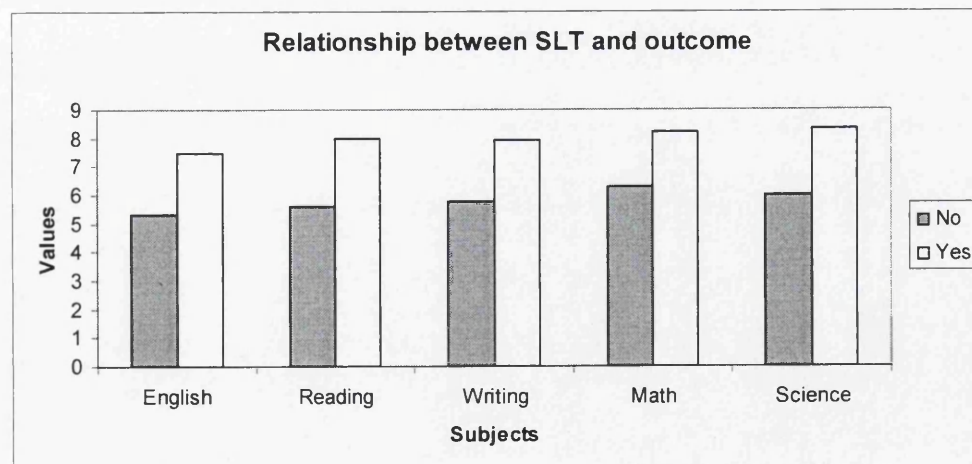
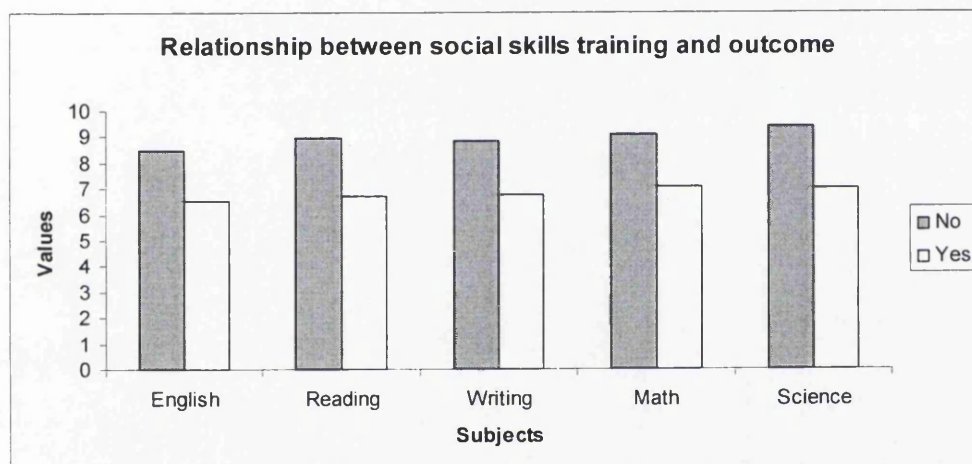
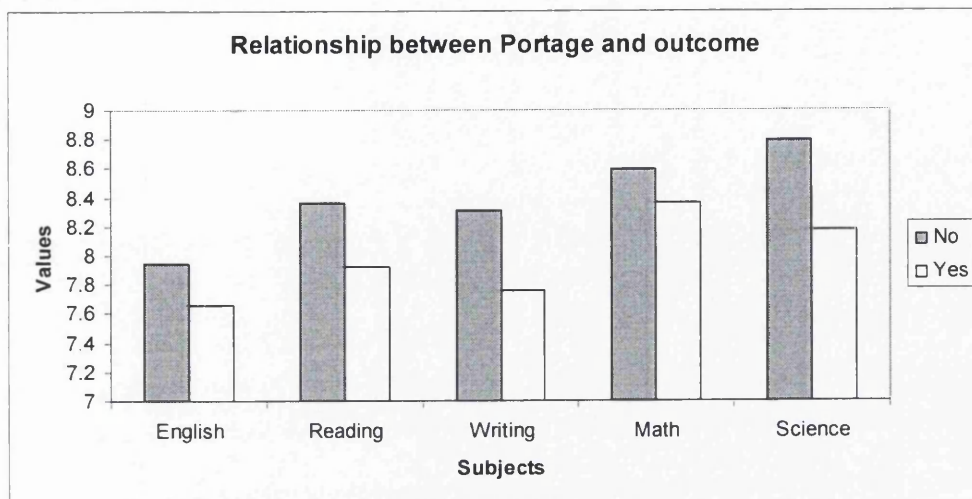


Figure 3.3 displays the mean academic outcomes for children who did, and who did not, have access to Portage, Social Skills Training, and SLT. A Mann-

Whitney test revealed no significant differences between academic outcomes depending on whether a child had had access to Portage,  $p > .10$ . Kendall's correlation between Portage and academic outcomes confirmed this finding: there were no significant correlations between access to Portage and outcomes in mainstream schools, special schools, or combined across the whole sample, suggesting Portage as an intervention does not impact academic performance. There was no significant correlation between autistic severity and Portage,  $p > .10$ , and Kendall's partial correlations between Portage and academic outcomes, with autistic severity controlled, revealed that there were actually negative correlations between access to Portage and outcomes for the mainstream group: English,  $T = -0.21, p < .05$ , Reading,  $T = -0.21, p < .05$ , Writing,  $T = -0.23, p < .05$ , Science,  $T = -0.18, p < .05$ , and Math,  $T = -0.26, p < .01$ . Again, these conclusions need to be taken very cautiously, due to the small number of children who had access to Portage.

A Mann-Whitney analysis displayed significant differences between the outcomes of those children in mainstream accessing Social Skills Training and those who did not have such training. Children who accessed Social Skills Training had statistically significantly lower grades in English,  $z = 2.50, p < .05$ , Reading,  $z = 2.80, p < .01$ , Writing,  $z = 2.42, p < .05$ , Science,  $z = 2.40, p < .05$ , and Maths,  $z = 2.90, p < .01$ . In addition, a Kendall's correlation revealed significant correlations between access to Social Skills Training and poorer outcomes for children in mainstream schools: English,  $T = -0.37, p < .001$ , Reading,  $T = -0.38, p < .001$ , Writing,  $T = -0.34, p < .01$ , Science,  $T = -0.33, p < .01$ , and Maths,  $T = -0.35, p < .001$ . However, there was no statistically significant correlation between Social Skills Training and autistic severity in the mainstream group,  $p > .10$ . This negative



relationship between Social Skills Training and outcomes was not present in children in special schools in both correlations and partial correlations (with autistic severity controlled for), all  $ps > .10$ . Yet, there was no correlation between severity and access to social skills for those children in special school, all  $ps > .10$ .

However, the negative correlation between Social Skills Training and outcome was present when the two groups were combined: English,  $T = -0.21, p < .01$ , Reading,  $T = -0.24, p < .01$ , Writing,  $T = -0.21, p < .01$ , Science,  $T = -0.21, p < .01$ , and Math,  $T = -0.24, p < .01$ . As with the sub-group analyses, there was no correlation between autistic severity and Social Skills Training in the combined group,  $p > .10$ . A partial correlation between Social Skills Training and outcomes, revealed that, even when autistic severity was partialled out, access to Social Skills Training remained negatively correlated with outcomes in: English,  $T = -0.37, p < .001$ , Reading,  $T = -0.38, p < .001$ , Writing,  $T = -0.34, p < .001$ , Science,  $T = -0.33, p < .001$ , and Math,  $T = -0.35, p < .001$ .

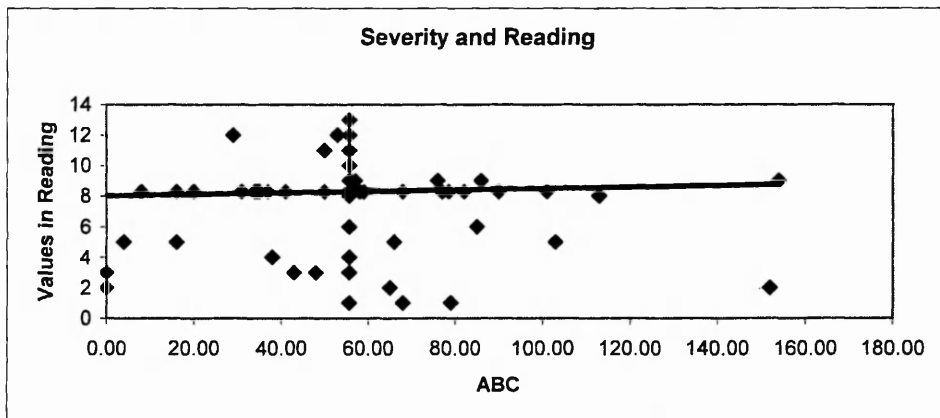
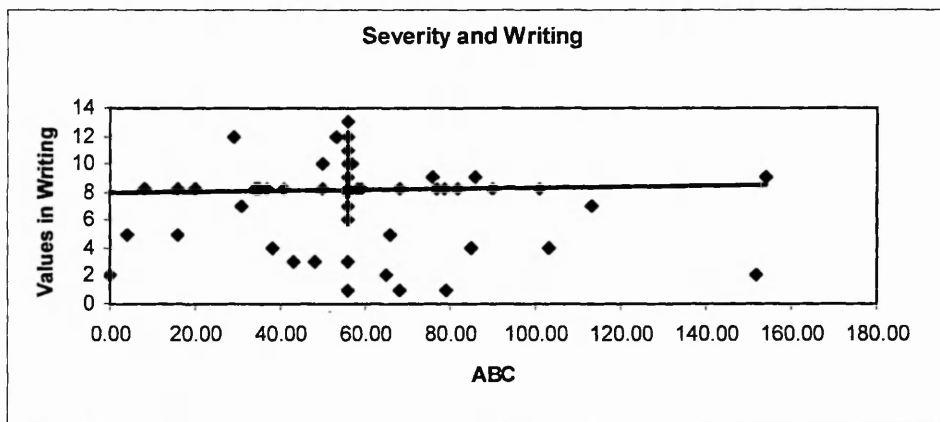
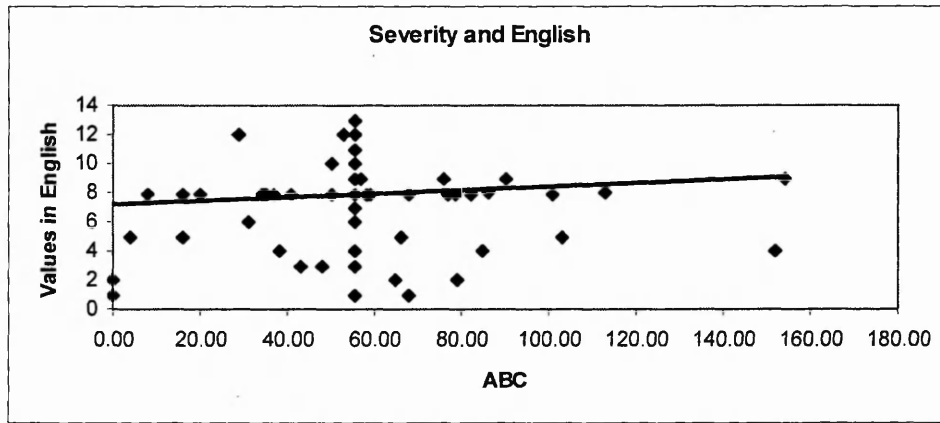
Finally, a Mann-Whitney test revealed that those children who had access to SLT were performing statistically significantly better at English,  $z = 2.84, p < .01$ , Reading,  $z = 2.80, p < .01$ , Writing,  $z = 2.73, p < .01$ , Science,  $z = 2.51, p < .05$ , and Maths,  $z = 2.71, p < .01$ . The positive impact of SLT on outcomes was confirmed by a series of Kendall correlations. When analysed independently, there were no significant correlations between SLT and academic outcomes and there was no statistically significant correlation between severity and access to SLT in the two provisions. However, when the groups were combined, statistically significant correlations emerged. Children in the combined group who had previously accessed SLT did better in English,  $T = 0.32, p < .01$ , Reading,  $T = 0.30, p < .01$ , Writing,  $T = 0.30, p < .01$ , Science,  $T = 0.28, p < .05$ , and Math,  $T = 0.30, p < .01$ ,

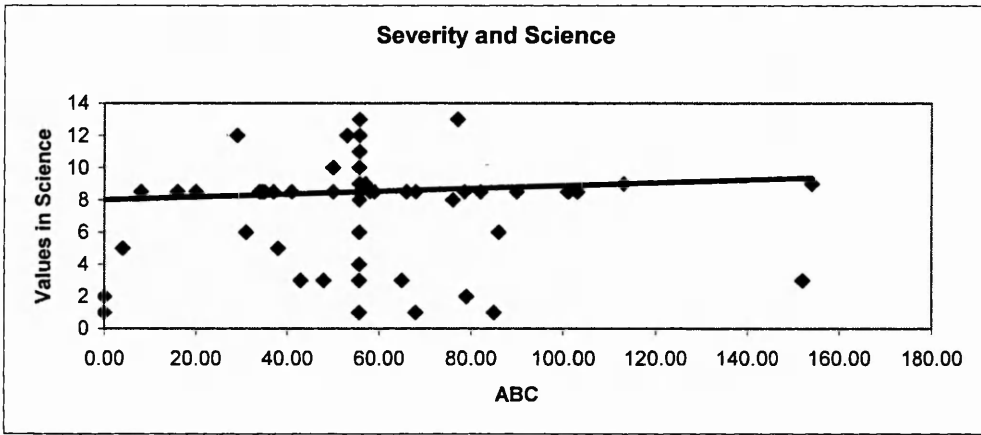
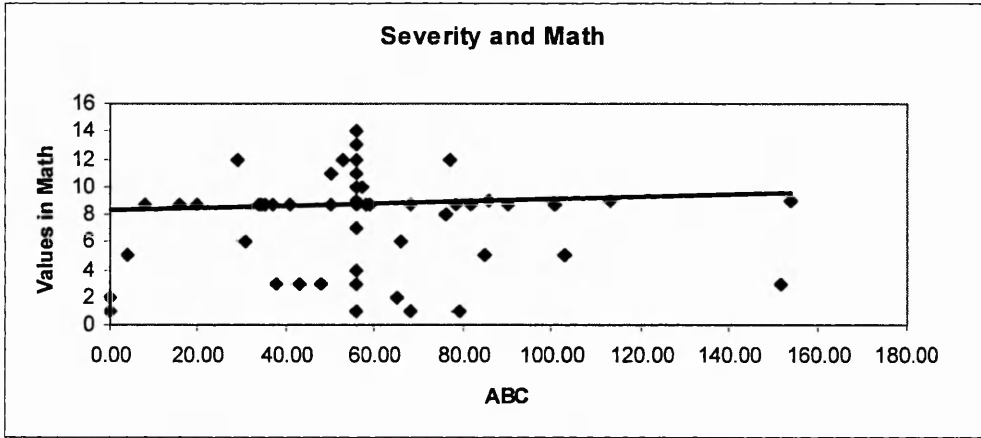
and access to SLT was also statistically significantly correlated with severity,  $T = .28, p < 0.05$ . A partial correlation between access to SLT and outcomes, with autistic severity partialled out, revealed that there were statistically significant correlations between access to SLT and outcomes in: English,  $T = 0.37, p < 0.01$ , Reading,  $T = 0.38, p < 0.01$ , Writing,  $T = 0.38, p < 0.01$ , Science,  $T = 0.34, p < 0.01$ , and Math,  $T = 0.37, p < 0.01$ . When the placements were analysed independently a Kendall's partial correlation (with autistic severity partialled out) revealed that there were statistically significant correlations between access to SLT and outcomes in: Reading,  $T = 0.18, p < .05$ , and Writing,  $T = 0.18, p < .05$ , for those children in mainstream. Whilst, for those children in special school, a partial correlation revealed statistically significant correlations between SLT and outcomes in English,  $T = 0.33, p < .001$ , Reading,  $T = 0.33, p < .001$ , Writing,  $T = 0.32, p < .001$ , Science,  $T = 0.32, p < .001$ , and Math,  $T = 0.32, p < .001$ .



### 3.3.4 Relationship between Autism severity and Academic Success

Figure 3.4: Scatter plots displaying the relationship between severity and National curriculum outcomes





**Table 3.9:** Correlation Matrix of Subscales of the ABC and outcome measures for entire sample

<b>Outcome</b> <b>Subscale</b> <b>ABC</b>	<b>NC</b> <b>English</b>	<b>NC</b> <b>Reading</b>	<b>NC</b> <b>Writing</b>	<b>NC</b> <b>Science</b>	<b>NC</b> <b>Maths</b>
Diagnosis	$k = .02$ NS	$K = .13$ NS	$k = .12$ NS	$k = .09$ NS	$k = .09$ NS
Total Score	$k = -.07$ NS	$K = .00$ NS	$k = .02$ NS	$k = .04$ NS	$k = .04$ NS
Sensory	$k = 0.11$ NS	$K = .05$ NS	$k = .06$ NS	$k = .09$ NS	$k = .08$ NS
Relating	$k = .03$ NS	$K = -.04$ NS	$k = -.05$ NS	$k = -.02$ NS	$k = -.05$ NS
Body and Object use	$k = .14$ NS	$K = .09$ NS	$k = .09$ NS	$k = .14$ NS	$k = .15$ NS
Language	$k = .19$ $P < .05$	$K = .13$ NS	$k = .15$ NS	$k = .18$ $P < .05$	$k = .19$ $P < .05$
Social and Self help skills	$k = .12$ NS	$K = .05$ NS	$k = .07$ NS	$k = .04$ NS	$K = .04$ NS

Figure 3.4 displays the relationship between autistic severity, as measured by the ABC, and academic success, as measured by the National Curriculum outcomes. Across all the National Curriculum subjects the line of best fit is flat, suggesting that there is no relationship between autistic severity and National Curriculum outcomes. The correlations between the total score on the ABC, and its subscales, and National Curriculum success are displayed in Table 3.9. No significant correlations were found between the overall ABC and National Curriculum outcomes. These correlations suggest little direct relationship between autistic severity and outcome.

### 3.3.5 Relationship between Parental Factors and Academic Success

**Table 3.10:** Correlation Matrix of Subscales of the F-COPES and outcome measures for the entire sample

<b>Outcome</b>	<b>NC English</b>	<b>NC Reading</b>	<b>NC Writing</b>	<b>NC Science</b>	<b>NC Maths</b>
<b>F-Copes Subscales</b>					
Total Score	$k=.38$ $p< .001$	$K=.02$ <i>NS</i>	$K=.04$ <i>NS</i>	$K=.04$ <i>NS</i>	$K=.04$ <i>NS</i>
Reframing	$K=.20$ $P< .005$	$K=.14$ $P< .05$	$K=.16$ $P< .05$	$K=.09$ <i>NS</i>	$K=.10$ <i>NS</i>
Passive Appraisal	$K= -.26$ $P< .001$	$K= -.24$ $P< .001$	$K= -.25$ $P< .001$	$K= -.13$ $P< .05$	$K= -.16$ $P< .05$
Acquiring Social Support	$K= -.02$ <i>NS</i>	$K= -.03$ <i>NS</i>	$K= -.03$ <i>NS</i>	$K= -.07$ <i>NS</i>	$K= -.07$ <i>NS</i>
Seeking Spiritual Support	$K=.09$ <i>NS</i>	$K=.08$ <i>NS</i>	$K=.08$ <i>NS</i>	$K=.14$ $P< .05$	$K=.09$ <i>NS</i>
Mobilising Family to Acquire and Accept Help	$K= -.01$ <i>NS</i>	$K= -.05$ <i>NS</i>	$K= -.06$ <i>NS</i>	$K= .01$ <i>NS</i>	$K= .05$ <i>NS</i>

The relationship between parental coping style and the children's academic success was investigated by correlating the subscales of the parenting coping style measure (*F-COPES*) and the child academic outcomes. The resulting Kendall's correlation matrix is displayed in Table 10. The overall parental coping abilities were correlated only with English. However, once the subscales were analysed, more correlations were identified. The subscale of *Positive Reframing* was

positively correlated with English,  $T = .20, p < .005$ , Reading,  $T = .14, p < .05$ , and Writing,  $T = .16, p < .05$ . Whilst the subscale of *Passive Appraisal* was negatively correlated with all of the National Curriculum outcomes: English,  $T = -.26, p < .001$ , Reading,  $T = -.24, p < .001$ , Writing,  $T = -.25, p < .05$ , Science,  $T = -.13, p < .05$ , and Maths,  $T = -.16, p < .05$ . Finally, the subscale of *Seeking Spiritual Support* was significantly correlated with Science,  $T = .14, p < .05$ .

A series of Kendall's partial correlations (with autistic severity partialled out) revealed that the overall parental coping abilities were not significantly correlated with results on the National Curriculum. However, when the subscales were analysed separately, a number of associations were identified through this partial correlational analysis. These relationships involved both *Positive Reframing* and *Passive Appraisal*. The subscale of *Positive Reframing* was positively correlated with performance in English,  $T = 0.18, p < .01$ . The subscale of *Passive Appraisal* was negatively correlated with English,  $T = -0.23, p < .01$ , Reading,  $T = -0.20, p < .05$ , Writing,  $T = -0.21, p < .01$ , and Math,  $T = -0.18, p < .05$ . There were no significant correlations between the subscales of *Seeking Spiritual Support*, and *Mobilising the Family*, and National Curriculum outcomes.

### 3.3.6 Relationship between Autism Severity and Parental Factors

**Table 3.11:** Correlation Matrix of Subscales of the ABC and Subscales of the F-COPES for entire sample

F-COPES Subscales ABC	Total score	Reframing	Passive Appraisal	Acquiring Social Support	Seeking Spiritual Support	Mobilising the Family
Total Score	$k = .03$ NS	$k = .13$ NS	$k = -.15$ NS	$k = .03$ NS	$k = .03$ NS	$k = .03$ NS
Sensory	$k = .09$ NS	$k = .08$ NS	$k = -.17$ $P < .05$	$k = -.04$ NS	$k = .15$ NS	$k = .10$ NS
Relating	$k = -.06$ NS	$k = .04$ NS	$k = -.23$ $P < .01$	$k = -.03$ NS	$k = .20$ $P < .05$	$k = .03$ NS
Body and Object use	$k = .09$ NS	$k = .08$ NS	$k = -.24$ $P < .01$	$k = -.24$ $P < .01$	$k = .08$ NS	$k = -.08$ NS
Language	$k = .14$ NS	$k = .32$ $P < .01$	$k = -.21$ $P < .05$	$k = .10$ NS	$k = -.03$ NS	$k = -.01$ NS
Social and Self help Skills	$k = -.05$ NS	$k = .13$ NS	$k = -.31$ $P < .01$	$k = -.03$ NS	$k = .11$ NS	$k = -.02$ NS

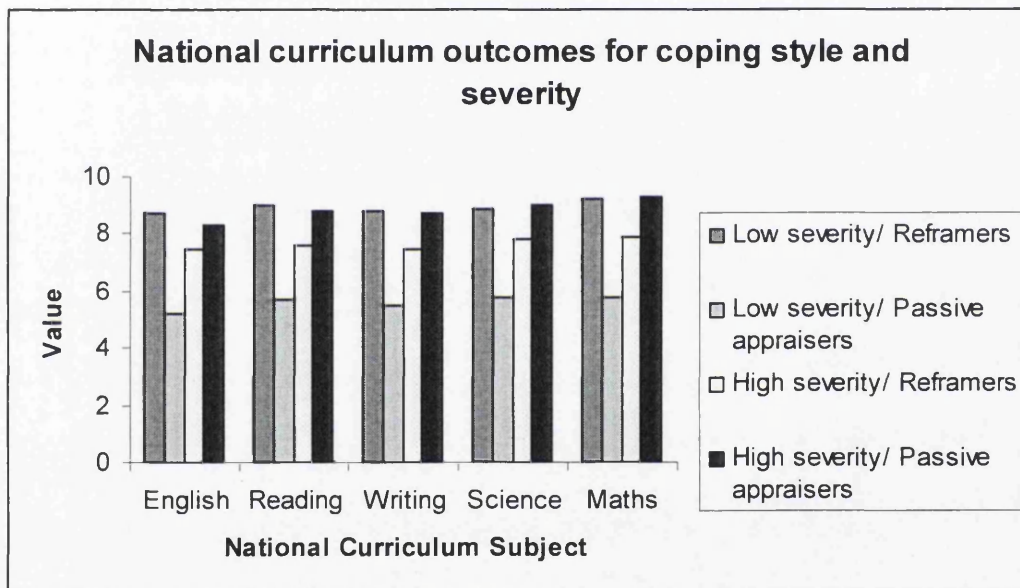
The relationship between autism severity and parental factors was explored by correlating the subscales of the parenting coping style measure (F-COPES) and those of the autistic severity measure (ABC) for the entire group. The full correlation matrix is displayed in Table 3.11, but the two coping factors (*Passive Reappraisal* and *Positive Reframing*) that appeared important in the above section for impact on academic success were the focus of attention. The total score on the F-COPES was not correlated with the total score on the ABC. In addition, the total score on the ABC was not correlated with *Passive Appraisal* or *Positive Reframing*.



However, once the F-COPES and ABC were broken into subscales, significant correlations emerged. The *Sensory*,  $T = -.17, p < .05$ , *Relating*,  $T = -.23, p < .01$ , *Body and Object Use*,  $T = -.24, p < .01$ , *Language*,  $T = -.21, p < .05$ , and *Social and Self Help Skills*,  $T = -.31, p < .01$ , subscales of the ABC were all negatively correlated with *Passive Appraisal*. In contrast, the *Language* subscale was positively correlated with *Reframing*,  $T = .32, p < .01$ .

### 3.3.7 Relationship between Autism Severity, Parental Factors and Outcome

**Figure 3.5:** National Curriculum outcomes for coping style and severity



Although autistic severity was not correlated with outcomes, parental coping factors are correlated with outcomes, and autistic severity is correlated with parental coping factors. Therefore, the interaction between parental coping factors and autistic severity may mediate the impact on outcomes. To explore this possibility further, the sample was divided into high and low autistic severity children. Those children who scored at, or above, the mean ABC score for the sample were classified as 'high severity', and those who were below were classified as 'low

severity'. The parents were then classified depending on whether *Passive Appraisal* or *Positive Reframing* was their dominant coping strategy. This was achieved by calculating the percentage of times that each parent used *Passive Appraisal* and *Positive Reframing* strategies. Dependent on which coping strategy they engaged in the most often, the parents were classified either as 'Appraisers' or 'Reframers'. If the ratio of *Passive Appraisal* to *Positive Reframing* was 50:50, the parent was removed from the analysis. Using this criterion, a total of four parents were removed from the analysis. This created four groups: Low-Reframers, High-Reframers, Low-Appraisers, and High-Appraisers. The impact of these four groups on the five academic outcomes are displayed in Figure 3.5. Inspection of these data clearly shows that *Positive Reframing*, when the child has low autistic severity, is associated with better academic outcomes than *Passive Appraisal*. However, *Passive Appraisal*, when the child is more severely autistic, is associated with better academic outcomes than *Positive Reframing*.

A series of ANOVAs revealed statistically significant interactions between coping style and severity for all outcomes, smallest,  $F(1,100) = 7.30, p < .01$ . A series of simple effects were used to identify at which level of severity (low or high) were there differences in outcomes between the children of 'Appraisers' and 'Reframers'. The simple effects revealed that low severity children of parents who engage primarily in *Positive Reframing* had statistically significantly better outcomes in all National Curriculum results: English,  $F(1,100) = 7.60, p < .01$ , Reading,  $F(1,100) = 6.99, p < .05$ , Writing,  $F(1,100) = 6.51, p < .05$ , Science,  $F(1,100) = 5.40, p < .05$ , and Maths,  $F(1,100) = 6.10, p < .05$ , than low severity children whose parents engage in *Passive Appraisal*. Whilst, with the more severe child, *Passive Appraisal* by the parent lead to statistically significantly better



outcomes than *Positive Reframing* in Maths,  $F(1,100) = 36.81, p < .001$ . These results suggest that the impact of the severity on outcomes may be moderated by the coping skills adopted by the parent.

### 3.4 Discussion

The recent governmental policies that encourage inclusion, and the apparent increase in the numbers of children with ASC, make investigating the success of inclusion an important area for research and practice. The current study was concerned with identifying whether children with ASC in mainstream do better academically than those in specialist provision, and what factors were involved in mediating the outcome. The results suggest that children in mainstream are not more successful than those in specialist provisions, but, instead, a range of alternative factors are involved in promoting success.

The data suggests a pattern of practice that is not in accordance with the 'green paper' (DfEE, 1997), in that children with ASC were just as likely to be placed in special school as in a mainstream school, but that practice varied across local authorities. However, there were significant differences in the severity of ASC across the school placements. Those children in special school had more severe ASC, and had poorer social relating, and social skills, than those children placed in mainstream schools. This suggests that children are being placed in the different provisions as a function of their ASC severity, and particularly because of poor social skills and abilities to relate to their environment. There were no differences in the SES of the children and their placement. However, the measure used in the study for SES was free school meals, and it must be noted that the data

accounted for those children who were choosing to take FSM, and not for the number of children who have a right to choose free school meals.

There were no differences in the access to interventions between the different school provisions in terms of Social Skills Training, SLT, and LSA support. Unfortunately the archive data was incomplete, and it was not possible to gather information regarding the amount of support each child was getting, to see whether there were any differences between provision and hours of SLT or Social Skills Training. In terms of access to Portage, the results found that having undergone Portage did not have an impact on subsequent placement. However, the sample of children who had Portage was very small (only 11% of the entire sample), therefore, any conclusions on the impact of Portage need to be taken with caution.

The academic performance of children in mainstream and specialist provision was analysed in order to identify whether included children were more or less successful than those not fully included (i.e. those in special units or special schools). In fact, children in special school performed better in English than those in mainstream, yet there were no further differences in the academic performance across the provisions, suggesting that inclusion in itself does not have a significant impact on academic success. However, it must be noted that by grouping all children into National Curriculum levels, and not including the sub-levels of A, B, and C, some variability in the data will have been lost. This was a function of the different methods of recording performance in each of the archives. If this form of archival analyses were to be adopted as an efficient means of research in this area, archive data will need to include a more consistent method of recording academic results.

The impact of school factors and interventions on National Curriculum results also were analysed. The results were broken down into the different provisions to see if they had a moderating effect on the impact of school factors on academic success. Socio-economic status, as measured by the percentage of free school meals in their respective schools, was not correlated with National Curriculum outcomes across any of the provisions. Hours of access to LSA were negatively correlated with academic outcomes for those children placed in mainstream schools. It is worth noting that children with more hours of LSA were not more severely autistic than those who had less hours of LSA. Criticisms have been raised regarding the use of LSA support. Ainscow (2000) suggests that having an LSA can create a barrier between students and their classmates, and can stall pupil's progress by consistently decreasing the challenges of the work in the classroom. Ainscow (2000) also raises the concern that having an LSA means that the teacher is less involved with the student. This in turn may mean that the child with SEN is benefiting less of their teacher's expertise than other pupils in the class. In addition, the differentiation process may indirectly affect the impact of the LSA on performance. Tasks are often differentiated in mainstream classrooms to accommodate the range of needs and abilities of the pupils. The problem with differentiation is that it can also lower the expectations on the child (Ainscow, 2000), which may in turn lead to lower outcomes. In order to identify whether teaching targets have an impact on outcomes, children's targets would need to be identified and assessed in conjunction with their abilities, in order to identify whether children are underperforming. The impact of LSA may not be the same in a special school classroom as the ratio of teacher to pupil is much lower. Therefore, the child with the LSA may be more involved with the class teacher and the class

pupils. The current finding also supports the Ofsted (2006) report that found that children who had access to specialist teachers made greater academic progress than those pupils who worked with other supports including LSA.

Those children who attended Social Skills Training in mainstream schools did worse across the National Curriculum subjects than those who did not attend Social Skills groups, even when ASC severity was controlled. However, this effect was not present for those children who were in special schools. In addition, the results did not suggest a difference in ASC severity between those children in mainstream school who were attending Social Skills Training and those who were not attending such training. Of course, children who attended Social Skills Training may have difficulties in communication and language other than those measured by the ABC; therefore, it follows that these children would perform worse than those that were not in need of Social Skills Training. Only a retrospective analysis would be able to establish whether having undergone Social Skills training lead to better outcomes.

In contrast to LSA and Social Skills Training, access to SLT was significantly correlated with improved academic success across all of the subjects for those children in special school provision (even with ASC severity controlled). Only a retrospective study would be able to identify whether the SLT lead to improved language skills, or whether only those children who had better language skills had access to SLT. The latter suggestion is less likely given that there were no differences in access to SLT across the different provisions, and there were no differences in autistic severity (including language skills) between the provisions. Communication interventions can also lead to decreased challenging behaviours, when individuals with ASC are taught specific language skills which serve the same

communicative function as the challenging behaviour (Carr & Durrand, 1985). When children with ASC are taught effective strategies to manage their challenging behaviour, there is a significant reduction in these challenging behaviours (Carr & Durrand, 1985; Durrand & Carr, 1987; 1992). The decrease of inappropriate behaviours in children with ASC may affect their academic achievement, as it does with children with challenging behaviour (Luiselli, Putnam, Handler, & Feiberg, 2005). Therefore improving communication, through the use of SLT, may indirectly improve academic performance as a result of the decrease in challenging behaviours. In addition, SLT may improve social competence by targeting reciprocal interactions and peer initiations (McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992), and social behaviour (Goldstein, Kaczmarek, Pennington, & Shafer, 1992). This may lead to improved academic outcomes as research suggests that children lacking social competence go on to develop a number of negative academic outcomes (Kupersmidt & DeRosier, 2004). Finally, improved communication may also make the curriculum more accessible to children with ASC, since verbal explanations of the materials, often used in mainstream, may be difficult to understand for a child with language difficulties (Mesibov & Shea, 1996). In order to identify how SLT works best, future investigations will need to identify specific nature of treatment and the effects of intensity on outcomes.

The current study did not find that autistic severity had an impact on National Curriculum outcomes. The reason why no correlations between autistic severity and outcomes were identified may be because children across all provisions in the current study were performing at very low levels overall on the National Curriculum, performing significantly below the average level.

When exploring the relationship between parental coping and academic success, certain parental coping strategies were found to be significantly correlated with better outcomes in the children. The use of *Positive Reframing* as a coping style lead to better outcomes in several areas of academic performance. Similarly, engaging in lower levels of *Passive Appraisal*, also lead to improved outcomes. As expected, autistic severity was linked to parental coping, and there was an interaction between coping strategies and autistic severity on child outcomes. With a child with lower levels of autistic severity, engaging in *Positive Reframing* lead to improved outcomes on the National Curriculum. However, in the case of the more severe child, parents engaging in more *Passive Appraisal* coping lead to better outcomes in Maths. Therefore, it is important to understand the moderating impact of severity on the influence of coping styles on outcomes. Hastings and Johnson (2001) found that parents of more severe children had high levels of pessimism. However, if these parents engaged in *Passive Appraisal* as a coping strategy, this moderated the impact of severity on pessimism. *Passive Appraisal* is defined as “minimization of response to problematic issues” (McCubbin et al., 1987, p. 11). It may be, therefore, that through engaging in *Passive Appraisal*, parents are overcoming denial, and are adapting to the child, instead of trying to change the child. In turn, this may be having a positive impact on the child.

Given the current findings, in order to help children with ASC succeed in mainstream placement, it may be important to mediate the parental stress and coping strategies with professional aid, used at targeting the ability to reframe events in a more positive light, and help parents engage actively in response to problems arising due to their child’s condition. However, an element of acceptance of the child’s difficulties and an adaptation to the child as they are may also be

important. Furthermore, Blackledge (2005) found that using an intervention which focused on promoting acceptance of the child and the situation, led to a decrease in parental depression and anxiety.

Although the results of the present study suggest that children in mainstream are not more successful than those in specialist provisions, there are limitations that need to be mentioned. The main limitation to the study was inconsistencies in the archive material. Additionally, as with all secondary data analysis, one cannot be sure of the quality of the data. The validity of these findings would have been strengthened if more primary data had been obtained. Nevertheless, it was one of the purposes of this study to use extant data to establish an evidence based practice which could be used in the future for accountability. Additionally, the use of secondary data analysis in this case has led to more representative data, and generalisation potential, than findings obtained from primary research programmes, due to the number of children and boroughs involved. In order for evidence-based practice to be incorporated into LEAs, archives need to include up to date information on the children as well as National Curriculum results, and educational psychologist reports and assessments. It would also be important to have consistent educational measures for the children within and across boroughs to help assess progress and accountability of placement. Furthermore, evidence from tribunals suggests that LEAs are more likely to win tribunals if they can show that they have used evidence based methods and have effective child outcome data (Yell & Drasgow, 2000), suggesting that improving the archives will also improve the chances of winning tribunals.

With the addition of questionnaires to the archive data, the current study found that the academic success of a child is not dependent solely on school

placement. Instead, interventions such as SLT may help academic success.

Parental factors, such as their coping strategies, also play a very important part in the child's outcomes. The parent who is engaging in *Passive Appraisal* will have a child who is more likely to have poorer grades (unless the child is particularly severely autistic). Therefore, it would be very important to make sure that parents have sufficient support in dealing with the stresses of having a child with ASC, particularly with the more severe cases. The LA should combine forces with the health sector to find ways to give parents ongoing help and counselling if the child is to succeed in school.



**4 A COMPARATIVE STUDY OF MAINSTREAM AND SPECIAL  
SCHOOL PROVISION FOR CHILDREN WITH ASC**

#### 4.1 Introduction

As previously discussed empirical evidence on whether inclusion is the most effective education for children with ASC/SEN is inconclusive and evidence specifically relating to children with ASC is very scarce (see Section 1.4.1). Most of these overviews fail to provide clear evidence for the benefits of inclusion. Moreover, in many instances the results were not statistically analyzed and few had baseline measures against which to measure change over the placement.

Chapter 3 sought to identify, through the use of primary and archival secondary data, whether children with ASC benefit more academically from mainstream schools than special schools. The findings suggest that children do not necessarily benefit more academically from mainstream. Instead, there are alternative factors, such as SLT and parental coping strategies, which are having a greater impact on academic outcomes than placement. One of the aims of Chapter 3 was to establish evidence-based practice using the archives. However, due to the nature of the archives, one of the limitations of the study was the lack of baseline measures. Baseline measures help control for the abilities at the start of the study, in a way that retrospective archive work finds difficult. Where possible, in order to get a better understanding of the impact of placements on outcomes, baseline and follow up measures are important.

It has been argued that social behaviour rather than academic outcomes may be the domain with the greatest potential to benefit from inclusive settings (see Harris & Handleman, 1997 and Section 1.4.1 for a summary of the research). However, many of these studies do not employ baseline and follow-up measures. Without a baseline measure it is very difficult to identify whether improvements are due to the provisions or whether the differences in performance were present before

they were placed in the schools. In addition, there are concerns regarding the differences in practice between programmes which are involved in the research and those that are available in the community, limiting the ecological validity of any findings (Brown & Odom, 2000). Therefore, more research seems warranted into whether inclusion indeed leads to improvements in socialisation, which is one of the arguments for inclusion (see Boutot & Bryant, 2005).

The relative lack of substantial evidence for the social and educational gains anticipated by the proponents of inclusion, have allowed critics of inclusion to argue that the movement of children into mainstream schools has been driven primarily by ideological arguments. In addition, contrary to suggestions made in the Warnock report (1978), at least in the U.K., there is increasing evidence supporting the notion that children with ASC and other special needs may benefit more from specialist education (see Section 1.4.2 for a discussion of the evidence).

To summarise, the research on the benefits of including a child with ASC in mainstream is not conclusive and tends to suggest that the process may not be as beneficial overall as is often suggested by its political proponents. In addition, Chapter 3 suggests that there is little evidence of academic benefits from inclusion. Given this state of affairs, and the ambiguous messages currently being expressed by many governments (e.g., DfES, 2001; SEN Code of Practice, which argues for inclusion “wherever possible”, and IDEA Least Restrictive Environment, which argues for inclusion “where appropriate”), it is important to establish whether there are any social, behavioural or educational benefits in including a child with ASC in a mainstream school. An evidence base is needed in order to frame and inform the policy and practice in this area.

The current study aimed to compare the progress in social and adaptive behaviour of children with ASC placed in mainstream schools with the progress of children with ASC placed in special schools. To this end, the children were followed over approximately one year in each setting. This longitudinal design was adopted to allow the initial level of ability of the children to be assessed, and the re-assessment at follow-up could identify any improvements due to the placement. The gain scores are important to examine as it is not unlikely that children in the two placements may differ at baseline. Despite governmental inclusive policies, and variations in policy across authorities, Chapter 3 noted that children with greater severity of ASC are more likely to be placed in special provision, assessment of baseline ability will both allow this to be documented, and allow any such differences to be controlled when assessing gain.

This represents the first study of the effectiveness of a mainstream placement against a special school placement for children with ASC employing baseline and follow-up assessments using standardized measures of social and adaptive behaviours. The latter measures were taken as the main point of focus as it is often argued that the main benefit of including children with ASC is the potential for social gains through modelling from their normal developing peers (see Boutot & Bryant, 2005 and Section 1.3.1. for a discussion of social arguments for inclusion). Moreover, where evidence regarding the effectiveness of inclusive education for children with ASC exists, it is in this domain. In addition, this is the first study to use multiple settings in both mainstream and special school, which will result in better generalization of results, and greater external validity.

## 4.2 Method

### 4.2.1 Participants

**Table 4.1:** Descriptive statistics of selected variables for the sub groups.

Sample	N	Variables	Minimum	Maximum	Mean	SD
Mainstream Group	27	Age (years)	4.3	15.0	8.0	2.9
		Autistic severity (AQ)	45.0	112.0	80.7	16.1
		Stereotyped Behaviour	0.0	11.0	5.6	2.7
		Communication	0.0	13.0	6.9	3.0
		Social Interaction	2.0	14.0	6.4	2.8
		Developmental	0.0	25.0	10.4	4.1
		VLD Composite Adaptive Behaviour	23.0	112.0	65.3	22.7
		MSSQ overall Score	17.0	48.0	27.0	6.5
		SDQ overall Score	6.0	37.0	15.9	16.0

Sample	N	Variables	Minimum	Maximum	Mean	SD
High Severity Special Group	35	Age (years)	5.1	17.2	8.9	2.6
		Autistic severity (AQ)	89.0	150.0	99.0	12.6
		Stereotyped Behaviour	4.0	17.0	9.2	2.5
		Communication	6.0	17.0	10.2	2.1
		Social Interaction	4.0	18.0	8.9	2.5
		Developmental	7.0	11.0	9.1	0.7
		VLD Composite Adaptive Behaviour	20.0	135.0	38.2	22.1
		MSSQ overall Score	18.0	48.0	36.3	6.5
		SDQ overall Score	6.0	30.0	18.1	5.1
Low Severity Special Group	21	Age (years)	5.7	12.0	8.1	1.6
		Autistic severity (AQ)	58.0	87.0	76.6	8.4
		Stereotyped Behaviour	1.0	10.0	6.1	2.6
		Communication	5.0	10.0	7.9	1.9
		Social Interaction	3.0	11.0	6.2	2.1
		Developmental	4.0	12.0	8.6	1.6
		VLD Composite Adaptive Behaviour	20.0	104.0	49.9	21.9
		MSSQ overall Score	17.0	48.0	34.3	7.3
		SDQ overall Score	11.0	27.0	18.8	4.7

The participants had to have a diagnosis of ASC made by an independent paediatrician prior to their inclusion in the study. They had to be currently either attending a mainstream school or a special school, and had to be in full-time provision. A total of 83 children diagnosed with ASC took part in the study (no parents who were approached refused to take part in the study, and there was one participant recruited who dropped out during the study). There were 74 boys, and 9 girls, with ages ranging from 4.3 years to 17.2 years (mean = 8.4 years, SD = 2.5). The mean autistic severity of the children as measured by the Gillian Autism Rating Scale (GARS) was 87.4 (SD = 16.4). This is indicative of below average autistic severity (the GARS has a standardized mean of autistic severity as 100, SD = 15).

There were 27 children attending mainstream provision, and 56 children were attending a special school. In Chapter 3 severity of ASC had an impact on educational outcomes. Given that severity tends to be higher in special, rather than in mainstream schools, the current sample was broken down into 3 groups: mainstream, high ASC severity special school, and low ASC severity special school. This latter group was hoped to match the mainstream group in terms of ASC severity. Table 4.1 displays the means and standard deviations for these three samples.

The three groups of participants were of moderate to low autistic severity. As expected, the high severity group had the highest severity followed by the mainstream and the low severity special school group. An analysis of variance (ANOVA) conducted on the ages of the groups, revealed no statistically significant difference between the groups,  $F < 1$ . However, an ANOVA conducted on the severity of these groups, revealed that there was a statistically significant difference in severity between the groups,  $F(2,80) = 24.70, p < .001$ . Subsequent Tukey's

HSD tests revealed that children in high severity special group were statistically significantly more severe than the mainstream children, and were also more severe than the low severity group, both  $ps < .05$ . Critically, however, there were no statistically significant differences in severity between the mainstream children and the low severity special group,  $p > .05$ .

When inspecting the subscales of the Gilliam Autism Rating Scale, the high severity special group had the highest scores in all the subscales but the *Developmental* subscale. Surprisingly, the mainstream group had the highest score on the *Developmental* subscale. The low severity and the mainstream group had very similar scores on the subscales of *Stereotyped Behaviour* and *Social Interaction*. However, on the subscale of *Communication*, the low severity group had a greater score than the mainstream group. A MANOVA conducted on the performance on the subscales of the Gilliam Autism Rating Scale revealed a main effect of groups,  $F(8, 156) = 6.64, p < .001$ . A series of separate ANOVA's conducted on the subscales revealed that there were statistically significant differences between the groups on performance in *Stereotyped Behaviour*,  $F(2, 80) = 16.88, p < .001$ , *Communication*,  $F(2, 80) = 15.79, p < 0.001$ , *Social Interaction*,  $F(2, 80) = 10.54, p < .001$ , and *Developmental*,  $F(2, 80) = 3.26, p < .05$ .

Subsequent Tukey's HSD tests revealed that the high severity special school group had statistically significantly higher performance on the Gilliam Autism Rating Scale subscale of *Stereotyped Behaviour* than the mainstream group,  $p < .05$ .

However, there were no differences between the high and low severity special school groups, or between the mainstream and low severity special school group,  $p > .05$ . A series of Tukey's comparing performance on the *Communication* subscale of the Gilliam Autism Rating Scale, revealed that the high severity special school



group had statistically significantly greater scores on this subscale than the mainstream group and the low severity special school group, suggesting that the high severity group had more communicative problems than both the other groups, both  $ps < .05$ . A series of Tukey's HSD comparing performance on the Gilliam Autism Rating Scale subscale of *Social Interaction* revealed that the high severity group had statistically significantly greater deficits in this subscale than the mainstream or the low severity group, both  $ps < .05$ . Finally, a series of Tukey's HSD revealed that the mainstream group had statistically significantly greater scores on the *Developmental* subscale of the Gilliam Autism Rating Scale than the low severity group. However, there were no differences between the mainstream and the high severity group or the low and high severity groups.

Children in mainstream provision had the highest mean score on the *VLD Composite Adaptive Behaviour* measure, although this is still well below the normed average score ( $M = 100$ ). As expected, children in the high severity special school group had the lowest score on the VLD composite measure. There was less variability between the groups in performance on the overall Mainstreaming Social Skills Questionnaire score than there was for *VLD Composite Adaptive Behaviour* score. A lower score on the Mainstreaming Social Skills Questionnaire suggests better mainstreaming social skills. As expected, children in the mainstream group had the best overall score in the Mainstreaming Social Skills Questionnaire and the high severity special group had the poorest score. However, the difference between the low and high severity groups was slight. Finally, children in the mainstream group had the lowest performance on the overall Strengths and Difficulties Questionnaire, suggesting less aberrant behaviour than children in special school. Children in the high severity group had the highest score, however the difference

between high and low severity, as with the overall Mainstreaming Social Skills Questionnaire, score was small.

#### 4.2.2 School Provision

**Table 4.2:** Descriptive Statistics for UK Schools

Placement	N	Average Pupils on Roll (SD)	Average % Eligible for FSM (SD)	Average Students per qualified teacher (SD)	Average Students per class (SD)	Average % children with statement (SD)
Mainstream	7	527.1 (521.3)	21.2 (17.9)	21.1 (5.1)	24.5 (5.1)	2.4 (1.4)
Special	6	75.7 (41.0)	12.9 (16.4)	5.5 (0.9)	8.5 (0.6)	96.7 (5.8)

##### *Mainstream School Placements*

Eleven mainstream schools took part in the study. Seven of these schools were in the U.K., three of these were in Ireland, and one was in the U.S.A. In addition, there were 11 special schools that took part in the study: six in the U.K., four in Ireland, and one in the U.S.A. Table 4.2 displays the descriptives for the UK schools. The UK mainstream schools which took part in the study were all of a similar size to one another, except for one school which was a secondary school and therefore much greater than the rest (Smallest = 221, Largest = 1690, mean = 527.1, SD = 521.3). Four of the schools were primary schools, and the age range of children attending these schools was 3 to 11 year olds. One school was an infant school where the age range was 3 to 7 years old. There was also a middle school where the age range was 8 to 12 year olds. Finally there was a secondary school where the age range was 12 to 18 years old.

The mainstream schools in the study had a comparable number of students with statements attending their school, with a mean percentage of 2.4 (SD = 1.4) children with statements of special needs. The schools had a similar number of pupils per class and were of moderate size (Smallest = 23.5, Largest = 25.5, mean = 24.5, SD = 5.1) and had a similar proportion of students per qualified teacher (Smallest = 17.5, Largest = 24.7, mean = 21.1, SD = 5.1). Finally, the socio-economic demographic of the school was identified by the percentage of children eligible for free school meals. There was some variability between the schools in the percentage of children eligible for free school meals (Smallest = 1.2%, Largest = 49.5%, mean = 21.2%, SD = 17.9).

The classes in mainstream are taught by a qualified teacher. Each class has at least one educational support staff member, who supports the teacher and those students that may need more help. All curriculum practices have been approved by the Ofsted reports (U.K. government inspection reports given regularly to all schools). Mainstream schools are composed of primarily typically developing children. Children attend the placements daily, and would typically commence the school day with carpet time and registration. In the case of secondary schools, students would instead have registration and would later go to their first lesson. In primary and infant schools, carpet time would be used to introduce the topic and answer any questions. Then children would go into small groups of 8-10 to carry out their tasks. The teacher would then supervise the children's activities with the support of the teaching assistant.

It is important to note that mainstream schools are not homogenous. They vary greatly in their social mix, levels of achievement and behavioural ethos

(Ofsted, 2005). Therefore, there are considerable difficulties in defining practice in mainstream schools (Pirrie, Head & Brna, 2006).

### *Special School Placements.*

The UK special schools in the study are presented in Table 2. There were comparable numbers of low and high autistic severity participants in each of these special schools. As expected, the special schools had a smaller number of pupils on the roll than the mainstream schools (Smallest = 22, Largest = 120,  $M = 75.7$ ,  $SD = 41.0$ ). As expected there were very high numbers of students with statements in the special schools (Smallest = 90%, Largest = 100%, mean = 96.7%,  $SD = 5.8$ ), and in those cases where there were children without statements, most of them were awaiting statements. The number of pupils per class was very similar across schools (Smallest = 8.0, Largest = 9.0, mean = 8.5,  $SD = 0.6$ ) and had like numbers of pupils per qualified teacher (Smallest = 5.0, Largest = 6.6, mean = 5.5,  $SD = 0.9$ ). As with the mainstream schools, the socio-economic status of the schools was calculated using the percentage of children eligible for free school meals. And as with the mainstream schools there was some variation between the schools on the percentage of children eligible for free school meals (Smallest = 0%, Largest = 36%, mean 12.9%,  $SD = 16.4$ ).

In special schools, each class was under the supervision of a teacher with postgraduate qualifications in teaching, and specialist training in special educational needs. As with mainstream, all curriculum and practices had been approved by Ofsted reports. In addition to the teacher, each class had two or three learning support assistants, who would help work with the children in small groups. Thus,

most teaching was conducted in small groups rather than individually (about four times as much group work as individual work).

The children attended the school daily. Typically, a session would start and end with 8-10 children in a group with the teacher at the front. The teacher usually guided a song, or other introduction, and the children were encouraged to turn take in answering their names or responding, often involving doing an individual activity (e.g., picking up name card, shaking an instrument etc.), whilst the others were encouraged to respond and comment. Much of the schools environment and many of the tasks given to the children are presented in a highly structured method as outlined by the TEACCH methodology (Mesibov et al. 1994).

#### **4.2.3 Measures**

*The Gilliam Autism Rating Scale* (GARS; Gilliam, 1995) was used to measure autistic severity. The GARS is a 44-item checklist with 4 sub-scales: *Behaviour, Communication, Social Interaction, and Developmental Disturbances*. For individuals who do not talk, sign or use any form of communication the subscale of *Communication* is not administered. The items are based on the diagnostic definitions from the DSM-IV (APA, 1994). The sum of the sub-scale scores can be converted into an Autism Quotient, which is a standard score that has a mean of 100, and a standard deviation of 15: 100 represents average autistic severity.

*The Vineland Adaptive Behaviour Scale* (VLD; Sparrow, Balla & Cicchetti, 1984) was used to assess personal and social sufficiency. It is a 297 – item checklist, consisting of three adaptive behaviour domains: *Communication, Daily Living Skills, and Socialization*. The *Communication* subscale measures what the

child understands, says and what the child can read and write. The *Daily Living Skill* identifies how the child eats, dresses, and practices personal hygiene, what household tasks they perform and how the child uses time, money, the telephone, and job skills. Finally, the subscale of *Socialisation* classifies how the child interacts with others, how they play and use leisure time and how the child demonstrates responsibility and sensitivity to others.

For each of the domains an adaptive level, and age equivalent, is calculated by converting the raw scores into standardized scores. A *Composite Adaptive Behaviour* score can be derived by adding the sum of the standard scores for each of the subscales ( $M = 100$ ;  $SD = 15$ ). The internal reliability of the *Composite Adaptive Behaviour* is 0.93 (Sparrow et al. 1984). The VLD was used by Charman et al. (2004) to measure progress made by pupils with ASC in special schools and units which specialized in ASC. Reports were positive suggesting that children made significant improvements.

*Mainstreaming Social Skills Questionnaire* (MSSQ; Salend & Lutz, 1984). The MSSQ was used to obtain performance on the social skills considered necessary for successful performance in mainstream schools. It has 16 questions which are broken down into three subscales; *Displays Proper Work Habits*, *Interacts Positively with Other Peers* and *Obeys Class Rules*. The subscale of *Displays Proper Work Habits* identifies whether the child is able to work well in class and follow instructions given by the teacher. The subscale of *Interacts Positively with Other Peers* classifies how a child relates to his peers, whether he/she is able to make friends and respect other people's property. Finally the subscale of *Obeys Class Rules* identifies whether a child follows the rules of the

classroom and doesn't speak when others are talking, refrains from swearing and tells the truth.

The teacher or parent is asked to rate each of the statements as they apply to the child's performance as "satisfactory", "somewhat satisfactory" or "not satisfactory". For each of the subscales, the higher the score, the poorer the performance. Salend and Lutz (1984) used the MSSQ to identify whether there was a difference in what teachers in special school and mainstream thought were critical characteristics of children. They found that teachers in special schools had higher expectations than teachers in mainstream.

*Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997). The SDQ is a brief behavioural screening questionnaire that asks about 25 attributes, some positive, and others negative. The 25 items are divided into sub-scales; *Conduct Problems*, *Hyperactivity*, *Emotional Symptoms*, *Peer Problems*, and *Pro-social Behaviour*. The subscale of *Conduct Problems* identifies whether a child has problems with obedience, whether they fight with other children and have tantrums and whether they lie, steal or cheat. The subscale of *Hyperactivity* classifies a child's difficulties staying still for long, whether the child is constantly fidgeting and has a poor concentration span. The subscale of *Emotional Symptoms* identifies problems with worrying, unhappiness and nervousness in a child. The *Peer Problems* subscale classifies a child's relationship with his/her peers, whether they are solitary and tend to play alone, if they have at least one good friend and whether they are getting bullied or picked on at school. Finally, the subscale of *Pro-social Behaviour* classifies the strengths of the child in terms of their consideration for others, and whether they are helpful in the class and home environment. All but the last sub-scale are summed to generate a total difficulties score, and the *Pro-social*

*Behaviour* subscale gives a strengths score. The scale for each item is “not true”, “some what true” and “certainly true”. For each of the subscales the score can range from zero to 10 if all items are completed. The greater the score for each of the ‘difficulties’ subscales suggests poorer performance in these areas. Whereas, the greater the score for the *Pro-social Behaviour* subscale suggests better performance. The internal consistency of the SDQ is 0.73 (Goodman, 1997). Farmer and Oliver (2005) used to SDQ to discriminate between children diagnosed ASC and children with a language disorder. The authors found that the SDQ was successful at discriminating children diagnosed with ASC when used alongside a measure of language abilities.

#### **4.2.4 Procedure**

Following return of the consent forms from the parents, the children were assessed, at baseline, using the measures described above. All of the questionnaires were completed by parents and teachers and were scored by the PhD student. Parents and teachers were not aware of the aim of the study. The follow-up assessments occurred between nine and twelve months after the baseline. At this point, parents and teachers were then contacted (an average of 10 months after the baseline assessment), and were asked to complete the VLD, SDQ and the MSSQ. The GARS questionnaire was only completed at baseline in order to establish the severity of the groups since previous research has shown that severity levels as measured by the GARS are stable over time (Reed et al. 2007a).

The data were analysed by using a very conservative statistical procedure to make type II errors unlikely. Multivariate analysis of covariance, which controlled for differences in autistic severity and age, were initially used on all questionnaires.



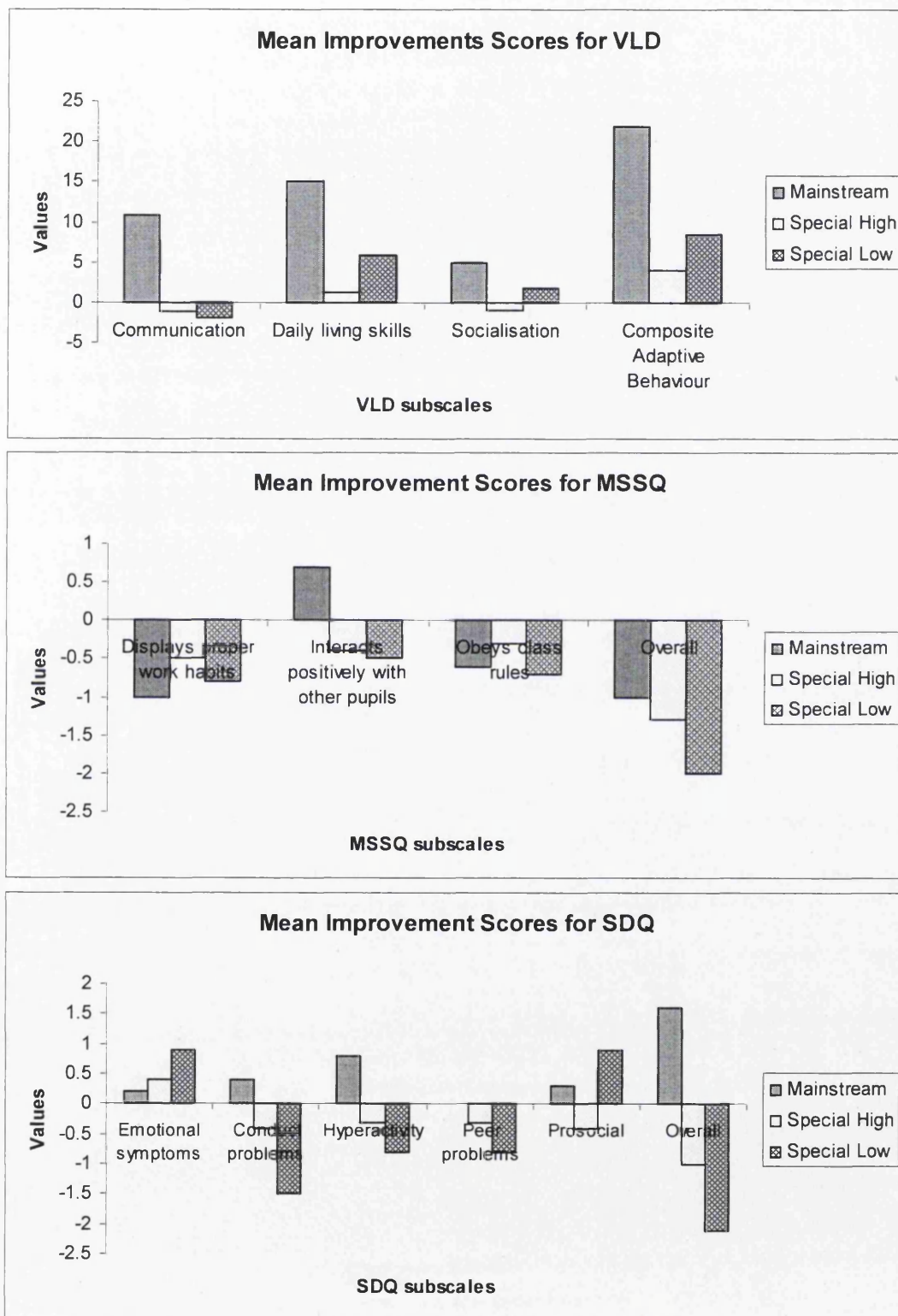
Only where statistically significant differences were found in this overall analysis, were the individual subscales analysed using analysis of covariance that controlled for age and autistic severity. If there were group differences on the analysis of covariance, Tukey's Honestly Significant Difference tests were applied. Only in cases where all tests revealed statistical significance was a difference taken to be reliable.

### **4.3 Results**

There will be two sets of analysis for the results. The within-group analysis will compare if the change scores on the measures are significant for that group. This is potentially a sensitive measure, and it is used as it is important to understand the impact of particular provisions. Secondly, the baseline and change scores across the measures will be analysed for differences between-groups. However, significant differences between-groups on the change scores are not the same as showing a significant improvement due to the intervention. Due to the relatively small sample sizes, the within-group analysis may be more sensitive to the effects of teaching interventions.

### 4.3.1 Within group improvements

Figure 4.1: Mean improvement scores across the measures for each of the groups.



*Note:* A decrease on all the subscales of the MSSQ suggests an improvement. A decrease on the SDQ subscales of Emotional Symptoms, Conduct Problems, Hyperactivity, and Peer Problems suggests an improvement. However, an increase on the subscale of Prosocial Behaviour suggests an improvement on this subscale.

To ascertain whether there had been any differences in the improvement scores on the three outcome measures, the change in the scores on the VLD, MSSQ and the SDQ was calculated (follow-up minus baseline) for each of the three groups. These change scores are displayed in Figure 4.1 and were analyzed by using paired samples t-tests, which compared the improvement scores to a zero baseline. These analyses highlighted whether any of the improvements, irrespective of group differences, were statistically reliable in themselves.

These analyses revealed that, for the mainstream group, there were statistically significant improvements in *Daily Living Skills*,  $t(26) = 2.65, p < .05$ , and in the *VLD Composite Adaptive Behaviour*,  $t(26) = 4.55, p < .001$ . Whilst the high severity special school group made statistically significant improvements in *VLD Composite Adaptive Behaviour*,  $t(34) = 2.19, p < .05$ . Finally, the low severity special group made statistically significant improvements in the *Pro-social* subscale of the SDQ,  $t(20) = 2.83, p < .01$ , and in the *Conduct Problems* subscale of the SDQ,  $t(20) = 2.56, p < .05$ .

### 4.3.2 Between-group Scores

**Table 4.3:** Mean baseline, follow-up and change descriptive overall scores for the subgroups

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
Mainstream	VLD Composite Adaptive Behaviour score	65.3 (22.7)	87.2 (24.3)	21.9 (25.0)
	MSSQ overall score	27.0 (6.5)	26.4 (6.1)	-1.0 (8.3)
	SDQ overall score	16.0 (6.6)	17.6 (6.8)	1.6 (7.2)
High Severity Special	VLD Composite Adaptive Behaviour score	38.2 (22.1)	42.2 (22.7)	4.0 (10.7)
	MSSQ overall score	36.3 (6.5)	35.0 (6.7)	-1.3 (5.2)
	SDQ overall score	18.1 (5.1)	17.5 (4.3)	-1.0 (5.0)
Low Severity Special	VLD Composite Adaptive Behaviour score	49.9 (21.9)	58.4 (31.7)	8.5 (18.8)
	MSSQ overall score	34.3 (7.3)	32.3 (7.4)	-2.0 (7.5)
	SDQ overall score	18.8 (4.7)	16.6 (4.8)	-2.1 (5.5)

Table 4.3 displays the mean and standard deviation for the baseline, follow-up and change scores for the overall scores. The baseline scores were similar to one another with the exception that mainstream school children displayed higher VLD composite and MSSQ scores, than the two special school groups. A multivariate analysis of co-variance (MANCOVA), with ASC severity and age as covariates, was used to assess any differences between the three groups at baseline using the

*VLD Composite Adaptive Behaviour*, and both the overall MSSQ and SDQ baseline scores, as dependent variables. The analysis revealed that there was a statistically significant difference between the groups,  $F(6,154) = 4.30, p < .001$ . To further analyze this overall group difference, separate univariate ANCOVAs were conducted on each of the dependent variables, using ASC severity and age as covariates. These analyses revealed statistically significant differences between the groups on the *VLD Composite Adaptive Behaviour*,  $F(2, 79) = 7.97, p < .001$ , and on the overall MSSQ,  $F(2,79) = 10.38, p < .001$ . Tukey's HSD tests revealed that the mainstream group had statistically significantly higher scores on the *VLD Composite Adaptive Behaviour* and on the MSSQ score, than the high severity special group, and the low severity special group, all  $ps < .05$ . No other pairwise differences were statistically significant,  $ps > .05$ .

The mean improvement scores (follow-up score minus baseline) was calculated for each of the three overall scores (VLD, MSSQ, and SDQ), and are displayed in Table 4.3. In terms of the *Composite Adaptive Behaviour*, the mainstream group made the greatest improvements. In the overall scores for the MSSQ, and the SDQ, a decrease in the score suggests an improvement. However, there were only slight differences in these scores between the three groups. These impressions were confirmed by a MANCOVA, with autistic severity and age as covariates, which was used to compare differences in the change scores between the groups, using the overall change scores from the three scales as the dependent variables. The MANCOVA revealed that there was a statistically significant difference between the groups,  $F(6,154) = 3.13, p < .01$ . Separate ANCOVAs were conducted on the overall score from each scale, and revealed that there were statistically significant differences between the groups only on the *VLD Composite*

*Adaptive Behaviour*,  $F(2, 78) = 4.61, p < .05$ , and not on either the overall MSSQ or SDQ, scores, both  $ps > .05$ . Tukey's HSD revealed the mainstream group had statistically significantly better performance on the *Vineland Composite Adaptive Behaviour* than both special groups, both  $ps < .05$ , but that there was no difference in performance between the low and high severity groups,  $p > .05$ .

### ***Vineland Adaptive Behaviour Scale***

**Table 4.4:** Mean standard baseline, follow-up and change scores for the subscales of VLD

<b>Group</b>	<b>Scale</b>	<b>Baseline (SD)</b>	<b>Follow-up (SD)</b>	<b>Change (SD)</b>
Mainstream	Communication	69.7 (21.2)	80.6 (28.5)	10.9 (27.8)
	Daily living skills	54.4 (21.2)	69.4 (33.3)	15.0 (29.5)
	Socialisation	67.0 (16.4)	71.9 (26.5)	5.0 (26.3)
High Severity Special	Communication	34.3 (10.1)	33.3 (14.1)	-1.1 (10.4)
	Daily living skills	28.0 (11.0)	29.3 (13.4)	1.2 (8.7)
	Socialisation	39.0 (13.0)	38.3 (14.7)	-1.0 (7.9)
Low Severity Special	Communication	52.0 (25.2)	50.0 (27.4)	-1.9 (21.9)
	Daily living skills	36.3 (18.6)	42.1 (24.2)	5.8 (18.9)
	Socialisation	50.0 (14.4)	51.8 (22.8)	1.8 (13.7)

Table 4.4 displays the sub-scale scores from the *Vineland Adaptive Behaviour* scale at baseline, follow-up, and the change scores. Inspection of the baseline scores reveals that the mainstream group had the highest scores across all of the subscales of the VLD. The low severity special school group had the second highest scores in both these subscales, followed by the high severity special group. A MANCOVA was used to assess whether there were any differences between the groups in the VLD subscales at baseline, using autistic severity and age as co-

variates, which revealed a significant effect of group,  $F(6,154) = 5.57, p < .000$ . Separate ANCOVAs revealed statistically significant differences between the groups on all three subscales: *Communication*,  $F(2,78) = 14.35, p < 0.000$ , *Daily Living Skills*,  $F(2,78) = 12.30, p < .000$ , and *Socialization*  $F(2,78) = 17.43, p < .000$ . Tukey's HSD tests revealed statistically significant differences between all pairs of groups on the *Communication* and *Socialization* subscales, and between the mainstream group and both special groups only on the daily living skills subscale, all  $ps < .05$ . No other pairwise differences were statistically significant,  $ps > .05$ .

Inspection of the improvement scores for the VLD in Table 4.4 reveals that the mainstream group made the greatest improvements across all of the subscales. The low severity special group generally made greater improvements in all the subscales than the high severity group.

A MANCOVA, using groups as the independent variable, the VLD subscales as the dependent variables, and autistic severity and age as covariates, revealed a statistically significant main effect of group,  $F(3, 77) = 2.71, p < .05$ . A series of ANCOVA's, using severity and age as co-variates, revealed that the groups differed significantly in improvements on the subscale of *Communication*,  $F(2,78) = 3.11, p < .05$ . Tukey's HSD tests revealed the mainstream group had statistically significantly greater improvements in *Communication* than both of the special groups,  $ps < .05$ . There were no differences in improvements between the high and low severity special groups,  $ps > .05$ .

**Mainstreaming Social Skills Questionnaire**

**Table 4.5:** Mean baseline, follow-up and change scores for the subscales of MSSQ

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
Mainstream	Displays proper work habits	13.0 (3.0)	12.1 (2.4)	-1.0 (3.5)
	Interacts positively with peers	7.6 (2.2)	8.3 (2.8)	0.7 (3.1)
	Obeys class rules	6.5 (2.0)	6.0 (1.7)	-0.6 (2.5)
High Severity Special	Displays proper work habits	13.8 (2.8)	13.2 (2.9)	-0.5 (2.6)
	Interacts positively with peers	12.6 (2.5)	12.2 (3.0)	-0.4 (2.5)
	Obeys class rules	9.9 (2.5)	9.7 (2.4)	-0.3 (1.5)
Low Severity Special	Displays proper work habits	13.0 (3.5)	12.1 (2.7)	-0.8 (2.7)
	Interacts positively with peers	11.8 (3.1)	11.3 (3.8)	-0.5 (3.4)
	Obeys class rules	9.6 (2.4)	8.9 (2.8)	-0.7 (2.8)

**Note:** A decrease in all subscales of the MSSQ suggests an improvement in these areas

Table 4.5 shows the baseline, follow-up, and change scores for the subscales of the MSSQ scale. These data show that the only major differences between the groups were on the *Interacts Positively with Peers* and *Obeys class rules*, in which the mainstream group had higher scores than the special school groups. A MANCOVA conducted using the sub-scales of the MSSQ as dependent variables, autistic severity and age as covariates, and group as the independent variable, revealed that there was a statistically significant difference between the groups,



$F(6,154) = 8.66, p < .001$ . A series of ANCOVAs conducted on each of the subscales separately, using ASC severity and age as covariates, revealed that there were statistically significant differences between the groups on the subscales for *Interacts Positively with Peers*,  $F(2,78) = 24.18, p < .001$ , and *Obeys Class Rules*,  $F(2,78) = 14.42, p < .001$ . There were no differences between the groups on performance in the subscale of *Displays Proper Work Habits*, both  $ps > .05$ .

Tukey's HSD tests revealed that the mainstream group had statistically significantly better performance on the *Interacts Positively with Peers*, and *Obeys Class Rules*, than both of the special school groups, all  $ps < .05$ . No other pairwise differences were statistically significant, all  $ps > .05$ .

Table 4.5 also displays the mean improvement scores for the subscales of the MSSQ. When looking at the MSSQ, a decrease in score suggests improvement in that subscale. Therefore, the mainstream group displayed improvements in: *Displays proper work habits*, and *Obeys Class Rules*. However, in no case was the change score particularly pronounced, or different between the groups. This impression was confirmed by a MANCOVA, using age and severity as covariates, MSSQ subscales as dependent variables, and groups as independent variables, which revealed no significant main effect of group,  $F < 1$ .

## Strengths and Difficulties Questionnaire

**Table 4.6:** Mean baseline, follow-up and change scores for the subscales of the SDQ

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
Mainstream	Emotional Symptoms	3.0 (2.6)	3.2 (2.3)	0.2 (2.2)
	Conduct problems	2.3 (2.1)	2.7 (2.1)	0.4 (2.3)
	Hyperactivity	6.1 (2.0)	6.9 (2.1)	0.8 (2.5)
	Peer problems	4.7 (2.1)	4.6 (2.4)	-0.0 (2.8)
	Pro-social behaviour	5.2 (2.4)	5.5 (2.5)	0.3 (2.3)
High Severity Special	Emotional Symptoms	2.0 (2.0)	2.4 (1.9)	0.4 (1.7)
	Conduct problems	2.7 (1.9)	2.3 (1.5)	-0.4 (2.0)
	Hyperactivity	7.7 (2.2)	7.3 (2.1)	-0.3 (2.6)
	Peer problems	5.8 (1.9)	5.6 (2.1)	-0.3 (2.4)
	Pro-social behaviour	2.1 (2.4)	1.8 (2.0)	-0.4 (1.6)
Low Severity Special	Emotional Symptoms	1.7 (1.6)	2.5 (2.6)	0.9 (2.4)
	Conduct problems	3.7 (2.3)	2.2 (1.7)	-1.5 (2.6)
	Hyperactivity	7.3 (2.0)	6.5 (1.9)	-0.8 (1.8)
	Peer problems	6.1 (1.9)	5.3 (1.5)	-0.8 (2.3)
	Pro-social behaviour	2.3 (2.4)	3.2 (2.2)	0.9 (1.4)

**Note:** A decrease in the score on the *Emotional symptoms*, *Conduct problems*, *Hyperactivity* and *Peer problems* subscales of the SDQ measure suggest an improvement in the areas. Whilst an increase in the *Pro-social* subscale of the SDQ suggests an improvement in the Pro-social behaviour.

Table 4.6 displays the group mean scores for baseline, follow-up and change scores for the subscales of the SDQ. On these scales, increased scores suggest improvements in the behaviour (except for *Pro-social Behaviour*). These data show, in general, that the mainstream group had fewer behavioural and social problems than the special groups at baseline. A MANCOVA with the SDQ subscales as

dependent variables, and groups as independent variables, revealed a main effect for groups,  $F(10,150) = 3.94, p < .001$ . A series of separate ANCOVA's revealed that there were significant differences between the groups on: *Emotional Symptoms*,  $F(2,78) = 5.89, p < .01$ , *Conduct Problems*,  $F(2,78) = 3.46, p < .05$ , *Peer Problems*,  $F(2,78) = 3.96, p < .05$ , and *Pro-social Behaviour*,  $F(2, 78) = 11.77, p < .001$ .

Tukey's HSD revealed that the mainstream group had statistically significantly lower *Conduct Problems* and *Peer Problems*, but greater *Pro-social Behaviour* than both the special groups, all  $ps < .05$ . The high severity special group had statistically significantly more *Hyperactivity* than the mainstream group,  $p < .05$ . No other pairwise differences were statistically significant, all  $ps > .05$ .

Table 4.6 displays the mean improvement scores for the SDQ. The mainstream group displayed minor increases in *Emotional Symptoms*, *Conduct Problems*, and *Hyperactivity*. The low severity special group had worse *Emotional Symptoms*, but improved performance on the *Conduct Problems*, *Hyperactivity*, *Peer Problems*, and *Pro-social Behaviour* subscales. Finally, the high severity special group displayed no improvements on the subscales of the SDQ.

A MANCOVA, using age and severity as covariates, improvements in the SDQ subscales as dependent variables, and groups as a independent variable, revealed a main effect of group,  $F(5,75) = 3.00, p < 0.05$ . A series of ANCOVAs revealed differences between the groups on improvements in *Conduct Problems*,  $F(2,78) = 4.47, p < .05$ , all other  $ps > .05$ . Tukey's HSD tests revealed that the low severity special group made statistically significantly greater improvements in *Conduct Problems* than the mainstream group,  $p < .05$ . There were no other statistically significant pairwise differences between the groups,  $ps > .05$ .

#### 4.4 Discussion

The current impetus to include children with ASC into mainstream schools has been met with criticism, arguing that it has been propelled by a human rights agenda, and has ignored the rights of the child to the best education. Very little research has been conducted that examines whether children with ASC do, indeed, benefit more from a mainstream placement. Thus, the aim of the current study was to compare the outcomes across measures of socialisation and adaptive behaviour, of children diagnosed with ASC, who were placed in mainstream and special school provision. The results suggest that children in both provisions are making some progress. However, children in each provision are making progress in different areas of functioning.

Those children placed in mainstream schools made greater improvements in their *VLD Composite Adaptive Behaviour* score, and in their *Communication* score, than children in special schools. However, children of low autistic severity placed in special schools made greater improvements in *Conduct Problems* than the children in the other two placements. There were no further differences in improvement between mainstream children and special school children on measures of behaviour and mainstreaming social skills, suggesting that school placement is not a major factor in producing changes in these measures.

In terms of the initial placement, there were some differences between the groups. In addition to being less severe in terms of ASC, perhaps not surprisingly, children in mainstream schools had better mainstreaming social skills, such as being able to follow class rules, and interact with peers. These children also had better scores in the VLD subscales of *Communication*, *Daily Living Skills*, and *Socialization* than the children placed in special schools. However, relative to these

baseline scores, children in mainstream schools made improvements in *Daily Living Skills* and in their *VLD Composite Adaptive Behaviour* score. The children placed in special school, who had low ASC severity, made significant improvements in *Pro-social Behaviour* and *Conduct Problems* as measured by the SDQ. Finally, those children in special schools with high severity made significant improvements in *VLD Composite Adaptive Behaviour* score. However, given that parents and teachers were completing the ratings, it is possible that the ratters became accustomed to the behaviours and thus rated them as better after a year with the child. Taylor and Carr (1992) suggest that teachers and parents may alter their behaviours and decrease their expectation to prevent behaviours' from occurring. Yet it is important to note that everyone will alter their behaviour in response to other people's behaviour and therefore the comment by Taylor and Carr reflects a phenomenon that occurs in all interactions. However, further work, using unbiased measures, is needed which can help untangle whether it is in fact the child's behaviour which has improved and it is not that parents or teachers have lowered their expectations.

The current study suggests that children with ASC can make progress in areas of *Daily Living Skills* and in their *VLD Composite Adaptive Behaviour* score, when placed in mainstream schools. However, they do not make progress in the areas of socialization, which is often the main thrust of the argument of placing a child in mainstream in the first instance (Boutot & Bryant, 2005). Rather, the current study suggests that it is the children in special school, especially those with a lower degree of ASC severity, who are making progress in social skills. Those children with lower ASC severity who are placed in special school are also making improvements in *Conduct Problems*. This result suggests, as Mills, Cole, Jenkins,

and Dale, (1998), that child characteristics (such as severity in the current study) can have an impact on the success of provision. The current study found that children with lower levels of severity made the greatest progress in the special school.

The current study raises implications for practitioners and policy makers who are committed to inclusion on philosophical and moral grounds. The results suggest that children are making significant progress in special schools, and in terms of socialization and conduct problems, they are making more progress in special schools than in mainstream. These latter areas of development are particularly important as social skills have been found to be predictive of positive school outcomes (McIntyre et al., 2006). Moreover, children with emotional and behavioural problems, who, in addition, have poor social skills, may go on to have academic and/or socio-behavioural difficulties (Gresham, 1998; Kupersmidt & DeRosier, 2004). Therefore, it would appear to be very important to work on socialization and pro-social behaviour.

The finding that children in special schools made significant improvements in *Pro-Social Behaviour*, may result from the fact that children prefer to make friends with peers of similar behaviour and academic ability (Kupersmidt et al. 1995). If this is the case, it would mean that it would be unlikely that typically developing children would form friendships with children with ASC, who may have behavioural and academic problems. Therefore, children in special schools may find it easier to interact with their peers than in a mainstream environment.

Of course, there are limitations to this study that do need to be recognized and discussed. Firstly, as with many comparative studies, the groups were not randomly selected for each of the school placements. Instead, the groups received

the school placement either offered to them by their LEA, or else, in the case of some special schools, that which was chosen by the parents. However, although this may decrease the internal validity of the study, it does in turn increase its external validity since it reflects the reality of provisions (Connor, 1998). This potential limitation will be discussed further in Chapter 7.

One issue that should be commented upon in this study concerns the fidelity of the school provisions in the current study due to the lack of information available about the characteristics of the settings. However, the aim of the current Chapter was to establish whether inclusion, as an educational placement, is more effective than specialist placements. This question is different to describing how inclusion works, which would require information on specific characteristics of the school. This limitation will be discussed further in Chapter 7. Another potential caveat was the reliance on assessment data from parents and teachers, and the lack of unbiased data as pre-post outcome data. Although, the use of un-biased data is valuable when assessing progress, as discussed in Chapter 2 and Section 1.5.4, the views of parents and professionals are also critical to the ongoing success of educational provisions. This limitation will also be addressed in Chapter 7.

In summary, the current study found that children in special schools are making gains in areas of conduct and socialization, whilst children in mainstream schools are not making gains in these areas. This suggests the need for a re-examination of the current impetus to include all children with ASC/SEN into mainstream schools, and consider the importance of having a range of provisions available. Moreover, the current legislative context and the commitment by the current governments to continue to include children with ASC and SEN into mainstream schools, makes the identification of how inclusion will take place and

what is currently working in mainstream schools and special schools, across the country, critical. Future research will need to answer questions concerned with implementation and therefore answer questions of *how* rather than *why*.



**5 THE IMPACT OF USING THE “PRESCHOOL INVENTORY OF  
REPERTOIRES FOR KINDERGARTEN” (P.I.R.K.®) ON OUTCOMES  
OF CHILDREN WITH ASC**

## 5.1 Introduction

The findings from Chapter 3 support Hocutt's (1996) argument that the numerous differences in practice between mainstream and special schools may hold the key to improving outcomes. It could be these differences that lead to the significant improvements seen in Chapter 4 in children attending special schools. It follows, therefore, that by identifying effective practice or curricula it may be possible to improve outcomes in both mainstream and special schools.

The findings from Chapter 4 are consistent with earlier evidence supporting the view that children with ASC, and other special needs, may benefit from specialist education (e.g., Fuchs & Fuchs, 1995; Ofsted, 2006; see Section 1.4.2 for a summary). These recent findings are in contrast to the picture drawn by the Warnock report (1978), a catalyst to the inclusion agenda seen in the U.K. today, which was critical of specialist provisions. In contrast to this earlier report, the latest Ofsted (2006) report was critical of inclusion for children with special needs and instead found that children who were taught by specialist teachers had better outcomes than those children who were in mainstream schools.

Critics of a policy of inclusion argue that it focuses excessively on placement (e.g., Hocutt, 1996). This is echoed by the Ofsted report (2006) which also concludes that it is not where children are taught, but the quality of education which produces the best results (for more discussion on criticisms of inclusion see Section 1.3.2). This is also supported by the findings in Chapter 3, which suggest that alternative factors such as access to SLT and parental coping styles are having a greater impact than placement.

Given the current legislative impetus to include children with ASC into mainstream schools, it is vital to identify what practices are working to improve

outcomes in schools (see Section 1.3 for a detailed discussion on legislation on education in the UK).

There are a number of special school models (e.g. TEACCH), which have been used to help improve outcomes for children. It would be very useful to obtain more empirical evidence on the success of such models. The PIRK (Greer & McCorkle, 2003) was developed as a curriculum of instruction and is described in detail in Section 1.6.1. In particular, it specifies both the specialist methods required to teach effectively (see Section 1.6) and the curriculum required to help a child succeed in school (see Section 1.5). It is widely used in CABAS© schools across the U.S.A., U.K., and Ireland. However, it has not been empirically validated.

The current study examines the effectiveness of this curriculum and compares the gains produced by the use of the PIRK relative to the conventional methods used currently in special schools in the U.K. To this end, two groups of children with ASC will be assessed. One group consists of children currently attending CABAS© special schools, and the second group of children attending special schools which do not use the PIRK curriculum. Both groups of children will be assessed using a set of questionnaires at baseline, and then re-assessed, using the same questionnaires, at follow-up about nine months later.

## 5.2 Method

### 5.2.1 Participants

**Table 5.1:** Descriptive statistics of selected variables for the two groups.

Sample	N	Variables	Minimum	Maximum	Mean	SD
PIRK group	35	Age (years)	5.8	12.4	8.9	1.8
		Autistic severity (AQ)	58.0	117.0	88.0	13.7
		Stereotyped Behaviour	1.0	12.0	7.3	2.7
		Communication	5.0	17.0	9.9	2.3
		Social Interaction	3.0	18.0	7.9	2.7
		VLD Composite Adaptive Behaviour	20.0	104.0	40.6	20.8
		MSSQ overall score	17.0	43.0	37.1	5.0
		SDQ overall score	11.0	30.0	18.5	4.6
Non PIRK group	18	Age (years)	5.1	17.2	8.2	3.1
		Autistic severity (AQ)	80.0	126.0	94.7	10.9
		Stereotyped Behaviour	4.0	17.0	9.9	2.7
		Communication	6.0	14.0	8.6	2.2
		Social Interaction	4.0	16.0	8.2	2.7
		VLD Composite Adaptive Behaviour	20.0	135.0	43.7	26.4
		MSSQ overall score	18.0	48.0	33.7	8.8
		SDQ overall score	10.0	30.0	19.1	5.2

Participants needed to have a diagnosis of ASC given by an independent paediatrician, and had to be currently attending a special school, either a CABAS©, or LEA special school. Thus, assignment to a group depended on whether the child

had been taught using the PIRK curriculum. Those who had been taught using the PIRK curriculum were assigned to the PIRK group, and those who had attended a special school where they had not had access to the PIRK curriculum were assigned to the non-PIRK group.

A total of 56 children diagnosed with ASC took part in the study (no parents who were approached refused to take part in the study, and there were no withdrawals during the course of the study). There were 50 boys and 6 girls, with ages ranging from 5.1 years to 17.2 years, with an average age of 8.6 years (SD = 2.3 years). The mean autistic severity was 90.3 (SD = 16.9), which suggests average autistic severity (Gilliam, 1995). Thirty five children were attending a CABAS© special school, and followed the PIRK curriculum, and 18 children were attending special schools that did not employ the PIRK curriculum. All children attended their respective schools full time. The descriptive statistics for the two groups are displayed in Table 5.1.

The two groups were of similar ages, and a univariate analysis of variance (ANOVA) conducted on ages revealed no statistically significant differences between the groups,  $F < 1$ . The non PIRK group had a higher mean severity score than the PIRK group; however it was only marginally higher. This was confirmed by an ANOVA conducted on the severity of the children which revealed no statistically significant difference between the groups,  $F < 1$ .

Since the majority of respondents were teachers, the *Developmental* subscale of the Gilliam Autism Rating Scale was not used in this study. When inspecting performance on the subscales of the Gilliam Autism Rating Scale, the non PIRK group had a higher score on the *Stereotyped Behaviour* subscale and the *Social Interaction* subscale, suggesting greater deficits in these areas than the PIRK

group. Whilst in the PIRK group had a higher score on the *Communication* subscale than the non PIRK group. A MANOVA conducted on the groups revealed a statistically significant main effect for groups,  $F(3, 49) = 9.24, p < .0001$ . An ANOVA was conducted to see whether there were any differences between the groups on the subscales. The analysis revealed statistically significant differences between the groups on performance in two subscales; *Stereotyped Behaviours*,  $F(1, 51) = 11.91, p < .0001$  and *Communication*,  $F(1, 51) = 4.51, p < .05$ . A series of Tukey's HSD revealed that the non PIRK group had statistically significantly higher scores on the *Stereotyped Behaviour* subscale than the PIRK group. Whilst the PIRK group had statistically significantly higher scores on the *Communication* subscales than the non PIRK group,  $p < .05$ , suggesting greater deficits in this area.

When examining the *VLD Composite Adaptive Behaviour* children in the non PIRK group had a marginally greater score than the PIRK group suggesting better performance, whilst children PIRK group had the highest overall Mainstreaming Social Skills Questionnaire score, suggesting poorer mainstreaming social skills, as when interpreting the Mainstreaming Social Skills Questionnaire scores, the higher the score, the poorer the performance. Yet children in the non PIRK group also had the highest overall Strengths and Difficulties Questionnaire score, suggesting higher levels of aberrant behaviour. As with the Mainstreaming Social Skills Questionnaire, the greater the score, the poorer the performance.

### 5.2.2 School Provision

**Table 5.2:** Descriptive Statistics for UK Schools

Sample	N	Average number of pupils on roll (SD)	Average % pupils eligible for Free School Meals (SD)	Average Students per Qualified Teacher (SD)	Average Students per class (SD)	Average % children with statement (SD)
PIRK group	1	31	0	7	7.8	100
Non PIRK group	5	81.6 (37.1)	12.9 (16.4)	5.5 (0.9)	8.5 (0.6)	96.7 (5.8)

#### *Non PIRK.*

There were five special schools that participated in this study. The schools in this group are broken down for each subgroup and are displayed in Table 5.2. Two of the schools were independent schools, and the rest were run by the Local Authorities. The approach adopted in the schools was “eclectic”, and did not follow any one particular model.

The schools with the non PIRK children were all relatively small (Smallest = 22, Largest = 120, mean = 81.6, SD = 37.1) and, as would be expected, had a similarly high percentage of students with statements (smallest = 90%, Largest = 100%, mean = 96.7, SD = 5.8). The class size in each of the schools in this group was small (Smallest = 8, Largest = 9, mean = 8.5, SD = 0.6). There was little variation in the number of students per qualified teacher in each of the schools in the group (Smallest = 5, Largest = 6.6, mean = 5.5, SD = 0.9). There was some variation in the percentage of students eligible for free school meals in each school (Smallest = 0%, Largest = 36%, mean = 12.9, SD = 16.4).

In the special schools, each class was under the supervision of a teacher with postgraduate qualifications in teaching, and specialist training in special educational needs. As with mainstream, all curriculum and practices had been approved by Ofsted reports. In addition to the teacher, each class had two or three learning support assistants, who would help work with the children in small groups. Thus, most teaching was conducted in small groups rather than individually (about four times as much group work as individual work).

The children attended the school daily. Typically, a session would start and end with 8-10 children in a group with the teacher at the front. The teacher usually guided a song, or other introduction, and the children were encouraged to turn take in answering their names or responding, often involving doing an individual activity (e.g., picking up name card, shaking an instrument etc.), whilst the others were encouraged to respond and comment. Much of the school's environments and many of the tasks given to the children are presented in a highly structured method as outlined by the TEACCH methodology (Mesibov, Schopler, & Hearsey, 1994).

### ***PIRK.***

There was only one school which was included in this group and hence all PIRK children attended this school. This school is smaller than the average size of the non PIRK schools however it had a similar number of pupils per class. The PIRK school had a slightly higher number of children per qualified school teacher than the non PIRK schools. All children attending the school had a statement of special needs, which was similar to the schools in the non PIRK group which had a very high percentage of children with statements. There were no children who were



allocated free school meals in the PIRK school instead all children are expected to bring their own lunch.

Children attending the CABAS© special school were following the PIRK (described in detail in Section 1.6.1). The teaching method adopted by the CABAS© schools is Applied Behaviour Analysis (ABA). ABA is designed for individualised instruction, whether in a one-to-one setting, or in a group setting (Greer, 2002), and focuses on teaching small, measurable units of behaviour systematically. Each skill that a child with ASC does not demonstrate (such as looking at us, or using a fork appropriately), can be broken down into small steps using task analysis (Huguenin, Weideman, & Mulick, 1991; Lovaas, 1987; Sulzer-Azaroff & Mayer, 1977). Task analysis has been proven effective for teaching individuals with special educational needs (Horner & Keilitz, 1975).

A very important step in the programme development is the identification of the child's current skills in the targeted curriculum areas (Lerman, Vorndran, Addison & Kuhn, 2004). In CABAS© schools the PIRK is used to discover the current level of skills a child possess, and to identify any gaps in their repertoire. Once these areas and skills have been identified, the child is taught using the antecedent-behaviour-consequence approach (see Greer, 2002, for a description of this approach within the context of CABAS© schools). In CABAS© schools, skills are taught using the 'Learn Unit', which is defined as "the least divisible component of instruction that incorporates both student and teacher interaction" (Greer, 2002, p. 19) (for a more detailed discussion of the Learn Unit, see Section 1.6). The Learn Unit is a three-term contingency, which consists of the antecedent (or discriminative stimulus from the teacher), the behaviour (from the student), and the consequence (either a reinforcement, or a correction, from the teacher). The

majority of the teaching takes place in a 1:1 or small group. Typically, approximately 3 – 12 tasks or drills take place in one hour, (depending upon the particular needs and abilities of the child). These tasks would last typically about 5 – 10 minutes each, and would be repeated until some criterion performance was reached. Each task would be separated by a 5 – 10 minute break, or down-time. All special school programmes in the CABAS© schools were supervised by an appropriately trained supervisor, who had completed masters teacher rank (CABAS© qualification).

### 5.2.3 Measures

*The Gilliam Autism Rating Scale* (GARS; Gilliam, 1995) was used to measure autistic severity. The GARS is a 44-item checklist with 4 sub-scales: *Behaviour, Communication, Social Interaction, and Developmental Disturbances*. For individuals who do not talk, sign or use any form of communication the subscale of *Communication* is not administered. The items are based on the diagnostic definitions from the DSM-IV (APA, 1994). The sum of the sub-scale scores can be converted into an Autism Quotient, which is a standard score that has a mean of 100, and a standard deviation of 15: 100 represents average autistic severity.

*The Vineland Adaptive Behaviour Scale* (VLD; Sparrow et al. 1984) was used to assess personal and social sufficiency. It is a 297 – item checklist, consisting of three adaptive behaviour domains: *Communication, Daily Living Skills, and Socialization*. The *Communication* subscale measures what the child understands, what the child says and what the child can read and write. The *Daily Living Skill* identifies how the child eats, dresses, and practices personal hygiene,

what household tasks they perform and how the child uses time, money, the telephone, and job skills. Finally, the subscale of *Socialisation* classifies how the child interacts with others, how they play and use leisure time and how the child demonstrates responsibility and sensitivity to others.

For each of the domains an adaptive level, and age equivalent, is calculated using by converting the raw scores into standardized scores. A composite adaptive behaviour score can be derived by adding the sum of the standard scores for each of the subscales ( $M = 100$ ;  $SD = 15$ ). The internal reliability of the *VLD Composite Adaptive Behaviour* is 0.93 (Sparrow et al. 1984). The VLD was used by Charman et al. (2004) to measure progress made by pupils with ASC in special schools and units which specialized in ASC. Reports were positive suggesting that children made significant improvements.

*Mainstreaming Social Skills Questionnaire* (MSSQ; Salend & Lutz, 1984).

The MSSQ was used to obtain performance on the social skills considered necessary for successful performance in mainstream schools. It has 16 questions which are broken down into three subscales; *Displays Proper Work Habits*, *Interacts Positively with Other Peers* and *Obeys Class Rules*. The subscale of *Displays Proper Work Habits* identifies whether the child is able to work well in class and follow instructions given by the teacher. The subscale of *Interacts Positively with Other Peers* classifies how a child relates to his peers, whether he/she is able to make friends and respects other people's property. And finally the subscale of *Obeys Class Rules* identifies whether a child follows the rules of the classroom and doesn't speak when others are talking, refrains from swearing and tells the truth.

The teacher or parent is asked to rate each of the statements as they apply to the child's performance as "satisfactory", "somewhat satisfactory" or "not satisfactory". For each of the subscales, the higher the score, the poorer the performance. Salend and Lutz (1984) used the MSSQ to identify whether there was a difference in what teachers in special school and mainstream thought were critical characteristics of children. They found that teachers in special schools had higher expectations than teachers in mainstream.

*Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997). The SDQ is a brief behavioural screening questionnaire that asks about 25 attributes, some positive, and others negative. The 25 items are divided into sub-scales; *Conduct Problems*, *Hyperactivity*, *Emotional Symptoms*, *Peer Problems*, and *Pro-social Behaviour*. The subscale of *Conduct Problems* identifies whether a child has problems with obedience, whether they fight with other children and have tantrums and whether they lie, steal or cheat. The subscale of *Hyperactivity* classifies a child's difficulties staying still for long, whether the child is constantly fidgeting and has a poor concentration span. The subscale of *Emotional Symptoms* identifies problems with worrying, unhappiness and nervousness in a child. The *Peer Problems* subscale classifies a child's relationship with his/her peers, whether they are solitary and tend to play alone, if they have at least one good friend and whether they are getting bullied or picked on at school. Finally, the subscale of *Pro-social Behaviour* scale classifies the strengths of the child in terms of their consideration for others, and whether they are helpful in the class and home environment. All but the last sub-scale are summed to generate a total difficulties score, and the *Pro-social Behaviour* gives a strengths score. The scale for each item is "not true", "some what true" and "certainly true". For each of the subscales the score can

range from zero to 10 if all items are completed. The greater the score for each of the 'difficulties' subscales suggests poorer performance in these areas. Whereas, the greater the score for the *Pro-social Behaviour* subscale suggests better performance. The internal consistency of the SDQ is 0.73 (Goodman, 1997). Farmer and Oliver (2005) used to SDQ to discriminate between children diagnosed ASC and children with a language disorder. The authors found that the SDQ was successful at discriminating children diagnosed with ASC when used alongside a measure of language abilities.

#### **5.2.4 Procedure**

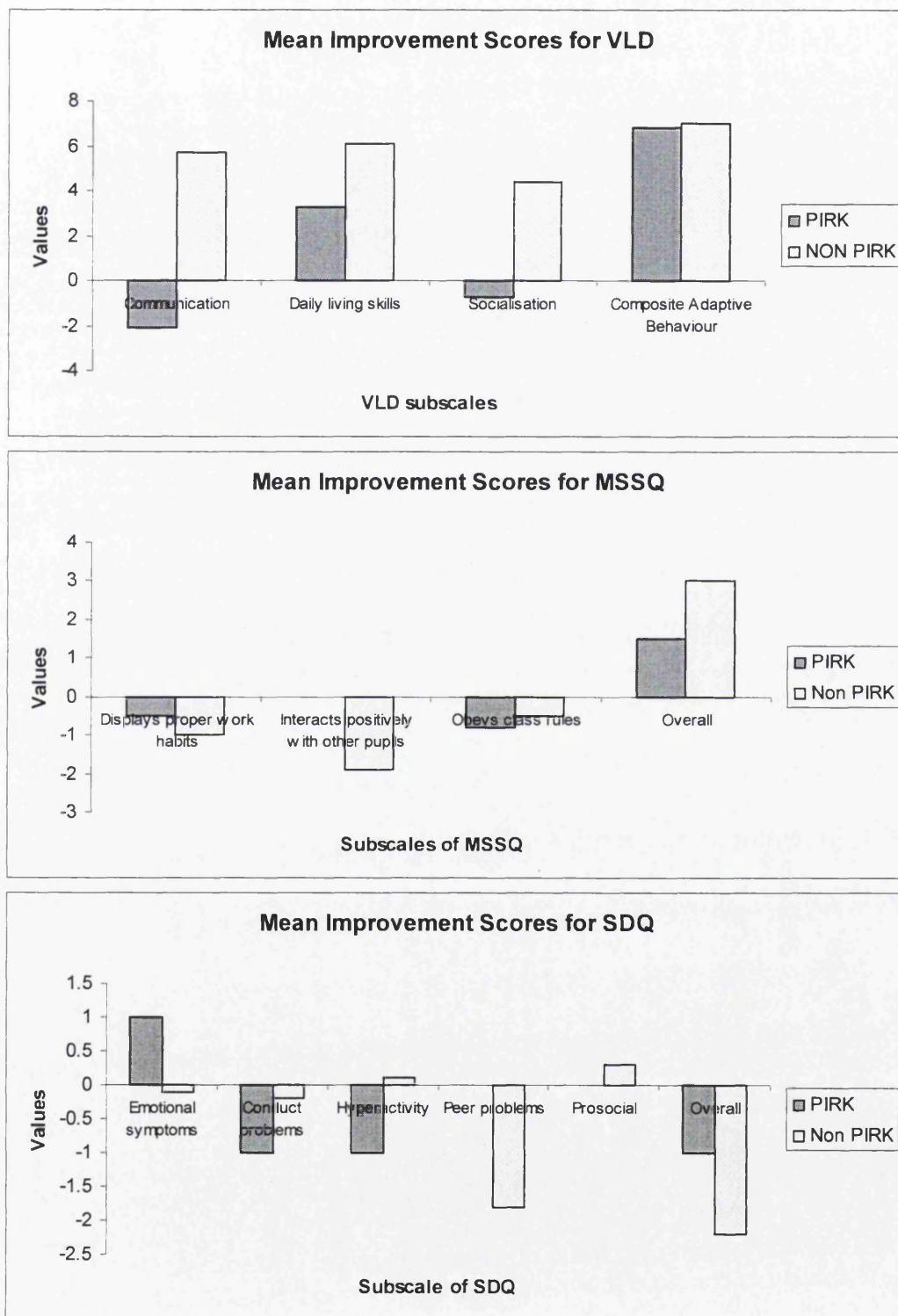
Once consent had been obtained from the parents for their child to participate in the study, the children were assessed at baseline, using the measures described above. All questionnaires were completed by parents or teachers. Follow-up occurred 9 to 12 months later (average 10 months), that is baseline occurred at the start of the school year, and follow-up at the end of that year. At follow-up, the VLD, SDQ, and the MSSQ were again completed by the parents or teachers. The GARS was only completed at baseline. The data were analysed by using a very conservative statistical procedure to make type II errors unlikely. Multivariate analysis of covariance, which controlled for differences in autistic severity and age, were initially used on all questionnaires. Only where statistically significant differences were found in this overall analysis, were the individual subscales analysed using analysis of covariance that controlled for age and autistic severity. If there were group differences on the analysis of covariance, Tukey's Honestly Significant Difference tests were applied. Only in cases where all tests revealed statistical significance was a difference taken to be reliable.

### **5.3 Results**

As with Chapter 4, two sets of analysis, using both within-groups and between-group comparisons will be used. The within-group analysis will compare the change scores across all the measures to a zero baseline, for each intervention group. This is a potentially sensitive measure and will be used as it is important to understand the impact of each provision alone. The between-group analysis will look at where the two groups differ across their baseline and improvement scores. As with Chapter 4, due to the small sample sizes, the within-group analysis may be more sensitive to the impact of the different teaching interventions.

### 5.3.1 Within group Improvement

Figure 5.1: Mean improvement scores across the measures for the groups.



Note: A decrease on the SDQ subscales of Emotional Symptoms, Conduct Problems, Hyperactivity, and Peer Problems suggests an improvement. However, an increase on the subscale of Prosocial Behaviour suggests an improvement on this subscale. A decrease on all the subscales of the MSSQ suggest an improvement.

To ascertain whether there had been any differences in the improvement scores on the three outcome measures, the change in the scores on the VLD, MSSQ and the SDQ was calculated (follow-up minus baseline) for each of the groups. The mean improvement scores for each of the groups are displayed in Figure 5.1. These change scores were analysed by using paired samples t-tests, which compared the improvement scores to a zero baseline. These analyses highlighted whether any of the improvements, irrespective of group differences, were statistically reliable in themselves.

*PIRK Group.* This group made statistically significant improvements in a number of measures: *VLD Composite Adaptive Behaviours* when compared to zero baseline,  $t(34) = -2.73, p < .01$ , MSSQ subscale of *Obeys Class Rules*,  $t(34) = -3.03, p < .01$ , SDQ subscale of *Hyperactivity*,  $t(34) = -2.85, p < .01$ , SDQ subscale of *Conduct Problems*,  $t(34) = -2.33, p < .05$ . However, they also got statistically significantly worse at the SDQ subscale of *Emotional Symptoms*,  $t(34) = 2.73, p < 0.01$ , at follow-up when compared to zero baseline.

*Non PIRK.* This group also made statistically significant improvements, particularly in the social measures. They made improvements in: the VLD *Communication* subscale,  $t(17) = 2.19, p < 0.05$ , in the VLD *Socialisation* subscale,  $t(17) = 3.00, p < 0.01$ , in the MSSQ subscale of *Interacts Positively with Peers*,  $t(17) = -3.32, p < 0.01$ , and the *Peer Problems* subscale of the MSSQ,  $t(17) = -4.70, p < 0.001$ , in the SDQ overall score,  $t(17) = -2.23, p < 0.05$ , and in the VLD *Composite Adaptive Behaviour*,  $t(17) = -2.91, p < 0.01$ .



### 5.3.2 Between-group Scores

**Table 5.3:** Mean baseline, follow-up and change descriptive for the subgroups

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
PIRK	VLD Composite Adaptive Behaviour	40.6 (20.8)	47.5 (28.7)	6.8 (15.1)
	MSSQ overall score	37.1 (5.0)	35.6 (6.5)	1.5 (5.5)
	SDQ overall score	18.5 (4.6)	17.5 (4.4)	-1.0 (5.4)
Non PIRK	VLD Composite Adaptive Behaviour	43.7 (26.4)	50.7 (27.4)	7.0 (10.2)
	MSSQ overall score	33.6 (8.8)	30.7 (7.7)	3.0 (6.2)
	SDQ overall score	19.1 (5.2)	16.9 (4.9)	-2.2 (4.2)

Both groups were assessed at baseline, and follow-up, using the VLD, the SDQ and the MSSQ. Table 5.3 displays the mean, and standard deviations, for the overall score of each of these variables across the two groups at baseline on each of the three measures. There were very few differences between the groups at baseline, an impression confirmed by a multivariate analysis of covariance (MANCOVA), with autistic severity and age as covariates, which compares the groups on the overall scores of the three measures. This revealed that there were no statistically significant differences between the groups across all the baseline measures,  $F < 1$ .

The improvement score (follow-up score minus baseline) was calculated for each of the three overall scores. Inspection of these scores suggests that the only noticeable difference between the groups was that non PIRK group produced a

slightly greater change in the SDQ overall Score than any of the other groups.

However, a MANCOVA used to compare the differences in improvements between the two groups, when the impact of severity and age was partialled out, revealed no significant main effects for group on improvements on the overall scores, all  $p > .05$ .

### *Vineland Adaptive Behaviour Scale*

**Table 5.4:** Mean baseline, follow-up and change scores for the subscales of VLD.

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
PIRK	Communication	39.5 (18.9)	37.3 (23.8)	-2.1 (11.8)
	Daily living skills	28.6 (14.8)	32.1 (19.3)	3.3 (11.25)
	Socialisation	41.2 (15.0)	40.5 (20.7)	-0.7 (10.9)
Non PIRK	Communication	39.0 (14.6)	44.7 (18.0)	5.7 (11.1)
	Daily living skills	33.2 (13.9)	39.2 (19.5)	6.1 (14.9)
	Socialisation	44.3 (12.6)	48.8 (16.7)	4.4 (6.3)

Table 5.4 displays the mean group scores at baseline, follow-up, and change scores, for the VLD subscales. A MANCOVA, using autistic severity and age, as covariates and the subscales of the VLD as dependent variables revealed that there was no statistically significant difference between the groups across the subscales at baseline,  $p > .05$ .

Inspection of the group mean improvements scores for the subscales of the VLD shows that the non PIRK group made the greatest improvements across all of the subscales. A MANCOVA, with age and severity as covariates, conducted on the improvement scores on subscales of the VLD, revealed a statistically significant

main effect of group,  $F(3, 47) = 3.68, p < .01$ . Separate univariate ANCOVAs revealed that there were statistically significant differences between the groups in improvements on the VLD subscales of *Communication*,  $F(3, 47) = 9.80, p < .01$ , and *Socialisation*,  $F(3,47) = 6.32, p < .05$ .

### ***Mainstreaming Social Skills Questionnaire***

**Table 5.5:** Mean baseline, follow-up and change scores for the subscales of MSSQ

<b>Group</b>	<b>Scale</b>	<b>Baseline (SD)</b>	<b>Follow-up (SD)</b>	<b>Change (SD)</b>
PIRK	Displays proper work habits	13.1 (2.1)	12.4 (2.6)	-0.5 (2.4)
	Interacts positively with peers	13.1 (2.3)	13.1 (2.7)	0.0 (2.5)
	Obeys class rules	10.9 (1.8)	10.1 (2.3)	-0.8 (1.6)
Non PIRK	Displays proper work habits	14.8 (4.0)	13.8 (3.3)	-1.0 (3.1)
	Interacts positively with peers	11.1 (2.9)	9.1 (3.0)	-1.9 (2.5)
	Obeys class rules	7.8 (2.4)	7.8 (2.6)	-0.5 (2.5)

*Note:* A decrease in all subscales of the MSSQ suggests an improvement in these areas.

Table 5.5 displays group mean baseline, follow-up, and change scores for the MSSQ subscales. It is important to note that, on this questionnaire, the lower the score, the better is the performance. Inspection of the baseline performance reveals little difference between the groups. The PIRK group performed marginally better on the *Displays Proper Work Habits* subscale of the MSSQ. Whilst, in the *Interacts Positively with Peers* and on the *Obeys Class Rules* subscale the non PIRK groups out performed the PIRK groups on the initial assessment. These

impressions were confirmed by a MANCOVA, with age and severity as covariates, which revealed a main effect for group,  $F(3, 47) = 17.97, p < .0001$ . Separate univariate ANCOVA's revealed statistically significant differences between the groups on the *Interacts Positively with Peers* subscale,  $F(1, 49) = 10.33, p < .01$ , and the *Obeys Class Rules* subscale,  $F(1, 49) = 30.89, p < .001$ . A series of Tukey's HSD revealed that the non PIRK group had statistically significantly better performance on the *Interacts Positively with Peers*, and in the *Obeys Class Rules* subscales, both  $ps < .05$ .

Inspection of the group improvement scores across the MSSQ subscales, reveal a similar pattern to the baseline scores; the non PIRK made greater improvements across all of the subscales. These impressions were confirmed by a MANCOVA (with age and severity as covariates), which revealed a main effect for group,  $F(3, 47) = 5.91, p < .01$ . Separate univariate ANCOVAs revealed statistically significant differences between the groups only on the *Interacts Positively with Peers*,  $F(1, 49) = 7.34, p < .05$ , subscale.

## Strengths and Difficulties Questionnaire

**Table 5.6:** Mean baseline, follow-up and change scores for the subscales of SDQ

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
PIRK	Emotional Symptoms	1.3 (1.6)	2.3 (1.7)	1.0 (2.1)
	Conduct Problems	3.3 (2.0)	2.3 (1.7)	-1.0 (2.5)
	Hyperactivity	8.1 (1.6)	7.1 (1.9)	-1.0 (2.0)
	Peer Problems	5.8 (1.8)	5.8 (2.0)	-0.0 (2.3)
	Pro-social Behaviour	1.6 (2.0)	1.7 (2.0)	0.0 (1.0)
Non PIRK	Emotional Symptoms	3.1 (2.1)	2.9 (2.1)	-0.1 (1.7)
	Conduct Problems	2.6 (2.0)	2.2 (1.3)	-0.2 (1.6)
	Hyperactivity	6.8 (2.4)	6.9 (2.5)	0.1 (2.6)
	Peer Problems	6.6 (1.7)	4.8 (1.8)	-1.8 (1.7)
	Pro-social Behaviour	3.2 (2.1)	3.7 (2.0)	0.3 (1.7)

*Note:* A decrease in the score on the *Emotional Symptoms*, *Conduct Problems*, *Hyperactivity* and *Peer Problems* subscales of the SDQ measure suggest an improvement in these areas. Whilst an increase in the *Pro-social* subscale of the SDQ suggests an improvement.

Table 5.6 displays the group mean baseline, follow-up, and change scores for the subscales of the SDQ. A MANCOVA (with severity and age as covariates) revealed a significant main effect of group across these subscales at the initial assessment,  $F(5, 45) = 6.11, p < .001$ . Separate univariate ANCOVAs revealed statistically significant differences between the groups in: *Emotional Symptoms*,  $F(1, 49) = 9.13, p < .01$ , *Hyperactivity*,  $F(1, 49) = 8.20, p < .001$ , and *Pro-social Behaviour*,  $F(1, 49) = 18.54, p < .001$ .

In terms of the mean group improvements for the subscales of the SDQ, there were apparent between group differences, particularly on the subscale of *Peer Problems*. A MANCOVA was used to analyse differences between the groups on the improvements scores along the subscales of the SDQ. This revealed a

significant main effect for group,  $F(5, 45) = 3.60, p < .01$ . A series of separate univariate ANCOVA's revealed statistically significant differences between the groups on improvements in *Peer Problems*,  $F(1, 49) = 2.99, p < .05$ .

#### 5.4 Discussion

Given the differences in teaching methods often used in special and mainstream schools, it is possible that these differences, and not provision itself, is having an impact on child outcomes (Hocutt, 1996). The current study was concerned with identifying whether differing practice in specialist schools may have an impact on outcomes. It assessed whether children who are following the PIRK curriculum in a CABAS© special school perform differently than those in a Local Education Authority specialist provision, who do not follow the PIRK curriculum. The results suggest that children following the PIRK curriculum improve in areas of behaviour management (e.g., improved *Obeys Class Rules* and reduced *Hyperactivity*), whereas children in LEA specialist schools made improvements in areas of socialisation (e.g. improvements in *Interacts Positively with Peers* from the SDQ and *Socialisation* as measured by the VLD) and *Communication* as measured by the VLD.

In terms of the specific curriculum being employed, there were differences in the impact noted on the children. Using the PIRK as a teaching curriculum had a significant impact on behavioural skills (e.g. improvements in *Obeys Class Rules* from the MSSQ, *VLD Composite Adaptive Behaviour* from the VLD and *Hyperactivity* from the SDQ). In terms of any potential progress into a mainstream school, if indeed this is a goal, these skills may be critical. Studies have identified behaviour management as critical to inclusion, as those with disruptive behaviours are considered by teachers as the most difficult to include (Evans & Lunt, 2002).

Moreover, display of adaptive behaviour has been found to be critical to success in a mainstream placement (Downing et al. 1996), and one in five children with ASC are excluded from school at some point as a result of presenting 'difficult' or challenging behaviour (Barnard et al., 2000). Finally, mainstream social skills such as obeying class rules and following class routines were considered by a survey of teachers as critical skills to succeed in mainstream (Hains et al. 1989; Sainato & Lyon, 1989). Therefore training using the PIRK curriculum may increase the possibilities of a successful mainstream placement. As this was the purpose the development of the PIRK, the current results can be taken as validation that this approach offers an opportunity for success in this area.

When each group was analysed independently against a zero baseline, several notable areas of improvement were identified for each of the groups attending the special schools. The children in special schools made improvements particularly in the *Communication* measure, but also in *Socialisation*, *Peer Problems* and *Interacting Positively with Peers* subscales. Whilst the children in the PIRK group made improvements in *VLD Composite Adaptive Behaviour*, *Obeys Class Rules*, *Conduct Problems* and *Hyperactivity*. Gains were centred on social skills and communication for the non PIRK children, and in behavioural measures for the PIRK children. These improvements in children's abilities after attending special schools, irrespective of curriculum, replicates earlier studies reporting improvements in children who attended special schools (e.g., Ofsted, 2006).

Importantly, these data show that children in special schools improve in a range of social measures. A criticism often used against special school education, by proponents of inclusion, is that children need to be in mainstream schools to benefit socially (see Boutot & Bryant, 2005). This is an important finding as social

skills are predictive of positive school outcomes (McIntyre et al., 2006), and children with emotional and behavioural problems, who in addition have poor social skills, may go on to have academic and/or socio-behavioural difficulties (Gresham, 1998; Kupersmidt & DeRosier, 2004). Therefore, in order to improve outcomes, educational programmes need to address socialisation, and pro-social behaviour. It appears from the current data that special schools can address such behaviours. In addition to this, children in special schools made gains in the *Communication* subscale of the VLD. Many children with ASC display language delays, and, critically, children who have communication delays often exhibit destructive behaviours, such as self-injurious behaviour and aggression (Carr & Durrand, 1985). Therefore, it is very important that adaptive communication is constantly developed to support behavioural management.

The idea of inclusion was first introduced following a number of critical reports on special schools (e.g., Dunn, 1968; Warnock, 1978). Dunn (1968, p. 5) was concerned that there needed to be a: “*better education than special class placement....for socio-culturally deprived children with mild learning problems who have been labelled mentally retarded*”. He described special education: “*in its present form as obsolete and unjustifiable*”. The Warnock report (1978) was also critical of special schools, and found that children were leaving school with poorer grades than they had entered school with. Yet, current research is suggesting that special schools have changed since these reports, and that improvements academically, socially, and developmentally are possible (Coleman, 1983; Fuchs & Fuchs, 1995; Ofsted, 2006; Renick & Harter, 1989).

However, if inclusion, as a policy, is to succeed, empirical work needs to focus on what is influencing success, rather than on location alone (Zigmond,



2003). As argued by Hocutt (1996), it may be the practice, and not location, which is having the greatest impact on outcomes. This was investigated in the current study, and differing practice was found to have an impact on outcomes. If the inclusive agenda follows the rights perspective, and considers inclusion as appropriate *de facto*, 'negative findings' such as success in special schools will be seen as issues that must be addressed, rather than viewing them as challenging inclusion as a position (e.g. Booth, 1996). In this case, it should be a question of *how* to make inclusion possible, and no longer *why* it should be made possible. In this context, using curricula like the PIRK may help increase the chances of success when transferring children into mainstream provision.

There were a number of limitations to the current study. One potential caveat, as with Chapter 4, is the lack of unbiased outcome data. This limitation will be further discussed in Chapter 7 in more detail. The second important limitation is that the groups were not randomly selected for each of the interventions groups. The participant received the intervention which was chosen by their parents. In some cases, the participant may have been placed by their LEA with parental consent. Although this reduces the internal validity of the study, in turn, it gives the study a greater external validity, as it reflects what is occurring currently in the provision of children with ASC (i.e., children are not randomly placed in schools without parental involvement). In addition, inspection of the groups of participants reveals that there were evenly matched in severity, although there were some significant baseline differences in performance on the measures for both groups.

A final concern, not restricted to the current study, of course, is the consistency of the treatment over the course of the school year. In the CABAS© schools, there is a very vigorous ongoing training programme, which ensures

consistency across schools. However, in the LEA special schools, there was no one model, or treatment plan. Instead, they are often characterised as “eclectic” in their approach, involving multiple therapists and models. A precise description of the method adopted by special schools in the U.K. would be a useful step in this field. This would help disentangle what is having the greatest impact on the children’s outcomes, and what needs to be improved. It would also enable replication of successful interventions.

In summary, the current study found that there were significant gains in both interventions; PIRK and special school. In terms of communication and socialisation, the LEA special school produced significant gains, whilst the PIRK group produced significant gains in the areas of behaviour management and mainstreaming social skills. This may support the notion of the PIRK as a set of skills preparing the child for mainstream given the critical improvements in behavioural management skills and mainstreaming social skills, but certainly supports the notion that special education can be beneficial in those areas often thought of as important in the argument for inclusion into mainstream schools.

**6 DOES TEACHING THE “PRESCHOOL INVENTORY OF  
REPERTOIRES FOR KINDERGARTEN” (P.I.R.K.®) HELP  
MAINSTREAMING CHILDREN WITH ASC?**

## 6.1 Introduction

In Chapter 5 those children who were undergoing PIRK training in special school made improvements in areas of behaviour and mainstreaming social skills, supporting the notion that PIRK can provide a set of skills that can prepare children for mainstream (See Section 1.6.1 for a description of the PIRK). Currently, mainstream does not lead to better academic results than special schools (see Chapter 3), although it does lead to improvements in communication and self-help skills (see Chapter 4). Critically, it does not lead to improvements in socialization and behaviour, which are identified in the literature as key to ongoing inclusive education and positive school outcomes (see Section 1.5.1). Instead, the evidence from Chapter 4 suggests that children in special schools are making gains in these critical areas.

Burack et al. (1997) argue that mainstream schools need to increase their ability to accommodate and meet the needs of all students so that a child with SEN can be provided with specially designed instruction in order to meet their needs in a mainstream setting, without recourse to special schools (Rogers, 1994). There is evidence that specialist techniques can be effective in teaching children with ASC (see Section 1.4.3). However, in practice this type of provision proves complicated to deliver. Fuchs and Fuchs (1995) argue that it is very difficult to transfer specialist teaching methods into the mainstream classroom, which may derail the effectiveness of the inclusion effort (see Section 1.4.3 for a description of the practice in special school).

Despite the mounting criticism of inclusion, and differences of opinion on the appropriateness of this provision (Kauffman & Hallahan, 1995; Mastropieri & Scruggs, 2000; Stainback & Stainback, 1992), children with SEN are increasingly being placed in mainstream (CSIE, 2005).

One practical strategy, assessed in Chapter 5, may be to prepare a child with ASC with the necessary skills to succeed in mainstream (see Section 1.5.1, 1.5.2 and 1.5.3 for a description of skills). As discussed in Section 1.6, there are many approaches that could be taken and techniques that have been developed targeting the specific skills required. One such technique is the “circle of friends” (Whitaker et al. 1998) which is used to improve social skills in mainstream. Another type of preparation has been suggested by Simpson et al. (2003) who developed the Autistic Spectrum Disorder Inclusion Collaboration Model. However, at present only the PIRK (Greer & McCorkle, 2003) claims to teach the set of skills required to be successful in mainstream (See Section 1.6.1 for a description of the PIRK). Chapter 5 assessed the use and effectiveness of the PIRK on children with ASC in special schools. The results suggested that using the PIRK can lead to improvements in behaviour and in mainstreaming social skills, which are critical to success in a mainstream placement. The current study aimed to extend this investigation to ascertain whether using the PIRK in a mainstream placement leads to improved outcomes, when compared to provision that does not employ this curriculum.

Therefore, the current study aims to identify whether teaching children the set of skills identified in the PIRK will make them more successful across a range of measures of behavioural and social functioning, than those who are not currently being taught the PIRK in mainstream. To this end, two groups of children with ASC will be assessed. One group consists of children currently attending mainstream schools whilst undergoing PIRK training, and the second group of children attending a mainstream school that does not use the PIRK curriculum.

Both groups of children will be assessed on a range of measures at baseline, and then re-assessed, using the same measures, at follow-up about nine months later.

## 6.2 Method

### 6.2.1 Participants

**Table 1:** Descriptive statistics of selected variables for the groups.

Sample	N	Variables	Minimum	Maximum	Mean	SD
PIRK group	12	Age (years)	4.3	10.5	6.7	2.0
		Autistic severity (AQ)	55.0	110.0	79.2	17.5
		Stereotyped Behaviour	0.0	9.0	4.9	2.9
		Communication	0.0	13.0	6.6	3.8
		Social Interaction	3.0	12.0	6.1	2.6
		Developmental	9.0	25.0	12.8	4.2
		VLD Composite Adaptive Behaviour	32.0	112.0	61.3	23.0
		MSSQ overall score	19.0	34.0	26.1	4.9
		SDQ overall score	7.0	24.0	14.3	5.2
Non-PIRK group	15	Age (years)	5.2	15.0	9.1	3.2
		Autistic severity (AQ)	45.0	112.0	81.8	15.5
		Stereotyped Behaviour	1.0	11.0	6.2	2.6
		Communication	3.0	11.0	7.1	2.3
		Social Interaction	2.0	14.0	6.6	3.0
		Developmental	0.0	12.0	8.5	2.9
		VLD Composite Adaptive Behaviour	23.0	108.0	68.5	22.8
		MSSQ overall score	17.0	48.0	27.7	7.7
		SDQ overall score	6.0	37.0	17.3	7.5

Participants were chosen in conjunction with LEAs and schools in the South East of England, Ireland, and the U.S.A. Participants needed to have a diagnosis of ASC given by an independent paediatrician, and had to be attending a mainstream school as their primary provision (i.e., this school is where they spent their teaching day). Assignment to group depended on whether the child had been taught using the PIRK curriculum. Those who had been taught using the PIRK curriculum, were assigned to the PIRK group, and those who had not been taught this curriculum were assigned to the non-PIRK group.

A total of 27 children, diagnosed with ASC, took part in the study (no parent who was approached refused to take part in the study, and there was only one participant who did not complete the study, 4% attrition rate). There were 25 boys, and two girls, with ages ranging from 4.3 years to 15.1 years, with an average age of 7.9 years (SD = 2.9 years). The mean autistic severity for this sample, assessed using the Gilliam Autism Rating Scale (GARS), was 81.0 (SD = 16.1), which suggests slightly below average autistic severity (Gilliam, 1995). Twelve children with a diagnosis of ASC attend a mainstream school, all following the PIRK curriculum, and 15 children with a diagnosis of ASC attended a mainstream school which did not employ the PIRK curriculum. The descriptive statistics for the two groups are displayed in Table 6.1.

The two groups displayed only slight differences in severity and age and this was confirmed by a multivariate analysis of variance (MANOVA) which revealed that there was no main effect of group when using age and ASC severity as dependent variables, suggesting that there were no differences between the groups in terms of age and ASC severity. When inspecting the subscales of the Gilliam Autism Rating Scale, the non PIRK group had greater scores on all subscales



however these differences were very small, which was confirmed by a MANOVA revealing no main effect for groups when using the subscales of the Gilliam Autism Rating Scale as dependent variables.

Children in the non PIRK group had the highest scores on the *VLD Composite Adaptive Behaviour*. Yet they also had more aberrant behaviours, as measured by a higher overall Strengths and Difficulties Questionnaire score. The PIRK group also had marginally lower overall Mainstreaming Social Skills Questionnaire scores, suggesting better mainstreaming social skills.

### 6.2.2 School Provision

**Table 6.2:** Descriptive Statistics for UK Schools

Sample	N	Average number of pupils on roll (SD)	Average % pupils eligible for Free School Meals (SD)	Average Students per Qualified Teacher (SD)	Average Students per class (SD)	Average % children with statement (SD)
PIRK group	1	358	38.2	24.7	25.5	9
Non PIRK group	7	527.1 (521.3)	21.2 (17.9)	21.1 (5.1)	24.5 (5.1)	2.4 (1.4)

*Non PIRK.* There were 7 U.K. based-schools that were part of this group. The approach adopted in the schools was “eclectic”, and did not follow a particular model. Table 6.2 displays the descriptives for the schools in this group. The schools which took part in the study were all of a similar size to one another, except for one school which was a secondary school and therefore much greater than the rest (Smallest = 221, Largest = 1690, mean = 527.1, SD = 521.3). Four of the schools were primary schools, and the ages of children attending these schools were 3 to 11

years old. One school was an infant school where the age range was 3 to 7 years old. One school was a middle school and the age range was 8 to 12 year olds. And finally there was a secondary school where the age range was 12 to 18 years old.

The schools had a comparable number of students with statements attending their school, with a mean percentage of 2.4 (SD = 1.4). The schools had a similar number of pupils per class and were of moderate size (Smallest = 23.5, Largest = 25.5, mean = 24.5, SD = 5.1) and had a similar proportion of students per qualified teacher (Smallest = 17.5, Largest = 24.7, mean = 21.1, SD = 5.1). Finally, the socio-economic demographic of the school was identified by the percentage of children eligible for free school meals. There was some variability between the schools in the percentage of children eligible for free school meals (Smallest = 1.2%, Largest = 49.5%, mean = 21.2%, SD = 17.9).

The classes in mainstream schools are of moderate size, 20 – 25 students, and are taught by a qualified teacher. Each class has at least one educational support staff member, who supports the teacher and those students that may need more help. All curriculum practices have been approved by the Ofsted reports (U.K. government inspection reports given regularly to all schools). Children attend the placements daily, and would typically commence the school day with carpet time and registration. In the case of secondary schools, students would instead have registration and would later go to their first lesson. In primary, carpet time would be used to introduce the topic and answer any questions. Then children would go into small groups of 8-10 children to carry out their tasks. The teacher would then supervise the children's activities with the support of the teaching assistant.

It is important to note that mainstream schools are not homogenous. They vary greatly in their social mix, levels of achievement and behavioural ethos

(Ofsted, 2005). Therefore, there are considerable difficulties in defining practice in mainstream schools (Pirrie et al. 2006).

*PIRK.* In the PIRK group, 5 children were being educated in a CABAS© mainstream school in the U.S.A., 4 children were being educated in Irish mainstream schools having successfully completed the PIRK curriculum, and 3 children were currently attending a mainstream school in the U.K, whilst undergoing a CABAS© home programme. The descriptives for the UK based school are displayed in Table 6.2. The UK based school is an infant school, with an age range of 3 to 7 year olds. It is of moderate size with 358 pupils and is smaller than the average for the schools in the non PIRK group. It has a higher percentage of students with statements than the schools in the non PIRK group; however it has a similar number of children per class and children per qualified teacher. The percentage of children eligible for free school meals is also higher for the school in the PIRK group than for the schools in the non PIRK group.

All children attended a mainstream placement for the majority of their school week and had either successfully completed the PIRK curriculum (a total of four children completed 95% or above of the repertoires) and were attending a mainstream school (as described above in the non-PIRK Section), or were currently being taught the PIRK (either in a CABAS© mainstream school, or as part of the CABAS© component home programme whilst attending a mainstream school).

The CABAS© mainstream school is comprised of classrooms where at least 50% of the classroom is typically developing children work alongside children with Special Educational Needs. At the school, all children work on the National Curriculum, in addition to the repertoires on the PIRK. The students are monitored

continuously on the PIRK as well as on national standardised test scores. The teaching is done primarily in small groups (4-5 children at a table) and large group tutoring with both SEN children and normal developing children interacting and working together. Peer tutoring is also used. However, 1:1 teaching may be used when the child is struggling with a task. The lessons are presented and each child is given an opportunity to respond and learn from the response. Written responding is employed when the children have that capability. Positive reinforcement is used throughout the day and response cards are also often employed (all children in a group setting can respond by writing the answer or doing the problem on a white board so everyone has a chance to respond). All of the data based tactics, drawn from the ABA literature, are used accordingly and when necessary. Like with CABAS© special schools, all decisions are based on data and there is learning data across the National Curriculum.

### **6.2.3 Measures**

*The Gilliam Autism Rating Scale* (GARS; Gilliam, 1995) was used to measure autistic severity. The GARS is a 44-item checklist with 4 sub-scales: *Behaviour, Communication, Social Interaction, and Developmental Disturbances*. For individuals who do not talk, sign or use any form of communication the subscale of *Communication* is not administered. The items are based on the diagnostic definitions from the DSM-IV (APA, 1994). The sum of the sub-scale scores can be converted into an Autism Quotient, which is a standard score that has a mean of 100, and a standard deviation of 15: 100 represents average autistic severity.

*The Vineland Adaptive Behaviour Scale* (VLD; Sparrow et al. 1984) was used to assess personal and social sufficiency. It is a 297 – item checklist, consisting of three adaptive behaviour domains: *Communication*, *Daily Living Skills*, and *Socialization*. The *Communication* subscale measures what the child understands, what the child says and what the child can read and write. The *Daily Living Skill* identifies how the child eats, dresses, and practices personal hygiene, what household tasks they perform and how the child uses time, money, the telephone, and job skills. Finally, the subscale of *Socialisation* classifies how the child interacts with others, how they play and use leisure time and how the child demonstrates responsibility and sensitivity to others.

For each of the domains an adaptive level, and age equivalent, is calculated using by converting the raw scores into standardized scores. A composite adaptive behaviour score can be derived by adding the sum of the standard scores for each of the subscales (M = 100; SD = 15). The internal reliability of the *Composite Adaptive Behaviour* score is 0.93 (Sparrow et al. 1984). The VLD was used by Charman et al. (2004) to measure progress made by pupils with ASC in special schools and units which specialized in ASC. Reports were positive suggesting that children made significant improvements.

*Mainstreaming Social Skills Questionnaire* (MSSQ; Salend & Lutz, 1984). The MSSQ was used to obtain performance on the social skills considered necessary for successful performance in mainstream schools. It has 16 questions which are broken down into three subscales; *Displays Proper Work Habits*, *Interacts Positively with Other Peers* and *Obeys Class Rules*. The subscale of *Displays Proper Work Habits* identifies whether the child is able to work well in class and follow instructions given by the teacher. The subscale of *Interacts*

*Positively with Other Peers* classifies how a child relates to his peers, whether he/she is able to make friends and respects other people's property. And finally the subscale of *Obeys Class Rules* identifies whether a child follows the rules of the classroom and doesn't speak when others are talking, refrains from swearing and tells the truth.

The teacher or parent is asked to rate each of the statements as they apply to the child's performance as "satisfactory", "somewhat satisfactory" or "not satisfactory". For each of the subscales, the higher the score, the poorer the performance. Salend and Lutz (1984) used the MSSQ to identify whether there was a difference in what teachers in special school and mainstream thought were critical characteristics of children. They found that teachers in special schools had higher expectations than teachers in mainstream.

*Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997). The SDQ is a brief behavioural screening questionnaire that asks about 25 attributes, some positive, and others negative. The 25 items are divided into sub-scales; *Conduct Problems*, *Hyperactivity*, *Emotional Symptoms*, *Peer Problems*, and *Pro-social Behaviour*. The subscale of *Conduct Problems* identifies whether a child has problems with obedience, whether they fight with other children and have tantrums and whether they lie, steal or cheat. The subscale of *Hyperactivity* classifies a child's difficulties staying still for long, whether the child is constantly fidgeting and has a poor concentration span. The subscale of *Emotional Symptoms* identifies problems with worrying, unhappiness and nervousness in a child. The *Peer Problems* subscale classifies a child's relationship with his/her peers, whether they are solitary and tend to play alone, if they have at least one good friend and whether they are getting bullied or picked on at school. Finally, the subscale of *Pro-social*

*Behaviour* classifies the strengths of the child in terms of their consideration for others, and whether they are helpful in the class and home environment. All but the last sub-scale are summed to generate a total difficulties score, and the *Pro-social Behaviour* gives a strengths score. The scale for each item is “not true”, “some what true” and “certainly true”. For each of the subscales the score can range from zero to 10 if all items are completed. The greater the score for each of the ‘difficulties’ subscales suggests poorer performance in these areas. Whereas, the greater the score for the *Pro-social Behaviour* subscale suggests better performance. The internal consistency of the SDQ is 0.73 (Goodman, 1997). Farmer and Oliver (2005) used to SDQ to discriminate between children diagnosed ASC and children with a language disorder. The authors found that the SDQ was successful at discriminating children diagnosed with ASC when used alongside a measure of language abilities.

#### **6.2.4 Procedure**

Once consent had been obtained from the parents for their child to participate in the study, the children were assessed at baseline, using the measures described above. All questionnaires were completed by parents or teachers. Follow-up occurred 9 to 12 months later (average 10 months), that is baseline occurred at the start of the school year, and follow-up at the end of that year. At follow-up, the VLD, SDQ and MSSQ were again completed by the parents or teachers. The GARS was only completed at baseline.

The data were analyzed by using a very conservative statistical procedure to make type II errors unlikely. Multivariate analysis of covariance (MANCOVA), which controlled for differences in age, were initially used on all questionnaires.

Only where statistically significant differences were found in this overall analysis, were the individual subscales analyzed using analysis of covariance (ANCOVA) that controlled for age, and autistic severity. If there were group differences on the analysis of covariance, Tukey's HSD tests were applied. Only in cases where all tests revealed statistical significance, was a difference taken to be reliable.

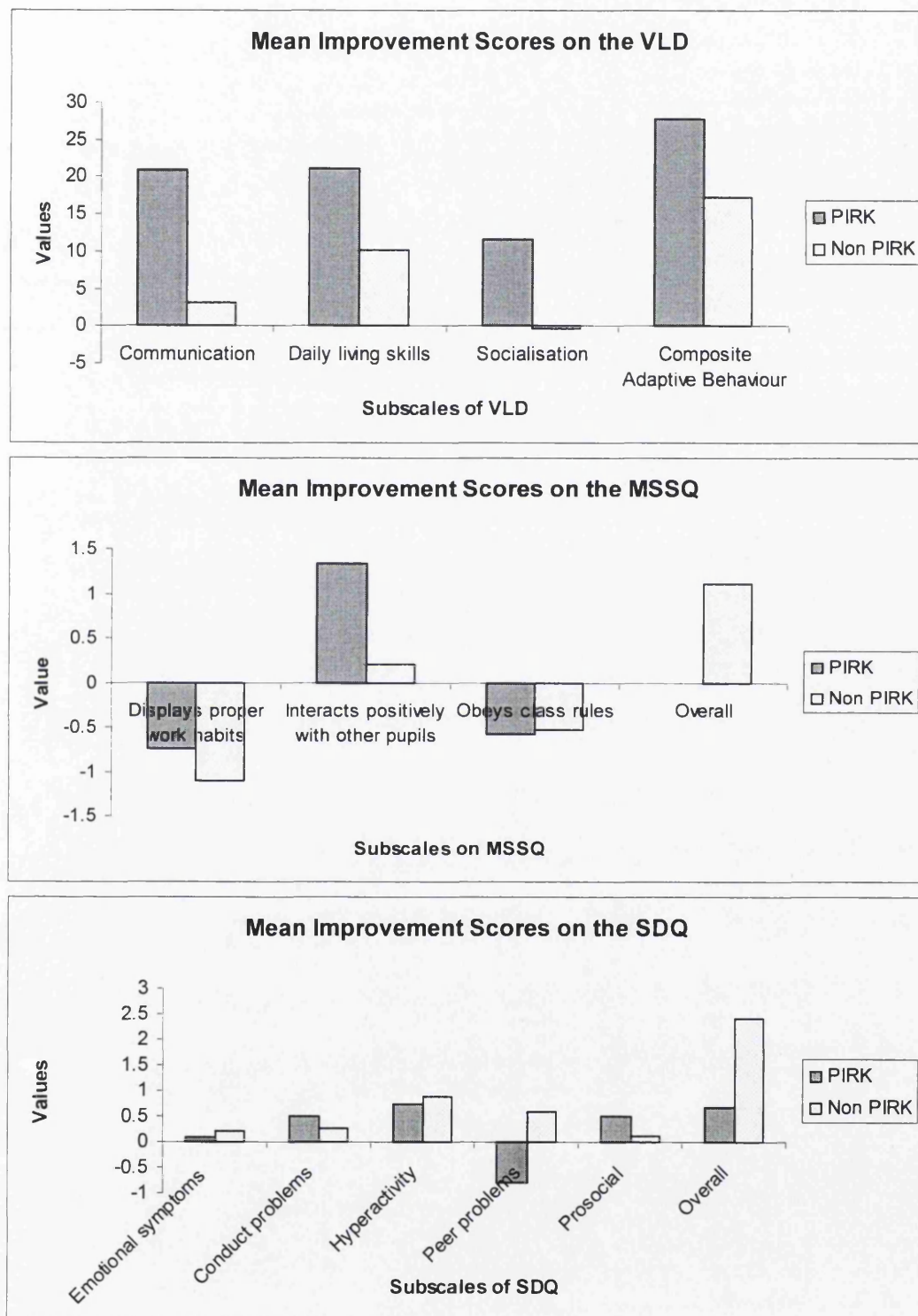
### **6.3 Results**

As with the two previous chapters, there will be two sets of analysis; using both within-groups and between-group comparisons. The within-group analysis will compare the change scores to a zero baseline, within each intervention groups, in order to identify which improvements were significant in themselves. This is important as it will help identify the impact of each placement on the improvement scores. While the between-group analysis will examine where the two groups differ in baseline and improvement scores. Due to the relatively small sample sizes, as with Chapters 4 and 5, the within-group analysis may be more sensitive to the impact of the different teaching interventions.



### 6.3.1 Within group improvements

**Figure 6.1:** Mean improvement scores across the measures for each of the groups.



**Note:** A decrease on the SDQ subscales of *Emotional Symptoms*, *Conduct Problems*, *Hyperactivity*, and *Peer Problems* suggests an improvement. However, an *increase* on the subscale of *Prosocial Behaviour* suggests an improvement on this subscale. A *decrease* on all the subscales of the MSSQ suggest an improvement.

To further ascertain the pattern of differences within each group (rather than between group comparisons) the improvement scores on all overall outcome measures, and sub-scales, on each of the measures were analyzed by using paired samples t-tests, which compared the improvement scores to a zero baseline. By examining the improvement scores against a zero baseline, these analyses highlighted whether any of the improvements, irrespective of group differences, were statistically reliable in themselves. The average change scores for each of the groups are displayed in figure 6.1.

*PIRK Group.* This analysis revealed that the PIRK group made statistically significant improvements, in the *VLD Communication*,  $t(11) = 3.30$   $p < .01$ , and *VLD Daily Living Skills*,  $t(11) = 2.65$ ,  $p < .05$ . This group also made statistically significant improvements in the *VLD Composite Adaptive Behaviour*,  $t(11) = 3.92$ ,  $p < 0.01$ . This group made no statistically significant improvements in the MSSQ overall score or subscales. In addition, there were no statistically significant improvements on the SDQ subscales, or overall scores.

*Non-PIRK Group.* The Non-PIRK group made no statistically significant improvements on the subscales of the VLD, including the *VLD Composite Adaptive Behaviour*. This group made no statistically significant improvements in the MSSQ overall score, or subscale and there were no statistically significant improvements on any of the SDQ subscales, or the overall score.

### 6.3.2 Between-group Scores

**Table 6.3:** Mean baseline, follow up and change descriptive for the subgroups.

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
PIRK	VLD Composite Adaptive Behaviour	61.3 (23.0)	89.1 (25.8)	27.8 (24.6)
	MSSQ overall score	26.1 (4.9)	26.1 (6.7)	0.00 (6.9)
	SDQ overall score	14.3 (5.2)	14.9 (6.2)	0.7 (6.4)
Non- PIRK	VLD Composite Adaptive Behaviour	68.5 (22.8)	85.7 (23.8)	17.1 (25.1)
	MSSQ overall score	27.7 (7.7)	26.6 (5.9)	1.1 (9.4)
	SDQ overall score	17.3 (7.5)	19.8 (6.7)	2.4 (8.0)

Both groups were assessed at baseline, and follow-up, using the VLD, SDQ and the MSSQ. Table 6.3 displays the mean, and standard deviations, for the overall score of each of these measures. There were very few differences between the groups at baseline, an impression confirmed by the MANCOVA (with age as a covariate), which revealed no statistically significant main effects for groups when using overall SDQ, MSSQ and *VLD Composite Adaptive Behaviours* as dependent variables.

The improvement score (follow-up score minus baseline) was calculated for each of the three overall scores. The overall pattern of performance suggested that where the PIRK group made greater improvements on the *VLD Composite Adaptive Behaviour* score. However, despite the numerical differences in the improvement scores, a MANCOVA, used to compare the differences in improvements between

the groups, when the impact of age and severity was partialled out, revealed no significant main effect of group on the overall improvement scores,  $p > .05$ .

***Vineland Adaptive Behaviour Scales***

**Table 6.4:** Mean standard baseline, follow up and change scores for the subscales of VLD.

<b>Group</b>	<b>Scale</b>	<b>Baseline (SD)</b>	<b>Follow-up (SD)</b>	<b>Change (SD)</b>
PIRK	Communication	70.3 (18.9)	91.1 (28.7)	20.8 (21.9)
	Daily living skills	57.3 (21.4)	78.3 (29.2)	21.0 (27.4)
	Socialization	66.8 (17.2)	78.3 (23.1)	11.5 (25.0)
Non-PIRK	Communication	69.2 (24.2)	72.2 (26.3)	3.0 (30.2)
	Daily living skills	52.1 (21.6)	62.3 (35.6)	10.3 (31.2)
	Socialization	67.1 (16.3)	66.8 (28.6)	-0.3 (27.0)

Table 6.4 displays the group mean scores at baseline, follow-up, and the change scores, for the VLD subscales. A MANCOVA (with age and severity partialled out) conducted on the baseline scores revealed no statistically significant differences between the groups,  $p > 0.05$ . A MANCOVA conducted on the improvement scores for the VLD subscales, with age and severity as a covariate, revealed no statistically significant main effect of group.

**Mainstreaming Social Skills Questionnaire**

**Table 6.5:** Mean baseline, follow up and change scores for the subscales of MSSQ.

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
PIRK	Displays proper work habits	12.0 (2.5)	11.3 (2.4)	-0.8 (3.0)
	Interacts positively with peers	7.3 (1.5)	8.7 (3.3)	1.3 (2.9)
	Obeys class rules	6.8 (1.7)	6.2 (1.8)	-0.6 (2.2)
Non- PIRK	Displays proper work habits	13.7 (3.2)	12.7 (2.3)	-1.1 (4.0)
	Interacts positively with peers	7.7 (2.7)	7.9 (2.3)	0.2 (3.3)
	Obeys class rules	6.3 (2.3)	5.9 (1.7)	-0.5 (2.8)

*Note:* A decrease in all subscales of the MSSQ suggests an improvement in these areas.

Table 6.5 displays group mean baseline, follow-up, and the change scores for the MSSQ subscales. It is important to note that, on this questionnaire, the lower the score, the better the performance. Inspection of the baseline scores reveals no strong differences between the groups. This impression was confirmed by a MANCOVA (with age and severity as covariate), which revealed no statistically significant main effect for group,  $F < 1$ . Inspection of the group mean improvements scores suggest differences between the group improvements were slight, and this was confirmed with a MANCOVA, controlling for age and severity, and with the sub-scales of the MSSQ as dependent variables, which revealed no statistically significant main effect for groups on the subscales of the MSSQ,  $p > .05$ .

**Strengths and Difficulties Questionnaire**

**Table 6.6:** Mean baseline, follow up and change scores for the subscales of SDQ

Group	Scale	Baseline (SD)	Follow-up (SD)	Change (SD)
PIRK	Emotional Symptoms	1.9 (2.2)	2.0 (1.8)	0.1 (2.2)
	Conduct problems	1.7 (1.4)	2.2 (2.4)	0.5 (1.9)
	Hyperactivity	6.1 (2.4)	6.8 (2.6)	0.8 (2.9)
	Peer problems	4.8 (1.8)	3.9 (2.1)	-0.8 (2.8)
	Pro-social behaviour	5.6 (2.6)	6.0 (2.2)	0.5 (1.6)
Non- PIRK	Emotional Symptoms	3.9 (2.6)	4.1 (2.3)	0.2 (2.4)
	Conduct problems	2.9 (2.4)	3.1 (1.9)	0.3 (2.7)
	Hyperactivity	6.1 (1.6)	7.0 (1.7)	0.9 (2.1)
	Peer problems	4.7 (2.3)	5.2 (2.5)	0.6 (2.7)
	Pro-social behaviour	4.9 (2.3)	5.1 (2.7)	0.1 (2.9)

*Note:* A decrease in the score on the Emotional Symptoms, Conduct Problems, Hyperactivity and Peer Problems subscales of the SDQ measure suggest an improvement in these areas. Whilst an increase in the Pro-social subscale of the SDQ suggests an improvement in Pro-social behaviour.

Table 6.6 displays the group mean baseline, follow-up, and change scores for the subscales of the SDQ. A MANCOVA, with age and severity partialled out, and using the SDQ sub-scales as dependent variables, revealed no main effect for groups at baseline,  $F < 1$ . Inspection of the improvement scores suggests the only improvements occurred in PIRK group. However, a MANCOVA, with age and severity partialled out, revealed no main effects for groups and therefore no statistically significant differences improvement scores on the sub-scales of the SDQ.

#### 6.4 Discussion

Despite various governments' positions on inclusion, there is concern that the inclusion movement has been based on a 'moral' agenda, rather than being evidence based (Lindsay, 2007). However, if the inclusive position is to be adopted as a policy (rather than scientifically validated) position, then research needs to move away from the question of *whether* to include, and instead focus on *how* to include a child effectively. Hence, it is important to identify if preparing a child for mainstream may help the chances of a successful placement. The current study addressed the question by assessing two groups of children; those following a PIRK curriculum in a mainstream school compared to a group of children attending mainstream provision without the PIRK preparation.

The results suggest that children following the PIRK curriculum improve in *Communication*, *VLD Composite Adaptive Behaviour* score, and *Daily Living Skills*, whereas some children without PIRK preparation made no improvements. These differences were not manifest in terms of comparison of group differences, but rather in analysis of which groups showed statistically significant improvements in these various domains. In terms of the potential for success in mainstream schools, the skills acquired by those children who followed the PIRK curriculum may be critical. Critically, to maintaining an inclusive placement, having made improvements in adaptive behaviour suggests that the child is less likely to be excluded from school. Children with SEN are six times more likely to be excluded (Sparkes, 1999), and exclusions generally occur for behavioural problems. Therefore, in terms of successful inclusion, and outcomes, it would appear to be very important to work on overall adaptive behaviour. Moreover, children following the PIRK curriculum made improvements in the *Communication* score of the VLD. Many children with ASC display language delays, and, critically,

children who have communication delays often exhibit destructive behaviours, such as self-injurious behaviour and aggression (Carr & Durrand, 1985). Therefore, it appears important that adaptive communication is constantly developed to support behavioural management, and successful inclusion.

However, it is important to mention that the children undergoing the PIRK training did not make improvements in socialisation. This may be because the section of the PIRK which focuses on social skills and pro-social behaviour is very small when compared to those that focus on academic and communication skills. Yet social skills have been identified in previous literature as significantly related to positive school outcomes (McIntyre et al. 2006) and a lack of social skills will reduce interaction with their peer group (Sherratt 2002) which could lead to further isolation of the child with ASC (Fredricksen & Turner, 2003). Therefore, future research will need to focus on developing the self-management for school and the social self-management repertoires of the PIRK so that they include a greater number of key social behaviours. It will need to identify what these are, the short term objectives and teaching strategies required to teach them effectively.

When interpreting the current findings, it is important to consider a number of limitations to the study. Firstly, given the small sample sizes, caution is needed when extrapolating results. However, it is important to note that this was a longitudinal study making it very difficult to get large samples. Secondly, the groups were not randomly selected for each of the interventions groups; the participant received the school chosen by their parents. In some cases, the participant may have been placed by their school by their Local Authority with parental consent. However, although this does reduce the internal validity of the study, in turn, it gives the study a greater external validity, as it reflects what is



occurring currently in the provision of children with ASC (i.e., children are not randomly placed in schools without parental involvement). Moreover, despite this potential caveat, inspection of the groups of participants at baseline reveals that the groups were evenly matched across the various measures, suggesting that there was no pre-existing biases between the groups.

Another concern, not restricted to the current study, of course, is the consistency of the treatment over the course of the school year. In some schools (e.g., the CABAS© schools), there is a very vigorous ongoing training programme, which ensures consistency across schools. However, in the LEA mainstream schools, there was no one model, or treatment plan. Instead, they are often characterized as “eclectic” in their approach, involving multiple therapists and models. A precise description of the method adopted by mainstream schools would be a useful step in this field. This would help disentangle what is having the greatest impact on the children’s outcomes, and what needs to be improved. It would also enable replication of successful interventions. Finally, as with Chapters 4 and 5, it is also important to note that there was no unbiased data collection, and therefore any improvements in behaviour may be as a result changes in the ratters expectations (Taylor & Carr, 1992). Future research would need to use unbiased data to confirm that the behaviours themselves have improved.

The current finding suggests that preparing children for mainstream will lead to significant improvements in communication, daily living skills and adaptive behaviour. Moreover, such improvements make it more like that the child will remain in mainstream, and have positive outcomes. Critically, those children in mainstream who were not undergoing any specialist training made virtually no gains. These findings add further support to the use of the PIRK as a tool in

preparing a child for mainstream. Chapter 5 found that undergoing PIRK training lead to improvements in overall behaviour and mainstreaming social skills in children attending special school. The author concluded that given these improvements, the PIRK could be used as a preparation for mainstream. The current findings tentatively support this suggestion, indicating that the PIRK may well prepare children for mainstream. The current study also suggests that what is critical is the type of instruction used, and, in the current study, using the PIRK as a curriculum for instruction was vital to any gains for the child in mainstream school. These findings reinforce the need to address the importance of preparing a child for mainstream.

## 7 DISCUSSION

In the U.K., children with ASC are increasingly being included in mainstream schools (CSIE, 2005), with the view that this will reduce discrimination, and is the most effective means of providing education for all (UNESCO, 1994). However, critics argue that such a movement has been motivated, primarily, from a belief that inclusion is a matter of human rights (Thomas, 1997), and not from the perspective of improving child outcomes, as inclusion has not been demonstrated, conclusively, to lead to better outcomes than specialist provision (Lindsay, 2003).

Given the lack of empirical evidence suggesting the effectiveness of inclusive placements, the recent movement to include children with ASC has raised concerns about whether inclusion is really concerned with improving outcomes, and is, therefore, synonymous with the right to an appropriate education (Vaughn & Schumm, 1995). Hence, there is a potential contradiction between inclusion, and entitlement to an education, and good educational outcomes (see Section 7.2.1). This has led, in turn, to calls for decisions on where a child with ASC is educated to be based more on empirical evidence (Lindsay, 2003). In fact, there is increasing evidence that children with ASC make greater improvement in specialist provisions (e.g. Fuchs & Fuchs, 1995; Ofsted, 2006), lending support to calls for a 're-take' on inclusion (Warnock, 2005).

However, there has also been another debate in education, which suggests that it might be practice, irrespective of placement, which is having the greatest impact on outcomes (Hocutt, 1996), especially given the evidence that certain specialist teaching methods (such as ABA) have been shown to be effective in teaching children with ASC (e.g., Reed et al., 2007a; 2007b; Remington et al., in press). This implies that, by improving practice, both mainstream and specialist

education could become more effective. A way to improve practice, and the effectiveness of inclusive placements, could be to prepare a child for mainstream. There is evidence that certain child-specific factors, such as social skills and language skills, can help improve the chances of success in mainstream (see Section 1.5), indicating that preparing a child for mainstream may help improve their social, emotional, behavioural, and academic outcomes in mainstream. Identification of professionals' views of what makes inclusive placements successful may also improve practice. Previous research has found that teachers' attitudes to inclusion, and their views on the definitions of successful placements, can have an effect on the planning and implementation of educational programmes (Fredricksen et al., 2004).

In summary, there are three major gaps in the inclusion literature: Firstly, empirical evidence that inclusion is an effective approach to the education of children with ASC. Secondly, information about practice, and the perceptions of professionals working with children with ASC. Finally, the impact of child factors on mainstream placement, and how a child can be prepared by teaching them pre-requisite skills. Due to the disparate nature of the above questions, the current thesis used both qualitative and quantitative methods, and primary and secondary data, to start to provide some evidence that would address these issues.

## **7.1 Overall Findings**

The results suggest, as would have been expected, that improving the success of inclusive placements is a very complex matter, involving school factors, extra-school factors, and child factors. When comparing outcomes from special and mainstream provision, the findings suggest that children with ASC do not

necessarily benefit academically from inclusive placements. Instead, alternative factors such as SLT, and parental coping, have a significant impact on academic outcomes (Chapter 3), and these factors need addressing, if inclusion is to result in better academic outcomes. Children in mainstream make improvements in communication, and self help skills, but they do not make improvements in socialisation (Chapter 4), which is one of the key arguments put forward for inclusion (Boutot & Bryant, 2005). On the other hand, children in special education make improvements in socialisation and behaviour (Chapter 4), which supports earlier findings that children make improvements in special provision (e.g. Fuchs & Fuchs, 1995; Ofsted, 2006). On the bases of the current findings, mainstream placement is not leading to the outcomes predicted by its proponents.

Practice was found to be at least, if not more, important than provision (Chapter 3, 5 and 6). Higher-level factors, such as school commitment, funding, and teacher training in ASC were identified as important in helping the child succeed in mainstream (Chapter 2). Moreover, child-specific factors, such as behaviour, social skills, and communication were identified by professionals as critical to a successful placement (Chapter 2). These perceptions were reflected in the findings that preparing a child for mainstream lead to improvements in behaviour, and mainstreaming social skills, for those children in specialist provisions (Chapter 5), and improvements in adaptive behaviour and communication for those in mainstream school (Chapter 6). This suggests that preparing a child for mainstream could help make mainstream more effective, and may help bridge the difficulties of using specialist interventions in mainstream (see Fuchs & Fuchs, 1995; Zigmond, 2003), and of meeting the complex needs of the child with ASC in mainstream (see Mesibov & Shea, 1996).

In summary, the findings from Chapter 2 suggest that both parents and professionals felt that there needed to be more openness to alternatives to inclusion. This was supported by findings from Chapter 4 suggesting that children make improvements in behaviour and social skills in Special school. Both groups also felt that school factors, such as a commitment to inclusion, needed to be addressed in order to make inclusion more effective. However, professionals also felt that child factors (such as language and social skills) were also key to inclusive efforts and this was supported by the findings from Chapters 5 and 6 which suggest that working on these skills will lead to improvements in both mainstream and special school. Finally, the findings from Chapters 3 and 4 suggest that it may be practice (such as the use of SLT) which is having the greatest impact on outcomes rather than placement per se.

### **7.1.1 The Effectiveness of Mainstream for Children with ASC**

A retrospective study in Chapter 3, sought to investigate whether children with ASC benefit academically from inclusive placements. The findings suggest that children in mainstream do not perform better academically than children in special. Instead alternative factors, such as SLT, ASC severity, and parental coping strategies, had a significant impact on academic success (see also Hegarty, 1993).

As Chapter 3 revealed no evidence of improvements in academic outcomes for those children in mainstream, Chapter 4 investigated communicative, behavioural, and social outcomes for children in mainstream- versus special-education. The results suggested that children in mainstream improve in areas of self-help skills, and communication. Improvements in communication are very important to the overall school outcomes of the child, given that children with poor

communication are more likely to engage in self-destructive behaviour, and disruption (Carr & Durrand, 1985; Koegel, Koegel & Surratt, 1992), which makes a child more likely to be excluded (Parsons, 2000). Social communication, in particular, has been implicated in both nonverbal and verbal developmental outcomes, and has been recognized as a skill which may impact on cognitive, social, and language development (e.g., Wetherby, Watt, Morgan, & Shunway, 2007).

It should be noted that the measure of communication used in the current study, the Vineland Adaptive Behaviour Scales, does not measure social communication per se. Instead, it focuses on the receptive, expressive, and written skills required for an individual's daily functioning (Sparrow et al., 1984). Future research would need to identify whether mainstream placements develop social communicative skills (e.g., Test of Pragmatic Language; Phelps-Terasaki, & Phelps-Young, 1992). Nonetheless, Dawson et al. (2004) suggest that engaging in successful early communicative exchanges, even if they are not with a social intention, will make children with ASC more aware of social cues, and will support communication with other intentions later. Language delays can also impede reading development (Scarborough & Dobrich, 1990). Taken together, this suggests that improvements in communication are critical to ongoing placement in a mainstream school, and to overall developmental outcomes.

There was no evidence that those children placed in mainstream made improvements in socialisation; one of the main areas proposed to gain from inclusive placement (Harris & Handleman, 1997). Yet, earlier research evidence does not suggest, unequivocally, that this is the case (see Section 1.3.2). The current finding (Chapter 4) that mainstream does not lead to improvements in



socialisation, implies that purely placing a child in mainstream will not be enough to improve the social skills of a child with ASC. It also undermines the case for including a child purely for social reasons. This finding replicates that of Hegarty (1993), who reviewed the social and academic benefits of inclusion, and found that there was no clear-cut advantage to mainstream. The current findings suggest that mainstream placement will lead to improvements in communication, but it does not lead to improvements in areas of academic, social, and behavioural difficulties.

### **7.1.2 The Effectiveness of Special School**

The results from Chapter 4 suggest that children are making significant progress in special schools, and, in terms of socialisation, and conduct problems they are making greater progress in special than in mainstream provision. Children with lower levels of ASC severity in special school made improvements in social and behavioural functioning. In contrast, children of a similar low severity made greater improvements in communication in a mainstream setting. Previous studies have examined the impact of child characteristics on outcomes in different placements. Mills et al. (1998) found that relatively higher functioning children with disabilities made greater gains in verbal, memory, and quantitative measures, in integrated special education placements (where the majority of children have a special educational need), than in either special education only placements, or mainstream placements. Differences in the type of inclusive setting, characteristics of the children, and the different measures employed, probably contributed to the different findings of these two studies. Improvements in social and behavioural areas have been identified as particularly important, and can lead to positive school

outcomes (McIntyre et al., 2006), and fewer academic or socio-behavioural difficulties (Gresham, 1999; Kupersmidt & DeRosier, 2004).

The impact of behaviour, and social skills, on outcomes in schools has been examined, and identified in previous research as essential for successful inclusion (Harris & Handleman, 1997), and their importance in promoting successful mainstream placements was also highlighted by professionals in Chapter 2. A lack of social skills will impede the integration, and interaction, with their peer group (Sherratt 2002; Strain & Danko, 1995), and, given the increasingly social nature to education (Flem et al., 2004), it will hinder their ability to access the mainstream curriculum (Flem et al., 2004).

The present results showing that children in special schools made significant improvements in behaviour and socialisation replicate earlier findings (Chadwick et al. 2005; Charman et al. 2004). They also call for an acceptance of special schools as an effective provision for children with ASC, given the improvements in social skills, and behaviour, which are likely to lead to successful mainstream placements, suggesting that a period in special school could improve a child's chances of effective subsequent mainstream placement. They also lend support to calls by parents and professionals, in Chapter 2, for more openness to alternatives to inclusion.

### **7.1.3 The Role of Practice in Promoting Improved Outcomes**

Although the present research found that different provisions are having a differential impact on outcomes (Chapter 4), previous research has identified numerous differences in practice between mainstream and specialist provision

(Hocutt, 1996), and it could be these differences in practice, and not provision, that are having an impact on outcomes.

### **7.1.3.1 School Factors**

School factors, such as school commitment, and having the right people involved, were identified in the focus groups (Chapter 2) as the most significant promoters of success. This is consistent with previous research, which found that attitudes of teachers are critical to the success of integrating programmes (Burack et al., 1997). In Chapter 3, the importance of practice, over provision, was substantiated, since alternative factors such as SLT, and hours of LSA, had greater impact on outcomes than simple placement.

Hours of LSA were negatively correlated with academic outcomes, although they were not correlated with ASC severity. This finding supports recent criticism over the use of LSA's in classrooms. Ainscow (2000) argues that the use of LSA's can serve as a barrier between the child and the teacher, and can stall the pupil's progress by decreasing the expectation on work. In contrast to the finding in mainstream, hours of LSA for children in special schools were not negatively correlated with outcomes. It could be that due to the lower staff-to-student ratio in special-education, LSA's will be more involved with the teacher and other children. This would in turn increase the access of the student to his class teacher and his/her expertise. This adds empirical support to the parents and professionals concern that school factors such as teacher training are critical to a successful placement.

The use of SLT had a positive impact on academic outcomes for those children in special school, even when ASC severity was controlled. It is unclear why SLT was not having a positive impact on outcomes in mainstream, although it could be that SLT provision is stretched too thinly in mainstream, so the children

have access to less time compared to those in special school. Only a retrospective study would be able to identify whether there were differences in language abilities, for example, which accounted for the improvements, and future research would also need to include a measure of time and quality of the SLT provision. However, this finding suggests that there may be differences in the practice of mainstream and special provision, which mediate the impact of SLT on outcomes. This could also be the case with social skills training, as those children who were attending social skills training in mainstream had poorer National Curriculum results, even with severity partialled out. However, this effect was not present for those children attending special school.

#### **7.1.3.2 *Extra-School Factors***

The findings in Chapter 2 also reveal that parents and professionals agreed that LEA factors, such as funding, were critical for success. This finding replicates that of Avramidis et al. (2000), who also report that funding was a mediating factor for successful inclusion. Teacher training was also identified by parents and professionals as critical to the success of inclusion. This is consistent with Burack et al. (1997), who found that without support and training; only 33% of teachers were willing to include a child with SEN. A survey run by the Times Educational Supplement (FDS International, 2005) found that teachers who had not received training showed the least positive attitudes to inclusion. This finding was also supported by Avramidis et al. (2000), and Barnard et al. (2000), who found that parents felt that training for teachers in ASC was the area in most need of change.

In Chapter 3, the impact of parental coping strategies on outcomes was investigated. The results suggest that the type of coping strategy that parents adopt has an impact on the academic outcomes of the child with ASC. Previous research

suggests that parental stress can exacerbate behavioural problems in children with ASC (Lecavalier et al., 2006; Osborne et al. 2007), and there is also evidence that a high level of stress in mothers can lead to a poor educational progress in the child with ASC (Osborne et al., 2007; Robbins et al., 1991).

Research into the effect of different coping strategies on child outcomes has not been as extensive. Inspection of the results in Chapter 3 suggests that when parents have a child with mild severity, reframing of the problem in a more positive way will lead to better academic outcomes. However, if the child is more severe, engaging in reframing of the problem will no longer be beneficial to the child. Instead, engaging in a passive appraisal coping style, whereby the parent is not trying to change the circumstances could result in improvements. It could also be that by engaging in passive appraisal as a coping style, the parent has acquired some acceptance of the child's condition, and is no longer trying to change the child. However, there is no empirical evidence of the relationship between passive appraisal coping and increased levels of acceptance. The impact of parental acceptance on child outcomes has not been directly investigated although; the impact of acceptance in helping decrease parental depression and anxiety has been documented by Blackledge (2005). The results on the impact of parental coping suggest it may be important to mediate parental stress and coping strategies with professional help aimed at developing and adopting more positive reframing of events and developing acceptance of their child's strengths and weaknesses. This in turn will help improve outcomes for both the parent and the child.

### **7.1.3.3 *Child Factors***

Certain child skills, such as social skills, and behaviour, have been identified in the research as important for mainstream inclusion (Carta et al. 1990; Downing et

al. 1996; Sherratt, 2002; Strain & Danko, 1995). Therefore, preparing a child for mainstream, by developing certain pre-requisite skills, may improve the success of the inclusive provision. Child factors identified as important for mainstreaming, such as behaviour, mainstreaming social skills, and communication are targeted in the PIRK (see Section 1.6.1 for a description of the PIRK), as part of the curricular objectives necessary for a child to succeed in mainstream reception (Greer, 2002). In Chapter 5 and 6, the use of the PIRK as preparation for mainstream was tested, by assessing children in special schools and mainstream, respectively, who were undergoing PIRK training.

Chapter 5 found that when trained using the PIRK in special schools, children made improvements in behaviour. Children following the PIRK in mainstream also made improvements in adaptive behaviour (Chapter 6), which has been identified as a good indicator of progress (Sparrow & Cichetti, 1985). The display of appropriate behaviour is critical to ongoing inclusion (Downing et al. 1996). In a survey of teachers and managers, children with disruptive behaviour were considered the most difficult to include (Evans & Lunt, 2002). Moreover, children who display inappropriate behaviour, especially aggressive behaviour, are more likely to be excluded (Parsons, 2000), making demonstration of adaptive behaviour crucial for ongoing mainstream placements. The importance of appropriate behaviour in promoting a successful mainstream placement was also identified by professionals in Chapter 2.

In addition to making improvements in behaviour, when children underwent PIRK training in mainstream schools (Chapter 6), they also made improvements in communication. As noted above (Section 7.1), developing communication, particularly functional communication, has been linked to a decrease in severe

destructive behaviours (Carr & Durand, 1985; Koegel et al. 1992). Moreover, language developments may support learning using mainstream techniques, which often involve verbal explanations which are difficult for children with ASC (Mesibov & Shea, 1996).

Finally, children in special schools made improvements in socialisation whilst following PIRK training (Chapter 5). Improvements in socialisation have also been linked to successful inclusion. Social skills such as being able to understand social interactions have been found critical for inclusion (Harris & Handleman, 1997). Improved social skills will also support integration and improve peer interactions (Sherratt, 2002; Strain & Danko, 1995).

Therefore, developing certain child factors, by using curriculum like the PIRK can lead to improvements in communication, social skills and behaviour which in turn, the literature suggests, can promote success in mainstream. These findings may support the notion of the PIRK as a set of skills preparing the child for mainstream given the critical improvements in communication, behavioural management skills and mainstreaming social skills which have been consistently reported in the literature as vital to successful mainstream placements. Other curricular have been developed which target specific skills. For example, the 'Circle of Friends' (Whitaker et al. 1998) was developed to help children with SEN develop the social skills required to relate to their peers and to make friends. However, unlike the PIRK, the 'Circle of Friends' is only used to target social skills and relationships, and is not used to develop other key areas like communication, academic skills and school self-management skills. Another curriculum similar to the PIRK is the ABLLS (Partington & Sundberg, 1998). The ABLLS is used as a curriculum and assessment guide which primarily supports language development

in children with language delays. Although the focus is on language development, it does have subsections that are similar to the PIRK (e.g. communication, social skills, classroom routines, self-help and physical motor). However, to date there have been no empirical studies assessing its validity as a curriculum for instruction and critically, unlike the PIRK, it is not used in preparation for mainstream education.

The PIRK also differs substantially from the National Curriculum, used in both 'maintained' schools and state schools at the time of this study. The National Curriculum sets out the stages and core subjects that all children will be taught during their time at school (from the ages of five to 16 years old). It is a framework which sets out to ensure that teaching is balanced and consistent across all schools. It identifies the subjects taught, the targets for each subject and standard tests to monitor progress. Within the framework of the National Curriculum, schools are then free to plan and organise teaching in order to meet the needs of their children.

Like the PIRK, the National Curriculum sets out targets for children in the foundation stage, in core subjects, including communication and personal, social and emotional development. However, unlike the PIRK, the National Curriculum does not state the pre-requisite skills for each learning objective and does not build on each of the skills consecutively in order to reach the objective. For example, with the target for writing, the PIRK will first expect the child to hold a pencil correctly, and then make a mark consistently on a page. Only once these targets have been achieved, will the child start learning how to trace straight lines, curved lines, shapes, letters and pictures. Once this has been successfully met the child will trace dotted lines, until they are able to do so independently. Finally, the child will be taught how to draw lines, shapes etc. upon request independently. In



addition, each stage is repeated until the child succeeds at criteria (usually 90% correct over two consecutive sessions). The next level would then be tested and if the child is struggling with the new task an appropriate prompt would be used to support learning. This would be gradually decreased until the child can achieve the objective, independently across two consecutive sessions at 90% correct. In addition, unlike the National Curriculum, the procedures used for teaching the PIRK curriculum are based on the science of behaviour, which have been empirically tested and validated. The PIRK assess' progress continuously and where the child is failing, the teacher is expected to modify the criteria and draw from the ABA literature in order to identify the most effective tactic. In addition to specifying the behaviours, the PIRK includes the antecedents and consequences of behaviours within specific contexts. The consequences of behaviour are as critical as the behaviours themselves as they will help ensure that the behaviour is generalised and is under the control of 'natural reinforcers' (e.g. those that occur naturally in the environment as a result of the operant).

Despite this being an effective way to teach children a number of skills, it is also very costly both in terms of teaching resources and time. Teaching the PIRK will require a significant amount of 1:1 teaching in the case of those children who are struggling with the skills, which will require more teachers and a considerable amount of preparation both in terms of materials and training. The level of expertise needed in order to carry out the teaching required on the PIRK, will mean that teachers and LSA's will need to be trained in the teaching methods and tactics of ABA, if the PIRK is to be implemented effectively. This will require a significant financial investment. However costs could be decreased if a consultation model was established with CABAS© schools whereby teachers trained in ABA and in the

PIRK were available for training and support to mainstream schools. Furthermore, given the improved outcomes and the potential for better prognosis, the benefits may outweigh the costs. This will be further discussed in Section 7.2.3. .

Special schools are also expected to teach the National Curriculum, although given the significant need of some children, special schools have adopted specialist techniques, such as TEACCH, in order to help support a more effective learning environment. However, the TEACCH method is not used consistently through out schools. Although schools are expected to help the child progress on the National Curriculum and meet the needs of the child, by creating effective learning environments and set appropriate learning objectives (National Curriculum, 2007), the way in which teachers are expected to meet each these objectives is not clearly defined. This is in contrast to the PIRK whereby each skill in the repertoire has clear objectives and criteria. However, as is the case with mainstream, there are certain barriers to implementing the PIRK in special schools. Financial investment in terms of training and teaching resources will be required so that teachers are able to implement the required tactics and objectives, and where necessary they are able to do so in a 1:1 setting. In order for this to be available, more teachers and LSA's will be needed in the classroom, in addition to regular access to CABAS© training facilitators. However, a consultation model whereby special schools had access to trained ABA teachers would help decrease costs. In addition, as discussed above and in Section 7.2.3, when improved outcomes are taken into account, the costs could outweigh the benefits of providing the PIRK as a curriculum.

#### 7.1.4 Summary

In summary, the results from Chapters 3, 4, 5 and 6, suggest there is no compelling evidence that placement is the critical factor in a students' academic or social success. Instead, the findings that school factors, extra-school factors, and child factors can have a significant impact on success, suggest that it is practice, and not provision, which is having the greatest influence on child outcomes. There is also an appreciation that, given the diverse practices, different placements will work in different ways. Mainstream placements lead to improvements in communication and self help skills, whilst special school placements lead to improvements in behaviour and socialisation. This supports earlier suggestions by Zigmond (2003) that the curriculum, material, teaching strategies, instruction and peers available in each setting will mean that different settings will provide different opportunities for teaching and learning. Moreover, it further dispels the ideal of one placement fits best, as each child will have individual needs that could be best met in different placements.

Changing school practice can lead to improvements in outcomes in both provisions. Improving school factors such as school commitment and training can help, as can working with extra school factors, such as funding, or developing parental coping strategies. In particular, child factors can have a significant impact in improving outcomes. The PIRK, which works on a variety of child factors, such as communication, socialisation, and behaviour, helps to improve outcomes in both mainstream and specialist placements.

## 7.2 Philosophical and Conceptual Implications

### 7.2.1 Educational Ideology vs. Inclusive Ideology

The Oxford dictionary defines education as “the process of teaching or learning”. To “educate” is further defined as “to give intellectual or moral instruction”. It follows from these definitions that to educate is to impart knowledge and skills. Socrates argued that education was about bringing out the natural strengths of the student (Lloyd Yero, 2002). Yet, at the time of Socrates, the aim of education was also to gain knowledge and skills, which would lead to a position in the city-state. The Warnock Committee (1978) describes the aims of education as “first to increase a child’s knowledge of the world he lives in and his imaginative understanding...of that world and of his own responsibilities in it; and secondly, to give him as much independence and self-sufficiency as he is capable of, by teaching him those things he must know in order to find work and to manage and control his own life” (p.2). In summary, the aim of education is to prepare the child with the necessary skills and knowledge to function in society to the best of his or her ability.

This stands in contrast to the definition of inclusion in the context of education, which has been more about placement, and rights, than provision and outcomes: “Most children will be educated in the general education classroom for most, if not all, of the school day. “Full inclusion” means that *all* children with disabilities, regardless of the nature or severity of the disability, will be educated in general education: in a full inclusion system special education would no longer exist.” (Hocutt, 1996, p.79).

In the paper which pioneered the concept of inclusion, Warnock (1978) argued that children with SEN should be taught in mainstream schools. To those

who advocate inclusion “it is the fair, ethical, and equitable thing to do ... when one single individual, who has not broken any laws, is excluded from the mainstream of school and community life, we all become vulnerable” (Stainback & Stainback, 1992, p.32). For some educationists, inclusion should not be evaluated; instead, they argue that inclusion is appropriate *de facto* (Lindsay, 2003). Any evidence that does not support inclusion is evidence of limitations that need to be addressed, and not evidence against inclusion as an approach (Booth, 1996). This is reflected in the special Educational Needs and Disability Act (2001), which says that children will only not be included if this is incompatible with the wishes of the parents, or the provision of efficient education of other children. There is no mention of the efficient education of the child concerned.

Evidently, the philosophy of inclusion is in grave contrast to a philosophy of education, which puts outcomes at the forefront, and considers that evaluation is vital to addressing how to best meet children’s needs. For this reason, the argument of inclusion as a right does not sit easily with those who believe that the “right” of inclusion may stand in conflict with other rights of the child (Mithaug, 1998), such as the right to the best education (Warnock, 2005). Scruggs and Mastropieri (1995) said “full inclusion is a policy that suggests that students are in school primarily to be in the company of age peers and not primarily to learn” (p. 231). As Warnock said in her re-addressing of SEN in 2005 “it is their right to learn that we must defend, not their right to learn in the same environment as everyone else” (p. 44). Mithaug (1998) argues that “by now it should be apparent that the inclusive society as conceived by policymakers of the 1960’s and 1970’s is not going to happen. There have been too many policy failures and unexpected negative consequences in the last decade” (p.5).

It is important, at this point, to mention that the proponents of inclusion have mirrored the traditions established by the rights movements of the 1950's, 1960's and 1970's, whereby individual rights were asserted, and prejudices attacked, which had been established against race, gender, religion, and ethnicity (Burack et al., 1997). The Warnock report (1978), and the passage of the PL 94-142 in 1975 (Education for All Handicapped Children Act, 1975), which introduced the notion of "Least Restrictive Environment" in the US, were introduced in the context of significant injustice and social revolution and a aspiration of equal opportunities for all (Blatt, 1987).

With this context in mind, it is understandable that, with the passage of the Education for All Handicapped Act (1975), and the Warnock Report (1978), there was a desire to right those who had been wronged. However, from the perspective of education, a more helpful approach might have been to evaluate the specialist provisions, and make suggestions of how to improve them. Instead, there was a call for the abandoning of specialist services without effective evaluation of outcomes.

This concern for inclusion as a right is sometimes referred to as the 'social model' (Lindsay, 2003). This was a reaction to earlier 'medical models', whereby the medical profession were the 'experts', and the difficulties of the child were all within-child factors, with no acknowledgement of environmental factors. Although the 'medical model' has been morally challenged, arguing that it elevates the role of the medical practitioners as 'experts' (Lindsay, 2003), the findings from the current thesis suggest, empirically, that the focus on purely child factors is inaccurate. Instead, environmental factors, such as parental coping styles, school commitment, and practice, may play a very significant part in improving outcomes. Conversely, the current trend towards a 'social model', whereby child factors are underplayed, is

also unhelpful, and the findings from the current thesis suggest that this too is inaccurate.

Instead, there needs to be an acceptance of the impact of both child factors and environmental factors. This is known as the 'interactive model', which acknowledges the interaction between the influences from a child's functioning, and their needs, together with the characteristics of their immediate environment, which includes home and school (Wedell, 1978). When implemented without due consideration for interaction and child-factors, the inclusion ideology can be described as solely socially-focussed. However, it is important to note that there is nothing within the term, or the concept, of inclusion to suggest that it should be inherently based on the social model. The present research suggests that addressing certain child factors, and environmental factors (such as parental coping and school commitment), will lead to better outcomes, which supports an interactive model, instead of a purely social or medical model to inclusion.

In summary, it is clear that inclusion and education do not follow a similar philosophy. Education focuses primarily on the development of the child's knowledge and skills, whilst inclusion, as a philosophy, focuses on the rights of the child to be educated alongside their peers, irrespective of outcomes. In some cases, a child's education may be better addressed (in terms of outcomes) in specialist provisions, which would not be an inclusive provision (as defined above). There will be other cases, whereby a child is placed in an inclusive provision, and does not achieve full potential. Therefore, it is clear that the two philosophies can be in conflict when deciding an appropriate provision.

### 7.2.2 The Issue of 'Segregation'

Children with SEN are considered segregated from their normally developing peer group when placed in a special school.

Some argue that placing children in specialist schools differentiates between children and segregates them, leading to stigmatisation, dependence, and powerlessness (Barton & Tomlinson, 1984). This may only be the case if segregated schooling does not lead to improvements. In other words when discussing segregation it is important to consider whether by segregating one group (say group A), another group (say Group B) does not benefit at Groups A's expense (e.g. the white South Africans under apartheid).

Segregation is considered wrong when it leads to social, political, and economic disadvantages. However, when the segregated group is doing better economically, socially or educationally this is considered good segregation since it leads to improved conditions and potential (Definition of Segregation, 2007).

It could be argued that by placing children with SEN in special schools, children in mainstream will be more successful as they will not have children who are likely to overuse the teacher's time and resources. However, it is unclear whether mainstream schools with SEN children are less successful (Giangreco, Dennis, Coninger, Edelman & Schattman, 1993; Odom & McEvoy, 1988; Peck, Carlson & Helmstetter, 1992). Critically however, as discussed there is increasing evidence that children in Special schools are making improvements (see Section 1.4.2 and Chapter 4 and 5). In order to justify placing a child in a special school, both in terms of resources and for moral reasons, there needs to be clear evidence that the child's needs are being met and, more importantly, there needs to be evidence that expected improvements will be made and are being made. The



findings from Chapters 4 and 5 suggest that children in specialist provisions are making improvements. However, it is important to continue monitoring progress so that the placement can be adapted if necessary. Therefore, as long as children are making improvements segregation through specialist provisions should be considered positive.

### **7.2.3 Cost Effectiveness of Practice**

Inclusion of children with SEN has been referred to by the Salamanca statement (UNESCO, 1994) as the most cost effective way of providing effective education to the majority of children. However, if concerns regarding outcomes are factored into the calculations, inclusion may not be cost effective, given the need for specialist interventions (see Chapters 3, 5 and 6), and school wide changes (see Chapter 2). The prognosis of children with ASC is critical to costs, with minor improvements leading to substantial reductions in costs (Jarbrinck & Knapp, 2001; see Section 1.2 for a more detailed description on the economic impact of ASC). Education is essential in improving prognosis, and there is evidence that the use of early intervention programmes such as ABA can lead to improvements in prognosis (e.g. Reed et al., 2007a; 2007b; Remington et al., in press). The current findings suggest that certain practices (such as the implementation of curricular like the PIRK) can lead to better outcomes in social, behavioural, and communication, and research suggests that improvement in these areas can improve prognosis (see Section 1.5). As a result, despite the initial intervention costs required in adopting certain practices, these could be later out-weighted by the estimated savings resulting from an improved prognosis (Connor, 1998). Recent calculations suggest that improving the skills of disabled people would give Britain a £35bn boost in the

next 30 years, due to the increased workforce (“Wasting Skills of Disabled People”, 2007). Therefore, short-term investment into the education of children with SEN will lead to a financial boost as a result of the employment of those adults who would otherwise be unemployed and possibly living in sheltered accommodation. Since the long term savings from the investment into education will not be experienced by the education sector, but are more likely to be felt by the welfare system, it is important that different sectors of the government work together to make this significant investment into the education of children with SEN.

#### **7.2.4 Evaluation and Assessment**

It is clear from the current studies that certain changes in practices can have a significant impact on outcomes. Instead of the current system of education, a system which is able to address’ all pupils’ needs is required, based on empirically tested assumptions. However, in order to adopt this approach, an ongoing process of evaluation of child outcomes is required, so that provision and practice can be adapted, and changed when necessary. From Chapter 3, it is clear that, as they currently stand, the local education authority archives are not functioning as effective measures of child outcome, and do not lead to true accountability of practice. LEAs are not using consistent measures of success, and often the criteria employed to assess effectiveness is ongoing mainstream placement. Evidence suggests that having effective child outcome measures will help LEAs to win tribunals (Yell & Drasgow, 2000), whilst losing tribunals can often lead to very costly placements (Audit Commission, 2002). Moreover, tribunal decisions will also impact on the education of other children with similar needs, placing pressure of LEAs to provide the same provision (Audit Commission, 2002).

More importantly, however, this will help LEAs continuously monitor provisions, so that, if provisions are not leading to the expected outcomes, any necessary alterations can be made to the provision, as and when required. It would also help the LEA identify what is working in meeting each individual child's needs, and would lead to true accountability of placements, particularly in the case of segregated placements. Without outcome measures, provision cannot be evaluated on an ongoing basis, until, perhaps, they have failed the child, and it is too late.

Yet, not only is there an issue with the lack of consistent monitoring, but when LEAs do monitor, they use academic outcomes as their primary outcome measure (as was the case in Chapter 3). Lately, the overuse of academic testing (standard assessment tests; SATs) has been criticised by the General Teaching Council for England ("End exams for children under 16, says watchdog", 11<sup>th</sup> June, 2007), who have called for an end to all testing in under 16 year olds. The use of SATs with 7, 11, and 14 year olds means that "children get drilled on how to pass tests, not educated" (Sarah Teather in "End exams for children under 16, says watchdog", 11<sup>th</sup> June, 2007, p. 5). In addition, the Responses to the Audit Commission Report (Peacey, Dockrell, & Peart, 2002), found that many of the respondents to the report (which included parents, teachers, and LEA officers) felt that the current inspection process (primarily OFSTED) focused on academic achievements, which served as a disincentive for schools to include children with SEN (Peacey et al., 2002). Instead, there needed to be outcome indicators for assessing progress, which are not academically based (Peacey et al., 2002). Moreover, as was evident in Chapter 3, academic tests are not the most effective way of identifying best placement as there was no difference in academic outcomes

for those children placed in mainstream or special. Instead measures of behavioural, social, and communicative functioning were identified in Chapters 5 and 6 as measures of success, and would, therefore, be more appropriate measures of effective practice.

Monitoring of child outcomes has been identified as a measure of true accountability of practice. The SEN code of practice (2001) recognises this importance, and states that “the quality of SEN provision is continually monitored”. However, the Audit Commission (2002) found that less than half of the LEAs were systematically monitoring the schools work on SEN. One of the reasons given for the lack of monitoring was the use of academic results as outcome measures. Given that children with SEN often don’t reach GCSE levels, monitoring of these children through academic measures was difficult. However, if, as argued above, school adopted measures of communication, behaviour, and socialisation as outcome measures, this problem would be resolved. Moreover, by using such measures schools would be able to identify best placement, which is not possible when using academic outcomes.

Chapters 3 – 6 are examples of how by using outcome measures programmes can be evaluated in situ so that what is working and having the greatest impact on a child can be identified. In addition to Chapters 4 – 6, Charman et al. (2004) is another example of how measures of social, communicative and behavioural functioning can be used as measures of child progress in particular placements. Like in the current thesis, Charman et al. (2004) used the Vineland Adaptive Behaviour Scale to measure progress of children with ASC attending units and special schools. The authors concluded that the use of such data could help determine the developmental progress of children in particular placements. This

type of analysis should be an ongoing practice within LEAs, helping LEAs monitor provisions and practice within their authority, thus leading to better accountability and effectiveness.

### **7.3 Practical Implications**

#### **7.3.1 The Adoption of Specialist Models Like CABAS©**

An example of schools which focuses on outcomes, and modifies provision and practice dependent on outcomes and needs (see Section 7.2.4 above), are the CABAS© schools, and in Chapters 5 and 6, the PIRK (the curriculum used in CABAS© schools) was found to be conducive to improved child outcomes, both in mainstream, and in special school.

In CABAS© schools, “the learner is placed in centre stage” (Greer & Keohane, in press, p. 4), and the teaching strategies are developed around the child, and, hence, are learner driven. CABAS© schools were designed as schools “to drive research that is needed to make education optimally effective” (Greer & Keohane, in press, p. 5). All instruction that is used within the school has been scientifically derived (Greer, 2002; Greer & Keohane, 2004, Greer et al. 2002). The school, and its methods, aim to be constantly evolving, in order to adapt to new methods that arise from internal, and scientific literature, and to the changing needs of the students.

The PIRK is used within the context of the school to identify the children’s current level of skills, and as a curriculum for success, with the ultimate aim to make students independent learners. Therefore, the approach to education is radically different to conventional education. The focus is on each child, and although it also includes group instruction, the tactics used, and the environment

chosen, is dependent on the current level of skills, and the target areas for development. In this approach, there is no concern for inclusion or exclusion, as the child's outcomes are the measure of success.

Critically, CABAS© schools are not more costly than other educational models, and are more cost-effective than standard educational practices, once educational factors are included in the analysis (Greer et al. 2002). In CABAS© schools, the Learn Unit is employed as a measure of both the accuracy and efficiency of the teachers (Greer & McDonough, 1999). The Learn Units are then used to calculate the cost per response and, therefore, the CABAS© schools are able to determine costs per Learn Unit, providing possibly the first cost-benefit measure of education (Greer et al., 2002). In CABAS© schools, students in the early years, are expected to be presented with 700-1,000 Learn Units a day. Greer (1994) identified that children in some mainstream and special education classes, which are not based on behaviour analysis, are provided with as little as 56 Learn Units a day. Therefore, in terms of accuracy, productivity, and outcomes, CABAS© schools are much more effective, and are therefore more cost-effective.

Investing in specialist provisions which are shown empirically to be effective (such as the use of CABAS© and the PIRK) will lead to subsequent savings to the tax payer. The research from Chapters 5 and 6 suggest that implementing the PIRK and using CABAS© schools lead to significant improvements in mainstreaming social skills, behaviour and communication. Given such improvements, by using these specialist provisions there could be savings resulting from future employability and independence.

### **7.3.2 The Impact of Practice over Provision in Schools**

The evidence from Chapters 3 – 6 suggests that it may be practice, and not provision, which is having the greatest impact on outcomes (see also Section 7.1.3 above). In particular, the evidence from Chapters 5 and 6 suggest that if a child is to make improvements in social, behavioural, and communicative measures, the child may benefit from being taught a series of specific skills. In addition, the identification of such skills and knowledge required for success are paramount to the process, and the PIRK was identified as meeting many of these requirements. In order for this to be achieved, the child must attend a school placement equipped with effective practices (see Chapters 5 and 6), and the use of specialist interventions (see Chapter 3), likely to meet their needs and develop their potential.

The adoption of specialist interventions, and effective practice, could improve prognosis, and chances of being integrated in school, and in society as a whole. Whether placement is then an inclusive placement, or not, should be a secondary issue, and dependent on the chances of improving his success. In some cases, an inclusive education may best meet the needs of the child (Buysee & Bailey, 1993; Mills et al. 1998; see Chapter 4), but, in other cases, mainstream schools will not be equipped, or specialised enough, to help advance the skills of a particular child.

Evidence from Chapters 3, 5, and 6 suggests that changing practices within the schools can lead to significant improvements in outcomes, when compared to those children who are taught with conventional methods. In particular, by implementing certain practices in mainstream, such as focusing on developing certain child factors, addressing school factors, and extra-school factors, such as teachers commitment, funding, and parental coping strategies, the concerns of those

who want inclusion to mean access to the best education (Warnock, 2005), and those who believe inclusion is the right of all children to be educated together (Booth, 1996), could both be appeased.

Moreover, there are a number of empirically validated teaching techniques which, irrespective of placement, could be effective in promoting positive school outcomes. Critically once identified, these techniques could potentially be applied to either mainstream or specialist placements. There are a number of techniques, particularly drawn from the literature of Applied Behaviour Analysis (ABA), which have been empirically shown to be effective. Indeed, some of these techniques are also used in other educational programmes, such as TEACCH (Campbell et al. 1996). Intervention strategies, such as: priming (Wilde, Koegel & Koegel, 1992; Whitaker et al. 1998) prompt delivery (Carr & Darcy, 1990), delayed contingencies (Harrower & Dunlap, 2001; Stahmer & Schreibman, 1992), self-management strategies (Dunlap et al. 1991; Koegel, Harrower & Koegel, 1999), and peer-mediated interventions (Pierce & Schreibman, 1997), have been developed, and empirically tested, to support children with ASC in mainstream settings. CABAS© schools (Chapter 5 and 6) draw on the tactics from the ABA literature, and will therefore use all of the intervention strategies described above when appropriate for the child's needs. In addition, mainstream and special schools draw on some of these interventions. For example, the use of TEACCH (Campbell et al. 1996) in some special schools means that schools will be using prompt delivery and priming, both used in TEACCH programmes as interventions to help support and mediate some of the children's needs. An example of an effective priming intervention used in mainstream schools is 'Circle of Friends' (Whitaker et al. 1998) which is used to support social interactions and initiations by children.



Taken together, the evidence suggests that using specialised strategies could help support and advance opportunities of children with ASC in schools. Future research would need to identify how more of these practices could be implemented in LEA specialist and mainstream schools in order to improve practice within these provisions.

#### **7.4 Methodologies**

The goals of the current research (outlined above in Section 7.0) were very disparate. Learning about the perceptions of professionals, is very different to identifying the outcomes of different provisions, and practices. Achieving both aims required the adoption of both qualitative, and quantitative methods, and the use of both primary and secondary data. Obviously these techniques have particular strengths, and limitations, and they are worthy discussing in the context of these strengths and limitations for this thesis, and for educational work more generally.

##### **7.4.1 Qualitative Data**

Qualitative data results from an attempt to identify how people experience, and interpret the world (often the social world), and their relationships to it. When investigating the factors that promote the successful placement of a child with ASC, parental and professional opinions regarding what works, are paramount. The importance of the views of staff involved directly with the inclusion process to the success of that inclusion practice has been referred to regularly in the literature (Avramidis et al. 2000; Fredricksen et al., 2004; Vaughn et al. 1996). Therefore, assessing the opinions, concerns and perspectives of those staff involved in the process of inclusion will have a significant impact on the success or otherwise of

inclusion. Obtaining such opinions, attitudes, thoughts, reactions, and experiences, is sometimes not possible through quantitative work (Gibbs, 1998) since there may be no standardised forms/questionnaires which address the specific area, or in the early/exploratory stages of the research the precise questions or the direction of the research may still need to be established. Therefore, qualitative data can help provide more breadth and depth to the research question since there are no constraints on the possible outcomes (which is the case with surveys and questionnaires) and it provides a good opportunity for exploring unanticipated outcomes.

One example of the collection of qualitative data looked at the attitudes of parents and professionals regarding various educational provisions available for children with ASC (Jindal-Snape et al. 2005). They found that parents considered that ASC specific training for teachers was critical to the success of a mainstream placement. In addition, parents and professionals felt that in all provisions the quality of delivery, staff training, and effective adaptation of the curriculum, was fundamental to creating an inclusive environment (Jindal-Snape et al., 2005).

Thus, focus groups, as used by Jindal-Snape et al. (2005), are widely used in health, medical, and social research as a way to take advantage of group interactions, in order to generate more information about the opinions of participants on the research area. By using a group, instead of a one to one interview, participants are more likely to explore ideas (Gibbs, 1998), creating a more natural setting for discussion and uncovering new research directions (Powell & Single, 1996). The use of the group context helps elicit attitudes and feelings about the topic (Kitzinger, 1994; 1995), which may not be uncovered and are difficult to access through individual interviews, or questionnaire surveys. In

addition, focus groups are particularly useful in the preliminary stages of exploratory investigation (Kreuger, 1988), as was the case in Chapter 2, in order to help identify and explore the hypothesis (Powell & Single, 1996).

Although there are clear advantages to using focus groups, as with all research methods there are limitations, which need to be considered. One potential limitation is the representativeness of the findings, and their generality to different samples, or whole populations, given the relatively small samples used. There are also concerns about the role of the moderator, and the degree to which they influence opinions and the direction of the discussion. The moderator has the responsibility of guiding the discussion towards the topic under investigation in order to avoid too much time being lost on irrelevant issues. However, how much the moderator re-directs the discussion can influence the nature of the discussion and its content. Therefore, it is important that a script is developed beforehand and that this is adhered to as much as possible, including prompts and questions to use when the discussion is moving away from the relevant area. Focus groups are also susceptible to observer dependency due to the inevitable influence of the researcher on the results. In order to avoid this, it is important to validate the analysis with an independent observer. In summary, this type of research has clear advantages but due to its subjective nature, it also has some limitations. It is important that these are considered when analysing the results.

#### **7.4.2 Quantitative Data and the Outcome Effectiveness Study**

Quantitative data results from attempts to quantify the relationship between two or more variables. The results are then represented statistically, offering robustness in the measurement and quantification of issues which have been

previously identified qualitatively. Outcome effectiveness studies often employ quantitative data analysis and the use of standardized tests. However, there are problems in using such a quantitative approach which shouldn't be ignored.

Although by using standardized tests the data analysis and scoring is objective, the choice of questions for the test, how it is administered and its completion is not. Standardized tests are therefore susceptible to measurement error, whereby the individual's scoring on the test could vary by day and/or by scorer. In Chapters 3, 4, 5, and 6 standardized tests were employed, which were completed by parents and teachers and could therefore vulnerable to measurement error.

In order to increase the generalisability of results, outcome effectiveness studies use group research designs instead of single subject research design. However, potential limitations arise with the use of group designs. The first possible limitation is the sample size. When investigating specific groups of individuals (e.g. Children with ASC) undergoing particular interventions (e.g. attending CABAS© school) it can be difficult to obtain sufficient participants. The estimated sample size required for finding statistical effects needs to be between 11 and 19 participants per group. Given this, the number of participants per group in the current thesis (12 to 35) was considered adequate.

Another difficulty with group designs is ensuring that the treatment groups are comparable. It is important as far as possible to have groups that do not differ along any other variable than the dependent variable (e.g. treatment). But, given the number of possible variables, both internal and external, this can be difficult. In Chapters 4, 5 and 6 a number of schools were used in the studies. Given the heterogeneous nature of schools, it is very difficult to establish treatment fidelity

between the schools, due to the lack of information about interventions. However, the nature of the studies was to identify how placements were working in the 'real world', therefore a wide range of schools, including schools in Ireland and the U.S.A., was chosen deliberately to get an extensive range of inclusive and specialist provision.

In outcome studies, random allocation of groups is recognized as gold standard research (National Research Council, 2002) as it is argued to provide unbiased data and good internal validity. Yet, when investigating school provisions and teaching interventions, it may be difficult to achieve groups with randomly allocated participants. There has been much criticism in the literature of the low external validity of many studies of teaching interventions and placements (see Connor, 1998), arguing that many studies do not reflect the reality of provisions, and, moreover, that children in LEA provisions across the country are not being randomly allocated to these different provisions (actually limiting the generality of randomised studies). Therefore, despite the lower internal validity of the data, by not using randomly allocated participants and instead using the groups as they occur in the 'real world', this could in turn lead to greater external validity reflecting the reality of the provision being offered.

### **7.4.3 Primary and Secondary Data**

Controlled studies are necessary for evidence on the success of inclusion for children with ASC, but there are many practical constraints on the conduct of such studies (e.g., these studies take time, and money, that might be used for the employment of teachers). However, alternatives to the controlled study do exist, and are particularly useful to generate evidence on best practice. Whilst primary

data analysis uses data collected by the researchers themselves, often in settings constructed as a part of the research programme, secondary data analysis uses data that have previously been collected by other investigators, often in 'naturally occurring situations', and for reasons that differ from those of the current researcher.

This form of research is being used as an important source of evidence, particularly like qualitative analyses, in the initial stages of an investigation, where it can be used to highlight which out of many possible factors could be important for further investigation. In addition to being less expensive than using primary research designs, secondary data can lead to increased: sample sizes, number of observations, and ecological validity (all measures coming from actual cases, rather than designed studies, thus, increasing the ecological validity of the findings and potentially obtaining a better estimate of the effect size). Thus, under some conditions, secondary data analysis can be more representative (or more ecologically/environmentally valid), and have more generalisation potential than findings obtained from designed research programmes.

Secondary data is used where applicable, and where there is relevant data on the issue under investigation. It has a long history of use in education, both to cut costs, and to make use of the vast amount of data collected on students. It is used to complement primary data, and it is seldom used as a stand-alone methodology. For example, secondary data analysis was used in the U.S.A. to study the trends in achievements as a function of age at admission, using data collected by the National Assessment of Educational Progress in the U.S.A. (Langer et al. 1984). A further example of secondary data analysis relevant to special needs education comes from a proposed method to demonstrate accountability of decision for students with

disabilities in the U.S.A. This study re-analysed extant data on educational performance of children with special educational needs placed in different provisions, in order to see how children with disabilities were performing both academically, and non-academically, as compared to their non disabled peers (Ysseldyke et al., 1998). For this study, all of the publicly available reports produced by state departments of education, containing student outcome data such as achievement test performance, were collected. The summary of the performance data revealed lower performance levels for students with disabilities compared to other students and lower rates of participation on tests compared to students without disabilities (e.g., 50-80%).

A potential limitation with the use of secondary data is the concern about the quality of secondary data, primarily whether it is kept up-to-date, and whether the initial data collection was accurate. In order to avoid these limitations, the sources of the data may be verified, the data can be checked and where necessary updated. However, this can be very time consuming, particularly with large sample sizes. Despite this potential caveat, as discussed above secondary data can lead to greater sample sizes and ecological validity making it a valuable research methodology.

## 7.5 Limitations

As with all research, there are limitations which need to be acknowledged. Several of these limitations have been highlighted in each specific chapter, but there are some that apply across chapters as well.

In all research, there are concerns about the representativeness of the sample. For example, in Chapter 2 only three boroughs took part in the study. This was also the case, to a lesser extent, in the other chapters. However, there was reasonable consistency between the participants from each authority and school involved in the studies. Consistency between the groups in Chapter 2 suggests that the findings could have greater generalisation to other samples and Local Authorities. In the case of the other chapters, consistencies between the groups and schools involved would suggest that any differences at follow up may have been due to the intervention and not due to individual differences at baseline. Since there was no random allocation of groups, this helps increase the internal validity of the data.

The participants in all the studies were volunteers, which may make generalisation of the findings to other parents and professionals difficult. The concern is that by using only volunteers, the data may be biased towards a certain type of individual who is either more likely to be satisfied with the provision, or more dissatisfied and therefore wanting to voice their dissatisfaction. However, there is no evidence that the participants were biased in either direction. In longitudinal outcome effectiveness studies it is very difficult to enrol non-volunteers due to the financial costs in recruiting participants and the time constraints, yet it is important to note the possibility of a bias when interpreting the



results. However, in Chapter 2, all participants were randomly selected by the Local Authorities which would increase the generalisation of findings.

A potential caveat with the use of multiple schools in the research is treatment fidelity, given the lack of information on the interventions. Moreover, mainstream schools in particular tend to be very heterogeneous (OFSTED, 2005), making it very difficult to describe mainstream education (Pirrie et al. 2006). The same could be said about special schools. However, the aim of Chapter 4, for example, was to establish whether inclusion, as an educational placement, is more effective than specialist placements. Understanding whether inclusion works is not the same as describing *how* it works. Answering this question would require information on processes in addition to outcomes. Hence, for the purpose of the research in Chapters 4, 5, and 6 the specifics about interventions or school approaches were not directly necessary. In order to assess effectiveness of different provisions, it was sufficient to identify a school as mainstream or specialist. Moreover, identifying inclusion as an 'intervention package', rather than a set of mediating variables (e.g. staff ratios, teacher qualifications etc), will reflect the provision that is available in the 'real world' of practice (Buysse & Bailey, 1993). Given the purpose of Chapter 4 was to describe whether inclusion works; a wide range of schools, including schools in Ireland and the U.S.A., was chosen deliberately to get an extensive range of inclusive and specialist provision.

It is also important to note that given the number of comparisons made in Chapters 3, 4, 5 and 6, it may have been necessary to correct the significant p-levels. Yet, given the small sample sizes this would make statistical significance virtually impossible, and would inflate the chances of obtaining a Type I error (falsely saying there is no differences when there is). In applied fields, a Type I

error is as significant as a Type II error, as it is important not to miss treatments that might be effective. Therefore, the p-levels were not corrected, thus it is important to interpret the results with caution.

A potential limitation to the studies in Chapters 4, 5, and 6 was that the samples of children were all of below average ASC severity. Although, prior research suggests that the GARS measures of ASC used are very conservative (South et al., 2002), this will affect the generalisability of the current findings to other samples, particularly those of severely ASC children. Yet the children included in this project were not specifically selected for the programme, which means the mild/moderate severity reflects the current populations of children with ASC in mainstream and special schools, so it is important that children with this level of severity are investigated, reflecting the reality of practice. Another concern is the heterogeneous nature of the ASC population, not solely on measures of severity. Yet, although this needs to be considered when evaluating the effects of interventions, the only way to resolve this concern would be to make the diagnostic criteria more stringent. Until then, the broad nature of the diagnosis will make research into the impact of interventions and treatments difficult.

Another possible limitation is that the groups were not randomly selected for each of the school placements. Instead, the groups were either offered the school placement by their LEA or, in the case of some special schools, these were chosen by the parents. Although this decreases the internal validity of the studies, it increases their external validity significantly. As noted in Section 7.4.2 above there has been much criticism in the literature of low external validity (see Connor, 1998) since studies on teaching interventions do not reflect the reality that children in LEA provisions across the country are not being randomly allocated to them

(actually limiting the generality of randomised studies). External validity of the current thesis could also be taken to be good, as Chapters 4, 5 and 6, had schools from three different countries. This could lead to the results being generalized to more countries. However, this in turn will decrease the internal validity of the study further as there are more variables which may be having an impact on the outcomes.

A further limitation to Chapters 4, 5 and 6, was the reliance on assessment data from parents and teachers, and the lack of unbiased pre-post outcome data. Taylor and Carr (1992) found that parents and teachers may actually change their behaviour (e.g., decrease the task demands), in order to prevent the difficult behaviours from occurring. Hence, by using parents and teachers as ratters, it may be that they have become more accustomed to the behaviours, and are, therefore, rating them as better. However, as discussed previously, all interactions will lead to modifications and adaptations of behaviour. Therefore it is unfair to suggest that this would be any different to most interactions. Taylor and Carr also argue that parents and professionals may lower their expectations of behaviour and future research would need to identify whether changes in the children's behaviour is as a result of this. Yet, given that parents and teachers completed the questionnaires in all groups, the effect of the rater would be the same for all groups. Moreover, as previously discussed (see Section 1.5.4) the views of parents and professionals are critical to the inclusion efforts, and will help obtain a broader and more general picture of school effectiveness. Hence, although biased, the opinions of parents and professionals are important when investigating school placements.

Finally, a criticism that has also been directed at previous research into inclusion is the use of the term to mean different levels of inclusion (see Gottlieb,

Rose & Lessen, 1983). In the current studies there were no measures of levels of inclusion, other than the identification of mainstream as the main provision (as in the case of those children in mainstream). The type of provision given to each child, and the level of inclusion, may have been different. Inclusion can have many levels, ranging from inclusion only for play times, to having access to the entire curriculum. Baker and Zigmond (1995) found that the term 'inclusion' had a variety of meanings for different people. This reflects a lack of a general approach to inclusion by LEAs, and the government, and makes the study of effectiveness of practice difficult. Hence, the current study can only assess the impact of what is currently being offered under the umbrella term of 'inclusion' in schools, and future research will need to focus on identifying what practices are involved in mainstream schools and what the impact of different levels of inclusion has on outcomes.

## **7.6 Recommendations for Future Research**

The present research identified that inclusion per se did not lead to the outcomes advocated by its proponents (Chapter 4). However, it was unclear what each school meant by inclusion (see above Section 7.5). Previous research has identified that there are many definitions to inclusion used in schools (e.g., Baker & Zigmond, 1995). Therefore, identifying the impact of differing levels of inclusion on outcomes would help shape current educational provision.

In the current research, different provisions lead to diverse improvements in children (see Chapters 4, 5 and 6), and identified the impact of child factors on outcomes (Chapters 5 and 6). Therefore, it would follow that certain practice will lead to improvements in some children, and not in others. In Chapter 4, those of

higher functioning made greater improvements in special schools, than those of lower functioning. The results suggest that severity may moderate the impact of practice and provisions. Hence, future research should identify what child characteristics benefit more from which placements (Zigmond, 2003).

The current research identified that it is practice which is having the greatest impact on outcomes (Chapter 4). Previous research (e.g. Carr & Darcy, 1990; Harrower & Dunlap, 2001; Stahmer & Schreibman, 1992) has identified a number of specialist techniques that are effective in teaching children with ASC certain critical skills, such as, social skills, and communication (for a description of techniques see Section 7.3.2 above). However, future research would need to identify how to implement these techniques in mainstream schools, and investigate whether they do support the acquisition of skills in the context of mainstream schools. This, in turn, would help identify which practices are indeed more effective in supporting improved outcomes.

There was also evidence that the use of the PIRK curriculum, in both special and mainstream schools, lead to improvements in behavioural areas (Chapter 5 and 6). However, the children attending the special schools which were not employing the PIRK curriculum also made improvements in areas of socialisation and communication. In contrast to the CABAS© schools, the LEA special schools do not endorse one model, or treatment plan. Instead, they are often characterised as “eclectic” in their approach, involving multiple therapists and models (see Howard et al. 2005). A precise description of the method adopted by special schools would be a useful step in this field. Such a step would help disentangle what is having the greatest impact on the children’s outcomes, and what needs to be improved in order to promote such outcomes. It would also enable replication of successful

interventions. In the same light, it would also be important to identify what approaches are adopted in mainstream schools, and assess which models/interventions are working.

Moreover, given that children undergoing the PIRK did not make improvements in socialisation (and this has been previously identified as key to inclusion) by identifying the method adopted in Special schools which helped develop social skills in children with ASC this could be incorporated into the PIRK, therefore improving its ability to help the successful inclusion of children with ASC.

Critical to this process of evaluation is to identify important outcome measures. The research in Chapter 3 identified that there was no difference in academic outcomes between mainstream and special school. Therefore, future research may need to focus on the improvement of outcomes that may be significant to school performance, and positive prognoses. The present research identified behaviour management, communication, and socialisation as key child factors. Future research will need to judge successful placements dependent on improvements in these areas. In particular, outcome studies should investigate the impact of provisions on social communicative skills, as these are key skills which may have an effect on cognitive, social, and language development (Wetherby et al., 2007).

## **7.7 Summary**

ASC is a very costly disorder, both with regards to the emotional strain on parents and carers, and in terms of the financial costs to society (Jarbrinck & Knapp, 2001). Prevalence levels of the disorder are relatively high, and there are

suggestions that improving prognosis can lead to a decrease in the costs of the disorder to families and to society (Jarbrinck & Knapp, 2001). In the U.K., currently many children with ASC are being educated in mainstream school. However, there are concerns with regards to the effectiveness of inclusion in terms of outcomes. Another critical issue is how to make inclusion more effective. The current thesis sought to address these questions using both qualitative and quantitative methods.

### **7.7.1 The Effectiveness of Inclusion**

Inclusion is being advocated as the most effective way of educating children (UNESCO, 1994). It has been argued to lead to better teaching and greater acceptance of individual differences (Stainback & Stainback, 1992). However, there is a potential conflict between inclusion and entitlement to an education, and good educational outcomes coupled with improved prognosis. As it stands, the current thesis suggests that inclusive education, per se, does not lead to improvements in academic, social, and behavioural outcomes, which are argued to be important for ongoing school placement, and more positive school outcomes. Instead, when children are in special schools they made improvements in these areas. In order to achieve the aims set out for education above, when deciding where to place a child, meeting the needs of the child should be at the forefront of the decision. If an inclusive placement will lead to these needs being met, then this is the best placement. However, as they stand today, mainstream schools may not be meeting the needs of the many children with ASC.

### **7.7.2 How to Make Inclusion More Effective**

The current thesis investigated how to make inclusive practice more effective. Improving the success of a mainstream placement is a complex issue, involving school factors, such as teacher training, and commitment, extra-school factors, such as funding, and parental coping strategies, child factors, and teaching practice, such as the use of SLT, and specialist teaching methods. In particular the current thesis found that training/preparing a child for mainstream, by teaching them a set of skills using specialist teaching methods, was effective in making gains in social, behavioural, and communication measures. This was particularly the case when the child was taught within the mainstream context. This finding suggests that it is possible to make inclusive education more effective with the implementation of specialist teaching curricular and teaching strategies.

### **7.7.3 The Use of Effective Outcome Measures**

Currently, LEAs employ academic indices as their primary outcome measure, but there are numerous concerns with using academic success as a measure of outcomes for children with ASC. Firstly, most children with ASC will not reach GCSE's or other standardised exams, making academic measures irrelevant (Audit Commission, 2002). Secondly, using academic results as measures of success could serve as a disincentive for schools to include children with ASC. Finally, the evidence from the current thesis suggests that academic measures are not helpful in differentiating a successful placement from a non-successful placement. Nevertheless, LEAs need outcome measures upon which to base decisions on placement, and to make necessary changes when targets are not being met. Social, behavioural, and communication measures have been shown to be



good measures of a successful placement. LEAs could adopt these types of measures, and use them regularly to monitor provisions and practice within their authorities, ensuring better accountability and effectiveness. Ideally, the measures used should be consistent between LEAs, and schools, to allow for comparisons between schools, practices and LEAs.

#### **7.7.4 The Cost-Effectiveness of Practice**

In Chapter 2, funding was identified as one of the factors that help promote successful inclusion, and mainstream provision has been argued to be the most cost effective way of educating children (UNESCO, 1994). Therefore, any improvements in prognosis, particularly those which will have an impact on independence, and employability, will result in huge savings for society. The use of empirically validated methods which can improve the outcomes of children with ASC can lead to a significant subsequent saving, despite the initial investment. It is important that monitoring is effective and continuous so that any changes that need to be made in order to improve outcomes are made as, and when, necessary. This will also support better answerability to the financial investment.

In summary, the present research suggests that inclusion as it is currently adopted in schools in the UK may not lead to the improvements advocated. Instead, it may be the practice adopted by schools, rather than placement, which is having the greatest impact on outcomes. In particular, the nurturing of certain child factors, such as behaviour management, socialisation, and communication, may be critical for ongoing successful placements. This calls for a re-examination of

current educational practices, and the need to address the importance of preparing a child for mainstream.

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