The education of individuals with Down syndrome: A review of educational provision and outcomes in the United Kingdom

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Summary - *A report of research conducted by The Down Syndrome Educational Trust in collaboration with the University of Portsmouth over a fifteen year period. The research demonstrates significant benefits of inclusive education for children with Down syndrome and concludes that all children with Down syndrome should be educated in their neighbourhood mainstream schools. The study found no educational benefits of special school education. On all the measures the teenagers with Down syndrome educated in mainstream schools were either equal to or significantly ahead of their special school peers with Down syndrome.*

Summary

Research conducted by The Down Syndrome Educational Trust in collaboration with the University of Portsmouth over a fifteen year period, demonstrates significant benefits of inclusive education for children with Down syndrome and concludes that all children with Down syndrome should be educated in their neighbourhood mainstream schools.

The study found no educational benefits of special school education. On all the measures the teenagers with Down syndrome educated in mainstream schools were either equal to or significantly ahead of their special school peers with Down syndrome. The teenagers in mainstream schools were more than two years ahead on spoken language measures and more than three years ahead on literacy measures.

The only difference found in favour of special schools was on one measure of interpersonal friendship skills. At present, teenagers with Down syndrome in mainstream secondary schools can be socially isolated, not because the other non-disabled teenagers do not include them, but because they do not always have the opportunity to develop the special close supportive friendships based on mutual understanding, similar abilities and interests that become important during adolescence. The teenagers with Down syndrome are included because their parents and psychologists at the Trust have lobbied for them while their peer group with similar levels of learning difficulties are still in special schools. The researchers argue that the solution is to close special schools and to properly include all children with moderate to severe learning difficulties within the mainstream system.

Their advice to close special schools is supported by the fact they found almost no improvements in the educational outcomes being achieved by the special schools between 1986 and 1999.

The Down Syndrome Educational Trust does not just conduct research and advocate change without also providing all the training and information to schools which will enable them to succeed. It provides extensive regular training opportunities for teachers, maintains an extensive web-based information and advice service, provides individual consultancy and practical reports to parents and schools and is publishing comprehensive, modular information series for educational professionals next month.

Introduction

This paper presents new information on the outcomes from different educational placements (special school or mainstream school), based on research studies at the University of Portsmouth, funded by The Down Syndrome Educational Trust and conducted over the past fifteen years in Hampshire. The results of the Hampshire studies are discussed in the context of other available research. The findings should inform the development of educational provision for children with Down syndrome in all Local Education Authorities in the United Kingdom.

The Hampshire studies are the most comprehensive available to date. It has been possible to carry out the studies in Hampshire because the Local Education Authority's (Hampshire and then Portsmouth from 1997) and The Down Syndrome Educational Trust have worked together to develop inclusion for children with Down syndrome since 1988. The Trust has funded a psychologist (Gillian Bird) to directly support the inclusive school placements from the outset. The Trust has also provided training workshops and published materials for teachers to develop and evaluate practice.

In addition to education research, The Down Syndrome Educational Trust and the University of Portsmouth have worked together since 1980 on a range of research studies that have advanced understanding of the cognitive development and learning needs of children with Down syndrome (focusing on speech, language, memory, literacy and numeracy skills). These studies have informed classroom practice and enabled the children to access the curriculum in special and mainstream schools.

The Down Syndrome Educational Trust is about to publish a comprehensive modular information series to promote the successful development of inclusive practice by providing preschool, primary and secondary schools with all the information that they need from whole school planning to classroom level. The Trust is also publishing a series for special schools as a majority of junior and secondary age pupils with Down syndrome are still attending special schools.

Down syndrome

Down syndrome is the single most common cause of moderate to severe learning difficulties in children. It is a chromosome disorder (Trisomy 21) and occurs at the rate of about 1 in 900 live births and there are currently estimated to be some 30,000 individuals with Down syndrome in the United Kingdom (Steele, 1996). Screening is not reducing the population as dramatically as predicted and as health care is increasing survival rates in infancy, the population of school-aged children with Down syndrome is still

increasing in the United Kingdom, and is expected to continue to do so into the next decade (Nicholson & Alberman 1992).

The number of children with Down syndrome of school age (5 to 19 years) is estimated to be between 8000 and 9000 children (extrapolated from Steele, 1996). This is clearly a significant population of individuals and, as their life expectancy is now 45 to 55 years with some living beyond 60 years, it is important that these children benefit from educational opportunities that equip them for useful and semi-independent adult lives in the community. With appropriate education, training and support some 60-70% of adults with Down syndrome could be employed.

The development of education for children with Down syndrome In the United Kingdom, children with Down syndrome achieved the right to education in school in 1971. Before that time they were considered ineducable and either remained at home or attended Junior Training Centres run by health authorities to provide day care and relief for parents rather than education. During the 1970's and 1980's almost all children with Down syndrome were placed in special schools on the basis of their diagnosis, as they were all expected to have severe learning difficulties.

Progress towards inclusion in the United Kingdom

Since 1981, there has been a slow but steady development of inclusive education for children with Down syndrome in the United Kingdom. Legislation in 1981 enabled progressive local education authorities (Local Education Authorities) to develop inclusion fairly rapidly in the United Kingdom, but most Local Education Authorities have been slow to change and have only done so as a result of parent pressure and lobbying. A recent nationwide survey of the placement of 3,389 children with Down syndrome indicated wide variation in placement practice for children across the United Kingdom (Cuckle, 1997). In the most inclusive 25% of Local Education Authorities, 67% or more of 5-6 year olds, 58% or more of 10-11 year olds and 25% or more of 14-16 year olds were in mainstream placements. In the least inclusive 25% of Local Education Authorities the figures for inclusion were 28% or less of 5-6 year olds, 9% or less of 10-11 year olds and 0% of 14-16 year olds. Since the range of abilities of children with Down syndrome is unlikely to vary in the different Local Education Authority areas, the wide variation in the numbers included in mainstream settings reflects the attitudes of the professional staff responsible for developing inclusion rather than the abilities of the children to benefit from mainstream education.

1993: More supportive legislation

In 1993, education legislation increased support for inclusion and for resources to meet special educational needs in all schools. All schools have to have a teacher responsible for pupils with special educational needs within the school, usually called a Special Educational Needs Coordinator (SENCO) in the primary sector and a Head of Learning Support in the secondary sector. Every school also has to have a designated Governor with responsibility for special educational needs provision in the school.

The experience of those supporting inclusion suggests that the appointment of Special Educational Needs Coordinators and the priority given to training and support for special education needs by the Government and Local Education Authorities since 1993 has substantially improved provision for children with special

educational needs in mainstream schools including those with Down syndrome.

Evidence of outcomes

While there has been a steady increase in the number of children with Down syndrome being placed in inclusive placements, there has only been limited evaluation of the outcomes to date. In a recent review paper documenting the trends in inclusion and evidence of outcomes Cunningham et al (1998) identify only 3 outcome studies in the United Kingdom (Sloper et al 1990, 1994, Philps 1992).

Cunningham et al (1998) conclude from their review that the available evidence is sparse but it does indicate that academic attainments are higher for children with Down syndrome in mainstream placements and that levels of self-sufficiency are similar to those attained in special schools. In the studies that they review they point out that there is actually no evidence of benefits of education in special schools in the United Kingdom, despite specialist teachers, smaller classes and additional resources.

However, this review also points out that at that time, there was no research on the effects of school placement on self-esteem, social relationships and happiness. It is possible that life in a mainstream school could adversely effect self-esteem and that reciprocal, mutually supportive social relationships between pupils would be more difficult for the pupil with Down syndrome in a mainstream setting. There is now some evidence on these issues from the Hampshire studies which are summarised below (Laws et al. 1996; Gould 1998; Quail et al. 2000; Buckley et al. 2000).

The Hampshire studies of inclusion

In 1986 information was collected on all aspects of the development and educational progress of 90 teenagers with Down syndrome (11 to 18 year olds). At this time all the teenagers were being educated in special schools, with 95 (94%) in schools for children with severe learning difficulties (Severe Learning Difficulties) and 5 (6%) in schools for children with moderate learning difficulties (Moderate Learning Difficulties) (Buckley & Sacks, 1987). In 1999, 46 families in Hampshire with teenage children with Down syndrome (11 to 20 years) took part in a similar study. Twenty eight (61%) of the teenagers were being educated in special schools (24 in Severe Learning Difficulties and 4 in Moderate Learning Difficulties) and 18 (39%) in local mainstream secondary schools (and fully included in mainstream for all or most of their education).

The data from these two studies allows three questions to be addressed:-

1. Are teenagers in special schools progressing faster in 1999 than in 1986, given the availability of more knowledge of the children's specific special educational needs and positive changes in social attitudes to disability in that time?
2. Are teenagers in mainstream schools in 1999 progressing faster than the teenagers in 1986?
3. Are the teenagers included in mainstream schools in 1999 showing any benefits or disadvantages of inclusion when compared to their peers in special schools in 1999?

In this paper it is only appropriate to provide a summary of the main findings of this research. The reader wishing to have more

detailed information is referred to one of two more detailed articles. The full research paper, with details of statistical analyses, is to be published in *Down Syndrome Research and Practice* 7 (1). An article on the findings, with practical details and their implications for educators to be is published in *Down Syndrome News and Update* 2 (1).

The studies in 1986 and 1999 measured developmental progress relevant to education under several headings: Daily Living Skills, Communication Skills, Academic Skills, Social Skills and Behaviour. Daily Living Skills covers personal care skills such as independence in dressing, bathing, toileting and at mealtimes. Communication Skills covers understanding and using spoken and/or signed language. Academic Skills covers reading, writing, arithmetic, money and general knowledge. Social Skills covers social independence outside the home (crossing roads, using buses etc), social contacts (social activities outside school time) and leisure interests. Behaviour covers difficult or unusual behaviours.

In 1999, the same areas of development were assessed using the same measures as in 1986, but in addition two other standardised measures of development and behaviour in all these areas were included to allow comparison with studies elsewhere in the world (The Vineland Scale of Adaptive Behaviour and The Connors Parent Rating Scales). The main findings will be discussed in relation to each area of development.

In the main, the comparison groups (1986S - special, 1999M - mainstream, 1999S - special) do not differ significantly from one another on any of the variables that are known to influence children's developmental progress. The age distributions, the comparative numbers of boys and girls, the position of the children in their families (i.e. only, first, middle, eldest) and the social class distribution of the comparison groups are all the same, except for one feature of the 1999M teenagers. The mainstreamed group are significantly younger as a group (mean age 14 years 8 months) than the special school comparison group (mean age 16 years 4 months). This means that the study is less likely to find mainstream advantages as all the skills being measured improve with age according to the 1986 results.

An important question which needs addressing is how can the researchers be sure that the children placed in mainstream were not more able at the start of their school careers? Since measures of all the children's development at that point are not available, the researchers cannot be absolutely certain. However, educational placement policy varied in Hampshire at the time these children started school. The Local Education Authority worked in four divisions each covering a geographical area of the county. In the South East Division inclusion began in earnest in 1988, due to parent lobbying and support for the schools from the specialist psychologist funded by the Trust. All children with Down syndrome were placed in their local mainstream school at 5 years purely on the basis of their parent's preference for a mainstream placement and not on the basis of ability.

In the other three divisions, inclusion was started much later to and still remains more limited. These policy and practice differences mean that equally able children with Down syndrome in most of the county were being placed in special schools while in the South East Division they were being placed in their local mainstream school with the support of a full time Learning Support Assistant (Learning Support Assistant). The research team do have information on the children starting in mainstream schools at five years that indicates that they covered the range of ability that is representative of the majority of children with Down syndrome.

The findings discussed below tend to support the researcher's assumptions that the two groups of teenagers did not vary in potential ability at the start of their school career as, on all the measures that are less likely to be influenced by school experience, there are no differences in the range of achievements of the two groups as teenagers. However, to be as careful as possible to establish fair comparison groups, when comparing mainstream and special school effects for the 1999 group, the 5 least able teenagers (18%) have been removed from the special school group. This is based on the assumption that the least able children were not being placed in mainstream ten to twelve years ago in any part of the county.

In summary, before considering the findings, there are no differences between the 1986 and 1999 groups that may effect the conclusions other than time of birth and school experience. There is one difference between the 1999 mainstream and special school groups that is significant. The mainstream teenagers are younger (more being under 15 years of age) but this would have the effect of making mainstream advantages less likely in the findings.

The data from the 1999 questionnaires was coded blind i.e. the researchers did not know which school group the child was in when coding the results.

The findings

Daily living skills

In this area of development most of the teenagers in 1986 were well on their way to complete independence as they progressed through their teenage years. The studies found no significant differences between the skills of the groups in daily living skills in 1986 or 1999. In all groups, special and mainstream, daily living skills were improving with age. These areas of development are largely learned at home influenced by families, though special schools, especially Severe Learning Difficulties schools would have these areas of development on their curriculum.

Communication skills

The communication skills of the teenagers have improved significantly in 1999 when compared to the communication skills of the teenagers in 1986, but only for those 1999 teenagers who have been in mainstream education. On the Vineland communication measures this difference between teenagers in mainstream or special education can be clearly seen. Significantly, there is no difference in the understanding of spoken language between the two groups, but there is a considerable difference in expressive language skills. The teenagers in mainstream are on average 2 years and 6 months ahead of their peers in special education in 1999. (Mean scores being 5 years 9 months compared to 3 years 3 months). This gain, based on norms for non-disabled children, is dramatic as past studies have shown progress on language measures to be about 5 months per year for teenagers with Down syndrome (Buckley, 1993, 1995).

Academic progress

The academic skills of the 1999 teenagers, in reading, writing and arithmetic, have improved significantly compared to the achievements of the teenagers in 1986. However, again the mainstreamed teenagers are way ahead. The 1999 special school teenagers are significantly ahead of the 1986 teenagers on writing and arithmetic measures only. The 1999 mainstreamed teenagers

are significantly ahead of the 1999 (and 1986) special school teenagers on reading, writing, arithmetic, and general knowledge but not on money skills. On the Vineland reading and writing measure, the 1999 mainstreamed teenagers are 3 years and 4 months ahead of the 1999 special school teenagers (mean scores being 9 years 1 month compared to 5 years 9 months).

Social skills and leisure activities

All the 1999 teenagers have higher scores on social independence and social contacts, when compared with the achievements of the 1986 group. There are no overall school placement effects on social development for the 1999 groups except on one Vineland scale which indicates a possible benefit of being in special school. On the Interpersonal Relationships scale, which assesses personal interactive and friendship skills, the 1999 special school teenagers score significantly higher. One interpretation of this might be that the teenagers with Down syndrome in special schools have a peer group in school that allows real reciprocal, mutually supportive relationships to flourish with peers of similar interests and abilities, but those in mainstream schools do not.

Most of the teenagers with Down syndrome are included on an individual basis in their local school but their peers with similar levels of intellectual or learning disability are still in special schools at the present time. While the mainstreamed teenagers with Down syndrome may have a range of friendships with their non-disabled peers, these may be different in nature.

However, this finding needs to be interpreted with caution as the younger group of mainstreamed teenagers (those under 15 years) score higher on this scale than their special school peers. This group may be benefiting from more experience in inclusion in the schools, as they progress through school. Since all the other areas of the teenagers' development are either the same or significantly improved by being in mainstream school, the implication of this finding, if it holds as the younger group move through school, is that all teenagers with learning disabilities should be included in mainstream education to ensure optimum educational environments for both academic and social development.

Behaviour

Overall, there is little evidence of any differences in behaviour between the comparison groups. Scores tend to be lower (less difficult behaviours) for the 1999 mainstreamed teenagers but the difference only reaches significance on the Vineland behaviour measure.

Age effects

For the 1999 teenagers, their achievements on the daily living, behaviour and social measures are improving with age as they did in the 1986 study. For the 1999 mainstreamed teenagers, their communication and academic skills are improving significantly with age but there is no significant age improvement for the 1999 teenagers in special schools in these areas.

Gender differences

The only areas in which there are any differences between boys and girls in the 1999 groups are on the Vineland measures of communication, reading and writing skills. As a group the mainstreamed boys are significantly more delayed than the girls in developing expressive language and in reading progress. This may

be due to a tendency for boys with Down syndrome to have greater speech-motor difficulties.

In summary

If we return to the questions which this study set out to answer:

1. **Are teenagers in special schools progressing faster in 1999 than in 1986, given the availability of more knowledge on the children's specific special educational needs and positive changes in social attitudes to disability in that time?**
   The teenagers in special schools are only showing significant gains in some academic skills (writing and arithmetic). Both groups of 1999 teenagers have gained a small amount in social independence and social contacts in the community.
2. **Are teenagers in mainstream schools in 1999 progressing faster than the teenagers in 1986?**
   The teenagers in mainstream schools in 1999 are significantly ahead of the teenagers in 1986 on spoken language, reading, writing, arithmetic, one measure of behaviour, social contacts out of school and social independence.
3. **Are the teenagers included in mainstream schools in 1999 showing any benefits or disadvantages of inclusion when compared to their peers in special schools in 1999?**
   The teenagers in mainstream schools have much better spoken language development (2 years 6 months ahead on average) than their peers in special schools and they have much better reading and writing skills (3 years 4 months ahead on average). They are also ahead on arithmetic and general knowledge and tend to show fewer behaviour difficulties. The only possible disadvantage may be the lack of opportunity to develop close and special, reciprocal friendships which are based on mutual understanding and support, because at present the teenagers with Down syndrome are being included ahead of others with equal levels of language and learning difficulties. These other teenagers are still in the segregated special schools.

Why no advantages in special education?

Maybe the most important finding to explain is the lack of any educational advantage for those in special schools despite smaller classes and specialist teachers. The teenagers in the special schools might be expected to be ahead on daily living skills and practical independence, especially as special schools tend to focus the curriculum in these areas and the special school teenagers in the study are significantly older.

The researchers were also surprised to find that the special schools were not achieving better outcomes than in 1986, except in writing and arithmetic. These gains suggest that a more academic curriculum is now in place. However, the special schoolteacher is trying to teach reading and number to 8 or 10 children of very varying ability levels, especially in an Severe Learning Difficulties school. It would be very difficult for the child with Down syndrome to receive the same quality or quantity of instruction in this setting, however dedicated the teacher. In the mainstream classroom, the child with Down syndrome is learning to read or count in an age appropriate peer group and is therefore surrounded by competent role models.

Most children can progress at a typical pace in the classroom and be taught successfully as a group and the child with Down syndrome has an individually tailored curriculum to work on at the same time, with the help of a Learning Support Assistant.

The spoken language gains shown by the mainstreamed teenagers are probably due to two factors, the first, being in a normal language environment where all their peers talk normally, exposing them to normal language models all the time and including them in conversations and the second, being taking part in reading and writing activities on every school day. Children with Down syndrome in mainstream classrooms will be recording their work, even if they are not yet independent writers, as they have a Learning Support Assistant to help them. This enables them to practise grammatically correct sentences, even though they may not yet be producing such sentences independently in their daily conversations. Reading, writing and spelling activities will teach new vocabulary and new grammar and will improve the sound production skills needed for clear speech. All these are areas of significant difficulty for most children with Down syndrome.

It is unlikely that any special school environment can provide such an effective learning environment for developing speech, language, literacy and numeracy skills as the mainstream school classroom, for the reasons described. Since there are no disadvantages for the development of daily living skills, social independence and appropriate behaviour and only one possible disadvantage – the availability of special friends – the implications of these data are that all children with Down syndrome and those with special educational needs similar to those with Down syndrome, should be fully included in mainstream schools.

Two other recent United Kingdom studies (Beadman 1997, Dew-Hughes 1999) evaluate aspects of inclusion in comparison with special school and their findings may explain the lack of benefits found for special education.

In the first study, Beadman (1997) reports on the outcomes for 24 children with Down syndrome in primary education in the South Devon, an area of a county in the United Kingdom. Thirteen of the children are in mainstream schools and 11 are in special schools. The children in the mainstream schools are supported by a Learning Support Assistant, usually full-time at the start of their school career.

Beadman reports that in special schools 'there was less emphasis on teaching reading than in mainstream schools and less material available for the teaching of reading. Staff were resistant to new ideas generated by research and had closed minds, feeling that the general approach of the special school fulfilled the learning needs of all pupils attending. Many expressed the view that labelling or diagnosing a child was inappropriate. Classrooms were generally poorly equipped with reading materials and schemes, and all children offered a very limited choice of reading scheme – usually the Oxford Reading tree. One school was introducing paired reading for staff and parents to use with the children, and although books were being changed regularly, most of the children were unable to access the print successfully, instead sitting passively whilst the book was read to them by an adult. Some teachers did not have access to, or knowledge of, the first 100 or 200 key words for reading and spelling. There was little evidence of any structured systematic phonics teaching beyond the initial sounds of Letterland. For many of the children this level of reading achievement would, perhaps, be unrealistic. On the other hand, other students, including the children with down syndrome were being denied the opportunity to develop these important reading

skills. There was little evidence of individual books being made for the children, or accessing language through print' (Beadman, 1997 pp 20-21).

The report also states that 'Teaching staff (in special schools) interviewed in the study expressed strong views that children with Down's syndrome were part of the special school population, and differentiation occurred in the same way for all children. There was no evidence of the children with Down's syndrome having their education plans differentiated, taking into account the learning styles advocated by recent research. Indeed, there was quite strong resistance voiced by staff to these research findings.'

Beadman's findings confirm the experience of the Portsmouth research team. It has been very difficult to persuade special school staff to come to training days on cognitive development, speech and language, or literacy teaching for children with Down syndrome, yet teachers from mainstream schools are eager to attend and to plan to meet the children's special learning needs effectively in the mainstream classroom.

In the second study, Dew-Hughes (1999) compared the social development of children with severe learning difficulties being educated in a mainstream or a severe learning difficulty school.

She reports that on the mainstream site the children with severe learning difficulties were able to:- 1) work co-operatively and autonomously for up to 300% longer than their peers in special school, 2) form groups and pairs spontaneously, distinguishing appropriately between companions for work and recreation, 3) change to a self-determined activity within an agreed academic range after completing a given task. They had a classroom day over two hours longer than their peers in special schools, whose timetables were constrained by difficulties of movement and physical care

A comparable group in special school were:- 1) seen as being less mature than their peers and more dependant on adult help 2) given little responsibility for their own belongings and equipment, or opportunities to make choices, take risks or determine activities. They had a complex, individualised curriculum with frequent changes of activity and groups often determined by the least able in the class. (Dew-Hughes, 1999 pp 16).

Other Hampshire studies on social inclusion Some other small-scale studies have been conducted in Hampshire schools, looking at aspects of social acceptance and social interactions within the inclusive school settings. These studies do not provide comparative information on special schools but they do compare the children with Down syndrome with typically developing peers in the same schools.

Laws et al (1996) investigated the popularity of 8 to 11 year olds with Down syndrome in mainstream settings. Sixteen children with Down syndrome, all in different schools, were compared with 122 peers in the same classes. They report that the majority of children with Down syndrome were averagely popular and chosen as friends as often as other children in school. However, they were less likely to be nominated as a 'best friend' or as someone to invite home. These findings may be highlighting the early indications of the need for 'reciprocal' friendship opportunities suggested in the teenage findings already discussed. Interestingly, the behaviour of the children with Down syndrome did not affect their popularity but it did for their typically developing peers. Non-disabled peers who behaved badly were less likely to be popular, suggesting that the children are making special allowances for the behaviour of children with Down syndrome. (While this may seem

a positive outcome, it could be argued that this peer acceptance does not encourage children with Down syndrome to improve their behaviour). The popularity of the children with Down syndrome was not influenced by either their expressive or receptive language skills, again illustrating the acceptance of the other children. Quail (2000) carried out a small observational study of the social interactions of 7 teenagers with Down syndrome in mainstream secondary schools in comparison with peers in the same classes. She reported that there were no differences in overall time spent in interacting with others nor the average length of an interaction. However, when considering the interactions of the teenagers with Down syndrome, more were initiated by the other person than was the case for the typically developing peers and more interactions were with adults rather than peers. Topics of conversation were more likely to be work related than socially related for the teenagers with Down syndrome. These teenagers are being supported in fully inclusive classes by an Learning Support Assistant, which explains the amount of adult initiated and work related interactions. The positive findings are that the pupils with Down syndrome are in conversations as often and for as long as their peers. The negative findings are that too many of these conversations are with an adult and initiated by the other partner. The value of this type of study is that the findings can be discussed in school and efforts made to be sensitive to these issues. For example, maybe seating arrangements would influence adult versus peer conversations, as often the Learning Support Assistant is seated beside the student with Down syndrome to support their learning in lessons, reducing the casual interactions with peers. If students with Down syndrome are less confident in initiating conversations, then this might be addressed directly with the pupil by providing some support and practice for conversations and by alerting the other pupils to the need to support the pupil.

Self-esteem

It has been suggested that the self-esteem and happiness of students with Down syndrome might be adversely affected by being in mainstream education, where they may be surrounded by 'more able' children all the time. The only study available on this issue at present is one by Gould (1998).

Gould investigated the self-concept of 24 teenagers aged 12 to 18 years, 11 in mainstream education and 13 in special education. She found no difference in their levels of self-concept and concludes 'that the crucial factor is that individuals feel happy and secure in their school placement, and receive positive attitudes towards their efforts and abilities in school'. She also found no relationship between ability measures and levels of self-concept among these teenagers.

Conclusions: inclusion versus special schools

In all the studies reviewed there is no evidence of any academic, practical, personal or social benefit of being educated in a special school, either an Severe Learning Difficulties or an Moderate Learning Difficulties school except on one measure of friendship skills. The majority of teenagers being included in mainstream schools in the United Kingdom at the present time, like those in the Hampshire study, do not have within the school peer group, students with a similar level of ability and skills to enable close, mutually supportive or special friendships to develop. Since, in every other way, inclusion is beneficial, the implication of this

finding is that the peer group with learning difficulties should be in mainstream and segregated special schools should close.

The ideal model of inclusion

If all children with severe and moderate learning difficulties were included in their neighbourhood mainstream schools, and the resources moved with them to maintain a ratio of one special teacher to 8-10 children, then each school could have at least one extra specially trained teacher, up to 8 Learning Support Assistant's, depending on the needs of the included children, and a resource area with space for small group work and appropriate educational materials.

The children with special needs should be full members of age appropriate mainstream classes (not in special classes or units). The specialist teacher can support the individual work programmes for the children as they learn in their mainstream classes and she or he can take small groups in the resource area as appropriate. This model provides an increase in expertise in special needs in schools, support for the mainstream teachers and Learning Support Assistants, and the opportunity to ensure that each child with special needs is working on an appropriate educational curriculum for his or her needs throughout the day and being taught with appropriate methods. This is the model that can already be observed working well in some United Kingdom secondary schools. It is also a model that can be observed in the USA, for example in Madison, Wisconsin, where the last segregated special school closed in 1976.

If this model is developed, therapy services will change for the better also. In Madison for example, speech and language therapists are employed by schools so all children access their services in school and no one has to go to the clinic – or to wait for treatment. Speech, language and communication needs can be addressed through all aspects of the curriculum and throughout the day with therapists able to train and support all staff.

For inclusion to be effective, it has to be embraced by the whole education system. Inclusion will only be effective in both social and educational terms if the education system really is comprehensive and includes everyone. This means commitment to training and to resourcing inclusion appropriately at a political level and to shutting special segregated schools. It does not mean more money, it means better and more equitable use of existing budgets and resources. The evidence is that truly inclusive education improves schools for everyone. Staff skills increase, teaching methods become more flexible, more use is made of peer tutoring and small group work. Students become involved in both teaching and learning. The goal of inclusive schools is to enable everyone to achieve and to feel good about themselves. This is as good for the academic high flyers as it is for those with special educational needs.

If inclusion is to be real, in the sense of ending the discrimination and stigma which a child experiences when labelled and sent away from brothers, sisters and friends, it requires attitude changes and an acceptance that education is about sharing values and fitting people for adult life in an inclusive society. An inclusive society is a caring society and it is the kind of society most of us wish to live in. Children need to grow up in school communities that demonstrate the values that we wish to see in our adult communities.

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Bibliography

1. Beadman, J. (1997). An evaluation of educational placement for children with Down's syndrome in South Devon Education Area, *Devon Psychological Service*.
2. Buckley, S. J. & Sacks, B. I. (1987). *The adolescent with Down's syndrome - life for the teenager and for the family*. Portsmouth: Portsmouth Polytechnic. ISBN: 0-900234-19-9.
3. Buckley, S. J. (1993). Developing the speech and language skills of teenagers with Down's syndrome. *Down Syndrome Research and Practice*, 1, 63-71. ISSN: 0968-7912.
4. Buckley, S.J (1995). Increasing the conversational utterance length of teenagers with Down's syndrome. *Down's Syndrome: Research and Practice*. 3, 3, 110-116 ISSN: 0968-7912.
5. Bird, G. & Buckley, S. J. (1994). *Meeting the educational needs of children with Down's syndrome: a resource for teachers*. Portsmouth: University of Portsmouth. ISBN: 1-898-108-27-7.
6. Buckley, S.J., Bird, G, Sacks, B.I. & Archer, T. (in preparation). A comparison of mainstream and special school education for teenagers with Down syndrome: Effects on social and academic development.
7. Buckley, S. J. & Bird, G. (1998a) Including children with Down syndrome. *Down Syndrome News and Update*, 1 (1), 5-13. ISSN: 1463-6212.
8. Buckley, S. J. & Bird, G. (1998b). Including children with Down syndrome: from the community to the individual. *Down Syndrome News and Update*. 1 (2) 60 -66. . ISSN: 1463-6212
9. Buckley, S. J. (1999). Improving the speech and language of children and teenagers with Down syndrome.*Down Syndrome News and Update*. 1 (3) 111-128. . ISSN: 1463-6212
10. Bird, G & Buckley, S.J. (1999) Meeting the educational needs of pupils with Down syndrome in mainstream secondary schools. *Down Syndrome News and Update*. 1 (4) 159-174. . ISSN: 1463-6212
11. Buckley, S.J., Bird, G., Sacks, B. & Archer, T. (2000). The development of teenagers with Down syndrome in 1987 and 1999: Implications for families and schools. Down Syndrome News and Update, 2(2) . ISSN: 1463-6212 In press
12. Cunningham, C.C., Glenn, S., Lorenz, S., Cuckle, P & Shepperdson, B (1998) Trends and outcomes in educational placements for children with Down syndrome. *European Journal of Special Needs Education*. 13 (3) 225-237.

13. Buckley, S.J. & Bird, G. (Eds.) (2000) Down Syndrome: Issues and Information for Teachers - a complete guide to successfully meeting the educational needs of children with Down syndrome. In press Available August 2000
14. Buckley, S. J., Bird, G. & Byrne, A.(1996). Reading acquisition by young children with Down syndrome. (pp 268-279) In B. Stratford & P. Gunn (Eds) *New Approaches to Down Syndrome*. London: Cassell. ISBN: 304-33350-6.
15. Buckley, S.J. (1999a) Promoting the Development of Children with Down syndrome: the practical implications of recent psychological research. In J. A. Rondal, J. Perera & L. Nadel (Eds) *Down's Syndrome: A Review of Current Knowledge*. Pp 111-123. London: Whurr. ISBN:1 86156 062 1.
16. Casey, W., Jones, D. & Watkins, B (1988) Integration of Down syndrome children in the primary school: a longitudinal study of cognitive development and academic attainments. *British Journal of Educational Psychology*, 58, 279-286.
17. Cuckle, P. (1997) School placement of pupils with Down syndrome in England and Wales. *British Journal of Special Education*, 24, 175-179.
18. Dew-Hughes, D. (1999) The social development of children in special schools. *Down Syndrome News and Update*. 1 (1) 16-19. . ISSN: 1463-6212
19. Gould, S (1998) Self concept in teenagers with Down syndrome. MSc Thesis University of Portsmouth.
20. Laws, G., Taylor, M., Bennie, S. & Buckley, S.J. (1996) Classroom behaviour, language competence and acceptance of children with Down syndrome by their mainstream peers. *Down Syndrome: Research and Practice*. 4 (3) 100-109. ISSN: 0968-7912.
21. Nicholson, A and Alberman, E (1992) Prediction of the number of Down syndrome infants to be born in England and Wales up to the year 2000 and their likely survival rates. *Journal of Mental Deficiency Research*, 36, 505-517.
22. Philps, C. (1992) Comparative study of the language development of children with Down syndrome in mainstream and special schools. Unpublished M.Phil. Dissertation. University of Wolverhampton.
23. Quail, S. (2000) The social interactions of teenagers with Down syndrome and their non-disabled peers in inclusive school placements
24. Sloper, P., Cunningham, C.C., Turner, S. & Knussen, C. (1990) Factors relating to the academic attainments of children with Down syndrome. *British Journal of Educational Psychology*. 60. 284-298.
25. Sloper, P. & Turner, S. (1994) Families of teenagers with Down Syndrome: Parent, Child and Sibling Adaptation. Final report to ESRC. Manchester: The University of Manchester.
26. Steele, J. (1996) Epidemiology: incidence, prevalence and size of the Down's syndrome population. In Stratford, B. and Gunn, P. (Eds.), *New Approaches to Down Syndrome*. (pp. 45 - 72). London: Cassell.